

**SOCIO-ECOLOGICAL FACTORS
INFLUENCING FOOD CHOICES AND BEHAVIOURS OF
MALTESE PRIMARY SCHOOLCHILDREN**

by

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VOLUME 1

ABSTRACT

This aim of this study was to explore the various influences on the food choices and behaviours of Maltese primary schoolchildren. Using an ecological framework and following sociological theory of consumption it sought to uncover any group differences in food perceptions, beliefs, preferences and intake, as well as identify any culture-cuisine orientations of foods consumed in different settings.

A multi-method grounded approach was adopted, where results from each stage of the research informed the focus of subsequent stages. A culture-sensitive research tool was developed for exploring children's food consumption and preferences in ten different home-based and non-home-based settings. Data was collected via a large-scale survey with a stratified sample of 7-8-year-old children (N=1088) and their parents (N=932). Follow-up focus group interviews with children (N=16 groups) and telephone interviews with parents (N=30) were also conducted in order to obtain more detail on influences on food intake.

Analysis based on gender, household level of schooling, school type, region and access to cable TV showed that Maltese children's overall food intake was fairly similar across groups, though some specific patterns did emerge. Girls seemed to prefer and consume 'lighter' more 'feminine' foods and boys 'heavier' more 'masculine' foods. Children attending independent (fee-paying) schools tended to exhibit more 'modern' food practices based on novel and processed foods. They also tended to eat weekday supper with their family less frequently than other groups. Children attending state schools tended to consume more meat-based meals, milk and traditional Maltese foods. Children from the rural island of Gozo seemed to place greater value on balance, quality and freshness of food and ate their weekday supper with their family more frequently. A pronounced Westernisation of Maltese children's diet was evident. Traditional Maltese foods were only predominant in home-based snacks. Grandparents emerged as having an important role in exposing children to traditional cuisine. Mothers' provision of food for children was based primarily on hedonic and health motives. Strategies used to promote consumption of healthy food included controlling availability, information-giving and being prescriptive rather than restrictive. In general, both children and parents acknowledged the value of school food rules, although attitudes differed with regard to extent of imposition. Parents also felt that TV food portrayal was a strong influence on their children's food requests, as was to a lesser extent modelling of food behaviours by peers. Children's knowledge of the health value of food was good, though a few misperceptions existed and certain food associations were barriers to intake. Taste, texture, convenience and healthfulness were key attributes which attracted children to food.

Local health promotion initiatives and nutrition education interventions need to target the different influences on Maltese children's food intake functioning at the different ecological levels. These include the children's own food perceptions, beliefs and valuations, as well as the different routes of influence of the mother, grandparents, the school and television.

DEDICATION

To my husband Michael
To my parents Maria and Vince
To my aunt Carmen
And to my sister Claire

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To all of these people I say a heartfelt *Grazzi, sahha u sliem*^a

a Thank you, good health and peace!

Food, glorious food!
We're anxious to try it.
Three banquets a day
Our favourite diet!

From the musical OLIVER!
1963 Lionel Bart

TABLE OF CONTENTS

VOLUME 1	Page
CHAPTER 1 – INTRODUCTION	1
1.1. A Global Perspective On Food, Nutrition And Health	1
1.1.1. A Case For Educating Children About Healthy Eating	1
1.2. The Maltese Nation: A Geo-Historical And Demographic Background	3
1.3. The Maltese Nation: Health Status And Dietary Patterns	4
1.3.1. An Obesity Epidemic	5
1.3.2. Dietary Trends	6
1.3.2.1. The Mediterranean Diet	6
1.3.2.2. Maltese Adults' Eating Habits	7
1.3.2.3. Maltese Children's Eating Habits	10
1.3.3. Influences On Maltese Children's Eating Habits	11
1.3.4. Formal Food And Nutrition Education	11
1.4. Studying Children's Food Choices: Theoretical Aspects	13
1.4.1. Unravelling Food Choice	14
1.4.2. Influences On And Determinants Of Children's Food Preferences And Intake	14
1.5. Studying Children's Food Choices: Methodological Aspects	17
1.6. Rationale For The Research	18
1.7. The Research Goals	20
CHAPTER 2 - LITERATURE REVIEW	21
2.1. Food And Food Behaviours: Definitions And Perspectives	21
2.1.1. Symbolism In Food	22
2.2. Theories And Models Explaining Food Preferences, Choices And Behaviours	24
2.2.1. Psychological Theories And Models	25
2.2.2. Sociological Theories	27
2.2.2.1. Functionalism, Structuralism, Developmentalism	27
2.2.2.2. Consumption Theory: The Case Of Food And Eating	30
2.2.2.3. Food And Social Class Differences: Focus On Bourdieu's Theory Of Practice	33
2.2.2.4. Food Classifications And The Value Of Food	37
2.2.3. Comprehensive Models Explaining Food Preferences, Choices And Behaviours	40
2.2.3.1. Psychology-Based And Sociology-Based Models	40
2.2.3.2. Ecological Models	42
2.2.3.2.1. Bronfenbrenner's Ecological Model	43
2.2.4. Theoretical Concepts And Models Guiding The Research	45
2.3. Children's Food Preferences, Choices And Behaviours: An Ecological Perspective	46
2.3.1. Determinants And Influences: The Macrosystem	46
2.3.1.1. Globalisation	46
2.3.1.2. Culture, Cuisines And Acculturation	47
2.3.1.2.1. National Cuisines	47

	Page
2.3.1.2.2. Cultural Foodways	49
2.3.1.2.3. Food Acculturation	50
2.3.1.3. Food And Status	52
2.3.1.3.1. Status Of Different Foods	52
2.3.1.3.2. Status Of Food Consumer	52
2.3.1.4. Television, Food Advertising And Children	53
2.3.1.4.1. Content Analyses Of TV Food Advertisements And Programmes	53
2.3.1.4.2. The Effects Of Television Food Portrayal And Messages	56
2.3.2. Determinants And Influences: The Exosystem	58
2.3.3. Determinants And Influences: The Mesosystem	60
2.3.3.1. Family Lifestyle	60
2.3.3.2. Family Social Class And Food	61
2.3.3.3. Beyond SES: Parental Influence On Children's Food Preferences And Intake	66
2.3.3.4. Sibling And Peer Influence On Children's Food Preferences And Intake	67
2.3.4. Determinants And Influences: The Microsystem	68
2.3.4.1. A Children's Food Culture	68
2.3.4.2. Children's Reported Reasons For Liking / Disliking Foods:	70
2.3.4.3. Children's Beliefs And Knowledge On Food And Health	71
2.3.5. Studies Showing Multi-Level Interactions Within Children's Food Behaviours	74
2.3.6. Salient Issues Emerging From The Literature	75
2.4. Statement Of Research Questions	77

CHAPTER 3 - METHODOLOGY 79

3.1. Choosing A General Design And Methodology For The Research	79
3.1.1. Framing The Research	79
3.1.2. Methodologies, Techniques And Tools Used In Food Research With Children	80
3.1.2.1. Observations	81
3.1.2.2. One-To-One And Focus Group Interviews	81
3.1.2.3. The Draw And Write Technique	83
3.1.2.4. Food Records And Food Recalls	84
3.1.2.5. Food Frequency Questionnaires Or Diet Histories	85
3.1.2.6. Food-Rating Techniques And Instruments	87
3.2. Five Stages Of Data Collection	87
3.2.1. Stage 1: An Initial Investigation Into Possible Cultural Bias Amongst Maltese Schoolchildren's Food Preferences	89
3.2.1.1. Objectives	89
3.2.1.2. Methodology	90
3.2.1.3. Description Of Sample	90
3.2.1.4. Research Tools	91
3.2.1.5. Data Collection Procedure	92
3.2.1.6. Data Analysis	93

	Page
3.2.1.7. Results And Discussion	94
3.2.1.8. Limitations	95
3.2.2. Stage 2: Compiling A Database Of Food And Drink Items Commonly Consumed In Different Settings By Maltese 7-8-Year-Old Children	95
3.2.2.1. Objectives	95
3.2.2.2. Methodology	96
3.2.2.3. Description Of Sample	98
3.2.2.4. Research Tool	99
3.2.2.4.1. Pilot Testing	100
3.2.2.5. Focus Group Interview Guide	101
3.2.2.6. Data Collection Procedure	101
3.2.2.7. Data Analysis	102
3.2.2.8. Results And Discussion	103
3.2.2.8.1. Top Foods And Drinks Consumed In Different Settings	104
3.2.2.8.2. Top Three Favourite Foods And Drinks Consumed In Different Settings	104
3.2.2.8.3. Insights On Food And Drink Consumption From The Focus Group Interview	106
3.2.2.8.4. Less Commonly Consumed Foods And Drinks	107
3.2.2.9. Conclusions	107
3.2.2.10. Limitations	108
3.2.3. Stage 3: Large Scale Survey Of Maltese Children's Food Consumption Patterns And Food Preferences	109
3.2.3.1. Objectives	109
3.2.3.2. Methodology	109
3.2.3.3. Choice Of Sample	110
3.2.3.4. Research Tools	111
3.2.3.4.1. Format	112
3.2.3.5. Pilot Testing	113
3.2.3.6. Data Collection Procedure	114
3.2.3.7. Data Analysis	115
3.2.3.7.1. Description Of Sample	117
3.2.3.8. Limitations	120
3.2.4. Stage 4: Children's Focus Group Interviews	121
3.2.4.1. Objectives	121
3.2.4.2. Choice Of Sample	122
3.2.4.3. Setting	125
3.2.4.4. Research Tool	126
3.2.4.5. Data Collection Procedure	128
3.2.4.5.1. Duration	129
3.2.4.6. Data Recording And Analysis	129
3.2.4.7. Limitations	131
3.2.5. Stage 5: Parents' Interviews	131
3.2.5.1. Objectives	132
3.2.5.2. Choice Of Sample	132
3.2.5.3. Methodology	132
3.2.5.4. Research Tool	134
3.2.5.5. Data Collection Procedure	134
3.2.5.6. Data Recording And Analysis	135

	Page
3.2.5.7. Limitations	136
3.3. Conclusion	136
 CHAPTER 4 - RESULTS & DISCUSSION	 137
4.1. Utilising An Ecological Model As A Structural Framework For The Results	137
4.2. The Intrapersonal Level	140
4.2.1. Concepts Surrounding Health	140
4.2.1.1. Health Value Of Specific Foods	142
4.2.1.2. Beliefs Regarding The Relationship Between Health Outcomes And Specific Foods	145
4.2.1.3. Children's Knowledge Of The Nutrients And Other Substances	150
4.2.1.4. Children's Knowledge Of Food Technology	152
4.2.2. Children's Food And Beverage Preferences	154
4.2.2.1. Comparing Children's And Parents' Responses	159
4.2.3. Foods And Beverages Consumed And Preferred In Different Settings	161
4.2.3.1. Breakfast	162
4.2.3.2. School Packed Lunch	164
4.2.3.3. After-School Meal	164
4.2.3.4. Snack At Home	165
4.2.3.5. Weekday Supper	166
4.2.3.6. Sunday Lunch	167
4.2.3.7. Eating Out	168
4.2.3.8. Going Out And Stopping For A Snack	169
4.2.3.9. At The Beach	170
4.2.3.10. Drink With Meal, Snack Or When Thirsty	171
4.2.3.11. Comparison Between Children's And Parents' Responses	172
4.2.4. Group Differences In Food Consumption And Preferences In Different Settings	177
4.2.4.1. Gender Differences	178
4.2.4.2. Differences According To Highest Household Level Of Schooling	183
4.2.4.3. State Versus Church Versus Independent School Children	186
4.2.4.4. Maltese Versus Gozitan Children	194
4.2.4.5. Access Versus Non-Access To Cable TV	197
4.2.5. Profiles Of Children Exhibiting Specific Dietary Patterns	199
4.2.5.1. Children Consuming At Least Two Vegetables And A Fruit Daily	201
4.2.5.2. Children Consuming Milk And/Or Fresh Milk Products At Least Twice Daily On Weekdays	203
4.2.5.3. Children Consuming Traditional Maltese Foods At Least Twice Daily	204
4.2.5.4. Children Consuming Pizza At Least Twice Daily	205
4.2.5.5. Children Consuming Low-Nutrient, High-Fat Foods At Home And At School	205
4.2.5.6. Areas For Potential Intervention	205

	Page
4.2.6. Motivators And Barriers To Consumption Of Specific Foods	206
4.2.6.1. Vegetables And Fruits	206
4.2.6.2. Milk	210
4.2.6.3. Traditional Snack Foods	212
4.3. The Interpersonal Level	215
4.3.1. The Mother's Influence	215
4.3.1.1. The Mother's Intrapersonal Level	215
4.3.1.1.1. Food Provision Philosophy	215
4.3.1.2. The Mother's Interpersonal Level	217
4.3.1.2.1. The Hedonic Motivation: Meeting Perceived Children's Food Preferences	217
4.3.1.2.2. The Health Motivation: Reaching Health And Nutrition Goals	220
4.3.1.2.2.1. Providing Healthy Food	220
4.3.1.2.2.2. Transmitting Food/Health Messages	224
4.3.1.2.3. Permitting And Encouraging Children's Involvement In Food Preparation	225
4.3.1.2.4. Accommodating Family Food Staples And Eating Norms	226
4.3.1.2.5. The Convenience Factor	227
4.3.1.2.6. Shopping For Food	229
4.3.1.3. The Mother's Community Level	230
4.3.1.4. The Mother's Macro Level	231
4.3.1.4.1. Food Portrayal On Television	231
4.3.1.5. Discussion And Comparison With Previous Studies	233
4.3.2. Characteristics Of Children's Weekday Evening Meal	243
4.3.2.1. Discussion And Comparison With Previous Studies	246
4.3.3. The Influence Of The School: Focus On School Food Policies	248
4.3.3.1. School Food Rules	249
4.3.3.2. Providing A Healthy School Nutrition Environment	253
4.3.3.3. Parents' Perspectives On Imposition Of And Compliance With School Food Rules	257
4.3.3.4. Children's Perspective On 'School Milk'	261
4.3.3.5. Parent-Recommended School Food Policies And Rules	263
4.3.3.5.1. School Administration And Educational Activities	263
4.3.3.5.2. Food Consumption And Storage Logistics	265
4.3.3.5.3. Specific Food Rules	265
4.3.3.6. Discussion And Comparison With Previous Studies	266
4.4. Community Level Influences	275
4.4.1. Cuisine Orientations Of Consumed And Preferred Foods And Drinks	275
4.4.1.1. Home-Based Versus Non-Home-Based Meals	279
4.4.2. The Influence Of Grandparents On Consumption Of Traditional Maltese Foods	281
4.4.3. Discussion And Comparison With Previous Studies	283
4.5. Macro Level Influences	287
4.5.1. The Influence Of Television	287
4.5.1.1. Differences In Food And Drink Favourites According To Cable TV Access	287

	Page
4.5.1.2. Relationship Between Cable TV Access And Cuisine Orientation Of Food Consumed And Preferred In Different Settings	289
4.5.1.3. The Influence Of TV Food Messages And Images On Children's Knowledge And Perceptions	290
4.5.1.4. Discussion And Comparison With Previous Studies	293

VOLUME 2

CHAPTER 5 - CONCLUSIONS & RECOMMENDATIONS	297
5.1. Beyond Theories Of Class And Consumption	297
5.2. Sociological Theory And Food Consumption	297
5.2.1. Bourdieu's Theory Of Practice	297
5.2.1.1. The Habitus Of Region Of Residence	300
5.2.1.2. The Habitus Of Social Lifestyle	301
5.2.1.3. The Habitus Of Household Level Of Schooling	302
5.2.1.4. The Habitus Of School Type	303
5.2.1.5. The Habitus Of Gender	304
5.2.1.6. Cable TV Access And TV Food Portrayal And Advertising	304
5.2.1.7. The Role Of Capital	305
5.2.1.8. Scales Of Distinction	306
5.2.2. Mennell's Theory Of Diminishing Contrasts And Increasing Varieties In Food Consumption	307
5.2.3. Warde's Consumption Theory	309
5.2.4. Functionalism, Structuralism And Developmentalism	311
5.2.4.1. Delocalisation And Glocalisation	313
5.2.4.2. McDonaldization	313
5.2.4.3. Cultural Entrepreneurship	314
5.3. Ecological Theory And The Role Of The Chronosystem In Food Habits And Norms	314
5.4. Social Cognitive Theory And Modelling	315
5.5. Food Preferences And Exposure	316
5.6. Children's And Mothers' Food Perceptions	317
5.7. A Culture Of 'Children's Food'	318
5.8. Developing A Model To Explain Influences On Maltese Children's Food Intake	319
5.8.1. Explaining The 'Socio-Ecological Culture-Cuisine Food Model' Of Influences On Maltese Children's Food Intake	320
5.8.2. A Narrative Using The 'Socio-Ecological Culture-Cuisine Food Model' For Maltese Children's Food Intake	327
5.9. Implications Of The Findings For Policy, Practice And Research	330
5.9.1. Health Promotion And Nutrition Education	330
5.9.1.1. Promoting Healthy Traditional Cuisine	333
5.9.2. Children's TV Programming, Advertising Laws And Media Education	334
5.9.3. A National School Food Policy	335
5.9.3.1. The School Nutrition Environment	336
5.9.3.2. The Food And Nutrition Curriculum	337

	Page
5.9.3.3. Nutrition Education For Mothers, Grandparents And Caregivers	339
5.9.4. Critiquing The Research Process	341
5.9.4.1. Value Of Using A Grounded Approach	341
5.9.4.2. General Limitations Of The Methods And Tools	344
5.9.5. Implications And Suggestion For Further Research With Children	346
5.9.5.1. Research Methodology	346
5.9.5.2. Areas Warranting Further Research	347
5.9.6. Conclusion	347
 LIST OF REFERENCES	 350
 APPENDICES	
 APPENDIX 1	 1
1.1. Maltese National Nutrient Goals And Dietary Guidelines	2
1.2. The 'CINDI' Dietary Guide: '12 Steps To Healthy Eating – WHO 2000	4
1.3. The 'CINDI' Food Pyramid – WHO 2000	6
 APPENDIX 2	 8
2.1. Results Of Online Literature Search For Use Of Ecological Models In Food Choice Research With Children	9
2.2. Criteria For A Health Promoting School – WHO 2003	11
 APPENDIX 3	 13
3.1. Preliminary Survey - Sample Demographics	14
3.2. Preliminary Survey – Research Tools: English And Maltese Versions	16
3.3. Preliminary Survey – Report On Findings	30
3.4. Database Compilation Survey – Research Tools: English And Maltese Versions	49
3.5. Database Compilation Survey – Protocol For Data Collection In Class	60
3.6. Database Compilation Survey – Children's Focus Group Interview Guide	62
3.7. Database Compilation Survey – Report On Findings	67
3.8. Food Consumption Survey Research Tools – Children's And Parents' Questionnaires	101
3.9. Children's Focus Groups Interview Guide	108
3.10. Parents' Consent Form: English And Maltese Versions	114
3.11. Parents' Telephone Interviews – Interview Guide: English And Maltese Versions	117

	Page
APPENDIX 4	120
4.1. Information Obtained From The Different Stages Of The Research	121
4.2. Food Perceived By Children As Healthy	125
4.3. Food Perceived By Children As Not-So-Healthy	128
4.4. Foods And Beverages Consumed And Preferred In Ten Different Settings	132
4.5. Group Differences In Foods Consumed And Preferred In Ten Different Settings (Based On Those Child And Parent Cases For Which None Of The Data For The Ten Consumption Settings Was Missing)	143
4.6. Group Differences In Foods Consumed And Preferred In Ten Different Settings (Based On Those Child Cases For Which Data Was Available For The Specific Variable Being Tested)	151
4.7. Frequencies Of Specific Dietary Patterns Comparing Children By Gender, Household Level Of Schooling, School Type, Region & Cable TV Access (Comparative Chart Showing Three Calculations)	159
4.8. Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access (Based On Those Child And Parent Cases For Which None Of The Data For The Ten Consumption Settings Was Missing)	161
4.9. Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access (Based On Total Sample With Missing Values Replaced By Mode For Gender)	164
4.10. Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access (Based On Those Child Cases For Which Data Was Available For The Specific Variable Being Tested)	167
4.11. Rationale For School Rules: Children's And Parents' Perceptions	170

LIST OF FIGURES

	Page	
Figure 1	Bronfenbrenner's Contexts Of Development	44
Figure 2	A Model Of Food Selection Based On Wheeler's Concept Of A Hierarchy Of Constraints Upon Food Availability	49
Figure 3	Note Used To Facilitate Response To Part 2 Of The Children's Questionnaire	115
Figure 4	Working Model Showing Factors From Different Ecological Levels Influencing A Child's Food Intake	138
Figure 5	Ecological Model Of The Mother's Role In Children's Food Intake	216
Figure 6	Cuisine Orientation Of Home-Based And Non-Home-Based Meals	280
Figure 7	Top Five Favourite Food Groups: Comparison By Access To Cable TV	288
Figure 8	Top Five Favourite Drink Groups: Comparison By Access To Cable TV	288
Figure 9	A 'Socio-Ecological Culture-Cuisine Food Model' Of Influences On Maltese Children's Food Intake	321
Figure 10	Use Of The Model To Show Interaction Of Different Factors At The Interpersonal Level And Across Levels	323
Figure 11	Use Of The Model To Show Interaction Of Different Factors At The Community Level And Across Levels	325
Figure 12	Use Of The Model To Show Interaction Of Different Factors At The Macro Level And Across Levels	326

LIST OF TABLES

		Page
Table 1	Food Habits Of Maltese Adults	9
Table 2	Frequency Of Consumption Of Specific Foods By Maltese Adults	10
Table 3	'Wise Choices in the Field of Health': Objective 11 In The National Minimum Curriculum	13
Table 4	The Context Of Food And Food Behaviours	22
Table 5	Thematic Groups Of Shared Meanings Found In Food Advertising	29
Table 6	Contributors To Diminishing Contrasts And Increasing Varieties	30
Table 7	Values Guiding Consumption	31
Table 8	Major Concepts In Bourdieu's Theory Of Practice	34
Table 9	Bourdieu's Oppositional Conceptual Pairs Of Distinction In Taste	35
Table 10	Beardsworth And Keil's Menu Classification Scheme	38
Table 11	Children's Food Conceptions And Classifications	39
Table 12	Features Of McDonaldization In Food-Related Behaviours	47
Table 13a	Food Portrayal In TV Advertising And Programming	54
Table 13b	Food Portrayal In TV Advertising And Programming (Continued)	55
Table 14	Nutrition Education Targets For A Health Promoting School	59
Table 15	Criteria For Effective Nutrition Education	59
Table 16	Food And Nutrition Learning Outcomes For Primary School Pupils	60
Table 17	Food Behaviour Similarities And Differences According To Socio-Economic Group	62
Table 18	Differences In Children's Food Perceptions, Preferences And Intake According To Socio-Economic Group	64
Table 19	Characteristic Features Of Children's Food Following Rousseau	69
Table 20	Children's Reasons For Liking / Disliking Foods	70
Table 21	Methods Most Commonly Used In Food Research With Children	80
Table 22	Tasks And Props Used In Interviews With Children	82
Table 23	Constructing A Food Frequency Questionnaire For Use With Children	86
Table 24	Constructing A Culturally-Competent Food Frequency Questionnaire	86
Table 25	Matrix Of The Research Design Highlighting Ecological Levels Addressed	88
Table 26	Assumptions Made At Outset Of Study	89
Table 27	Coding System Used For Classification Of Data	93
Table 28	Questions And Recommendations Emerging From The Preliminary Study	95
Table 29	Database Compilation Survey Sample Demographics Separated By School Type, School Region And Gender	98
Table 30	Food And Drink Consumption Settings Investigated	99

	Page	
Table 31	Modification To The Research Tool And Protocol After Pilot-Testing	101
Table 32	Food And Drink Groups Used To Categorise The Coded Data	102
Table 33	Most Commonly Consumed Foods And Food Groups In Different Settings	105
Table 34	Limitations In The Methods And Tools Used In Stage 2 Of The Research	108
Table 35	Objectives of Children's And Parents' Surveys	109
Table 36	Sample Selection Based On Number Of Year 3 Classes Within School Types	111
Table 37	Sample Composition By School Type, Region And Gender Of School Population	111
Table 38	Domains In The Children's And Parents' Questionnaires	112
Table 39	Children's Sample: Distribution By Age, Gender, Household Level Of Schooling, School Type, Region And Access To Cable TV	118
Table 40	Level Of Education Of Adult Respondent, Partner And Household	119
Table 41	Access To Cable TV By Household Level Of Schooling, School Type And Region	119
Table 42	Main Objectives Of The Children's Focus Group Interviews	122
Table 43	Different Attributes Of The Focus Groups	123
Table 44	Main Themes And Complementary Props Used For The Children's Focus Groups	127
Table 45	Main Objectives Of The Parents' Interviews	132
Table 46	Attributes Of The Parents' Interviews	133
Table 47	Domains In The Parents' Interview Guide	135
Table 48	Concepts Surrounding Health	141
Table 49	Children's Criteria For Classifying Foods As Healthy	143
Table 50	Children's Criteria For Classifying Foods As Not-So-Healthy	143
Table 51	Children's Perceptions Of Positive Health Outcomes Of Specific Foods	146
Table 52	Children's Perceptions Of Negative Health Outcomes Of Specific Foods	147
Table 53	Correct Knowledge Of Nutrition	151
Table 54	Incorrect Knowledge Of Nutrition	151
Table 55	Favourite Food Groups Divided By Major Macro-Nutrient Content As Reported By Children And As Perceived By Parents	155
Table 56	Favourite Beverage Groups As Reported By Children And As Perceived By Parents	156
Table 57	Comparison Between Children's Preference For Vegetables, Fruit, Water And Milk And Parents' Perception Of Children's Preference	159
Table 58	Children's Responses For The Most Consumed And The Most Preferred Item In The Ten Consumption Settings	162
Table 59	Children's And Parents' Responses For The Most Consumed And The Most Preferred Item In The Ten Consumption Settings	173
Table 60	Relationship Between Children's Preference And Intake: Fruit And Water	176

	Page	
Table 61	Significant Relationships Between Foods Consumed And Preferred In Different Settings And Different Children Groups	179
Table 62a	Group Differences: Girls Versus Boys	180
Table 62b	Group Differences: Girls Versus Boys (Continued)	181
Table 63	Group Differences: Children From Households With Average Versus High Levels Of Schooling	184
Table 64a	Group Differences: State Versus Church Versus Independent School Children	187
Table 64b	Group Differences: State Versus Church Versus Independent School Children (Continued)	188
Table 65	Group Differences: Maltese Versus Gozitan Children	195
Table 66	Group Differences: Children From Families With Access Or Without Access To Cable TV	198
Table 67	Identifying Groups Of Children With Specific Dietary Practices	200
Table 68	Specific Dietary Practices By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access	202
Table 69	Features In Vegetables And Fruits Perceived By Children As Attractive	207
Table 70	Features In Vegetables And Fruits Perceived By Children As Less Attractive	208
Table 71	Manifestations Of Children's Food Preferences As Reported By Mothers	218
Table 72	Strategies Adopted By Mothers To Reach Health And Nutrition Goals: Provision Of Healthy Foods	221
Table 73	Strategies Adopted By Mothers' To Reach Health And Nutrition Goals: Transmitting Food/Health Messages	222
Table 74	Family Food Staples And Eating Norms	227
Table 75	Weekday Supper Characteristics By Gender, Household Level Of Schooling, School Type, Region And Access To Cable TV	245
Table 76	Areas Researched Concerning School Food Rules	249
Table 77	Food-Specific School Rules	250
Table 78	Children's Reactions To Current Or Potential Food Restrictions	251
Table 79	Children's Reasons For Consumption Or Non-Consumption Of Milk	261
Table 80	Food-Specific Rules Proposed By Parents	266
Table 81	Beneficial Role Of Tuck-Shops	266
Table 82	Children's Frequency And Preference Of Consumption Of Different Foods And Drinks By Cuisine Orientation In The Ten Consumption Settings	276
Table 83	Extent Of Cuisine Orientation For Frequency Of Consumption And Preference Of Foods In The Ten Consumption Settings	277
Table 84	Categorisation Of Meals As Home-Based Versus Non-Home-Based	279
Table 85	Cuisine Orientation Of Different Meals According To Location Of Consumption	282
Table 86	Statistically Significant Relationships Between Cuisine Orientations Of Foods Consumed And Preferred In Different Settings And Children's Access To Cable TV	289
Table 87	Different Habitus-Field Interactions Influencing Children's Food Intake	299

		Page
Table 88	Diminishing Contrasts And Increasing Varieties In Maltese Children's Diets - Following Mennell (1985)	308
Table 89	Saliency Of Warde's Values Which Guide Consumption For Maltese Children And Mothers	310
Table 90	Saliency Of Beardsworth And Keil's Menu Classification Scheme In Maltese Children's And Mothers' Food Choices	317
Table 91	Attributes Typical Of Children's Foods	319
Table 92	Examples Of Messages Which Need To Be Transmitted To Maltese Children	338
Table 93	Examples Of Messages Which Need To Be Promoted Among Maltese Mothers, Grandparents And Caregivers	341
Table 94a	Suggestions For Further Research	348
Table 94b	Suggestions For Further Research (Continued)	349

GLOSSARY OF TERMS

Food Item	Description
<i>Bebbux</i>	Snail-shaped pastry shells
<i>Biskuttelli</i>	Traditional Maltese crunchy biscuits, similar to biscotti
<i>Bra ; joli</i>	Traditional Maltese stuffed rolled beef in stew
<i>Breakers®</i>	Fruit drink fortified with Vitamin C
<i>Caponata</i>	Traditional Maltese warm or cold accompaniment consisting of tomatoes, green peppers, eggplant, onions, capers and olives
<i>Coolee®</i>	Fruit squash
<i>Cornetto</i>	Italian ice-cream cone with chocolate and nut topping
<i>Fingers</i>	Traditional Maltese finger-shaped sweet biscuits
<i>Ftira</i>	Traditional Maltese unleavened bread snack spread with tomatoes or tomato puree, tuna, olive oil, olives, capers and butter beans, seasoned with salt and pepper
<i>Galletti</i>	Traditional Maltese crackers
<i>: bejniet</i>	Traditional Maltese sheep or goat milk cheeselets
<i>Granita</i>	Italian fruit-flavoured ices
<i>{ ob] bi] -] ejt</i>	Traditional Maltese bread snack made up of crusty bread roll spread with tomatoes or tomato puree, tuna, olive oil, olives, capers and butter beans, seasoned with salt and pepper
<i>Kinder Brioche®</i>	Italian croissant with filling
<i>Kinder Delice®</i>	Italian chocolate covered sponge
<i>Kinder Sorpresa®</i>	Italian chocolate egg with gift inside
<i>Kinnie®</i>	Maltese/locally-produced soft-drink made from bitter oranges and aromatic herbs
<i>Lasagna</i>	Italian layered pasta dish with a minced meat and tomato and a cheese sauce
<i>Minestra</i>	Traditional Maltese vegetable soup
<i>Mqaret</i>	Traditional Maltese fried date-filled pastries
<i>Mqarrun il-forn</i>	Traditional Maltese baked macaroni
<i>Number 8s</i>	Traditional Maltese figure-8 shaped sweet biscuits
<i>Nutella®</i>	Italian chocolate-nut spread
<i>Pastizzi</i>	Traditional Maltese flaky pastry snacks filled with ricotta/peas
<i>Patata l-forn</i>	Traditional Maltese baked meat and potatoes
<i>Qag [aq</i>	Traditional Maltese sweet dough rings
<i>Ross il-forn</i>	Traditional Maltese baked rice
<i>Stuffat</i>	Traditional Maltese meat and potatoes stew
<i>Stuffat tal-fenek</i>	Traditional Maltese rabbit stew
<i>Timpana</i>	Traditional Maltese baked macaroni in a pastry case
<i>Twistees®</i>	Salty packet snacks
<i>Zalzett</i>	Traditional Maltese sausage

DEFINITION OF TERMS

<i>Food</i>	Unless otherwise specified, this will incorporate both solid food and drinks.
<i>Mediterranean diet</i>	The largely plant-based dietary pattern of societies in countries surrounding or surrounded by the Mediterranean sea: specifically, the diets in the early 1960s in Greece, southern Italy and other Mediterranean regions in which olive oil was the principal source of dietary fat (Nestle, 1995b)
<i>Maltese traditional foods/drinks</i>	Those items which would normally be found listed in Maltese recipe books or known to be a traditional local product
<i>Westernised foods/drinks</i>	Those which would be considered a legacy of the British colonisation, as well as US-originating fast foods and/or dishes. Foods mainly depicted on British, American and Australian television programmes or advertising on non-Maltese or non-Italian TV stations (e.g. Foreign stations on Cable TV).
<i>Italian foods/drinks</i>	Those which one would normally associate with Italian cuisine and/or which are frequently portrayed on the various Italian television stations received locally but which do not fall in the <i>Westernised</i> or <i>Maltese traditional</i> categories
<i>Meal</i>	A structured event and social occasion with food, governed by rules specifying time, place and series of actions (Nicod, 1974)
<i>Snack</i>	An unstructured food event: that is, one in which no rules exist in respect of what items should be served and no strict order or sequence of the consumption of particular items is indicated. It involves one or more self-contained items (Nicod, 1974)
<i>Socio-economic background or social class</i>	The elements of social structure and substance that shape the course and content of human development (Bronfenbrenner, 1986). When studying the family or children these might include occupation of the husband and wife outside the home, years of formal education in heads of households, family income and regional background of husband and wife (Hertzler, 1976b).

LIST OF ABBREVIATIONS

General	
BNF	British Nutrition Foundation
CTV	Cable Television
CVD	Cardiovascular Disease
ENHPS	European Network of Health Promoting Schools
FAO	Food and Agriculture Organisation
HLS	Household Level of Schooling
IOTF	International Obesity Task Force
NCD	Non-Communicable Disease
NMC	National Minimum Curriculum
SES	Socio-Economic Status
TASNE	Taskforce for Appropriate School Nutrition Environments
UK	United Kingdom
US	United States
USDA	US Department of Agriculture
USDHHS/CDC	US Department of Health and Human Services – Center for Disease Control & Prevention
WCRF/AICR	World Cancer Research Fund/American Institute of Cancer Research
WHO	World Health Organisation

Describing Source of Qualitative Data	
<i>Child's geographic region of residence</i>	
M	Malta
G	Gozo
<i>Child's residential region type</i>	
R	Rural
U	Urban
TI	Trans-island school catchment
<i>School type</i>	
S	State
C	Church
I	Independent
<i>Child's gender</i>	
G	Girl
B	Boy
<i>Focus group gender configuration</i>	
MG	Mixed group
GO	Girls only
BO	Boys only
<i>Other abbreviations</i>	
SP	Researcher / interviewer

INTRODUCTION

1.1 A Global Perspective On Food, Nutrition And Health

Public, media and political interest in the impact of food on health is at an all time high. This is partly due to the great advances in scientific knowledge and understanding of how dietary habits can promote good health and reduce the risk of a multitude of illnesses and disorders. In a joint consultation report, the World Health Organisation (WHO) and Food and Agriculture Organisation (FAO) specifically state:

“Nutrition is coming to the fore as a major modifiable determinant of chronic disease, with scientific evidence increasingly supporting the view that alterations in diet have strong effects, both positive and negative, on health throughout life. Most importantly, dietary adjustments may not only influence present health, but may determine whether or not an individual will develop such diseases as cancer, cardiovascular disease and diabetes much later in life.” (WHO and FAO, 2003, p.2)

In the European region, approximately one third of cardiovascular disease (CVD) is related to unbalanced nutrition, and a similar proportion of cancers could be prevented through better diet (WHO Regional Office for Europe, 2001b). At the same time, the prevalence of obesity and diabetes are also of grave concern; not only because they affect a large proportion of the regional population, but also because there are escalating trends amongst children and adolescents (WHO, 2003a).

Target 11 of the WHO European Region Health21 policy framework recommends that “By the year 2015, people across society should have adopted healthier patterns of living...in particular healthier behaviours in such fields as nutrition” (WHO, 1999, p.85). It is within this context of increased rates of diet-related health problems and the resultant impetus for improved public health promotion strategies that my study of Maltese children’s food preferences, choices and behaviours is set.

1.1.1 A Case For Educating Children About Healthy Eating

A fundamental belief amongst public health professionals is that sound nutrition is essential for good health as the child develops and progresses towards adulthood. Inadequate nutrition during childhood can have an enduring health impact and result in a long-lasting economic burden on the nation. The WHO (2003a) states that whilst we are now equipped with the knowledge on how to improve children’s health and enhance the prosperity of future

generations, there is a considerable gap between understanding what needs to be done and the ability to put it into practice.

The 'First Action Plan for Food and Nutrition Policy of the European Region' (WHO, 2001b) reaffirms that "The education sector has an important role to play in ensuring that children have the appropriate skills to promote their health through food" (p.22). Health and nutrition education targeting young children has been one of the measures taken to improve the dietary habits and nutritional status of schoolchildren in several European countries (Dixey et al., 1999). Yet its effectiveness without the relevant environmental support has recently been questioned; especially in light of the alarming rates of childhood obesity (International Obesity Task Force [IOTF], 2003). The WHO Health21 policy (WHO, 1999) explicitly states that:

"It is sometimes wrongly assumed that just by providing people with information they will automatically be able to make healthy choices. While more knowledge, information and health education is important, the evidence shows that decisions to adopt health-enhancing behaviour- for example eating healthily...are often constrained by the broader physical, social, economic and cultural environments which influence the choices that individuals, groups and local communities make." (p. 83)

Nonetheless, the WHO and FAO joint report (2003) also asserts that effective health communication has the capacity to "create awareness, improve knowledge and induce long-term changes in individual and social behaviours – in this case consumption of healthy diets" (p.137). The report goes on to explain that persuasive nutrition messages can promote healthier eating amongst children if modern media are sought, if the messages are sustained and if the environment in which such consumption can take place is provided.

The Maltese health authorities have been aware for some years of the negative status of Maltese people's health arising from less desirable eating habits, as well as the need for preventive actions starting at a young age (WHO, 1986; Bellizzi, 1992; Bellizzi, Agius Muscat & Galea, 1993). In 1992, the Ministry of Health Policy and Practice produced the national policy document 'Health Vision 2000', wherein one of the goals was that "By the year 2005 the proportion of children under 10 years who are above the 97th percentile of the WHO reference weight for height should be no more than 5%" (p. 23). This was to be partly achieved by working with the education authorities to impart dietary advice to school children - a plan of action which echoed an earlier statement from the 1988 Malta Food and Nutrition Policy document recommending that "The necessary education on nutrition in schools must

be provided to both boys and girls” (Malta Dept. of Health, 1990, p. 12). Any interventions would need to take into account the specific characteristics of Malta and its population.

1.2 The Maltese Nation: A Geo-Historical And Demographic Background

The Maltese archipelago covers an area of 316 square kilometres in the middle of the Mediterranean with the two main inhabited islands being Malta and Gozo. Through the ages, Malta has been colonised by many different nations, including the Phoenicians and Romans, the Arabs and Normans, the pan-European Order of the Knights of St John, the French and the British, gaining independence in 1964. Its location at the crossroads of mercantile sea routes made the island a staging post for trade since antiquity. A long history of greeting visitors and adapting to the demands of colonisers has made the Maltese particularly open to novelty and change. Malta’s proximity to Italy and the strong cultural and commercial ties between the two neighbouring countries has also left its mark, which is evident in the Maltese people’s affinity for Italian culture, including food. Basically, it is the influence of nearly 200 years of British domain and that of neighbouring Italy, which have moulded 20th century Maltese cuisine and eating habits, although remnants of other historical experiences remain.

About 38% of the total land area in the Maltese islands is agricultural, made up of arable land or permanent crops, though there is greater agricultural activity in Gozo (ECO Malta, [online]). About 47% of the cultivated land is used for fodder crops, 42% for vegetables and most of the remainder for vines and fruit trees. The major crops are melons, tomatoes, potatoes, pumpkins, marrow and cauliflower. Malta is self-sufficient in fresh vegetables, processed tomatoes, eggs, poultry, pork and fresh milk and fresh milk products. It produces about a fifth of its food and imports the rest (Country Profiler, 2004b [online]).

The Maltese population has recently been ranked as having a ‘very good’ quality of life based on life expectancy, educational attainment and adjusted real income (United Nations Development Program, 2003). In general, Maltese people themselves rank their quality of life as average (2.2-2.8, where 1 = very good and 5 = very bad), irrespective of region of residence, household level of schooling and labour status (Malta National Statistics Office [NSO], 2003a). Simultaneously, 76% of Maltese adults 16 years and over have rated their own quality of life from a health perspective as ‘good’ or ‘very good’ (Pace Asciak et al., 2003).

The Maltese people are a somewhat homogenous group and generally considered a 'one class society'. Approximately three quarters (77.2%) of the labour force consists of semi-skilled workers, skilled technicians or associate professional workers, where the average salaries range from LM4362.55 to LM5605.74 (Malta NSO, 2003b; Lm 1= approx. £ 1.6 UK sterling). On average, households spend 23.9% of their income on food, beverages and tobacco (Malta NSO, 2003c). Comparing lower-income households to higher-income households, annual expenditure in real terms on foods, beverage and tobacco is very similar, standing at Lm1632 and Lm1864 respectively in 2000/2001 (Malta NSO, 2003d). Eating out is enjoyed equally as a leisure activity by both employees (57.4%) and self-employed (54.7%) (Malta NSO, 2003a).

Malta is seen to have no significant ethnic minorities (WHO Regional Office for Europe, 2001a). More than 95% of the population is Maltese-born; however, the locals interact with a million plus tourists who visit the islands ever year (Country Profiler, 2004a, [online]). In fact, tourism is one of the major industries and nearly one in ten adults (8.8% males, 8.9% females) works directly in the hotels and restaurants sector (Malta NSO, 2003b).

In 2002, females made up 31.2% of the gainfully occupied labour force (Malta NSO, 2003b). Of these 80.9% worked full-time and 19.1% part-time. The greater proportion of the female labour force (77.4%) was made up of younger females, 44 years of age or less. However, the female labour force had equal proportions of single (47.8%) and married (47.0%) women.

1.3 The Maltese Nation: Health Status And Dietary Patterns

Malta has a high incidence of premature death and disability as a result of non-communicable diseases (NCD), such as CVD and cancer, with rates close to EU averages (WHO Regional Office for Europe, 2001a; Malta Ministry of Health, 2003 [online]). Malta also has the highest prevalence of diabetes in the European region - recent estimates stating a figure of approximately 8% of the national population (Maltese Diabetes Association, [online]). Diabetes is considered a major national health disorder, contributing significantly towards morbidity and mortality. Other conditions such as elevated blood pressure, elevated blood cholesterol and obesity are also highly prevalent amongst the Maltese, increasing the risks for NCDs (Bellizzi, Agius Muscat & Galea, 1993).

1.3.1 An Obesity Epidemic

At the beginning of my study, there was little published information on the weight status of Maltese adults and children. A 1991 study had indicated that approximately 12% of girls and 13% of boys at the age of 5 years were obese, and 24% of girls and 19% of boys at the age of 10 years were obese (Malta Ministry of Health, 2003, [online]). Another study showed that only a third of Maltese adults were not overweight or obese (Bellizzi, Agius Muscat & Galea, 1993).

Recent reports show that these trends have continued. Malta ranks amongst the top nations globally having overweight and obese adults and children (International Obesity Task Force [IOTF] & European Association for the Study of Obesity [EASO], 2002). The rates of overweight and obese Maltese 10-year-olds are the highest in the world for both girls and boys, being close to 40% for each (Bellizzi, 2002). Overall, 60% of Maltese adults are overweight or obese (69.4% of males; 51.2% of females), with those having only up to a primary level of schooling, or those who are employed in sales, service or trades and crafts showing the highest rates (Malta NSO, 2003a).

Obesity is widely recognised as a risk factor for a multitude of diseases, such as hypertension, CVD, type 2 diabetes, cancers, gallbladder disease and psychosocial problems (IOTF/EASO, 2002; WHO/FAO, 2003). The link between childhood excess weight and Type 2 diabetes in adolescence, as well as other health problems in adulthood has been confirmed in various studies (Must, 1996; Hill & Trowbridge, 1998; US Department of Agriculture [USDA], 1999; IOTF/EASO, 2002).

The Executive Summary of the joint WHO and FAO report asserts:

“Eating nutrient dense foods and balancing energy intake with the necessary physical activity to maintain a healthy weight is essential at all stages of life. Unbalanced consumption of foods high in energy (sugar, starch and/or fat) and low in essential nutrients contributes to energy excess, overweight and obesity.” (WHO, 2004, [online])

Yet, whilst good nutrition is crucial to lessening the risk for excess weight gain and associated health problems, various additional factors in an individual's environment have been identified as influencing weight status. The family, education and information (school lessons and media), promotion of high energy foods and sports and leisure facilities/activities have collectively been described as forming children's obesogenic

environment and having an important role in influencing potential weight gain (IOTF/EASO, 2002).

1.3.2 Dietary Trends

Dietary habits are rooted in cultural traditions and food availability. However, dietary habits have been changing rapidly within cultures and converging across cultures, as a result of globalisation in food marketing and distribution, increased mobility of people and increased purchasing power. Located in the centre of the Mediterranean one would expect Malta to exhibit strong traits of the traditional Mediterranean diet. Unfortunately, this is not the case.

1.3.2.1 The Mediterranean Diet

Historically, Mediterranean eating patterns have been linked with the natural produce of the land and the bounty of the sea (Cassar, 1997). In recent decades the traditional Mediterranean diet has come to be associated with good health and longevity, as the extensive literature around this topic attests (Ferro-Luzzi & Branca, 1995; Helsing, 1995; Keys, 1995; Kushi et al., 1995 [a]; Kushi et al., 1995 [b]; Nestle, 1995 [a]; Willett et al., 1995; Trichopoulou & Lagiou, 1997; Trichopoulou et al., 2003). Based on an abundance of plant foods and moderate amounts of fish, poultry, olive oil and dairy products, this diet has been promoted as one which reduces the risk for a number of diseases (Ryan et al., 2000; Trichopoulou et al., 2000; Kris-Etherton et al., 2001; Moreno, Sarria & Popkin, 2002; Panagiotakos et al., 2002; Fortes et al., 2003).

Whilst some traditional eating habits have been maintained in several Mediterranean countries, research has shown that dietary patterns are changing, moving towards what has been conceptualised as a Westernised diet, high in refined carbohydrates and fats (De Lorenzo et al., 2001; Guerra, Feldl & Koletzko, 2001; Rumm-Kreuter, 2001; Karamanos et al., 2002; Moreno, Sarria & Popkin, 2002; WHO, 2002a; Sanchez-Villegas et al., 2002; Sanchez-Villegas et al., 2003b). This shift has had its toll on the health status of the various populations, with increased prevalence of obesity, CVD, hypertension and diabetes (Trichopoulou & Efstathiadis, 1989; Helsing, 1995; Nestle, 1995 [b]; Kafatos et al., 1997; Serra-Majem et al., 1997; Turner et al., 1997; Greco et al., 1998; Caroli, 1999; Ferro-Luzzi, James & Kafatos, 2002).

Malta has witnessed a similar shift towards Westernised dietary patterns, with an increased consumption of meat, dairy products and alcohol and a decreased consumption of pulses

(Bellizzi, 1993). Current Maltese dietary habits cannot really be considered typical of the traditional Mediterranean diet (Helsing, 1995). According to Serra-Majem et al (1997), “Malta exhibits diet and health patterns more typical of Northern Europe than of the Mediterranean” (p. S46). They refer to a higher consumption of soybean oil and margarine than of olive oil as evidence of this trend.

Perhaps one of the strongest promoters of foreign dietary habits in Malta is television. Maltese people are exposed to a vast selection of locally-produced, Italian, British or American programming and advertising. The advent of cable TV to the islands in 1991 increased this selection. Considering that 80% of food consumed in Malta is imported (Country Profiler, 2004b, [online]) and that most major international fast food chains have establishments on the island, it is not surprising that advertising of these imported products and fast food items is high (Costa, 1998; Marmara, 2003).

The question naturally arises, “To what extent have foreign food habits been adopted by Maltese people and how much of the traditional aspects of the local or Mediterranean diet have they maintained?” A local medical historian describes the current situation as follows:

“The Maltese kitchen is a very complex entity being a mixture of the Mediterranean, Western European and African way of nutrition. From a biological aspect of the food value, it seems that the Maltese took over from their neighbours the most disadvantageous nutritional habits: pasta, pizza and sweets from Southern Italy; spices and sugar for food preparation from North Africa; and saturated fats, soft drinks and small amount of fibre rich food from the Western civilization.” (Savona-Ventura [online])

At the time I was planning my study, published research on the prevalence of the traditional Mediterranean diet in the Mediterranean region predominantly involved epidemiological studies and their implications for health. It is only recently that a few studies have attempted to explore the subject from a sociological perspective (Tessier & Gerber, 2002; Sanchez-Villegas et al., 2003a & 2003b), or with a focus on children (Kafatos et al., 2000; Moreno, Sarria & Popkin, 2002; Perez-Rodrigo et al., 2003). All of these studies were published after I had embarked on my own research, but I have referred to them in my discussion of results.

1.3.2.2 Maltese Adults’ Eating Habits

In the mid-1990s when I started to formulate the ideas for my study, information about the composition of the Maltese diet was scarce and not precise. No large-scale diet-related population surveys had been carried out. Information on dietary trends was based on food

supply data in the form of National Food Balance Sheets available from the FAO, as well as on food preference results obtained from the 1989-1990 Household Budgetary Survey carried out by the Central Office of Statistics in Malta (Bellizzi, 1993). A drawback of the Food Balance Sheets is that they are based on food import, export and production data. Despite adjustments made, one has to be very cautious when it comes to interpretation considering the proportionately large number of tourists visiting Malta (about threefold) compared to the permanent resident population.

In 1988 the 'National Nutrient Goals and Dietary Guidelines' document had suggested that Maltese consumers should be steered away from foods where the fat, sugar and salt content was high. (See Appendix 1.1). Specifically, the Maltese people were advised "to eat less meat and have fish and poultry in preference to beef; substitute high fat dairy products with low fat alternatives; and eat fewer eggs, more fresh fruit and vegetables and whole grain cereal products" (Malta Department of Health, 1990, p.9).

In the early 1990s, comparison of the current nutrient levels with the National Nutrient Goals indicated that the recommendations were still applicable (Bellizzi, 1993). Intake of meat, milk and milk products, eggs, vegetable oils and salt was high, as was the intake of sugar especially in the form of confectionery and non-alcoholic beverages. Simultaneously, intake of cereal was decreasing. On a positive note, intakes of fish, vegetables and fruit were increasing.

The above scenario was one of the motivations which spurred my research idea. Clearly preventive measures were required in order to avoid unhealthy eating habits from forming in the younger generation. Yet any nutrition education targeting children would benefit from having more specific information on the food consumed by the children themselves. Was the scenario with regard to children's eating habits any different from that of the general population?

In the final stages of writing up my research, the report on The First National Health Interview Survey (HIS) was published (Pace Asciak et al., 2003). This report provided a good insight into major dietary habits of Maltese youth and adults aged 16 years and over. It also helped to substantiate some of my own results and conclusions, keeping in mind that adults are children's key food providers and models of food behaviour. According to the HIS (see Table 1), Maltese adults use olive oil frequently on bread or in cooking, but other

TABLE 1
Food Habits Of Maltese Adults

Food Behaviour	Proportion Of Respondents %
Fat and Oils	
Vegetable oils (excluding olive) most often used fat for food preparation	52.6
Olive oil most often used fat for food preparation	38.9
Olive oil most often used fat on bread	38.7
Low fat margarine most often used fat on bread	18.8
Milk	
Fresh, regular (2.5% fat) most often used milk	46.1
Skimmed (0.5%) most often used milk	31.1
Salt	
Salt almost always added to meals during cooking	47.0
Salt never added to meals during cooking, or low salt alternative is used	34.8
Salt never added to meals at table	58.9
Salt almost always added to meals at table	23.7
Cooking Method	
Grilling occasionally used at home	45.6
Grilling often used at home	31.3
Frying occasionally used at home	52.7
Frying never used at home	35.2
Steaming/boiling often used at home	51.7
Steaming/boiling occasionally used at home	33.1
Baking/roasting often used at home	47.4
Baking/roasting occasionally used at home	46.3
Microwave is never used at home	76.6

(Adapted from Pace-Asciak et al., 2003, pp.29-31)

vegetable oils are used more. Regular milk is consumed slightly more than skimmed milk. The majority of adults add salt whilst cooking, but not at the table. A variety of low-fat cooking methods are used 'often' or 'occasionally' in home cooking and one in three adults never fry. On average, adults eat Maltese bread most, followed by other white bread and brown bread (2.2 vs. 1.2 vs. 0.5 slices daily).

Table 2 shows frequency of consumption of particular foods, based on the seven days prior to the survey interviews. The findings show some healthy and less healthy behaviours. Staple foods in the weekly menu of a majority of adults seem to be red meat, white meat and rice or pasta. Other high-protein low-fat foods, such as fish and pulses or beans seem much less popular, whilst daily vegetable consumption is also low. This contrasts with the high consumption of fruits on a daily basis. An inclination towards daily consumption of sweet/sugary foods and beverages is also evident amongst quite a high proportion of the adults. Although water is consumed daily by a majority of the adults, it is surprising to see

TABLE 2
Frequency Of Consumption Of Specific Foods By Maltese Adults

Food	Number Of Days Item Consumed In The Previous Week			
	Never %	1-2 days %	3-5 days %	6-7 days %
Cereals (cornflakes, etc.)	58.1	13.3	9.1	19.0
Eggs	30.1	54.1	12.3	3.1
Low fat cheese	39.7	31.4	15.3	12.3
Cheese	35.4	32.7	16.9	13.7
Rice/pasta	4.6	65.2	26.7	3.0
Chicken/rabbit	12.2	71.8	13.9	1.6
Fish	41.6	51.8	5.2	0.9
Meat	14.2	62.0	21.1	2.1
Meat products	27.3	33.8	22.5	14.9
Fried potatoes (chips)	48.5	40.5	8.4	1.7
Other potatoes	11.2	55.5	28.3	4.2
Beans/pulses	39.9	45.7	11.0	2.7
Vegetables	6.7	27.6	36.5	28.8
Fresh fruit	8.4	12.2	15.1	63.1
Dried/canned fruit	79.8	11.9	2.7	3.3
Sweet pastries (includes biscuits, cakes, fancy cakes, gateaux, etc.)	31.2	33.4	16.0	18.3
Sweets	38.0	26.2	14.4	20.2
Sugar free soft-drinks	64.9	10.7	7.1	15.7
Soft-drinks	57.4	12.4	8.1	21.1
Water	12.2	11.9	7.7	67.8

(Adapted from Pace-Asciak et al., 2003, p.31)

that one in four rarely or never drank water. Overall, the HIS results suggest that trends in food consumption by Maltese adults were still very much in line with those of earlier reports.

1.3.2.3 Maltese Children's Eating Habits

At the beginning of my research, only three studies were recorded as having explored aspects of the eating habits of young Maltese children (Buttigieg, 1988; Muscat, 1990; Costa, 1998). These were all Bachelor of Education dissertations and focused on children's nutritional status, on school packed lunches, on parental provision of meals for children, on child and parental perceptions of influences on food intake, and on sources of nutrition information. These studies had established that Maltese children's food intake was less than desirable from a nutritional standpoint. Children were consuming a fairly high-protein, high-refined carbohydrate diet, at least for school packed lunch, which was also low in some micro-nutrients. There also seemed to be regional differences in consumption comparing Northern Malta and the rest of the island. Based on these studies, it was clear that a more

comprehensive picture was required of what children were typically eating at different meals, what were the various influences on food choices and provision, and whether there were truly any group differences.

1.3.3 Influences On Maltese Children's Eating Habits

In the pre-1999 studies focusing on Maltese schoolchildren and food, parents, peers and the mass media had been indicated as potential influences on children's eating habits (Buttigieg, 1988; Muscat, 1990; Costa, 1998). A later study looked closer at parental food provision for children and parental nutrition knowledge (Bonello, 2000). Parental lack of knowledge emerged, especially with regard to value and sources of different fats and the role and function of fibre. Parents also desired more information on how to increase the amount of vegetables in their children's meals. A pilot parent nutrition education course proved to have a positive impact on nutrition knowledge in the short-term (Bonello, 2000). However, parents also revealed that the mass media were a major source of their nutrition knowledge and this was later confirmed in the larger HIS population survey (Pace-Asciak et al., 2003).

A few studies also indicated the pervasiveness of food marketing targeting children, primarily as it worked through point-collection schemes, sponsorship of school events or school resources, distribution of free materials in schools, offering 'free' gifts with fast food meals, sponsorship of children's TV programmes and TV food advertising (Fenech, 2000; Marmara 2003). A content analysis of TV food advertising aired during children's viewing hours on 3 popular TV stations revealed that promotion of fast foods, breakfast cereals and confectionery predominated and that children often requested these advertised foods (Marmara, 2003). In discussing my results I have made reference to these more recent studies which often corroborated different aspects of my own findings.

1.3.4 Formal Food And Nutrition Education

The WHO/FAO (2003) expert report mentioned previously recommends that the scientific complexities of the diet-health link should not obscure the simple food-based messages required to guide consumers towards healthy eating patterns. The WHO *CINDI dietary guide* was developed based on this principle (WHO Regional Office for Europe, 2000). It highlights twelve key steps for achieving a healthy diet focusing on food selection, recommended daily portions, food preparation and weight control. (See Appendix 1.2). These guidelines have been adopted by the Maltese Health Promotion Department and are used in their different

health promotion literature and activities, together with the CINDI food pyramid. (See Appendix 1.3).

The three food-related studies conducted with Maltese primary schoolchildren prior to the start of my research (Buttigieg, 1988; Muscat, 1990; Costa, 1998) had all reiterated the recommendation to increase food and nutrition education starting from an early age. In two of the studies, primary school teachers had reported a lack of training and a lack of resources for food and nutrition education (Buttigieg, 1988; Muscat, 1990). Food and nutrition education was not part of the formal primary school curriculum and the only way to include it was in a cross-curricular manner. Even in later studies conducted specifically to uncover whether and how food and nutrition education was conducted in primary schools, teachers voiced their concern over lack of personal knowledge, time and teaching resources (Fenech, 2001). In the Maltese National Minimum Curriculum (NMC) (Malta Ministry of Education, 1999), one of the key objectives is to facilitate 'Making Wise Choices in the Field of Health'. This objective specifically highlights the importance of equipping students with knowledge, attitudes and skills related to healthy eating. (See Table 3). Two other objectives - 'Preparing Educated Consumers' and 'Media Education' - refer to potentially complementary knowledge and skills. Since the academic year 2000/2001 B.Ed. (Hons) students specialising in Primary Teaching have been offered an optional credit on 'Health Education for Primary Schoolchildren', about one third of which is devoted to food and nutrition education. As from 2005/2006 this credit will be compulsory for all Primary B.Ed. (Hons) students.

In recent years, several primary schools have been organising activities and initiatives to try to promote healthy eating (Attard, 2001; Fenech, 2001). This was often in collaboration with the Health Promotion Department and the School Council or Parent-Teacher Association. Sometimes it also involved the local town/village Council, or local food outlets. A few schools have also included the promotion of a healthy diet as an item in their School Development Plans. In the late 1990s the Education Division – Home Economics Seminar Centre started organising a one-day seminar 'A Healthy Breakfast For A Good Start' for Year 3 (7-8-year-olds) children and their parents. During this seminar children and parents learn about the food-health link and children also participate in consuming a healthy breakfast. The Seminar is offered to all Maltese schools and has generally received very positive feedback. During the scholastic year 2002/2003, 2934 Year 3 children and 1343 parents attended this seminar (Carmen Muscat, Home Economics Seminar Centre, personal communication, 12/2/2004).

TABLE 3
'Wise Choices in the Field of Health': Objective 11 In The National Minimum Curriculum

Domain	Content : <i>Selected excerpts related to food-health theme</i>
Knowledge/ Information	The curricular experience in this area should lead students to acquire basic knowledge/information about: <ul style="list-style-type: none"> – human anatomy and physiology; – different aspects of human development; – the nutritional value of different food; – choice, preparation and preservation of food; – the production of different food; – the personal harm caused through certain choices in the area of health; – basic principles of hygiene; – the citizens' rights and duties in the area of health; – changes in lifestyle and health services brought about by information technology; and technology in general.
Attitudes	Through the curricular experience, students develop the following attitudes: <ul style="list-style-type: none"> – respect for life and for the quality of human life; – respect for one's health and that of others; – appreciation of the importance of a healthy life.
Skills	The curricular experience should enable students to develop these skills: <ul style="list-style-type: none"> – reflect on the consequences of the range of choices in the area of health; – make informed and responsible choices and decisions about personal health.

(Adapted from Malta Ministry of Education, 1999, National Minimum Curriculum)

As I was planning my own research, no study had extensively assessed the food and nutrition knowledge of Maltese school children, or asked them about their motivations for food choice. In one study, 9-10-year-old children were asked about which food items they would choose from a selection because they felt they were healthy and then to indicate those which they felt their mother (or guardian) would select (Costa, 1998). This exercise indicated that children had good knowledge of healthy and less healthy items and also suggested that they were aware of items perceived as healthy by their mother. When children were asked to state reasons for their food preferences, attributes of the foods related to taste emerged as strong influences. Later post-1999 studies have also included components assessing children's nutrition knowledge. These studies revealed that misconceptions existed with regard to health value of certain foods, but that nutrition education could increase knowledge at least in the short-term (Callus & Mercieca, 2002; Cassar, Chircop & Falzon, 2003; Debono & Scicluna, 2003).

1.4 Studying Children's Food Choices: Theoretical Aspects

It is widely accepted that eating habits are established from a very young age (Birch, 1987a and 1987b; Olvera-Ezzell, Power & Cousins, 1990) and that children are likely to maintain their habits from childhood into adolescence (Wang et al., 2002). Consequently, childhood

food intake has both short-term and long-term influence on health status (Borra et al., 1995; McPherson, Montgomery & Michaman, 1995; US Department of Health and Human Services, Center for Disease Control & Prevention [DHHS, CDC], 1996; Blaylock, Variyam & Lin, 1999). At the same time, the role of parents, teachers and other influential adults in children's food intake is unequivocal. According to the WHO (1999), "Educational programmes to convey the knowledge and skills required for growing, purchasing, preparing and eating a healthy diet should start in family and community settings and continue through pre-school, school and adult education" (p.87).

1.4.1 Unravelling Food Choice

The term 'food choice' can take on many definitions and has many aspects. It deals primarily with motivations for food use and determinants of food use (Rozin, 1990; Birch & Sullivan, 1991; Fieldhouse, 1995). A concise explanation has been proposed by Ritson et al. (1986) using three terms common in food choice research:

"The *use* of a food refers to what and how much of it is actually consumed by a person or group. *Preference* assumes a situation of choice, and refers to which of two or more foods is chosen...*Liking*, refers to an *affective* response to foods, and is one determinant of preference."(p.86)

According to the authors, these three concepts are closely related and, all other things being equal, people eat (use) what they prefer and they prefer what they like. Similarly, Rozin (1990) has suggested that in more affluent countries, as availability and cost recede in importance, food preference is more in line with use, and as certain constraints (such as health and social factors) fall into the background, liking becomes equivalent to preferring. Of note is that research has singled out children's food preferences as major determinants or predictors of their food intake (Birch, 1979; Calfas et al., 1991; Domel et al., 1996; Harvey Berino et al., 1997, Birch, 1999).

1.4.2 Influences On And Determinants Of Children's Food Preferences And Intake

Food preferences are determined by both biological and socio-cultural factors (Rozin, 1990a and 1990b; Birch & Fisher, 1998; Birch, 1999). Firstly, children have genetically pre-programmed propensities for behaviour. Secondly, there is similar exposure to and experience with food across generations and this is generally due to culturally-determined patterns in which foods are consumed in specific combinations and in specific contexts. Fieldhouse (1995) suggests that food preferences are shaped early in life as a reflection of food norms in a specific society:

“Food habits come into being and are maintained because they are practical or symbolically meaningful behaviours in a particular culture... They are a product of ecological forces acting within the context of historical conditioning and belief systems - a melding of new ideas and imperatives with old traditions.” (p. 1)

In other words, food habits are passed on through a process of socialisation from one generation to the next and these mould children’s preferences. Preferences in turn can influence intake, either directly through children’s requests to adult food providers, or indirectly through adults’ fulfilment of what they perceive as children’s preferences.

The major role of home and family background in general, and of each parent specifically, in influencing a child’s food preferences and food intake has been explained and shown repeatedly (Hertzler & Edwin Vaughan, 1979; Pliner & Pelchat, 1986; Borah-Giddens & Falciglia, 1993; Koivisto Hursti, Fellenius & Sjoden, 1994; Strauss & Knight, 1999; Wardle, 1995; Fisher et al., 2000; Fisher et al., 2002; Hill, 2002; Thorpe, 2002; Aranceta et al., 2003). At the same time, the important role of other external influences, such as the school, peers, and food marketing and advertising has also been demonstrated in relation to children’s food perceptions, food beliefs, food requests and food behaviours (Galst & White, 1976; Thomas, 1991; Donkin, Neale & Tilston, 1993; Ray & Klesges, 1994; Crockett & Sims, 1995; Kirby et al., 1995; Oliver & Thelen, 1996; Hitchings & Moynihan, 1998; Koivisto Hursti, 1999; Norton, Falciglia & Ricketts, 2000; Weber Cullen et al., 2000; Coon et al., 2001; American Public Health Association [APHA], 2003; Hastings et al., 2003).

However, there is a tendency for the assumption in food and health-related research that somehow childhood is a homogenous entity. In reality, various studies have shown that children may also exhibit their own meaningful food perceptions, attitudes and behaviours, and these may or may not be congruent with those of peers in their age and social group (Pliner & Pelchat, 1986; Borah-Giddens & Falciglia, 1993; Johnson & Birch, 1994; Kirby et al., 1995; Baxter, Schroder & Bower, 1999; Gittelsohn et al., 2000).

Considering the multitude of potential influences on children’s food intake, an ecological approach seemed to be the logical route for a study on Maltese children’s food preferences and behaviours. Prior to commencing my research, most studies on children’s food choices and behaviours had been based on psychological theory or concepts, looking at development of food preferences and acceptance patterns, cognitive and/or sensory-affective motivations for food classifications, preferences and intake, as well as perceptions

and understanding of food messages (Birch, Zimmerman & Hind, 1980; Contento, 1981; Michela & Contento, 1984; Birch, 1990; Singleton, Achterberg & Shannon, 1992; Neale, Otte & Tilston, 1994; Murphy et al., 1995; Lytle et al., 1997; Gibson, Wardle & Watts, 1998; Neale, Otte & Tilston, 1998). Whilst these are integral aspects of any study of why children consume certain foods, they pertain to the personal domain which is only one component in a much larger context of food availability and food provision. Thus, psychological theory is a valid yet restricted theory to explain the *why* of children's food intake.

In the mid-1980s a study by Michela and Contento (1986) had investigated cognitive, motivational, social and environmental influences on children's food choices in the USA. This study took a much more holistic approach to the research problem and recommended further work along similar lines. However, it seems that only in the mid-1990s was this approach re-visited when other studies combining individual and socio-environmental influences on US children's food choice started being published (Domel et al., 1996; Contento et al., 1997; Resnicow et al., 1997; Reynolds et al., 1999; Cullen et al., 2000; Story, Neumark-Sztainer & French, 2002; Cullen et al., 2003). Most of these studies focused on influences on children's fruit and vegetable intake, probably as a result of the 5-A-Day initiatives predominant in the US during this period. In addition, most of these studies were published as I was conducting my own research so that in a number of ways they served to guide my goals and foci in the different stages.

Recent studies have reiterated the need for increased attention to ecological factors in relation to food consumption, proposing that dietary environments may be more important in determining what individuals consume than individual decision-making about food choice (Lytle & Fulkerson, 2002; WHO, 2002a; Rozin et al., 2003). Other research concluded that in order to effectively solve diet-related health problems, the goals of science-based dietary guidelines need to be achieved through food-based dietary guidance (Anderson & Zlotkin, 2000). However, studies have suggested that the food systems used for teaching are not fully comprehended by children, or are perceived irrelevant or not useful in their everyday life (Contento, 1981; Michela & Contento, 1984; Lytle et al., 1997; Turner, 1997).

1.5 Studying Children's Food Choices: Methodological Aspects

Research on children and food has used both quantitative methodologies, such as food recalls and food frequency questionnaires, as well as qualitative methodologies such as interviews, focus groups and draw-and-write techniques (Williams et al., 1989; Van Horn et

al., 1990; Baranowski & Simons-Morton, 1991; Birch & Sullivan, 1991; Contento, 1991; McKenzie et al., 1991; Randall, 1991; Simons-Morton & Baranowski, 1991; McWirther & Wesyton, 1994; Zivkovic et al., 1994; Oakley et al. 1995; Pridmore & Bendelow, 1995; Rockett, Wolf & Colditz, 1995; MacGregor & Currie, 1998; Leon et al., 1999; Porcellato et al., 1999; Gittelsohn et al., 2000; Livingstone & Robson, 2000; Loewen & Pliner, 2000; McPherson et al., 2000). The most common goals were to obtain data on food intake, preferences and perceptions, on food and nutrition knowledge, on comprehension and development of food messages, and on influences on food choices. In the case of quantitative methodologies, adult surrogates were sometimes used to ascertain accuracy in reporting, or else caregivers were simultaneously questioned in order to corroborate children's reporting. In addition, observation was occasionally used to validate responses from food records or recalls, or to validate a new food consumption measurement instrument (Torres, Cullen & Baranowski, 1999; Edmunds & Ziebland, 2002).

In general, however, qualitative methodologies have been used less frequently with young children in food-related studies. One-to-one interviews were often combined with some kind of sorting or rating task or 'game' (Jonsson, Gummesson & Svensson, 1998; Plum et al., 1998). Focus group interviews mainly targeted influences on dietary practices and development and evaluation of educational materials and activities (Webber Cullen et al., 2000; Connors, Bednar & Klammer, 2001; Goodwin et al., 2001; Borra et al., 2003; Green et al., 2003).

At the time I was planning my own study, research with Maltese children on their food choices, preferences and habits had typically involved surveys by questionnaires. These were generally conducted in class with the collaboration of the class teacher. Parental corroboration or amplification was sought only in one study, where parents were asked to express their perceptions of their children's food preferences and influences on their children's food behaviours, as well as explain their own role in controlling children's food intake (Costa, 1998). Qualitative methodology had rarely been used in the area of food research with Maltese children, perhaps because *what* rather than *why* was the orientation of the data sought. The time was ripe to explore the use of such methodology with primary school children. Focus group interviews were of particular interest. They had proven to be effective in foreign health-related research with adolescents and children (Hoppe et al., 1995; Houghton, Durkin, & Carroll, 1995; Wood Charlesworth & Rodwell, 1997). Moreover,

the use of focus groups was a novel research technique for Malta at the time and so it would be useful to also trial it with children.

I eventually decided to take a grounded approach and use triangulation in my research in order to increase validity and reliability of the findings (Morse, 1991; Steckler et al., 1992; Charmaz, 1995). Quantitative methodology would facilitate obtaining data from a large representative sample of primary school children and their parents. This would allow for generalisation to the universal population and for sub-group comparisons. Qualitative methodology would enable more in-depth enquiry with both children and parents to explain, support and build on quantitative findings. Achterberg and Clark (1992) had previously made a recommendation to this effect, urging the use of more comprehensive research design models and more research with distinct population sub-groups in explaining food behaviours. Furthermore, Plum et al (1998) had lauded “the dynamics of the open-ended approach in gleaning how children conceptualise foods and nutrition” (p.1170).

1.6 Rationale For The Research

Because it is easier to establish positive health attitudes than change negative ones, it is universally accepted that appropriate food and nutrition education needs to start at an early age (Jurs et al., 1990; Contento et al., 1995; US DHHS/CDC, 1996; Lytle et al., 1997; Dixey et al., 1999; The Food Commission [UK], 2001; WHO, 2002a; Borra et al., 2003). Yet there is still a paucity of accessible literature on formal nutrition education activities in the Mediterranean region (Turner, Zimvraiki & Athanasiou, 1997; Manios & Kafatos, 1999; Manios et al., 1999). One recent study has shown that a 6-year programme with Greek children was effective in promoting a healthier lifestyle and reducing health risk factor levels (Manios et al., 2002). No formal studies on nutrition education effectiveness have been undertaken with primary schoolchildren in Malta, except for a recent evaluation of the seminar ‘A Healthy Breakfast For A Good Start’ which revealed that the seminar had a short-term positive impact on children’s nutrition knowledge (Debono & Scicluna, 2003).

As I embarked on my study, there was still a gap in knowledge on how to effectively communicate with Maltese children about food and health *in their own terms*. Research to identify and explore Maltese primary schoolchildren’s food perceptions, preferences and intake, together with contributing factors, was necessary before local nutrition educators could promote healthier eating patterns via education which was developmentally and culturally appropriate.

Researchers have argued for a socio-cultural point of view in nutrition education research, encouraging a focus on symbols, meanings and the rules that characterise society (Hertzler, Wenkam & Standal, 1982; Contento et al., 1995). Nestle (1995b) has specifically highlighted the need for applied research in the identification of behavioural, economic, cultural and environmental determinants of dietary change in Mediterranean countries. She also urges that such research be accompanied by identification of effective methods to educate the Mediterranean public about traditional dietary practices that best promote health. Similarly, Keys (1995) has urged that action be taken promptly in Mediterranean countries to reverse detrimental trends in eating habits moving away from traditional diets: "It is important to bring the diet message to schoolchildren. In the long run, they should benefit the most from beneficial dietary changes and they can take the message home to their parents" (p. 1323S).

In summary, my study was based on five key issues:

1. The prevalence of obesity amongst Maltese children suggested they were not eating a healthy diet, yet no large-scale study had been conducted in Malta to determine children's food preferences and intake;
2. The relationship between Maltese children's dietary patterns, food choices and socio-demographic factors had not been tackled;
3. The influence of TV advertising on Maltese children's food intake and preferences had often been referred to, but necessitated further study;
4. The study of culture-cuisine orientations of children's dietary patterns was an innovative area of study in Malta and the Mediterranean, despite acknowledgement of Westernised traits in the dietary patterns of many of these countries;
5. The manner in which Maltese children perceived and valued food had implications for food and nutrition education and ultimately children's food choices and health.

1.7 The Research Goals

The aim of this research was to study the eating habits of 7-8-year-old Maltese primary schoolchildren (Year 3 level in the Maltese school system) with the applied goal of yielding information useful for nutrition educators in order to design developmentally- and culturally-appropriate curriculum materials that promote healthful food choices. This age group was selected in view of the children's level of cognitive development, which would enable valid and reliable responses to the research questions, and because at this stage children are still forming their food preferences and habits and can be influenced positively. The objective was not only to uncover whether children's food intake conformed to international and

national dietary guidelines, but also to determine whether foods consumed and preferred in different settings reflected distinct cuisine-culture orientations, or differences based on gender, social class, region or television viewing options. Children's food preferences and intake were also explored in depth, looking for links between these variables and children's food perceptions and beliefs, as well as other potential influences. Parental input was sought to corroborate children's responses and to expand on certain themes.

The research was informed by a number of theories, primarily from the sociological field, and was developed within an ecological framework. A grounded-theory approach was adopted reflecting the phenomenological quality of the study. A multi-method research design combined quantitative and qualitative techniques with the aim of obtaining method and data triangulation.

The specific research goals were:

- To provide an up-dated picture of food preference and consumption patterns amongst Maltese 7-8 year-olds, identifying any differences in sub-populations;
- To report on various factors which influenced and determined the food Maltese children consumed in different settings, or which the children and parents perceived as such;
- To identify Maltese children's perceptions and beliefs related to specific foods and the food-health link;
- To explore the validity, reliability and logistical procedures of research techniques previously unused with Maltese children;
- To explore the usefulness of an ecological approach to these goals and to contribute to wider theory on food and health education.

LITERATURE REVIEW

2.1 Food And Food Behaviours: Definitions And Perspectives

What is food? The conventional physiological definition is that food is a “material, usually of plant or animal origin, that contains or consists of essential body nutrients... and is ingested and assimilated by an organism to produce energy, stimulate growth, and maintain life” (The American Heritage Dictionary of the English Language, 2000). From a nutrition perspective, I certainly concur with this scientific definition; however, my education background and my personal appreciation of food compel me to explore definitions from different disciplines.

On the one hand, I agree with the philosophical stance that “being fed and watered” are necessary for survival, but that eating and drinking have a value which goes beyond feeding and watering (Teller, 1996). However, I tend to disagree with the idea that eating and drinking are always a form of leisure pursuit or a minor art form involving pleasure-seeking, choice and leisureliness. In reality, such characteristics are not always present in a consumption setting. Thus, Teller’s philosophy that “special food is important for significant occasions, and pleasant food is important all the time” (1996, p. 4) may hold true for some individuals but not for others.

I also agree with the psychological definition that food is any material that an individual regards as edible or potable (Booth, 1994). Here food is seen as a perceptual construct with a social aspect, since what a person perceives to be food is inextricably linked to the culture in which the person is functioning. Both the psychological and philosophical definitions allude to the importance of culture and context in trying to define food. In fact, Rozin (1996) has proposed that “most critically, the meaning of food is laid down by culture” (p. 242).

It is within the sociological definition of food that the relevance of culture to food perceptions, choices and behaviour is emphasised. Perceptions of a food may differ from one population group to another. Consequently, consumption of the food may hold different relevance or meaning for individuals in the group, or transmit different messages to other group members or other groups. In this regard, I have found the literature on symbolism in food particularly pertinent. From an educational perspective, food symbolism is especially relevant in relation to choice of strategies for promoting food behaviour change.

2.1.1 Symbolism In Food

Various manifestations of symbolism exist, whether related to the food itself or more related to the act of consuming the food. Perceptions of this symbolism will differ from individual to individual based on their life experience. I fully concur with Beardsworth and Keil (1997) who stated that:

“When we eat, we are not merely consuming nutrients...in a very real sense, we are also ‘consuming’ *meanings* and *symbols*...Thus, it is no exaggeration to say that when humans eat, they eat with the mind as much as with the mouth. Indeed, the symbolic content of food and eating is virtually limitless, and food items and food consumption events can be imbued with meanings of great significance and surpassing subtlety, according to the occasion and the context.” (p. 52)

I also agree with Hertzler, Wenkam & Standal's (1982) comprehensive description of food and food behaviour as (a) content or symbols and (b) context or meaning. The authors defined content “as the observable expressions most often identified as actual food items but also evident in preparation, serving, consumption, and post-consumption practices” (p.421). Thus, apart from food, content would include equipment, recipes and roles observable in food handling and eating. The authors also explain that all content exists in some context, where context is defined as “the intangible and hidden attitudes, beliefs, opinions, positions taken, points of view, interpretations, or meanings given to the content” (p.421). In addition, context involves both connotative and imagery perspectives. (See Table 4).

TABLE 4
The Context Of Food And Food Behaviours

Connotative Perspective	Imagery Perspective
Focus	Focus
Meanings that deal with physical and economic properties of foods	Functions of foods as indicators or communicators of socio-cultural messages
Examples	Examples
Aesthetic value (appearance, aroma, flavour, satiety)	To project images with respect to SES, age, gender and power hierarchy
Convenience and ease of storage	To define relationships (reaffirm positions and roles; reinforce common bonds, mutual dependence, loyalty)
Versatility	
Availability	

(Adapted from Hertzler et al., 1982)

Webb (1995) has also proposed an interesting framework for explaining food symbolism based on Maslow's Hierarchy of Needs. He suggested that, once security of food supply is relatively assured, the next levels of the hierarchy are reached as follows: The need for love

and belongingness becomes a motivating influence on food selection, manifested in the extensive use of food to demonstrate group membership and affection. Then comes the need for self-esteem manifested in the selection of high-cost prestige food to demonstrate one's wealth and success. And finally, there emerges the need for self-actualisation manifested in the selection of foods to demonstrate one's individuality or uniqueness and via experimentation with new foods, new recipes and non-conforming patterns of selection. Other authors have similarly described food as being instrumental to an achievement, such as expressing feelings and sustaining one's ego, or to reflect one's identity or group affiliation (US National Dairy Council, 1968; Booth, 1994).

The link between the food consumption setting and the meaning of food has been described by Finkelstein (1989) when he suggested, for instance, that 'dining out' represents a range of functions: Pleasure in the sense of occasion, an opportunity to demonstrate one's knowledge on how to behave, and participation in a form of entertainment and spectacle. Wood (1995) has also drawn attention to the fact that 'dining out' as an ancillary activity (for example, food eaten when out shopping) may have a different symbolic significance from that of 'dining out' as a leisure activity in itself.

Clearly, the symbolism of food and food consumption is open to broad interpretation. Yet one cannot help but question the applicability of the above definitions and descriptions to children and whether the various manifestations of symbolism are all salient in the food perceptions, choices and behaviours of young children. A certain life experience and maturity is surely required to formulate one's perception of a food and to appreciate the symbolic value of food or the use of food for different symbolic ends. Whilst the children's food providers will have this experience, young children are still in the process of early food socialisation and are still being weaned into the world of the meaning of food. In addition, this process will differ from child to child based on their cultural group. It will also strengthen and have more relevance as the child grows older. Fieldhouse (1995) has described this process as follows:

“A rich tapestry of social meaning is woven around every food event in complex strands; assimilation of these meanings begins in childhood and so become an implicit part of adult behaviour and routine, understood and carried out without conscious thought or effort.” (p. 79)

In a similar vein, Chiva (1997) proposes that the concept of food and what one selects from all edible items for him or herself is learnt from cultural referencing. During childhood this

apprenticeship takes place in a cultural group which has already defined its own food referencing. However, Chiva also admits that in addition to the construction of the food concept within a pre-set social frame, there is also the construction for each food itself based on its specific qualities. This involves cognitive and hedonic factors, such as internalisation of sensorial information, personal affective food experiences and what is considered as pleasant by the group.

Rozin (1990a) also proposes the “sympathetic magical law of contagion”: that is, when two objects come into contact properties are permanently exchanged. This could apply to two foodstuffs or ingredients, but it also links the human preparers or handlers of food to the eaters. Thus, according to this principle, food becomes a loaded interpersonal message and “you are what you eat” holds not only for the food eaten, but also for other human or non-human factors previously in contact with the food.

Overall, it is reasonable to conclude that children’s food experiences will determine their perceptions of the food involved. However, the actual food experiences will be determined by larger social forces. Exposure to food, interaction with food, and instruction about food will all contribute to a child’s perceptions of food, but these are mainly controlled by the child’s family, the child’s school and public policies. In the following section I will critically assess different theories and models which have been proposed and used for food, nutrition and diet-related studies and relate these to my research goals.

2.2 Theories And Models Explaining Food Preferences, Choices And Behaviours

The relationship between people and food is of interest to researchers from diverse disciplinary backgrounds, including psychology, sociology, anthropology and ecology. The purpose of this section will be to give a critical overview of selected theories and models which have been used by researchers in their quest to understand food preferences, food choice and food behaviours. Most of these theories and models are based on research with populations in Western or industrialised countries; thus their cultural origins reflect food-related issues and concerns which differ from those which would be present in developing countries.

2.2.1 Psychological Theories And Models

Much of the psychological research in the area of food focuses on the behaviour of the individual as food consumer. Psychologists are concerned with foods and those attributes of food that motivate food choice and/or affect food behaviours of an individual. Specific foods have perceived properties and functions which are often observed by individuals as they affect and/or are manipulated by other people in their environment. These are features frequently studied by psychologists, though often in laboratory settings (Frijters, 1986; Booth, 1992).

The most common psychology-related theories and theoretical models which have been applied in research dealing with school children's health, food choice and food intake, as well as food and nutrition education are the Health Belief Model (Rosenstock, 1974), the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and its extension the Theory of Planned Behaviour (Ajzen, 1991), the Theory of Subjective Culture and Interpersonal Relations (Triandis, 1977), Social Cognitive Theory (Bandura, 1986; Reynolds et al., 1999), the Consumer Information-processing Model (Bettman, 1979) and the Stages of Change Framework (Prochaska & DiClemente, 1986). Among the different variables studied one finds knowledge, beliefs, attitudes, message interpretation and use, self efficacy, locus of control, habit, behavioural intention, social influence, social acceptability, facilitating conditions and actual food behaviour.

Yet in psychological research many of the variables are often studied with little contextual grounding. Although the researchers may recognise the importance of an individual's past experiences and present context in determining the desirability of consumption of a food in a particular setting, the various reinforcing factors involved are often considered separately. Taking a more holistic perspective is generally not a major goal of psychological research, where each motivational force behind a behaviour is sought to be isolated and measured individually. This is not a true reflection of reality. In the early 1990s, Booth (1992) had proposed ecological validity in psychological research on human eating by respecting the behavioural settings of the individuals concerned. However, ecological issues are more likely to be considered by anthropologists and sociologists.

In a recent review synthesising concepts from several of the above-mentioned behavioural and communication theories it was suggested that studies have shown that only a limited number of variables need to be considered in predicting and understanding any given

behaviour: These are (a) attitudes towards performing the behaviour, (b) perceived norms governing performance or non-performance of the behaviour and (c) one's sense of personal agency or self efficacy regarding personally performing the behaviour (US National Academies of Science, 2002a [online]). The authors of this review argued that these proximal factors are the key determinants of intention and ultimately behaviour. Whilst conceding that other more distal factors, such as socio-cultural and environmental variables, have a role in the genesis of beliefs surrounding behaviours, the authors still maintained that distal factors exerted their influence over specific behaviours by affecting the more proximal determinants of these behaviours.

On the one hand, I agree with the key role of attitudes, perceived norms and self efficacy and their strong predictive value for intent or behaviour. On the other hand, I feel that most psychology-based theories tend to consider the influence of the so-called distal factors somewhat lightly. They tend to downplay the fact that socio-cultural and environmental factors may actually facilitate or impede acting on one's intentions, as well as affect eventual behaviour. According to the WHO (2002b [online]), tackling distal risks to health, such as education, can yield fundamental and sustained improvements to future health status.

None of the theories mentioned earlier would singly be able to incorporate the various aspects of my research goals, focusing on the influences on children's food preferences, choices and behaviours. Social Cognitive Theory is of some interest, however, as it has been lauded for its effectiveness in predicting and explaining eating behaviours in adults and has been reported to be well-suited to the study of children's eating behaviour (Reynolds et al., 1999). The theory has strong empirical support and provides a basis for studying how different variables interact. According to Social Cognitive Theory, the environment, an individual's behaviour and an individual's personal characteristics continuously affect one another. Here the environment refers to physical, social and institutional surroundings in which a child must regularly cope and in which behaviour takes place (Kirby et al., 1995). Yet whilst this theory is adequate to explain direct and indirect modelling of food behaviours and their role in determining children's food perceptions, choices and behaviours, it tends to ignore the much larger over-arching socio-cultural and environmental influences which act in shaping children's eating habits.

In general, most psychological theories and models are limited in their ability to direct investigations into underlying causes and rationales for food perceptions, beliefs,

preferences and behaviours. A satisfactory explanation of these processes would, I believe, necessitate a framework for understanding how issues of gender, socio-economic status (SES), regional identities, tradition, new technologies and commercialisation are influential. These factors all pertain to the sociological domain and are all directly related to the ever-changing environments in which children choose and consume food. It follows, therefore, that a deeper study of the contribution of sociological theory to understanding food choice and consumption is warranted.

2.2.2 Sociological Theories

In research on food and eating, sociologists locate the perceptions, preferences, choices and behaviours of consumers within broader structural frameworks. Sociological enquiry and explanation typically begins from an exploration of collective behaviours, trying to find evidence of group-specific practice. The central variables of analysis are usually age, gender, education, class, ethnicity and locality (Warde, 1997). Sociologists also acknowledge that context plays a strong role in food behaviours and different contexts are dominated by different people and by different social and environmental structures. Thus, exposure to particular foods or eating situations is both socially and physically determined. One approach used by sociologists to explain group differences in consumption is the analysis of food systems.

2.2.2.1 Functionalism, Structuralism, Developmentalism

Beardsworth and Keil (1997) proposed a three-category classification of approaches to the analysis of food systems. These are functionalism, structuralism and developmentalism, each of which will be discussed below.

Functionalism is based on an analogy between a society and an organic system. Just as the body is made up of different parts, each one having a unique and indispensable role in the maintenance of the living system, society is seen as made up of a set of features and institutions which make their own contribution to the cohesion and continuity of the social system. Functionalism has been used primarily by social anthropologists studying food systems in non-European or less-developed countries. Its drawback is that it offers a static view of human social organisation and fails to account for the origination of certain features in a society. In relation to my proposed research, it could still be useful in developing certain food-related questions, such as: (a) What are the social patterns of food preferences and consumption amongst Maltese children? (e.g. food provision may reinforce gender

differences); or (b) Can dysfunctional features in food systems be identified and what are their implications for Maltese children? (e.g. analysing discrepancies in food availability and their potential impact on children's health).

Structuralism goes beyond the relationship-seeking goal of functionalism, delving deeper to uncover the principles and structures behind the surface linkages. It aims to analyse the very structure of human thought processes; in the case of food, looking at the rules and conventions that govern the ways in which food items are classified, prepared and combined with each other.

A structuralist approach was taken by Douglas (1984) when she explained that food can be treated as a code and the messages that it encodes are messages about social events and about social relations (e.g. hierarchy, inclusion, exclusion, boundaries, transactions across boundaries). She employed a framework for the description of eating, with the uppermost category being the daily menu, followed by the meal, the course, the helping and finally the mouthful. She then showed how this scheme was capable of being applied to a range of meals in British society, from the most mundane to the most festive. In deconstructing the meanings embedded in meals, Douglas demonstrated that the repetition of the same (or very similar) ingredients and of the structured serving and positioning of both food and people, enabled expressing and experiencing family membership. Douglas's approach is of relevance to my research because of her argument that each component of the meal has meaning and because of her insistence that the social analysis of food behaviour must be a 'bottom-up' rather than 'top-down' exercise.

Barthes' (1979) position within structuralism comes about from his assertion that an item of food constitutes an item of information. Barthes proposes that food signifies cultural meanings to those who consume it; but not all varieties of foodstuffs are necessarily significant at a collective social level. Some are significant only at a personal level. This distinction, allowing for the accommodation of personal meanings within a system of shared meanings, permits the identification of the most important foods in a given social setting.

Barthes turns to food advertising as a means of eliciting these shared meanings, arguing that food advertising reveals three thematic groups of meanings about food. (See Table 5). He also indicates that advertising can attach mythologies to certain foods that contradict and sometimes supplant traditional scientific concepts of the value of these foods. Moreover, he

TABLE 5
Thematic Groups Of Shared Meanings Found In Food Advertising

Theme	Shared Meaning
Historical value	Food is seen as having properties that allow people to have daily involvement in their national past
Status value	Foods may have a connotation of inferiority/superiority attached to them; with 'superior foods' being aspired to and 'inferior foods' being abstained from for reasons of their status attributes.
Health value	The 'traditional' health values of certain foods are emphasised

(Adapted from Barthes, 1979)

sees such transformations as leading to a state whereby the physical form of food has become less important than what it signifies.

Barthes' theory has some limitations. Firstly, it offers mainly a classificatory scheme, not an explanatory framework. Secondly, it tends to assume that underlying the surface changes of the everyday world there are deep-seated relationships which are themselves unchanging. Thirdly, its concepts could be too complex for application with young children, particularly since the collective shared meaning of food may not be conceivable and easily expressed by 7-year-olds. However, Barthes' theory could be used to guide the exploration and understanding of the role of TV food advertising in Maltese children's food culture and in children's perceptions and valuation of food.

Developmentalism is concerned with the historical evolution of food preferences and practices. Mennell (1985) is a key theorist in the developmentalist camp and is known for his argument of evidence for *diminishing contrasts and increasing varieties* in food habits and culinary tastes based on his comparative study of eating and taste in England and France. (See Table 6). However, his principal theme of the shift from class determination to plural tastes results more from casual observation than from evidence cited. He remains rather vague in his explanation of how social and commercial processes form such plural tastes, and he narrowly views increased variety as a result of commercial production, rather than a broader socio-cultural development in consumer preferences and needs. Nonetheless, the modern phenomenon of globalisation of food distribution and marketing does fall under the umbrella of developmentalism and is particularly pertinent to studies of changing food habits as I shall show later in Section 2.3.1.1.

TABLE 6
Contributors To Diminishing Contrasts And Increasing Varieties

DIMINISHING CONTRASTS	INCREASING VARIETIES
Contributors	Contributors
Decline in social inequalities	Contribution of technology in bringing a larger variety of foods to tables in the home
More secure food supplies	Contribution of global marketing in bringing a larger variety of foods to tables in the home
Use of convenience foods by all social classes	An abundance of cookery publications showcasing different cuisines
Patronage of fast food outlets by all social classes	More eating out in general
A change in hierarchical valuations of different foods (association between prestige and expense being eroded)	The spread of international restaurants
A decline in ostentation in cooking and eating	Competition of tastes encouraged by fashion
A general concern with weight and body image	
Less seasonal differentiation in food intake	
Less regional differentiation in food intake (rural vs. urban)	
Less occasional differentiation in food intake (regular vs. feast days)	
Less differentiation between domestic and professional cooking	

(Adapted from Mennell, 1985)

In synthesis, the three main sociological approaches outlined above are clearly linked to the goals of my research. From the functionalist perspective, one can consider the issue of food as a medium for establishing group identities. From the structuralist perspective, Douglas' appeal for 'bottom-up' studies of human eating and food-culture relationships confirms the need for grounded research. Barthes' conception of foods as having meaning at both an individual and a larger social collective level provides a rationale for in-depth study of children's food perceptions and the impact of advertising on these perceptions. And finally, Mennell's developmentalist thinking emphasises the need for looking at the significance of other social differentiators apart from SES in the realm of food choice and behaviours, including the cultural environment.

2.2.2.2 Consumption Theory: The Case Of Food And Eating

In discussing food habits as they function in contemporary developed countries, one cannot ignore theories on consumption. Warde will be the main theorist discussed in this section, highlighting his various arguments and their application to food and eating.

Traditionally, consumption has been viewed as serving fundamental sustenance needs. Yet, in much of the developed world, consumption has moved beyond this basic utilitarian function. There has been a reorientation of personal motivations, where not only physical but also symbolic motives direct consumption. Warde (1997) has suggested that, broadly speaking, three ends or values guide consumption: exchange value, use value and identity value. (See Table 7). He explains that each of these will feature, to various degrees, in an individual's consumption decisions.

TABLE 7
Values Guiding Consumption

Value	Meaning
Exchange value	Concerned with monetary price; how much one is willing to pay for an item with particular characteristics
Use value	Concerned with the final act of consumption; the satisfaction of needs and wants which change over time and can be symbolic rather than practical
Identity value	Concerned with orientations of actions; the desire (a) to impress members of a different status group, (b) to impress members of their own status group, (c) to impress themselves

(Adapted from Warde, 1997)

However, Warde also proposes four larger forces influencing modern food consumption, which are a reflection of social trends and which may function at an individual or group level. Each of these forces will be discussed below.

Individualisation is the detachment of individuals from the institutional situations in which they were previously cocooned. The demise of social class and the disintegration of the family have been blamed as responsible for the new situation where self-identity becomes consciously chosen by the individual and expressed through consumption (Beck, 1992). Warde (1997) similarly posits that changes in the organisation of food provisioning in households have also encouraged individualisation. If each individual member of a household eats differently from other household members so that common food patterns within households diminish, or if each individual eats in a distinctly different manner from those in otherwise similar households, this implies that communally endorsed patterns of consumption have less influence on behaviour than previously. Warde further proposes that the expectation that families will eat together is in decline, as probably is the assumption that all will eat the same things when they are together. At the same time, the menu at the commercial outlet, which demands selection from a range of items, may be penetrating

domestic practices; an aspect of the convergence of commercial and domestic food provision also identified by Mennell (1985). The extent of manifestation of individualisation in Malta is unclear. For example, whilst on the one hand families may have developed their own unique weekly meal menu, sitting down together for family supper seems to be still widely practised amongst families with young children.

A counter-tendency to individualisation is *communification*. In the field of food behaviours it can be seen manifested in seeking knowledge on appropriate ways to handle food, to have food choice judgements affirmed by like-minded people, to share in a consensus on what comprises a good and decent diet. Warde (1997) asserts that the primary institutional vehicle for providing the reassurance of confirmed and shared standards for culinary judgement is the family group. Whilst this probably holds true for both Maltese adults and children, the role of the school and peers in communification is possibly also very strong amongst children.

Stylisation involves the adoption of an identifiable and admired set of practices which are perceived as common to a particular social group. Warde's (1997) concepts of the *neo-tribe* or *niche group* provide a possible template for understanding stylisation in modern societies. These are voluntary groups, exhibiting high levels of temporary commitment to a particular behaviour and whose boundaries are identifiable through shared lifestyles. This can be manifested for example in groups of people who are loyal to a food fad, or who are the innovators trialling a new food and who then disperse once the fad or novelty has passed. These and other manifestations of stylisation are evident in Maltese society. Fashions exist for foreign cuisines and restaurants, new food gadgets, new styles of food preparation and so on. Warde (1997) further insists that media images of food contribute enormously to stylisation. Advertising relies heavily on the appeal of style and the context in which products are put are silent visual guides to expression of social identity. Thus, stylisation offers some of the same rewards as communification - a known standard of behaviour, a sense of belonging - but lacks its permanent and unreflective orientation.

Informalisation exists where observance of social rules and conventions is less predictable, less widespread and less enforceable than in the past. According to Warde (1997), evidence of informalisation could be a great individual diversity in food choices with little regulation, or the relaxation of rules governing behaviour at eating events. He further explains that:

“Informalisation permits the popular culture of a flat world, where nothing and nobody is superior to any other...Informality thrives on variety. In some respects, the more options there are, the less likely the relevant rules can be formulated or policed... Large quantities of information about alternatives, from innovations in food manufacture to foreign cuisines, undermine the legitimacy of any traditionally dominant set of rules.” (p. 188)

This description would seem to fit the Maltese scenario fairly well, with its constant influx of new food products and interaction with foreigners, with its declining adherence to religious restrictions on food intake, and with the decreasing regularity in time of family eating. The hierarchical and ordered family meal where parents ‘discipline’ their children also seems to have become more relaxed, as consideration for children’s preferences and enjoyment has increased.

2.2.2.3 Food And Social Class Differences: Focus On Bourdieu’s Theory Of Practice

Many of the above sociologists referred to the symbolic value of food and eating and/or to the role of food socialisation in shaping food behaviours. Some also implied that social differentiation in food consumption has diminished, particularly with regard to the dimension of social class. No one claims, however, that class has become totally irrelevant. A strong argument for continued class differences in the sphere of food behaviours, especially as manifested in valuation of food, is evident in Bourdieu’s (1977) Theory of Practice. Bourdieu exploits the concept of symbolic significance of social class practices and relates these to social class reproduction. He especially stresses the competitive dimension of taste and how, through actual consumption practices, it creates and sustains distinctions between classes. Bourdieu’s theory has been proposed as having the conceptual tools with which to study young children’s social worlds and their identities (Connolly, 1998). Thus, it could be a useful theory for exploring group differences in Maltese children’s food preferences, choices and behaviours, as reflected in their own actions or those of their food providers.

The four major concepts involved in the Theory of Practice are ‘habitus’, ‘capital’, ‘field’ and ‘distinction’. (See Table 8). Bourdieu uses habitus to illustrate how individuals are active in the choices they make, but are simultaneously constrained to a significant extent. The choices one makes do not come from an endless range of possibilities, but are limited to “what one knows”. One of the functions of the notion of habitus is to account for the unity of style which forges the practices and goods of a single individual or group (class). Thus, the notion of habitus generates classificatory schemes, providing principles of distinct and distinctive practices - what a person eats and the way he eats it (Bourdieu, 1998). But to

TABLE 8
Major Concepts in Bourdieu's Theory Of Practice

Concept	Definition
Habitus	The way people develop and internalise ways of approaching, thinking about and acting upon their social world. With the passage of time they learn from and incorporate lived experiences which then help to guide their future actions and to develop certain predispositions. As experience is consolidated and reinforced the habitus becomes more durable and internalised
Capital	<i>Economic:</i> Access to and/or ownership of resources based loosely on the Marxist interpretation
	<i>Cultural:</i> What is perceived to be legitimate knowledge and behaviour
	<i>Social:</i> Resources gained via relationships and/or connections with significant others
	<i>Symbolic:</i> Prestige and honour associated with the acquisition of one or more of the three forms of capital once it has been perceived and recognised as legitimate by others
Field	Described primarily in terms of the specific forms of capital present and secondarily through the surrounding relations as individuals struggle to acquire and maintain that capital
Distinction	All attempts to lend the aura of cultural superior value to one's own style of life by distinguishing one's own taste from mass taste

(Adapted from Bourdieu, 1977, 1984)

understand fully how individuals develop their unique form of habitus it is necessary to explain the other concepts of capital and field.

The four types of capital conceived by Bourdieu are economic, cultural, social and symbolic capital. Cultural capital goes beyond knowledge of the arts and other distinctive practices. It also involves all the learnable skills and competences which enable individuals to handle the social potentials of scientific information and everyday pleasures (Honneth, 1986). Some also perceive of capital as a range of scarce resources, the struggle over which is at the heart of the processes of social stratification and social change (Connolly, 1998).

Acquisition of one or more of these forms of capital enables a person to gain power and status within society. Through the person's ongoing struggle to acquire and maintain specific forms of capital, his or her habitus is developed, thus providing the sub-conscious organising principles by which to think about and act upon different social worlds.

The dominant forms of capital within a society are defined and developed through various discourses. Discourses on gender, for example, define and organise the social world into what is masculine and what is feminine, setting out the characteristics associated with each.

These characteristics relating to notions of masculinity and femininity then provide the basis of the dominant forms of capital that boys and girls strive for. For instance, a child may perceive the existence of ‘foods for girls’ and ‘foods for boys’, thereby leading the child to consume foods which have more value when amongst same-sex peers. However, discourses are not self-sustaining, but rely on the actions of individuals for their continued existence. When individuals continue to value particular forms of capital and strive to gain and secure them, they reinforce the importance of these specific forms of capital and thus help to reproduce the discourses that sustain them. If all children suddenly decide that there are really no girls’ or boys’ food, then the underlying discourses on gender that help to sustain these would simply cease to exist.

One important issue related to capital is that particular forms of capital will be highly valued in certain contexts and yet be completely devalued in others. This is where Bourdieu’s concept of field comes to bear. The boundaries of any particular field are not fixed. In addition, there are a number of inter-connecting fields, each with particular forms of capital at their centre, and individuals constantly move from one field to the other. Put more simply, an individual will have a number of forms of habitus, the salience of each depending on the particular context or field he or she is in at a particular moment. The concept of field emphasises the complexity and multi-facetedness of individuals’ lives.

Another concept in Bourdieu’s theory is ‘distinction’ (1984). According to Bourdieu, the everyday culture of the middle- and upper-classes is characterised by a common negation of the pragmatic, functionally-oriented ‘taste’ informing the lifestyles of the lower classes. He proposes a rough division of the everyday culture of modern societies into two worlds exhibiting a “taste in luxury” and a “taste in necessity”. This dualism of distinguished and popular taste is further described in his use of oppositional conceptual pairs. (See Table 9). Bourdieu considers food as one means of expressing distinction, stating that different social classes and different fractions within the middle-class group eat different food items. He

TABLE 9
Bourdieu’s Oppositional Conceptual Pairs Of Distinction In Taste

“Taste In Necessity”		“Taste In Luxury”	
Vulgar	Emphasis on life-practical function of cultural goods	Higher	Emphasis on form of cultural goods
Ordinary	Measurement based on quantity	Distinguished	Measurement based on quality
Popular	Accords importance to the consumptionable objects	Bourgeois	Accords importance to the manner of consumption

(Adapted from Honneth, 1986)

suggests that peasants and the industrial working class manifest behaviours related to “convivial indulgence”, seeking the heavy, the fat and the coarse; whilst those of the highest levels of the social hierarchy manifest “sobriety for the sake of slimness”, reflecting the light, the refined and the delicate. Furthermore, there is a clear distinction between manual labourers and clerical staff, who although having equivalent incomes, buy different items of food and apportion different percentages of their income to food.

Bourdieu’s theory is of relevance to my research as it offers a perspective on social group differences in food-related perceptions and in consumption. Bourdieu (1998) also accepted the importance of studying the immediate lived experiences of individuals in order to explicate the categories of perception and appreciation (dispositions) that structure their action from inside. He also acknowledged the inadequacy of conceiving a mechanical and direct relation between social class and tastes or practices. Broadly speaking, therefore, Bourdieu’s theory is very much akin to a human eco-systems perspective; appreciating the importance of contexts in which individuals make their decisions and act upon them. This makes his theory an attractive one to consider with respect to the goals of my research. However, there are certain limitations.

First of all, the account in *Logic of Practice* on which Bourdieu bases his theory uses 1970s data obtained in France and Algeria and due to a lack of systematic international comparison, may actually be applicable only to such societies. This is particularly meaningful considering the relatively homogenous social class situation in Malta. Secondly, while it is reasonable to assume that people in all classes would welcome more resources, it is not obvious that they would seek to alter their fundamental patterns of consumption in order to emulate members of another class. This especially holds true for family staples and core traditional food practices. Thirdly, the applicability of Bourdieu’s theory to young children’s food choices has not really been explored and this presents certain dilemmas.

At first glance, it is questionable whether the habitus of children are so well-established that children’s dispositions are clear and identifiable. Moreover, struggles for the various forms of capital may not be a reality for young children who have just about reached a concrete operational level of maturity and are to a certain extent controlled by their parents and caregivers. In fact, it is more likely that habitus and struggle for capital would function in the food realm of the children’s food providers. Furthermore, children are somewhat revolutionary by nature, seeking to go against established rules and norms. This contrasts

with Bourdieu's inclination towards social reproduction. On the other hand, children sometimes do strive to conform with significant others in terms of items consumed and manners of consumption. In addition, distinctions in 'taste' in food consumption patterns may be discernable even in young children. The notion of having various habitus and related fields makes sense with regard to children who are constantly being exposed to people of different ages, gender and perceived significance.

2.2.2.4 Food Classifications And The Value Of Food

One vehicle which has been used by sociologists to understand food choice and consumption patterns is the study of food classifications according to different population groups. The purpose of food classification has generally been to reveal how foods are perceived and assigned value in a society (Sukkary-Stolba, 1987).

Beardsworth and Keil (1997) have recently proposed a food classification scheme arising from their work with British adults and which seems partially applicable to Maltese society. The authors describe how individuals can choose from six 'menu-types' (see Table 10) in order to construct their own personal diets, where the menu is defined as "those sets of principles which guide the selection of aliments from the available totality" (p. 67). The authors also contend that within any given society one can expect a certain degree of menu differentiation based on class, age or gender. In fact, whether all six menu-types would feature in the food selection process of Maltese children is doubtful, though one could hazard that traditional, convenience and hedonistic menus would predominate. The 'moral menu' may not be that salient, neither for the children, nor for their food providers. Adherence to religious food restrictions is very much on the decline, especially amongst the younger Maltese generation; whereas adherence to vegetarianism, organic food consumption or principles of sustainable eating is not widely practised amongst families. The 'economy menu' may be practised by adult food providers, but for different reasons than those presented by Beardsworth and Keil. Apart from budget restrictions, it could also be a matter of obtaining value for money from a quality perspective.

Nutrition educators would benefit greatly from identifying the different systems children use to classify food. Work with primary schoolchildren in the UK and Greece (Turner, 1991; Turner, 1997), Scotland (Ross, 1995) and the USA (Contento, 1981; Michela & Contento, 1984, Resnicow & Reinhardt, 1991) suggests that children rarely use the formal public health promotion classification systems when they are allowed to group foods as they wish,

TABLE 10
Beardsworth And Keil's Menu Classification Scheme

<i>Traditional menus</i>	Draw their recommendations and rules of food choice and combination from taken-for-granted customary practice
<i>Rational menus</i>	Involve food selection criteria designed explicitly to achieve some specific goal; based on weighing scientific or quasi-scientific principles
<i>Convenience menus</i>	Seek the minimisation of time and effort required for acquiring, preparing and presenting food
<i>Economy menus</i>	Seek to keep food costs within a budget
<i>Hedonistic menus</i>	Seek to maximise gustatory pleasure
<i>Moral menus</i>	Involve food selection criteria derived from ethical considerations

(Adapted from Beardsworth & Keil, 1997)

and that the influence on classification criteria of the foods' attributes, parental advice, peer example and the media is very strong.

A 1999 literature search on Medline and ERIC generated very few studies focusing specifically on child-generated food classifications and/or classification criteria (Bernstein, 1981; Contento, 1981; Michela & Contento, 1984; Turner, 1997). This highlighted the paucity of published research in this area - a lacuna which needed to be addressed. Table 11 shows the classification schemes emerging from these studies. Main conclusions reached were that the criteria children used to group foods were diverse and not limited to traditional semantic categories. Children below the age of 8 years were more likely to use groupings based on personal preference (like/dislike) and physical features (colour, shape, texture, taste). Groupings based on health or nutritive value were only used by children aged 7-8 years or above. Some children based their classification on the more abstract notion of function or occasion of eating foods: for example, main dish versus breakfast foods. Children also labelled prepared foods as meals, and foods which merely required peeling or unwrapping or no preparation at all as snacks. Of note is that, even at this early age, the idea of having a cooked item as an essential component of a meal was already ingrained in some children's perceptions. This is comparable to research conducted with mothers in the UK (Mennell, Murcott & van Otterloo, 1992).

In general, these studies suggest that children mainly perceive food according to its physical properties and functions, and to a lesser extent according to health or nutrition properties. Social aspects may or may not be integrated within these perceptions, but this feature was only really explored in Bernstein's (1981) study. Interestingly, Bernstein's (1981) experiment with children was more concerned with cultural reproduction than actual food intake, yet it

TABLE 11
Children's Food Conceptions And Classifications

Author(s)	Conceptions & Classifications
Bernstein (1981)	Foods grouped in relation to meanings derived from lived experiences
	Foods grouped in relation to more elaborate meanings
Contento (1981)	Food as prepared items vs. snacks as sweets and/or fruits
	Foods as prepared items vs. snacks as sweets, fruits, and salty items
Michela & Contento (1984)	Traditional semantic (naming group) (e.g. fruits, meats, vegetables)
	Functional (e.g. breakfast items, lunch items, dinner foods, snacks)
	Nutritional quality (e.g. "nutritious" foods, good/bad, healthy foods)
	Taste/texture (e.g. sweet or sugary foods, hard/soft, slimy)
	Food Unknown or Never Tasted
	Preference
Turner (1997)	Food groups (e.g. fruits & vegetables)
	Associated foods (e.g. fish & chips, bread & jam)
	Meals (e.g. breakfast, supper)
	Food source (e.g. where bought or grown)
	Healthy/unhealthy
	Physical attributes (e.g. taste, colour)
	Preference (liked/disliked)
	Alphabetical or numerical grouping

(Sources: Bernstein, 1981; Contento, 1981 ; Michela & Contento, 1984; Turner 1997)

uncovered some pertinent class differences in children's orientation to principles of food classification. Thirty middle class and lower class girls and boys were presented with coloured pictures of food and were asked to make groups of food items that go together and then to explain why they had made each group. The lower class children gave reasons which were dependent on specific contexts of their lives and which took their significance from local activities and local meanings. In contrast, the middle class children gave reasons which were less related to the specific contexts of their everyday experiences of food. When the children were asked to repeat the exercise, grouping the foods differently, the middle class children switched their principles of classification and used principles similar to those used by the lower class children. The lower class children maintained the same principles. The results therefore suggested that middle class children had a hierarchy of principles wherein those which had direct relation to a specific, local material base were given a lower priority. Bernstein used this study to illustrate the concepts of 'restricted code' and 'elaborated code'; the former referring to a direct relation between the individual, meanings and specific material base and the latter referring to an indirect relation between the individual, meanings and a specific material base. His findings seem to have been echoed in Bourdieu's (1984) concepts of "taste in necessity" and a "taste in luxury", presented as distinguishing features between classes.

Based on the above, it is clear that studying and improving children's food habits requires sensitivity to their perceptions of food. Contento (1981) has similarly concluded:

"It may well be that nutrition educators will need to experiment with different food grouping systems that are more perceptually based and less dependent on formal structures. These food groups will need to relate to foods children actually eat and the food choices they actually make in everyday life." (p.S90)

It is reasonable to propose therefore that food, nutrition and health messages presented in terms that match children's naturally occurring conceptualisations will very likely be more easily comprehended and remembered. In fact, Turner (1997) recommended that curriculum developers and teachers provide children with the opportunity to discuss and explain their reasoning during food-sorting activities.

2.2.3 Comprehensive Models Explaining Food Preferences, Choices And Behaviours

In this section I shall look at comprehensive frameworks and models based on a combination of psychological, sociological or ecological theory, or which were developed using a constructivist approach in order to explain food preference, choice or behaviour.

2.2.3.1 Psychology-Based And Sociology-Based Models

During the 1980s and early 1990s a number of models were proposed to describe the multitude of determinants of food preferences and food selection (Khan, 1981; Randall & Sanjur, 1981; Kronl & Lau, 1982; Booth & Shepherd, 1988; Glanz, Lewis & Rimer, 1990; Kronl, 1990; Shepherd, 1989). Most of these models focused on three aspects: properties of the food itself, properties of the individual and properties of the environment in which the individual acts. During the latter half of the 1990s, more comprehensive models were developed or proposed to explain food behaviours. Some of these models focused on general food intake, some on specific food items; some focused on specific population groups and some were integrative. A number of the models were based on existing theory, others were developed using a grounded approach. A few of these models which have elements of relevance to my own research goals are presented here, although only one model targets children.

Furst et al (1996) used a constructivist approach to develop a food choice processes model combining psychological and social theory and which was based on three major components: 1) life course, 2) influences, and 3) personal system. Two important aspects of this model are the roles of ideals and value negotiation. Ideals are defined as expectations,

standards, hopes and beliefs that provide points of reference and comparison by which people judge and evaluate their food choices. Ideals are rooted in and derived from cultural and symbolic factors. Cultural factors are learned as people grow up, reflecting food traditions and images of how things “should be”. Symbolic factors incorporate, amongst others, issues of food and social status. Value negotiations are defined as a central component of people’s personal systems and involve weighing of different considerations according to their saliency to a person in a particular food choice situation. This model represents the rich and complex origins of food-related actions and emphasises the importance of diverse influences that mutually shape each other and may be more or less salient in a variety of settings. Although the model was developed for use with adult populations, and the age when children start making reasoned food value negotiations is unclear, a number of the model’s concepts would seem to be applicable to the food choice process in children.

Devine et al (1998) proposed a grounded model as a result of their work on adults’ fruit and vegetable consumption. A life-course model of a food choice trajectory (similar to that developed by Furst et al, 1996) was developed from the data to reflect how past events interact with current environments to both enable and limit current food choices. Key influences on the trajectory include food upbringing, roles, health, ethnic tradition, resources, location and the food system. Though its applicability to children is questionable, the model serves to highlight the importance of culture, availability and context in food choice. It also emphasises the role of early food intake in determining eventual food choices at later stages of the life-cycle.

Reynolds et al (1999) developed a model to describe fruit and vegetable consumption amongst US schoolchildren. This model is based on Social Cognitive Theory and its principles of reciprocal determinism. Main components are environmental factors, personal factors and behaviour. Based on this model, the most robust relationships were found between motivation (perceived self-efficacy, outcome expectancies and food preferences) and food availability; thereby showing how interactions between personal factors and environmental factors are clearly visible even in children’s food intake.

These various models have all pointed to the multitude of influences on food preferences, choice and behaviours. Many of these influences stemmed from personal characteristics; others were more socially-determined, or based on life experience. One theoretical

approach which has been developed in order to explain human behaviour and which effectively integrates these various influences is the eco-systems theory.

2.2.3.2 Ecological Models

From the 1970s to the 1990s, several researchers used different ecological-type frameworks for discussing food selection and consumption (Clancy-Hepburn, Hickey & Nevill, 1974; Sims & Smiciklas-Wright, 1978; Gillespie, 1981; Hertzler & Owen, 1984; Dale Terry, 1994; Tansey & Worsley, 1995; Cook & Crang, 1996; Bell & Valentine, 1997). Elements studied included food systems, such as biological (e.g. the production of food), economic and political (e.g. the power and control exerted over the components of the food system) and social and cultural (e.g. factors which shape the ways in which people select and use foods). Specific factors or processes studied included food availability, acceptability, safety, nutritive quality, selection, procurement, distribution, manipulation, consumption, storage and disposal.

However, a 1999 online search of ERIC and MEDLINE yielded very few published studies where the ecological approach was used in studying children and food. Only a handful of older studies emerged. In 1974, Clancy-Hepburn, Hickey & Nevill had suggested using an eco-systems approach to analyse the impact of television on children's food choice. In 1981 Gillespie had proposed an ecological framework for facilitating a better understanding about why children eat what they eat and how we can influence their behaviour. In her own words:

“This model suggests that the potential influences on a child's current nutritional behaviour are within the child's environment as well as part of the child's own dispositions - which themselves are influenced by this environment. An understanding of these influences and their relative importance serves as a basis for designating program objectives, identifying intervention targets, and determining potentially effective strategies.” (1981, p. 150)

In 1984, Hertzler and Owen also recommended designing food habits research from an eco-systems perspective, so that more systematic attention would be paid to the context in which children consumed food. Such an approach was used by Campbell & Sanjur in 1992 in their study of ecological influences on single working mothers' food choice for pre-schoolers.

As I was collecting my data during the late 1990s and early 2000s, ecological frameworks had gained increased recognition in the field of health promotion and disease prevention (Welk, 1999; Brown et al., 2000; Kazak, 2001; Riley, Taylor & Elliott, 2001; Parsons, Stears

& Thomas, 2002; Toobert et al., 2002). They had also been recommended for describing food choice behaviours and for planning and evaluation of nutrition education programmes (Newes-Adeyi et al., 2000; Black et al., 2001; Gregson et al., 2001). However, an August 2002 online search for the use of ecological models in relation to school-aged children's food choices and behaviours still yielded a paucity of results. (See Appendix 2.1).

2.2.3.2.1 Bronfenbrenner's Ecological Model

An ecological model which has been used extensively to study children in different contexts of development is Bronfenbrenner's (1989a, 1989b) Ecological Model. In this model the developing child is viewed as embedded within several over-arching systems that influence and are influenced by the child.

The Ecological Model is concerned with interactions between individuals and between different elements of their environments. *Environment* refers to any event or condition outside the person that either influences or is influenced by the developing person. *Interaction* refers to the exchanges between a person and the persons, objects and symbols in its immediate environment, which are reciprocal in nature. Bronfenbrenner also conceived of the environment as a set of nested structures defined, starting from the innermost, as microsystems, mesosystems, exosystems, macrosystems. A description of each of these is presented in Figure 1.

Referring to the microsystem level, Bronfenbrenner (1979) had initially suggested that properties of the environment that have most power to influence the course of development in a person are those perceived as most meaningful to the person in a given situation. Later, however, Bronfenbrenner (1986, 1989a, 1989b) strongly urged consideration of the significant others' perception of the properties as well. Referring to the macrosystem level, he also mentioned the concept of 'a cultural repertoire of belief systems' where patterns of belief are typically passed on by the institutions of a culture (e.g. family, school, mass media). This blueprint for living creates the child's lifestyle and ultimately developmental consequence. It also recalls Bourdieu's (1977) concept of habitus as the process which determines what individuals 'know' and which directs their everyday choices.

A final parameter in Bronfenbrenner's Ecological Model extends the environment into a third dimension. This is the chronosystem which encompasses change or consistency

Bronfenbrenner's Levels Of The Environment

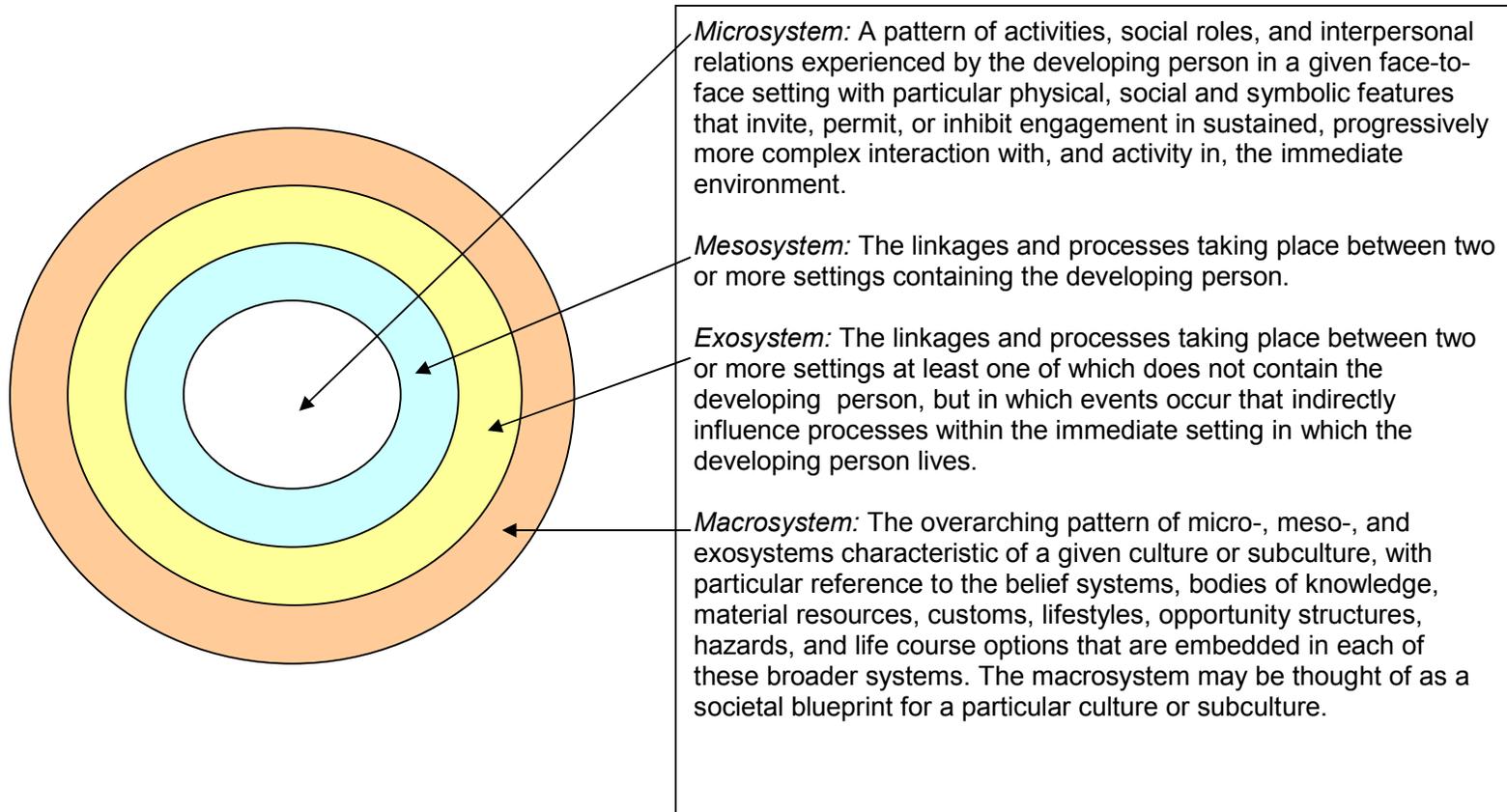


Figure 1: Bronfenbrenner's contexts of development

over time, not only in the characteristics of the person, but also of the environment in which that person lives (e.g. changes in family SES, employment, place of residence). An implication of the chronosystem is the long-term impact of interactions between environmental characteristics and the developing child.

In general, the primary aim of an ecological model is not to claim answers, but to provide a theoretical framework that, through its application, will lead to further progress in discovering the processes and conditions that shape human behaviour. Bronfenbrenner's model is suited to providing a framework for studying Maltese children's eating habits as it not only allows for individual attributes to be considered, but assumes that other environmental factors and influences will be considered as well as they interact with the individual. Thus, psychological concepts and sociological concepts can be integrated within a larger ecological discussion of the phenomenon.

2.2.4 Theoretical Concepts And Models Guiding The Research

This critical overview of theories and models explaining food perceptions, beliefs, preferences, choice and behaviour has portrayed the complexity of the factors involved. It can be said that psychological theories and models have been the main thrusts behind food choice research over the past decades and, whilst being illuminating as to the variables studied, they have also been restrictive as to consideration of the holistic picture in food consumption practices. Only recently has there been a stronger emphasis on the utility of sociological theory in explaining the underlying factors forging food preferences and behaviours. Moreover, the seeming resurgence of interest in ecological models has led to a greater acknowledgement of the role of context in food decisions and consumption.

Despite its limitations, Bourdieu's (1977) Theory Of Practice on class-differentiated consumption lends itself to guiding the direction of my research. This will be considered in parallel with Mennell's (1985) proposition of *diminishing contrasts and increasing varieties*, Warde's (1997) theory on consumption and Barthes' (1979) theorising on the meaning of meals and food at the individual and social collective level. Social Cognitive Theory will also be considered, given its emphasis on the role of modelling in food choice and food behaviours. The main orientation in this research will therefore be toward the use of sociological theory. However, the research will be guided by an ecological-systems framework in recognition of the multiple influences on children's food intake.

2.3 Children's Food Preferences, Choices And Behaviours: An Ecological Perspective

Using Bronfenbrenner's (1989a, 1989b) *levels of the environment* as the guiding structure, I shall now discuss various determinants and influences on children's food preferences, choices and behaviours. This is not a comprehensive expose, but rather a description of key issues related to my research goals which have emerged from previous studies.

2.3.1 Determinants And Influences: The Macrosystem

The main focus of this Section will be on globalisation; culture, cuisine and food status; and the impact of television on children's food preferences, attitudes and behaviours.

2.3.1.1 Globalisation

Two processes which are manifestations of globalisation are delocalisation and McDonaldization. Delocalisation is the process which makes it possible for an increased portion of the daily diet to arrive through commercial channels from distant places (Pelto & Pelto, 1985). Delocalisation is highly evident in Maltese society, since most of what is available on the shelves of Maltese supermarkets is made outside Malta (Country Profiler, 2004b [online]). In fact, in industrialised societies delocalisation is associated with an increase in the variety of foods available and in the quantity of foods imported. As a result of delocalisation, "the foreign has become the familiar, the familiar has been domesticated" (Scapp & Seitz, 1998, p.3). Tonna (1997) has described how this process works in Maltese families:

"The imports made their way into the day to day family lives of contemporary Maltese in a myriad of ways. They became a family reality as soon as one or other family member adopted them. The cultural *production* process, here, merged with the *consumption* process. What the imports came to mean to other members of the family depended on how they were 'consumed'. Meanings were not just exported by global culture and imported passively by the local population. They were actively developed when people adopted them and adapted them to their own needs." (p. 73)

Thus, based on Tonna's assertions, new food products from the global market actively and regularly contribute to the current foodways of Maltese families.

Another aspect of globalisation which may be contributing to Maltese foodways is McDonaldization (Ritzer, 1993). McDonaldization has three key features which are evident in eating behaviours: predictability, convenience and interchangeability. (See Table 12). In

TABLE 12
Features Of McDonaldization In Food-Related Behaviours

Feature	Food-Related Behaviours
Predictability	Preference for conformity over diversity
	Use of a limited repertoire of recipes for family meals: People eating the same things cooked in the same way on a fairly regular basis
	Provision within the home of similar fare to that found on the menus of fast food restaurants
Convenience	Food available on demand: Less confinement to traditional mealtimes for food consumption as a result of fast food restaurants
	Discrete feeding events replaced by the phenomenon of grazing: Family members eat alone at different times to suit their varying schedules
Interchangeability	Standardisation of items in fast food restaurants around the world
	Cultural homogeneity which masks or suppresses national or regional food differences

(Following Ritzer, 1993)

studying these features, one can certainly see their potential applicability to Maltese society, though some features, such as convenience, would probably be more salient than others.

2.3.1.2 Culture, Cuisines And Acculturation

When one hears the word culture being linked with food, one immediately thinks about a nation's traditional cuisine, or specific food habits of a population group. Webb (1995) has suggested that some foods have acquired the title of 'cultural superfoods' in that they play an integral part in the diets of a particular society (staple foods) and may even serve as markers of cultural identity (e.g. Italians and pasta). From a traditional perspective, in Malta one such food would surely be the local round crusty bread. Yet, amongst the younger generation, the superfood status of this item may have diminished. In fact, national eating patterns are in a constant state of flux, often challenging the permanency of the traditional cuisine.

2.3.1.2.1 National Cuisines

A nation's cuisine is about specific recipes and dishes which are often based on locally available foods and typically handed down from one generation to a next. But it is also about certain conventions as to how, when and where foods are eaten. Rozin's (1983) proposal that there are two aspects of cuisine encapsulates the concept well. On the one hand,

cuisine refers to specific dishes and to how they are prepared. Here cuisines are defined by three components: (a) the basic ingredients they employ, (b) the characteristic flavours, and (c) particular modes of food preparation. On the other hand, cuisine also deals with the culinary rules about the ordering of dishes within a meal, what can be served with what and what is to be served at particular times or occasions. This also includes the many culture-based attitudes towards foods and towards the role of food in daily life.

So what is Maltese cuisine? A straightforward answer is unavailable due to the fact that, as occurs in other countries, the national cuisine in Malta is in a process of constant reinvention, absorbing new influences and letting some traditions die out. According to Bell and Valentine (1997), the history of any nation's cuisine is the history of the nation itself, with food fashions mapping episodes of colonialism, migration, trade and cultural exchange. Similarly, Cwierka concludes that "it is difficult to find a culinary culture without a trace of foreign influence, and the tendency to further cross-culturalism seems to overwhelm our diets" (1998, p. 27). This view is supported by Charles Zammit, president of a Maltese folkloristic foundation who described Maltese cooking as not purely Maltese, but as having been influenced by the people who occupied Malta:

"For example the dish *kusksu* - a type of spring vegetable soup with pea-formed pasta - originated during the Arab occupation when the Arabs introduced couscous. But *kusksu* is different from couscous. And here is the pattern: the Maltese used local ingredients and imitated foreigners, and in the end created something that is original. It had the Maltese touch." (Zammit cited in Borg, 1998)

For one to obtain the current perception of Traditional Maltese foods one has to browse the Maltese recipe books produced primarily for the visiting tourist (Dougall, 1993; Wirth, 1994; Caruana Galizia, A & Caruana Galizia, H, 1999; Caruana, 1998). In these books recurring ingredients include tomatoes, onions, potatoes, garlic, pasta, fish, octopus, rabbit, herbs, honey and almonds. The national dish is rabbit stew. Maltese bread is a staple accompaniment to meals or basis for snacks. These foodstuffs are typical of the Mediterranean region and are used in various combinations. Nonetheless, casual observation and enquiry reveals a number of dishes and cooking methods which are a legacy of nearly 200 years of British rule. Additionally, other new techniques of food preparation and new ingredients are prevalent in many family meals. Faced by a situation where some traditional dishes are slowly dying out, the tourism industry is striving to retain and revive Maltese cuisine as an important feature of the Maltese tourist product.

Of note is Bell and Valentine's (1997) suggestion that some societies may feel threatened by invasions of "filthy foreign food", whilst others celebrate foreign foods for "adding spice to life" (p. 167). Maltese society has always seemed to be very willing to adopt new and 'foreign' ideas, even in the realm of food (perhaps a reflection of a history of adaptation resulting from a succession of colonisers).

2.3.1.2.2 Cultural Foodways

Cultural foodways are patterns of eating which are prevalent and deemed as appropriate in a particular society. Wheeler (1992) has suggested a hierarchy of constraints which act to limit the range of food that is, in practice, available to an individual. (See Figure 2). Within this hierarchy, cultural availability is presented as emerging midway through. I would tend to disagree with this position, proposing that in fact cultural availability should be higher up. For example, physical availability of food in shops is often a reflection of consumer demand, which in turn is often influenced by observation of social group practices or mass media images. At the same time, economic availability is related to affordability of foods or food experiences. Yet, as has been seen earlier, how much one is willing to pay for an item or service is a very subjective issue; often based on symbolic valuation according to one's culture. In reality, 'availabilities' are usually not absolute 'all or nothing' phenomena. Availability lies on a continuum from absolute unavailability to high availability. Changes in 'availabilities' may also be a reflection of changes in cultural orientation.

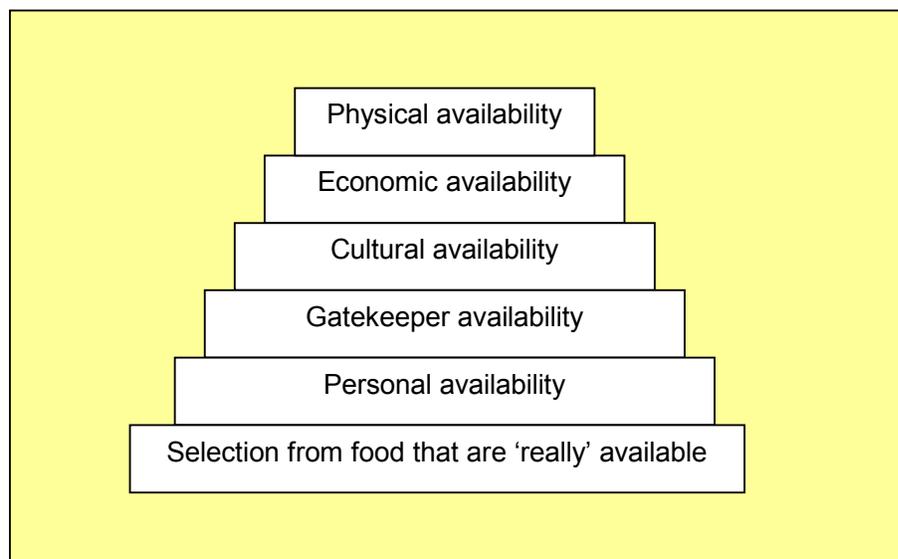


Figure 2: A model of food selection based on Wheeler's concept of a hierarchy of constraints upon food availability

As explained earlier in Section 2.1.1, children eat foods consistent with their rules of cuisine not only because they know what is appropriate, but also because what is appropriate has become the most acceptable and preferred in a specific context (Logue, 1991). However, children are not mere recipients of a complex code of food regulations passed down through socialising agents; they are often the agency through which new food practices are introduced to the family or a social group. Children are frequently exposed to new foods and new food behaviours, particularly through targeted food marketing and television advertising (Dibb, 1996; Kraak & Pelletier, 1998; Sperber, 1999). In fact, Fieldhouse (1995) has posited that because children are usually permitted a greater degree of latitude in deviancy from accepted habits, new or strange food practices are more readily tolerated and may eventually become accepted and incorporated into mainstream food behaviour. Thus, children's foodways can be considered as comprising both traditional and novel or modern elements.

2.3.1.2.3 Food Acculturation

Altered physical food availability, discovery or innovation of foods and diffusion or borrowing of food habits from others can be considered features of food acculturation. Beardsworth and Keil (1997) have proposed that each person has a unique 'nutritional career' closely related to the human life-cycle and the bodily needs and cultural expectations pertaining to each stage. They argue that this is a common feature in industrialised societies where the appetite for flavour and nutritional novelty is actively encouraged and many agencies (including the government, professional organisations and pressure groups) often purposefully seek to change a whole population's or sub-population's food consumption patterns. In their words, "individuals may be undergoing sporadic episodes of resocialisation in respect of food choices, practices and beliefs" (p.56).

However, when individuals or groups change their eating habits as a result of continuous contact with another distinct cultural group, or in order to adopt the norms and values of an alien culture, this is also food acculturation (Fieldhouse, 1995). An influencing factor in this adaptation is the plurality of the adopting society. In culturally plural societies, there is a greater tolerance for or acceptance of cultural diversity. With its history of colonialism, large annual influx of tourists and close relations with Italy, England and other Mediterranean countries, Malta can certainly be seen in such a light. In fact, the concept of ethnocentrism, which in relation to food means the tendency to ridicule or even to abhor the food choices and eating habits of other cultures (Webb, 1995), is not commonly applicable to Maltese

culture. In contrast, there is a national tendency to revere what is foreign and not produced locally.

A phenomenon which sometimes occurs in the process of acculturation is 'bipalatalism', or 'situational ethnicity', where people choose to eat the adaptive-culture food in public while retaining their own cuisine in private or at home (Kalcik, 1984; Fieldhouse, 1995; Devine et al., 1999). It is not clear whether this phenomenon is prevalent in Maltese society. However, an interesting proposition by Cwierka (1998) is that occasionally an imported cuisine or food contains a strong cultural message and symbolises the culture where it originated. For example, fast food and fast food restaurants have come to symbolise the modernity which is America in much of the world, including Malta, and this often makes them very desirable.

One can safely say that a multi-culture-cuisine pattern exists in Malta. As already highlighted, a heavy reliance on imported food for sustenance of the local and tourist populations results in a myriad of foodstuffs being available in shops and restaurants. These reflect different cuisines, but predominantly Italian and European/American. At the same time, there has been a boom in the presence of international fast food outlets. The top American fast food chains: McDonalds, Burger King, Kentucky Fried Chicken, Pizza Hut and Subway have all found their way to the Maltese islands, although only one international fast food outlet is available in Gozo (McDonalds). Both the imported foodstuffs and the fast food restaurants are marketed heavily in the mass media (Costa, 1998; Marmara, 2003). Simultaneously, there has been a high increase in the rate of foreign travel amongst Maltese families. Altogether these different factors have the potential of influencing the culture-cuisine orientation of Maltese children's diets. In fact, the growth of the fast food industry in Europe was recently acknowledged as having a major effect on cultural foodways (Tagliabue, 1999). Moreover, when people travel abroad and are exposed to alien foods, this enhances the likelihood that the alien foods will eventually be adopted at home (Webb, 1995).

Bhachu (1995) used the phrase 'cultural entrepreneurship' in referring to the process where people choose to adapt traditional culture in the wake of trans-national or global changes and in the context of new local norms. Hannerz (1990) has placed the cosmopolitan person at the forefront of this type of entrepreneurship, describing such an individual as a 'trend-setter' who both masters and surrenders to alien culture. Various studies have shown that early adopters of a new foodway or the 'taste-makers' of a society tend to be in higher levels

of the social scale, or amongst the new middle-classes (Hertzler & Owen, 1976a, 1976b, 1984; Appadurai, 1988; Fantasia, 1995). This also recalls Roger's (1995) Diffusion of Innovations theory on how an innovation is communicated over time among the members of a social system, with 'innovators' and 'early adopters' being at the forefront of the adoption process. Also known as 'early knowers', these people who lead the adoption process usually have more formal education, have higher SES, have more exposure to mass media channels of communication and have more social participation than other segments of the population. As previously suggested however (Fieldhouse, 1995), the labels of 'trend-setters' or 'taste-makers' could also be applied to children - particularly in the sphere of food.

2.3.1.3 Food And Status

Historically, food has always been linked to status and social prestige. Some foods are considered high status and confer high status on the eaters; others assume high status because of the groups who habitually eat them.

2.3.1.3.1 Status Of Different Foods

Conventionally, in much of the Westernised world's food hierarchy, red meats have the highest status, followed by white or 'bloodless' meats, animal products and high-fat foods, such as creamy cheeses and 'rich' desserts (Twigg, 1983; Birch, 1992). Vegetables are on the next level, regarded as adjuncts, insufficient to form a meal alone. One manifestation of this value measure is that special red meat or high-fat foods are often consumed at holiday meals, special events or other celebrations. In fact, the foods that are commonly consumed during celebratory occasions are generally considered high status foods. Typically they are high quality, scarce, expensive, and difficult and time-consuming to prepare (Fieldhouse, 1995). In the case of Malta, these properties may pertain to foreign foods or dishes for some families, but pertain to Traditional Maltese foods and dishes for others.

2.3.1.3.2 Status Of Food Consumer

Impressing others through the vehicle of food consumption and events is a common method of asserting status amongst adults (Cote, 1984; Rathje, 1984; Whitehead, cited in Cassidy, 1994). However, it is unclear whether children are aware of the status of certain foods based on the qualities just mentioned above. It is quite possible that children might infer something from comments or behaviours of their food providers, but it is much more likely that if children aim to impress others they base their actions on food fashions; that is, which foods

are 'in' and which are 'out' (Eckstein, cited in Fieldhouse, 1995). One key determinant of food fashions is television.

2.3.1.4 Television, Food Advertising And Children

Most Maltese children have access to local TV stations showing Maltese and British or American programming, as well as access to Italian TV stations. However, since the advent of cable TV in 1991, children in families subscribing to the service had access to a much vaster selection of TV stations, both local and foreign. According to Bell and Valentine (1997), "Food media make stars of the foodstuffs them-selves" (p. 6). Yet, the exact role of the media in shaping food habits is a controversial one. Some would claim that mass media impact is limited simply to making people aware of what is available. For example, Cook and Crang (1996) argue that the media informs the public about other food from other cultures; providing what they label as 'edible cultural geographies'. A controversial stance is taken by Fieldhouse (1995) who concedes that food advertising may indeed influence choice of brand-name or specific commodity within an already desired category of items, but insists that it does not create new, previously unthought of wants. I would disagree with this latter assertion, as I believe that advertising can create new desires, especially if one acknowledges the concept of modelling as proposed by Social Cognitive Theory (Bandura, 1986).

Social Cognitive Theory provides a basis for explaining TV's impact on children's food behaviours. Amongst others, it predicts that children and adults will learn and imitate behaviour seen on television. This indirect modelling or observational learning can apply to any content area presented, regardless of the intentions of the message and irrespective of whether it appears in programming or advertisements (Zuckerman & Zuckerman, 1985). Indirect modelling may have a strong impact on children, since they are highly influenced by adults and adults frequently appear on television telling them what to eat (Logue, 1991; Thomas, 1991; Horne et al., 1995).

2.3.1.4.1 Content Analyses Of TV Food Advertisements And Programmes

Over the years, a number of studies have been conducted to determine exactly the food and nutrition messages children were being exposed to on television. The details of some studies have been summarised in Table 13. The purpose is to show similarities in foods advertised across countries, as well as details of most mentioned or portrayed foods, proportion of food versus non-food advertisements and proportion of healthy versus not-so-

TABLE 13a
Food Portrayal In TV Advertising And Programming

Author(s)	Country/ TV Stations	Time-Slot	Proportion Of Food Advertisements/ References	Nutrition-Related Aspects Of Food Advertisements
Buttigieg (1988)	Malta: TVM, Italia Uno	Advertising during children's viewing hours		Advertisements for sugary confections ranked highest on Italia Uno Advertisements for cereals ranked highest on TVM Advertisements for sugary confections and soft-drinks ranked second highest on TVM
Cotugna (1988)	USA: ABC, CBS, NBC	Saturday morning advertising 7-11 a.m.	71%	80% for foods of low nutritional value
Morton (1990)	South Australia	4-5 p.m. advertising	75% (3/4)	Mostly breakfast cereals, confectionery, fast foods and soft-drinks; Of advertised cereals, 86% were for 2 highly processed and high-sugar brands
Story & Faulkner (1990)	USA	Prime-time weekday and Saturday morning programming and advertising	Food references approx. 4.8 times per 30 mins. of programming	Food was represented more frequently in programming than in advertisements; 60% of all food references in programming were for low nutrient beverages or sweets; Sweets mentioned/shown at least twice as often in advertisements than in programming; Fruit and vegetables presented in both programming and advertisements; Fruit and vegetables advertised more than mentioned/shown in programming; Fruit and vegetables totally absent during Saturday morning and weekday children's programming.
Muscat (1990)	Malta: TVM, 2 Italian stations	Weekday advertising 2-4 p.m.		Most advertised food were fruit juices and nectars, chocolates, breakfast cereals
Ostbye et al. (1993)	Canada: CBC-English, CBC-French, CTV, CFPL, Much Music	Prime-time 7-11p.m. and Saturday morning advertising	24-35%	Emphasis on low nutrition beverages, snacks and candy on Much Music

TABLE 13b
Food Portrayal In TV Advertising and Programming (continued)

Author(s)	Country/ TV Stations	Time-Slot	Proportion Of Food Advertisements/ References	Food Advertisements
Kotz & Story (1994)	USA: ABC, CBS, NBC, FOX, Nickelodeon	Saturday morning advertising 7-10.30 a.m.	56.5% (One food advertisement every 5 mins.)	Foods in Fats, Oils & Sweets food group (43.6%) High-sugar cereals (33%); Fast food restaurants (11%)
Warnke & Albrecht (1994)	USA	Saturday morning programming and advertising		Of foods shown/mentioned in advertisements, approx. 50% were from the bread and cereals and sweets categories combined. Foods in the beverage, dairy and miscellaneous categories were mentioned/shown approx. twice more often in advertisements than in programmes. Foods in the condiment and meat, poultry, fish and nut categories were mentioned/shown twice more often in programmes than in advertisements. Foods from the bread and cereals category were in a programme only 0.03 times as often as they were in an advertisement.
Taras & Gage (1995)	USA: FOX, Nickelodeon, Family, KUSI + ABC, CBS, NBC	Weekday advertising 3-6 p.m. Saturday morning advertising 7 a.m. – noon	47.8%	Foods high in fat, sugar and/or salt (91%) Of advertised cereals, 84.6% were high-sugar; Of advertised beverages, 5.6% were for soft-drinks and 83.2% were for other sweetened beverages.
Costa (1998)	TVM, Rai Uno, Canale 5, Cartoon Network	Weekday advertising 4-5 p.m.		Top 5 advertised foods requested by children were cereals (55%), sweets (55%), ice-cream (13%), fish burgers (11%), burgers (10%)
Lewis & Hill (1998)	UK 4 terrestrial and satellite stations	Advertising during children's viewing hours	50%	Breakfast cereals and confectionery/snacks (60%)

healthy foods. Due to the rapid changes in variety of food products available and developments in mass media and marketing technology, only those studies that have been reported in the past ten years have been highlighted.

When comparing the results of these studies one can see that advertising presents a variety of foods to children, but hardly promotes a healthy diet. This has also been the case in Malta with advertising content focusing on cereals, confectionery, fast food outlets and packet unsweetened fruit juices or fruit squash mixers (liquid or powder). Kotz and Story (1994) have concluded that “the overall picture portrayed to children by the advertising world projects a skewed version of the healthful diet...the diet depicted in Saturday morning television is the antithesis of what is recommended for healthful eating for children” (p.1298).

2.3.1.4.2 The Effects Of Television Food Portrayal And Messages

A number of studies have tried to show a link between children’s exposure to TV food portrayal or food messages and food knowledge, preferences and behaviour. Amongst others, television viewing was positively correlated with unhealthy eating habits, unhealthy concepts about food, and incorrect knowledge about principles of nutrition (Lewis & Lewis, 1974; Goldberg & Gorn, 1987; Gorn & Goldberg, 1982, 87; Signorelli & Lears, 1992; Dibb, 1993; Signorielli & Staples, 1997).

Several studies also found a positive correlation between food requests and purchase of advertised foods (Galst and White, 1976; Brody et al., 1981; Clancy-Hepburn, Hickey & Nevill, 1984; Isler et al., 1987; Ozgen & Gonen, 1989; Taras et al., 1989; Tilston, 1992; Donkin, Neale & Tilston, 1993; Sylvester, Achterberg & Williams, 1995). In fact, it has often been suggested that TV advertisers specifically target children hoping to exploit children’s second-hand power in order to put pressure on parents to buy brand-name products (Morton, 1990, 1994; Crockett & Sims, 1995). So much so, local research reported that 54% of Maltese children asked their parents to buy foods they had seen advertised on TV, with the top five requested items being cereals, sweets, ice-cream, fish-burgers and hamburgers in that order (Costa, 1998). Similar results were obtained in the UK, where a study on the food purchase requests of 7-11-year-olds found that (a) 39% of the foods requested had been advertised in the 6-month period prior to the survey; (b) the frequency of requests for specific foods was often related to the intensity of the advertising campaign; (c) the number of requests for advertised products increased significantly with increased television viewing

hours; and (d) the nutritional value of the foods consumed improved the less television watched by the child (Donkin, Neale & Tilston, 1993). US research has also found that when parents themselves watched children's advertisements they were more likely to buy advertised products than other products (Goldberg & Hartwick, 1990).

One must acknowledge, however, that in reality it is extremely difficult to prove a cause-effect relationship between exposure to television and food behaviours. A number of factors could be simultaneously influencing exposure to TV and thus indirectly influencing the latter's impact on food behaviours. Such factors include gender, academic achievement, school type, SES and family income. Nonetheless, Sylvester, Achterberg & Williams (1995) have concluded that "Children's interpretations of the nutrition-related content and messages found in ads [advertisements] and programming content are important to determine the value and meaning of these messages to children and how they are affected by them" (p.9).

Acknowledging the potential link between food advertising and food requests, over the years a number of health associations, consumer organisations, NGOs and parent groups have expressed concern regarding the ethical nature of TV food advertising targeting children (Baghurst & Crawford, 1989; Morton, 1994, Ovington, 1994). They have often appealed for government intervention to restrict food advertising to children as a means of improving nutritional health. The American Academy of Pediatrics (cited in Kotz & Story, 1994) have recommended that televised food advertising aimed at children be eliminated, stating that, "Because young children cannot understand the relationship between food choices and chronic nutritional diseases, advertising food products to children promotes profit rather than health" (pp. 343-344).

Yet the role of TV in children's food preferences, choices and behaviours should not be viewed as entirely negative. Both researchers and parents have recommended involving this medium in helping children develop healthful eating patterns, primarily through promoting the airing of more television messages and programmes on children's television that depict and encourage healthful food choices consistent with current dietary guidelines (Bernard-Bonnin et al., 1991; Ostbye et al., 1993; Warnke & Albrecht, 1994; Borra et al., 1995; Contento et al., 1995; Crockett & Sims, 1995; Lytle & Achterberg, 1995). According to Crockett and Sims (1995), "the ubiquitous nature of the media makes it a fertile area in which to form partnerships for positively influencing children's eating patterns" (p. 245).

2.3.2 Determinants And Influences: The Exosystem

According to Bronfenbrenner (1986), the nature and strength of connections existing between the family and the various other settings which the family participates in are major influences on development during the first years of life. In modern industrialised societies the development of the child is likely to be heavily affected by influences on family functioning that are exerted in three exosystems: the parents' workplace, the parents' social networks and the community. In Malta, for example, if a mother's employer allows for flexi-time working hours, this may determine whether she will be home to prepare a meal for her young children when they return from school at 2.30 p.m. Another example is that if many of the mother's friends are members of a weight-loss club and the conversation often evolves around healthy eating it could be that the mother will be more nutritionally conscious as to what she is feeding her child. A third example is that if the family lives in a tourist resort area, this may influence access to foreign foodstuffs. Although, the different exosystems are influential in various manners and to varying degrees on a child's food intake, it is beyond the scope of this review to discuss them separately in depth.

One system I shall discuss briefly, however, is the school; specifically the European Network of Health Promoting Schools (ENHPS). The role of the school in promoting and facilitating healthy food choices among children is indisputable. In general, countries which have embraced the philosophy and vision of the ENHPS have focused on policy development, curriculum development and the school environment. These components require attention in order to fulfil the WHO's (2003b) criteria for a Health Promoting School. (See Appendix 2.2). The dynamic interplay of various factors in creating schools which will promote healthier behaviours amongst children has been acknowledged within the different models adopted (Bruun Jensen & Simovska, 2002). One of these models is the Ecological Model Of The Health Promoting School (Parsons, Stears & Thomas, 1996), which demonstrates the relationship between factors that influence the structures and development of schools as health promoting settings. Some of these factors are external to the school, such as local health campaigns and education programmes. Others are internally generated, such as the formal and informal health education curriculum and routes for home-school liaison.

A comprehensive report by the International Planning Committee of the ENHPS (Dixey et al., 1999) highlighted what should be the targets for a holistic nutrition education in a health promoting school. (See Table 14). The overall aim should be to adopt a child-centred approach, minimising contradictory messages between what is taught in the classroom and

TABLE 14
Nutrition Education Targets For A Health Promoting School

- Have nutrition teaching that is provided adequate resources
- Develop a statement of policy about nutrition education
- Focus on the enjoyment of food
- Promote training for staff – teachers, caterers and cleaners – in healthy eating
- Provide comfortable surroundings in which children and staff can enjoy eating
- Enable healthy choices if food is provided at the school
- Involve parents and the wider community
- Be explicitly concerned that no child is hungry while at school and that poor nutrition does not affect learning
- Coordinate all aspects of nutrition education to ensure efficient use of resources and to minimize contradictory messages
- Ensure that all staff are committed to the goals of the health-promoting school and be explicitly concerned about the health and wellbeing of both pupils and staff

(Adapted from Dixey et al., 1999, p. 10)

what is experienced in the school, home and community environment. According to Dixey et al (1999), “Child-centred means starting with what children and young people know and how they see the world” (p. 9). Based on these key principles, the report also proposes a set of minimum requirements for nutrition education to be effective. (See Table 15).

TABLE 15
Criteria For Effective Nutrition Education

- Be personally relevant
- Be clearly understandable
- Use foods rather than nutrients as a basis
- Be consistent in its dietary messages
- Take into account people’s perception of relative risks
- Emphasise the benefits of change
- Address the barriers to making dietary changes

(Adapted from Stockley, L. (1993). The promotion of healthier eating: A basis for action. London: Health Education Authority. Cited in Dixey et al., 1999, p.7)

The role of the primary school teacher in enabling young pupils to make informed choices in relation to nutrition, diet and food has been spelt out recently by the British Department of Health (DOH) and the Ministry of Agriculture, Fisheries and Food (MAFF) in their document for guidance on inclusion of food and nutrition information in primary teacher training (British DOH/MAFF, 1998). The document explains how food and nutrition education needs to be

incorporated into initial teacher training and professional development courses so that teachers are equipped to integrate food and nutrition education across the curriculum and as part of a whole school approach. The knowledge, understanding and skills which primary schoolteachers should be trained to impart are outlined in Table 16.

TABLE 16
Food And Nutrition Learning Outcomes for Primary School Pupils

Primary school teachers should be trained to teach young pupils to:

- Recognise that food is a basic requirement of life and should be enjoyed
- Understand that food must be edible and safe to eat
- Develop an understanding of the underlying scientific principles upon which current issues and advice about human nutrition are based
- Know about methods of food production and food processing in domestic and commercial situations
- Demonstrate an awareness of social, economic and cultural aspects of food choice
- Demonstrate and apply appropriate and relevant skills and knowledge when planning, preparing and making choices related to food.

(Adapted from British DOH/MAFF, 1998. p.5)

Based on the above reports and documents it is clear that education in food and nutrition should be integral to a child's learning experiences whilst attending primary school. Being able to make informed choices will foster enjoyment of food and sound dietary practices that help to reduce or eliminate various health risks.

2.3.3 Determinants And Influences: The Mesosystem

Virtually all the immediate organisation of a child's food consumption originates from the practices and outlooks of the group with whom that child interacts on a regular basis; namely the family. In this Section, I shall focus on the impact of different aspects of the family on children's food preferences, choice and behaviours. The areas tackled are family lifestyle, family social class, and the influence of parents and siblings. Although outside the family network, the influence of peers will also be discussed.

2.3.3.1 Family Lifestyle

Changes in family lifestyles affect children's food choices and eating patterns. Research outside Malta has revealed that dual-career families and the employment status of the mother are key factors affecting family lifestyle, family eating out practices and, ultimately,

the family's food intake (De Walt et al., 1990; Crockett & Sims, 1995; Lin, Guthrie & Frazao, 1999).

Looking at contemporary Maltese families, in 1998 8% of married women had both a full-time and a part-time job, whilst 40.3% of married women held part-time jobs only (Camilleri, 2001). In December 2002, 28.5% of adult females were employed, and of these 51.2% were married (Malta NSO, 2003b). The majority of employed females held a full-time job (80.9%); whereas the remainder held part-time jobs or full-time jobs with reduced hours. In 2003, 2% of Maltese households were single mother households and 25.2% of single mothers were gainfully occupied (Malta NSO, 2003e).

With regard to food bought and/or consumed outside the home, eating out on Saturdays is a common practice amongst Maltese families and children are often given money to buy their own food snacks on school days (Costa, 1998; Camilleri & Scerri, 2002). At the same time, 35% of Maltese parents have admitted being influenced by children when out shopping together, with 17% always buying food children ask for in shops (Costa, 1998).

Based on findings from the foreign literature, these local trends have implications for the nutritional quality of the food children consume, as well as the style of family meals.

2.3.3.2 Family Social Class And Food

Social class is commonly measured primarily by occupation and/or income and/or family educational attainment. But an understanding of social class effects on food preferences and consumption of Maltese children and families may prove to be challenging. This is especially so given the generally high standard of living of most families and the broad middle SES band in Malta. This is not to say that there are no class differences (i.e. no differences in income or educational attainment), but only a few families fall in the lower or higher SES bands. In the case of Malta, therefore, one cannot assert as Logue (1991) did that across different socio-economic classes within a single culture food preferences vary widely.

Table 17 combines the results of two studies on the relationship between social class and food consumption in Northern European countries (Calnan & Cant, 1990; Mennell, Murcott & van Otterloo, 1992). These studies uncovered certain trends, which may or may not apply to Malta. Common findings were the differences between social classes in the variety of food

TABLE 17
Food Behaviour Similarities And Differences According To Socio-Economic Group

High SES	Middle SES	Middle And Low SES	Low SES
Families consume a greater range and variety of foodstuffs	Families more likely to be vegetarian	Women largely responsible for food shopping and cooking	Consume a diet with higher amounts of animal fats
Families consume a diet closer to existing food-based recommendations for vegetables, fruit and meat	Women more likely to buy 'healthy diet' items	Wife largely responsible for providing for 'healthy eating'	Families remain closer to 'traditional' ideas concerning links between food, health and status
	Families more likely to consume alcohol at meals		Families use frying, rather than baking or grilling
	Men seem more involved in food selection and food purchasing decisions		Women's concern with weight loss expressed more frequently
	Women focus on food quality		Women more price conscious
	Women have no limitation on food budget		Women work within a food budget

(Adapted from Calnan & Cant, 1990; Mennell, Murcott & van Otterloo, 1992)

available, the nutritive value of the diet, food decisions and food budgets. However, in both middle- and working-class families it was the wife's responsibility to shop for food, cook and to provide for healthy eating. In a separate study, using education as the measure of SES (Roos et al., 1996), adults' intake of vegetables, fruits and berries (considered by the researchers as the more 'modern' foods) increased with increasing status. In contrast, adults' intake of milk, bread and potatoes (considered as the more 'traditional' foods) fell with increasing status.

The research on relationships between adults' social class and eating patterns is growing (especially in Mediterranean countries) and it is relevant to my research because adults are food providers for children (Turrell, 1998; Sanchez-Villegas et al., 2003a, 2003b; Vannoni et al., 2003). However, at the start of my study, research on young children's SES and food choices and behaviours was minimal. Table 18 highlights the findings from studies with British, German and US children, comparing socio-economic differences in perceptions, preferences and/or intake of fruits, vegetables, sweets and snack foods and eating out practices (Neale, Otte & Tilston, 1994, Kirby et al., 1995; Neale, Otte & Tilston, 1998). A pattern which seemed to be evident was the lower availability – amount and variety – of fresh and frozen fruit and vegetables and the higher preference and intake of confectionery items amongst lower class children. However, more high class German children preferred to increase their intake of sweets. One suggestion forwarded by the researchers for this deviation from the pattern was that sweet consumption was severely constrained by high class parents, so the children's response was a reaction to this strict regimen.

In fact, a number of researchers have studied social class influences on the food rules that mothers impose on their children (van Otterloo & van Ogtrop, 1989; de Vault, 1991; de Bourdeaudhuij, 1997; Hupkens et al., 1998). Often using education as the classifying variable, class differences emerged mainly in the case of food restrictions, but not in the case of prescriptions. The higher class mothers applied more food rules in general. They also restricted more unhealthy foods, but prescribed as many healthy foods as lower class mothers. Within the category of prescribed foods, lower class mothers on a tight budget tended to serve foodstuffs and meals liked by their children much more than higher class mothers, as they could not afford to purchase foods which might be wasted if their children refused them. Irrespective of class, the majority of mothers prescribed mostly foods which were served at dinner (like meat and vegetables), deeming these as particularly important for their children's health. Foods that most mothers limited, either did not form a component

TABLE 18
Differences In Children’s Food Perceptions, Preferences And Intake According To Socio-Economic Group

Nationality	High SES	Middle SES	Low SES	All SES Groups
British			High consumption of chocolate	Strong positive attitude towards increasing the consumption of fruit
			Higher portion proposing an increase in consumption of sugar	
German	Higher portion proposing increase in consumption of sweets		High consumption of chocolate	Strong positive attitude towards increasing the consumption of fruit
American	Large variety of fruit and vegetables regularly available in the home	Large variety of fruit and vegetables regularly available in the home	Limited availability of fresh fruit and vegetables available in the home; mainly children’s favourite items	Perception that eating out was a treat or special occasion, not a time for eating fruit and vegetables
			Low availability of fruit and vegetables in pre-cut forms	
			High consumption of canned and frozen fruit and vegetables	
	Regular dining at full-service restaurants	Regular dining at full-service restaurants	Regular dining at fast food restaurants	Regular dining at buffet-style restaurants

(Adapted from Neale, Otte & Tilston, 1994; Neale, Otte & Tilston, 1998; Kirby et al., 1995)

of a proper meal, or could easily be substituted by a foodstuff which fitted better in a healthy diet. In one local study, 61% of Maltese parents reported that they put pressure on their primary school aged children to eat certain foods and 28% believed that their children choose certain foods because they encouraged them to do so (Costa, 1998).

Social class distinctions amongst schoolchildren in relation to food behaviours in different contexts have also been explored (Prattala, 1988; Thomas, 1991; Watt & Sheiham, 1997). In research amongst British schoolchildren, consumption of typical meal items was consistent with their adult caregivers' consumption. However, when consumption of so-called 'youth foods' were considered there was very little difference by social class (Thomas, 1991). Similarly, in research with Finnish adolescents on fat and sugar consumption, strong SES relationships emerged for foods adolescents ate at home, whereas those foods bought outside the home were independent of family SES background (Prattala, 1988). Thomas (1991) concluded that "this dichotomy between adult foods (usually eaten at meals) and peer-oriented perception and use of foods may have important implications for those involved in nutrition education" (p. 53).

Another area where there is ambiguity with regard to social class differences in Malta is eating out. Research has shown that many families eat outside the home on Saturday evening (Costa, 1998). At the same time, many of the fast food places and corner take-aways also seem very busy during the week. According to Wood (1995), "While dining out remains for many a special occasion marked by specific rituals, for others it is an increasingly routine activity that is integral to daily patterns of existence" (p. 81). However, Wood seems to be equivocal as to class distinction in 'dining out' patterns. On the one hand he insists that although there has been substantial differentiation in the 'dining out' market according to product (pizza, pasta, hamburgers, Chinese food, all-you-can-eat buffets, corner take-aways, food stalls etc.), it would be a mistake to believe that families from all classes are patrons of all these outlets. On the other hand, he admits that - in the UK at least - all parents irrespective of social class often succumb to their children's pleas to visit McDonald's or Burger King. As explained earlier, the latter practice would also very likely be common amongst Maltese families. Of note is that massification has been singled out as one aspect of contemporary society which has led to the dwindling of class differences in food consumption behaviours (Warde, 1997).

2.3.3.3 Beyond SES: Parental Influence On Children's Food Preferences And Intake

A number of studies have indicated the strength of parental or maternal influences on children's food choices, food behaviours and nutrition knowledge (Worsley, Coonan & Baghurst, 1983; Olvera-Ezzell, Power & Cousins, 1990; Klesges et al., 1991; Koblinsky, Guthrie & Lynch, 1992; Johnson & Birch, 1994; Contento et al., 1995; Longbottom, Wrieden & Pine, 2002). In particular, providing exposure to a food is generally seen as a necessary process before children can develop their perceptions of the food, which in turn may then influence their preferences, choice and intake. Rozin (1996) asserts that "One is exposed to that subset of all possible foods that one's ecology and culture support" (p. 243). It is reasonable to propose that when children are young, key players in determining this subset of foods are family members, primarily the mother.

Mothers have sometimes expressed frustration at their lack of success in expanding their children's eating patterns and getting them to try unfamiliar food (Pill & Parry, 1991). Neophobia is usually overcome by providing the opportunity for the child to taste the new food at regular intervals, particularly for the child to learn that there are no negative physiological consequences (Birch et al., 1987; Birch & Fischer, 1996, Birch, 1997a). Yet studies have also shown that regular exposure to a food not only results in long-term increase in preference for that food, but also a temporary decrease in preference. This is known as sensory-specific satiety and is fairly powerful in children (Hetherington & Rolls, 1996). Overall, findings suggest that although children have a strong preference for familiar foods, this is not necessarily inconsistent with their seeking out new foods and coming to accept them.

Research by Pelchat and Pliner (1986) has shown a relationship between the amount of variety in children's diet and children's willingness to accept novel foods. One explanation offered was that parents who commonly try new foods may offer their children a wider variety of foods. However, the converse of this is very likely also true. Ritson, Gofton and McKenzie (1996) have commented that while it is plausible that children who receive varied diets become more accepting of novel foods, it is also possible that children who are more interested in novel foods get offered more varied diets.

The literature on the extent of similarity between parental food preferences and choice and those of young children has identified a number of contrasting points. On the one hand, some researchers have shown that the preferences of young children resemble those of the

same-sex parent (Vornauf Burt & Hertzler, 1978; Birch, 1987). Yet a meta-analysis of the relationship in food preferences between parents and children resulted in only a minor significant correlation; although the strength of the correlation was similar for mother-child and father-child pairs (Borah-Giddens & Falciglia, 1993). It appears however, that in all the studies reporting significant incongruency in parent-child preferences, the children were quite young (2-7 years of exposure). In contrast, in studies that found congruency in family members' food preferences, choice or consumption, the subjects were usually parents and older offspring (Laskarzewski et al., 1980; Eastwood et al., 1982; Hertzler, 1983b; Stafleu et al., 1995, 1996; Lemke et al., 1998). These latter findings seem to indicate that any resemblances in parent and child food preferences or choices can be mostly attributed to years of experience of a fairly similar staple diet.

Proponents of the theory that children's food preferences are similar to those of both parents also suggest that this sameness may be partially explained by the high priority given to father's food likes in family menus, even though the mother is the principal menu planner (Vornauf Burt & Hertzler, 1978; Koivisto Hursti & Sjoden, 1996). Some researchers have tried to describe this complex role of the wife/mother in relation to food choice for the family by emphasising the difference between responsibility and control: "Although women may have the day-to-day responsibility of food provision for their families, it is *men* who have the power to control" (Charles & Kerr, 1988, p. 40). Yet other researchers have suggested a gradual breakdown of the allegedly conservative influence of the dominance of the husband's tastes within the setting of the family (Beardsworth & Keil, 1997), a situation which may be the case amongst a number of younger Maltese families.

2.3.3.4 Sibling And Peer Influence On Children's Food Preferences And Intake

A few researchers have concluded that children more closely resembled siblings in their food preferences than they resembled mothers or fathers (Hertzler, 1983a, 1983b; Pliner & Pelchat, 1986). The reasons they forwarded were: (a) siblings are more similar than parents in terms of age, and are therefore more likely to be imitated; (b) child-sibling pairs have similar amounts of exposure to various foods (to a greater degree than child-parent pairs); and (c) there is a greater genetic similarity in sibling pairs versus parent-offspring pairs. In one study, 24% of a child's dislikes were similar to those of an adult, yet 76% were similar to those of a sibling (Hertzler, 1983b).

Resemblance between children's food preferences and intake and those of their peers has often been taken for granted; yet the issue has not been rigorously studied. In three old experimental research studies children were exposed to peers who preferred a food which they themselves did not prefer (Duncker; 1938; Marinho, 1942; Birch, 1980). After exposure, the target children's preferences reversed to match those of the peer models, and this reversal endured for a number of weeks even in the absence of the original social influence. In a more recent study with US schoolchildren, peer likeability played the strongest role in predicting children's eating-related concerns (Oliver & Thelen, 1996). In another study on children and food advertising, it was concluded that peer food preferences and television food advertisements which presented similar information could function as additive sources of influence (Stoneman & Brody, 1981). The researchers suggested that peers' choices were often interpreted by the viewing child as representing the preference of the child's larger peer group. One interesting finding which has emerged from research is that children themselves do not believe that they mimic the eating behaviours of their peers, whereas this belief is held very strongly amongst adults (Kirby et al., 1995). In one local study, approximately one in three (31%) Maltese parents believed that friends influenced their children's food choices and behaviours (Costa, 1998). Considering these findings, perhaps it would be more accurate to state that it is friends of a similar age, rather than peers in general, who have the potential to strongly influence children's food preferences, choices and behaviours.

2.3.4 Determinants And Influences: The Microsystem

The three main threads of this section will be (a) the characteristics of children's food culture and the place of autonomy and snacking, (b) children's reported reasons for food preferences, and (c) children's beliefs and knowledge on food and nutrition.

2.3.4.1 A Children's Food Culture

Children have their own food culture. This is reflected in their food inclinations, food desires and food practices. Very little sociology-related or pedagogy-related work seems to have been published in this area, though food developers and marketers would undoubtedly be very sensitive to the current food culture of children. A fairly old study by Rousseau (1984) reported attributes which characterised children's food choice and eating practices. (See Table 19). These attributes included physical features influencing the sensory experience, presentation style, mode of handling and creative potential, as well as social aspects related to sharing and cultural restrictions. For example, Rousseau explained that for adult foods

TABLE 19
Characteristic Features Of Children's Food Following Rousseau

- Food which can be crunched
- Food which can be chewed
- Food which can be eaten in small quantities
- Food which is shareable with other children
- Food which allows for fantasising and play
- Food which can be eaten at any time of day
- Food which can be eaten in any place
- Food which requires minimal packaging so it can be handled directly
- Food which requires no utensils

(Adapted from Rousseau, 1984)

there are expected table manners, whereas for some children's foods manners are not essential. Moreover, children's eating which took place alone or with peers was more likely to take place between meals and in unstructured settings without utensils. The presence of Rousseau's attributes in Maltese children's food culture seems strong. Having said this, however, although children may well create a world of their own, day-to-day decisions regarding what, when and how they will eat lie mainly in the hands of adults.

Now and again, children as young as 5-7-years-old are given opportunities for some autonomy in their food choices, although the parent-child balance in power is heavily biased towards parents (Birch & Fisher, 1996, 1998; Nucci & Smetana, 1996). Exercise of this power differential varies according to gender of the child, with boys being favoured.

Typically, snacks are one component of children's food culture which gives them some control over their food intake (Stockley, 1993). Children probably exert more influence over snacks than any of the other 'meals' and many children assist in the making and preparation of their own snacks for school and home (Kirby et al., 1995; Domel et al., 1996). In Malta, common opportunities for autonomy are when children are allowed to choose freely from snacks available in the home, when they are allowed to prepare a snack on their own, or when they are given money to buy food without the supervision of an adult or older sibling, such as on the way to or from school, from neighbourhood shops, on the way to catechism, at the beach or at a public event. In fact, a study with Maltese 8-10-year-old children found that 23% bought food from vans outside the school gate, 25% bought food from school tuck-shops and 52% bought food from shops in the school vicinity (Costa, 1998).

2.3.4.2 Children's Reported Reasons For Liking/Disliking Foods

In her study with Maltese 8-10-year-olds, Costa (1998) asked children to list their five most liked foods and their five most disliked foods giving reasons for their choice. The foods children enjoyed eating most were pasta, pizza, chips, fruit and burgers. The least liked foods were vegetables, meat, fish, soup and fruit. Preferred foods mentioned by the children varied from child to child and the same foods that appeared on the list of liked foods for some children also appeared on the list of disliked food for others (e.g. fruit). The majority of reasons for liking or disliking foods were related to sensory qualities of the food, including taste, texture and smell. Other reasons highlighted the presence of particular ingredients; for example, cheese in the pizza. Some children also mentioned actual handling factors, such as the ease of eating chips (positive) and the messiness of eating juicy fruit (negative).

Children's reported reasons for liking or disliking foods have often been explored in other countries as well (Rozin & Fallon, 1980; Fallon & Rozin, 1983; Ross, 1995; Koivisto Hursti & Sjoden, 1996). The major reasons which have emerged are categorised in Table 20. Taste, texture, convenience, fun and the context of consumption were the influences which accounted for most of the variation in food preferences. Thus, apart from sensory factors, other attributes of the food itself and of the food consumption environment were also crucial. This recalls what has already been discussed regarding characteristics of children's food culture, confirming that this culture is a reflection and manifestation of preferences.

TABLE 20
Children's Reasons For Liking/Disliking Foods

Like	Dislike
<ul style="list-style-type: none"> • Good taste • Smell • Appearance • Texture • Presence of particular ingredients • Wholesome • Satiety value • Convenient to prepare and eat • Fun to prepare and eat • Situational (e.g. where, how often and with whom it is consumed, plus who prepares it) 	<ul style="list-style-type: none"> • Distaste • Smell • Ideational/Disgust • Negative consequence/Danger • Unhealthy • Bored • Neophobia • Situational (e.g. where, how often and with whom it is consumed, plus who prepares it)

Adapted from Rozin & Fallon, 1980; Fallon & Rozin, 1983; Ross, 1995; Koivisto Hursti & Sjoden, 1996; Costa, 1998

Of note is that expedience was one of the most common factors which attracted children to particular foods in all the above studies. So much so, Rodin (1980) has explained that the ability to prepare some foods without adult supervision, or the option of not having to use cutlery, may make some foods more expedient than others for children. One does not normally associate food and expedience with children. However, in Malta for example, children of working parents who leave early for work may find it more practical and convenient to have a breakfast of cereal, juice and milk which requires little preparation and supervision. Or it might be more convenient for children to stop at the corner take-away and buy a slice of pizza on their way to private tuition, rather than rushing home and grabbing a snack before rushing out again.

The situation or context for the consumption of a food was also mentioned by children as one of the reasons for liking or disliking an item. In fact, one can say that children are often exposed to a new food, prompted to try a new food, or start acquiring a preference for a new food in a formal setting (e.g. school) or less formal social setting (e.g. parties in fast food outlets). Research by Birch, Zimmerman & Hind (1980) has revealed that the quality of the socio-affective context in which eating occurs can affect the formation of food preferences. Just by providing a positive social context, preference for a food increases. Booth (1994) has described how the socio-affective process works using a typical example from a Westernised child's life:

“Children are often seen to eat foods out of the home that they adamantly refuse at home. This illustrates the social character of eating. The emotional meaning of a piece of cheese at home...is quite different from the same cheese on a toothpick from a pile from which one's playmates are grabbing handfuls at a friend's birthday party. It would not be surprising if the child even thought the cheese tasted better at the party.” (p.37)

With this example in mind, I would tend to agree with Letarte, Dube & Troche (1997) who posited that within the dimension of context, the impact of social influence on food preferences goes beyond social reinforcement and involves incidental learning.

2.3.4.3 Children's Beliefs And Knowledge On Food And Health

Over the years, fairly extensive research has been conducted with children exploring their food perceptions and beliefs, as well as their understanding of food messages. Below I will describe a few studies which have focused primarily on the relationship between food, nutrition and health. Although the studies sometimes involved children younger or older than

my intended research population, I have included them here as their findings could help to inform my research problems and tools.

In a comparative study of Greek and British children (Turner, Zimvraiki & Athanasiou, 1997), the focus was on 10-11-year-olds' knowledge and understanding of dietary fat and health. Findings indicated that many of the children perceived fats as solids and related to meat. They rarely distinguished between different types of fat, which the researchers surmised could be the reason why the majority of the children did not categorise oils as fats. Although the children in the study thought that fats were bad for them, they admitted eating fatty foods because they liked them, or because they were part of their everyday experience of eating at home. The study also indicated the importance of the family, particularly the mother, as both a source of information and an influence on the way in which the children thought about food. Overall, the researchers found that there was a remarkable agreement between responses, despite the children's different socio-cultural backgrounds. They remarked that their findings were not unexpected however, considering the increasing homogeneity of the food markets in Europe and the universality of information through the mass media. One of their main conclusions was the importance of uncovering 'common-sense' understandings that children have about food and diet and subsequently informing or training educators.

Neale, Otte & Tilston (1994) investigated 9-11-year-old English and German children's attitudes towards and perceptions of sweets. English children showed a stronger positive attitude to decreasing sweet consumption, with the girls' attitude being slightly stronger (86% vs. 76%). The German children were divided however, with the girls' attitude being very positive to decrease consumption (92%) and the boys' attitude stronger to increase consumption (54%). When asked about perception and understanding of the term 'sweets', the perception as sweets of chocolates and its products, followed by ice-cream and crisps was significantly higher amongst German children ($p < 0.0001$). A smaller significant difference in favour of the English children was found in their perception of chewing gum as sweets. The researchers commented on possible reasons why crisps and *Coke* were perceived as being sweets by a larger proportion of the German children. Firstly, availability of small crisp bags is not common in Germany, thus the German children's responses could be indicative of this difference in availability, or a reflection of their perceiving crisps as undesirable foods. Secondly, with increasing emphasis and marketing of diet *Coke* in England, the image of *Coke* as a drink high in sugar may have been modified in this

country. In contrast, the emphasis in Germany may still be on the traditional, high-sugar beverage, leading German children to perceive it in the 'sweets' category. This study clearly demonstrates the role of gender, food availability and marketing on children's attitudes towards and perceptions of food.

Singleton, Achterberg and Shannon (1992) conducted research on the role of food and nutrition in the health perceptions of US children aged 4-7 years. Their results suggested that young children possessed the ability to comprehend at least some abstract concepts related to food, eating behaviour and health, such as "energy", "a strong heart", "eating the right kinds of foods will keep bad germs out of your body", "eating good foods will help you have strong bones," and "when you don't eat lots of fat, your heart will be strong and keep you healthy."

A study conducted by Murphy et al (1995) replicated some of the findings by Singleton, Achterberg and Shannon (1992) and also showed that children understood well the term nutrition ("eating food that is healthful or good for you"). Although the children could not define the term variety, they knew why it was better if they ate different types of foods. They were also able to provide some correct information about nutrient composition and functions of food groups and they clearly understood the relationship between eating too much food and having too much body fat. Responses to a question on consequences of having too much body fat were related to feelings, physical discomfort and health. The children were fairly adept at naming foods with a lot of fat, yet they seemed unable to differentiate beyond the categorisation of "good" versus "bad" food in order to group foods successfully according to sugar, salt and fat content. These findings suggest that the link between food and health and awareness of body image is already strong in young children's perceptions. However, children may have misperceptions related to nutritive content. Moreover, good-versus-bad categorisation schemes seem challenging.

Research by Lytle et al (1997) on US 5-13-year-old children's interpretation of nutrition messages confirmed a number of the above findings. They concluded that children in the pre-operational and cognitive stage of development had difficulty interpreting abstract concepts such as 'nutrients'. Additionally, statements such as "Eat a variety of foods" or "Maintain a healthy weight" were poorly understood by the younger children. Children in Kindergarten to Grade 2 (7-year-olds) had some difficulty in naming high-fat foods which they seemed to use synonymously with all treats and snacks. Children in all the studied

grades (Kindergarten to 12-year-olds) held strong attitudes about sugar being a 'bad' food. Often, all 'bad' foods were grouped together, whether they were high in fat, salt or sugar. The researchers expressed their concern that children were receiving strong messages about 'good' and 'bad' foods and recommended the introduction and use of the concepts of 'everyday' or 'sometimes' foods to guide children. This study highlighted that the wording used in nutrition messages can vary in its impact on attitudes and knowledge and that wording should be chosen wisely to avoid negative outcomes. Lytle et al (1997) warned that "Looking at food, eating behavior, and self in a dichotomy (good/bad, healthy/unhealthy, in control/out of control) may lead to unhealthy eating behaviors and unhealthy attitudes about eating" (p. 135).

2.3.5 Studies Showing Multi-level Interactions Within Children's Food Behaviours

The above discussions have shown that different factors in different ecological levels interact as they influence children's food preferences, choice and intake. Only a few studies have tried to explore this multiple influences scenario as it applies to children and food, perhaps again reflecting the complexity of the factors involved.

Research with US 5-13-year-olds revealed how their food choice criteria were affected by influences from different ecological levels (Michela & Contento, 1986). In general, the results suggested that personal food taste preferences were strongly influential in food selection, that cognitive-motivational processes began to operate in the food choices of children at the age of about 6 or 7 years, and that social and environmental factors were also powerful, potentially enhancing or suppressing personal factors in particular situations.

Another US study assessed multiple influences on 4-8-year-olds' eating behaviour and associated events (McKenzie et al., 1991). Influences recorded included antecedents (e.g. prompts, imitative modelling), consequences (e.g. statements and contingencies), the person delivering antecedent and consequent stimuli (e.g. mother), and social and ecological/environmental variables (e.g. whether food was available, whether the child viewed television whilst eating). Two key results were that prompts for eating were associated with frequency of food ingestion at home but not at school, and that social interactions appeared to be strongly related to child health behaviours.

2.3.6 Salient Issues Emerging From The Literature

The literature has shown that children are constantly affected by influences and factors in various surrounding environments and these impinge on their food perceptions, beliefs, preferences, requests and intake. In certain settings children will be able to manipulate these influences and factors; many times they will not. Children are still very much dependent on the adults and institutions in which they participate for decisions regarding their everyday actions including food consumption. The family and the mother in particular seem to play a multitude of roles.

Families are functioning within the larger environments of the global and local food culture, public health agendas and economy. These different environments influence not only actual food availability, but also rules and procedures regarding presentation of the food and which foods have more value in both a physical and symbolic sense. Certain foods are perceived as having higher value than others, or as more appropriate for certain individuals, times of day, locations or occasions. As children are growing they constantly experience food-related cultural referencing.

Predominant staple foods and strength of the traditional cuisine are bound to shifts in food distribution and marketing, to introduction of new foods on the local market, as well as to family members' observation and interaction with people and food practices of foreign cultures. Particular population groups may be more likely to embrace new foods, or feel less bound to cultural norms. Perhaps, children may also be categorised amongst these groups. In addition, television food portrayal is considered a key source of exposure to different cuisines, new foods and food-related messages. Food advertising targeting children has been linked to increased purchase requests for advertised foods, unfortunately often of poor nutritional value.

The family has a major role in the variety of foods children are exposed to. This may impact on children's food perceptions, preferences and eventual consumption. Family lifestyle is likely to influence provision of food in different settings. Family routines and out-of-home commitments may determine which foods are eaten at which times. Family SES may influence amount and variety of foods available; not only in relation to affordability, but also in relation to food restrictions and prescriptions for health reasons. However, eating out at fast food outlets may not be SES-related. In fact, where children are concerned, SES may be more salient when consuming staple foods or when eating in the company of adults,

rather than when consuming so-called 'children's foods' or when eating in the company of peers.

Parents are key players in introducing children to new foods and their own behaviours may influence their children's neophobia. Simultaneously, perceiving a willingness by their children to try new foods may encourage parents to offer such foods. There exists controversy, however, on similarity between parents' and children's food preferences; with the results tending to indicate that there could be greater similarity between the preferences of siblings. Peers, most probably close friends, also influence children's food perceptions and food choices, including willingness to try new foods and the perceived physical and social impact of consumption of certain foods.

The literature seems to point to the existence of a children's food culture where certain food attributes characterise the foods commonly consumed or preferred by children. These attributes are linked mainly to physical properties of the food (e.g. taste, texture), but also to social aspects (e.g. shareability). Children's likes and dislikes are inextricably linked to this children's food culture. Of note is that from the child's perspective, expedience in preparation, transportation and consumption of food is one determinant of food preferences. The socio-affective context in which foods are presented can also determine development of preferences in young children. The more positive the setting in which a new food is presented, the more likely the food will be accepted. Although children's food intake is primarily determined by adult food providers, there are certain situations when children do exercise autonomy in food choice. In-home snack preparation and out-of-home snack choice or purchases are typical of such situations.

Knowledge of food-health links is another potential influence on children's food perceptions, preferences and behaviours. Children of around 7 years of age seem to be able to comprehend the basic benefits of consuming healthy foods, as well as the detrimental health value of fats and sugary foods. They can also explain the importance of consuming a variety of foods, although it is unlikely that they are capable of comprehending advanced nutritional concepts. Children seem to find it difficult to distinguish between solid and liquid fats and to correctly categorise certain foods as sweets. There could also be gender differences in food perceptions and in behavioural intent regarding consumption of particular foods. So much so, a link between consumption of high fat foods and body image has been

identified even in young children. Children's attitudes regarding certain foods may also differ according to how the food is presented in local retail outlets and how it is marketed.

In the above literature review, it was sometimes difficult to parcel various influences and factors into one ecological level as these influences and factors often transcended levels. The discussion frequently moved back and forth between levels. Yet, this is the nature of an eco-systems approach and it is for this purpose that an ecological model was used to guide this investigation of the influences on and determinants of Maltese children's food preferences, choice and intake. The model was used to cut into multiple levels and offer snapshots of the causal chain, rather than to depict the entire causal process. In this regard, my study was also inspired by Furst et al (1996) who recommended a constructivist approach to food research. This allows for exploration of the ways people engage in the food choice process by incorporating the meanings and understandings that they create in their food choice negotiations, including elicitation of the range and strength of the influencing factors. According to Kagitcibasi (1988), "The solution of the problem of complexity is not in simplifying it by artificially imposing upon it a simplistic research design, but rather in grasping and tackling the very complexity." (p.29)

2.4 Statement Of Research Questions

Based on the review of literature conducted, and bearing in mind that abundant studies had already been conducted in the realm of psychology on sensory attributes of food and cognitive and attitudinal motivations for children's food choice, but little had been done in the field of sociology, the following theoretical research questions formulated my study:

- Which theoretical framework would best explain differences and/or similarities in food perceptions, beliefs, preferences and intake of specific groups of Maltese children?
- Was Bourdieu's Theory of Practice suited to explaining food consumption of Maltese children?
- Were aspects of consumption theory (such as informalisation, individualisation, communification or stylisation, as well as exchange value, use value and identity value) evident in the food-related behaviours of Maltese children?
- Was Social Cognitive Theory useful for explaining the food perceptions, beliefs and preferences of Maltese children?

The focus was, therefore, on a socio-ecological rather than a psychological perspective to explore influences on Maltese children's food choices and behaviours and to inform development of theory, policy and practice in the field of nutrition education for young children.

METHODOLOGY

3.1 Choosing A General Design And Methodology For The Research

This chapter gives a detailed overview of the various stages in my research. The objectives, methodology, choice of sample, research tools, data collection procedure and data analysis will be described for each stage, with reference to the relevant literature in order to justify decisions taken. The results of the first two stages of the study will be discussed briefly in this chapter as they provided the foundation for subsequent stages. Outcomes of the other stages of the research will be described and discussed in Chapter 4.

3.1.1 Framing The Research

Bronfenbrenner's (1989a) Ecological Model originally provided the framework for the different components of the research study. This model was selected because it offered a definite structure for exploring the multitude of factors influencing children's eating habits. As the study progressed, the Social-Ecological Model by McLeroy et al (1988) was also considered to guide the research process. As stated in the review of literature, the key advantage of an ecological model is that it provides a framework to collect both content-specific and contextual information in a systematic way (Newes-Adeyi et al., 2000).

With the goal of comprehensiveness and sensitive to the interaction of factors at different ecological levels, I adopted a multi-stage, multi-method design using both quantitative and qualitative paradigms. The use of different data gathering events and techniques from different sources is known as triangulation and has been recommended for food and health-related studies in general (Patton, 1980; Achterberg, 1988; Knafl et al., 1988; Green, Caracelli & Graham, 1989; Morse, 1991; Steckler et al., 1992; Breitmyer, Ayres & Knafl, 1993 ; Oakley et al., 1995; Porcellato et al.,1999). It has also been recommended to explore potential intrapersonal, interpersonal and larger environmental influences on and determinants of children's food behaviours (Bronfenbrenner, 1988; McLeroy et al., 1988).

Triangulation of sources and methods allows for a holistic depiction of the individual or group under study. Triangulation using qualitative methodologies is critical when (a) the concept being studied is immature due to a conspicuous lack of theory and previous research, (b) a need exists to explore and describe the phenomena and to develop theory, and (c) one needs to elicit the influences on and meanings of choices, particularly the impact of culture (Morse, 1991; Shaw & Clarke, 1998). Triangulation also enables the strength of one method

to compensate for the flaws of another (Knafl et al, 1988). Findings from each method can be cross-validated, thereby enhancing validity and confidence in the results. Lytle et al (1997) assert that “only qualitative data can provide rich insights into how individuals think about and understand issues in their own terms” (p. 130).

Both quantitative and qualitative methodologies were utilised to examine the phenomena in different ways and allowing the data at each stage to establish the focus for subsequent stages. Such process is in line with the grounded theory approach where a topic of investigation is examined from the point of view of the participants and it is the data which guides the development of the research through exposing areas where further enquiry is warranted (Lincoln & Guba, 1985; Patton, 1990; Strauss & Corbin, 1990; Creswell, 1998). Charmaz (1995) has suggested that grounded theory methods are suitable for studying individual processes and the reciprocal effects between individuals and larger social processes. Hence, they are useful for fact-finding descriptive studies, as well as more conceptually developed theoretical statements. The grounded theory approach has been successfully used in studies to understand food behaviour amongst adults and adolescents (Devine et al., 1998; Novotny, Han & Biernacke, 1999; Ahlqvist & Wirfalt, 2000; Edstrom & Devine, 2001; Paisley, Sheeska & Daly, 2001; Smart & Bisogni, 2001; Bisogni et al., 2002), but it has rarely been used in exploring children’s food-related perceptions and practices (Connors, Bednar & Klammer, 2001).

3.1.2 Methodologies, Techniques And Tools Used In Food Research With Children

In my initial review of literature I came across a number of methodologies, techniques and tools suitable for research with children. Table 21 outlines those most commonly used in both the qualitative and quantitative paradigms. In making my choices, the merits and limitations of each of these common data collection methods was considered in turn as will be explained below.

**TABLE 21
Methods Most Commonly Used In Food Research With Children**

Qualitative	Quantitative
Observations	Food records and Food recalls
One-to-one interviews	Diet history
Focus Group interviews	Food frequency questionnaires
Draw and Write Technique	Food rating techniques

3.1.2.1 Observations

Observation of children's eating behaviours has a number of advantages, particularly with children too young to recall food intake accurately. Observation can provide accurate measures of type, frequency and quantity of food intake, as well as the social and physical context in which it occurs (McKenzie et al., 1991; Simons-Morton & Baranowski, 1991). It is also a potentially effective external validator or standard against which to measure other data collection methods, such as self-report. However, observation of large samples, or over long time periods, is labour intensive and expensive. In addition, observation is subject to sampling errors due to day-to-day, weekday-weekend and seasonal variation. Furthermore, obvious or intrusive observation is likely to result in measurement reactivity, thereby preventing valid assessment and generalisation of results. Efforts which have been employed or were recommended for reducing reactivity are generally time-consuming or costly (Stunkard & Waxman, 1981; Baranowski et al., 1986; Davidson, Hayek, & Altschul, 1986; de Castro, 1997). These various drawbacks eventually precluded my use of observation as one of my research methodologies, despite its naturalistic approach.

3.1.2.2 One-To-One And Focus Group Interviews

One-to-one interviews and focus groups have been reported as particularly useful for data collection amongst populations who have limited literacy skills (Ross, 1995; Lytle et al., 1997; Kraak & Pelletier, 1998). In fact, one-to-one interviews have been widely used in food-related research with children, looking amongst others at their perception of foods, their food classification schemes, their interpretation of nutrition messages and verbalisation of food recalls (Contento, 1981; Michela and Contento, 1984; Neale, Otte & Tilston, 1994; Murphy et al., 1995; Lytle et al., 1997; Turner, 1997; Neale, Otte & Tilston, 1998). Interviews with children usually do not last longer than 30 minutes and are generally structured or semi-structured. However, Singleton, Achterberg and Shannon (1992) have advised against the use of close-ended, forced-choice questions with young children, whilst Domel et al (1994) have recommended involving preference and visual imagery as retrieval mechanisms; for example prompting children to report foods eaten according to how much they liked or did not like them. Interviews with children are often combined with a task to make them more enjoyable, as well as to collect supplementary or complementary data. (See Table 22). A major disadvantage of one-to-one interviews is that they are labour and time intensive. This was a key consideration when I was deciding on my methodology, as I was the sole potential interviewer. Hence, my attraction to focus group interviews where a number of children could be reached simultaneously.

TABLE 22
Tasks And Props Used In Interviews With Children

Author(s)	Goal	Prop Or Task
Contento (1981)	To gauge children's behaviour related to nutritious and non-nutritious snacks	Children offered a snack to choose after the interview
Contento (1984)	To uncover children's spontaneous classification of foods	Children asked to sort pictures of foods into piles by whatever criteria came to mind
Turner (1997)	To explore children's criteria for food classification	Children used a set of 30 food pictures
Neale, Otte & Tilston (1994, 1998)	To identify children's perceptions, preferences, choices and behaviours in relation to snacks, fruits and vegetables	Children presented with coloured photographs, illustrative material and coloured stickers for answering questions.

Several authors have outlined the value of focus groups for obtaining in-depth information and for allowing researchers to explore anticipated and unanticipated answers, or alternative explanations for a particular area of interest (Basch, 1987; Ramirez & Shepperd, 1988; Glesne & Peshkin, 1992). Other researchers have highlighted the advantages of focus groups over one-to-one interviews (Stevenson & Lennie, 1992; Green & Hart, 1999). These advantages include that the group interview allows more interaction between respondents; that participants in the group interview obtain immediate feedback on their own views as their stories are challenged, corroborated or marginalised by their peers; that the turnaround time and cost for group interviews is shorter than for individual in-depth interviews.

Focus group interviews have been used in health-related research with young children, being described as less intimidating than one-to-one interviews and having the added advantage that the group dynamic stimulates thinking and encourages respondents to build on each others' responses (Stevenson & Lennie, 1992; Krueger, 1995; Betts, Baranowski & Hoerr, 1996; Wood Charlesworth & Rodwell, 1997). Yet, Green and Hart (1999) have voiced their concern that restricting the conversation to one topic compromises naturalism as children would not normally discuss a specific topic in such depth. However, Howland et al (1989) concluded that focus groups can be effectively conducted with children "if the topics of discussion are relevant to their routine behaviours" (p.744).

At the start of my study, there were very few published studies involving the use of focus groups in food-related research with children. For example, one study had analysed children's interpretation of nutrition messages (Lytle et al., 1997) and another two had

explored strategies for improving fruit and vegetable consumption (Baranowski et al., 1993; Cullen et al., 1998). Similar to one-to-one interviews, a focus group setting which had worked effectively had involved no more than nine participants, was kept to under 30 minutes and engaged the children through the use of creative imagery, posters and collages. Clearly the use of the focus group interview to explore food issues with young children was still a novel idea, and there was much scope for trial, variation and refinement of technique. This potential for innovation together with its various other advantages, attracted me towards using focus group interviews as one of my methodologies.

3.1.2.3 The Draw And Write Technique

During the 1990s there had been a growing interest in the utilisation of the Draw and Write Technique (DWT) when working with children on health and food issues (Williams et al., 1989; McWhirther & Weston, 1994; Zivkovic et al., 1994; Oakley et al., 1995; Pridmore & Bendelow, 1995; Pridmore & Lansdown, 1997; MacGregor & Currie, 1998; Porcellato et al., 1999). The DWT requires children to draw pictures and write a statement according to specific invitations read out loud in the classroom by the researcher. The invitations can be posed in the first or third person, though McWhirther and Weston (1994) have reported that the former works best for 6-8-year-olds and the latter for older children. When children do not wish to, or are unable to write, an adult scribe assists them. The various benefits of DWT include that it stimulates day-to-day school activity, it meets the requirements of a large-scale survey, it is a child-centred approach which enables all the subjects to participate at their own level (also if too young, or unable, to write), it provides insight into children's belief systems at different stages of cognitive development and it is a quick way of identifying major categories of information.

However, there are certain limitations in using the DWT. What children draw is influenced by the 'pictures' they see in their environment and whether children's drawings represent their own personally meaningful views, or are merely publicly acceptable representations is debatable (Backett-Milburn & McKie, 1999). Children might also draw what they find easy to depict (skills specific to drawing will evolve at different times and to different levels for children). Furthermore, recent lessons or experiences might affect what is depicted and the content of the drawings might be affected by friends' proximity, or a desire to please the teacher. Researchers have also cautioned that younger children may not have literacy skills to add much to their drawings and, for them, 'drawing and dialogue' may be better. Other drawbacks are that younger children may not be able to articulate their ideas in such detail

as older pupils and there could be problems with eliciting non-conferred responses in the classroom setting (Pridmore & Bendelow, 1995; MacGregor & Currie, 1998). Moreover, the teacher and researcher must be careful to minimise the chances of influencing a child's response. As a result, teachers need to be adequately briefed and this may be time-consuming. In addition, the DWT is often used in tandem with other data collection tools, such as complementary questionnaires (MacGregor & Currie, 1998), follow-up semi-structured interviews with a sub-sample of the children (Porcellato et al., 1999), or class discussions focusing on recurring themes in the previous DWT exercise (Oakley et al., 1995). Once again, this renders the technique time-consuming.

Given these various disadvantages, I did not deem the DWT as very practical for my research study. However, given its innovativeness and child-centred orientation, I did think it would be worth trialling.

3.1.2.4 Food Records And Food Recalls

Algert and Stumbo (1986) have defined a food record as a "written record made concurrently or immediately following the eating occasion" (p. 198). Names of food and drinks, preparation method, condiments, source of the food, specific brand or restaurant names, times of eating and quantities are listed. Food and drinks are sometimes weighed before consumption for increased accuracy. A food record or recall may reflect anything from one meal to a whole month's intake, although one to three days is the most common data collection period. Data is generally collected during one-to-one interviews, in person or over the phone.

The 24-hour recall has been used in a number of studies with children, focusing not only on nutrient intake (Lytle et al., 1996), but also on consumption of specific foods (Lytle et al., 1998; Reynolds et al., 1999). In general, positive reliability and validity of this procedure with elementary school children has been documented, although children sometimes had difficulty quantifying the portion sizes of foods and both over-reporting and under-reporting were found in the portion size and in frequency of consumption of food (Emmons and Hayes, 1973; Van Horn et al., 1990; Lytle et al., 1993). Consequently, the 24-hour recall has also been combined with other data collection methods, such as observation at school and/or at home (Baranowski et al., 1986; Jonsson, Gummesson & Svensson, 1998), or parallel recordings by parents (Van Horn et al., 1990) in order to validate the data. Researchers have also cautioned that although a single recall is adequate for characterising consumption

for group comparisons, multiple assessment days minimise intra-individual variability and provide a more reliable estimate of a child's typical dietary consumption (Blom et al., 1989; Reynolds et al., 1999).

Overall, food records and recalls emerged as not being efficient tools for my study, as they provided much more detail than was required to reach my research goals. Moreover, in order to guarantee precision of responses, data collection would be extremely time-consuming and labour intensive. On the other hand, the literature on this research method had shown that older primary school children were reliable chroniclers of their food intake and that recall was enhanced through use of visuals. This confirmed that some specific information on food intake patterns could be reliably sought from children with appropriate data collection tools.

3.1.2.5 Food Frequency Questionnaires Or Diet Histories

Given the findings on food records and recalls, I next considered the use of Food Frequency Questionnaires (FFQs) and diet histories. This technique requires respondents to report frequency of intake of a concise pre-established list of foods, often selected for their contributions to intakes of nutrients or eating patterns of interest. Respondents are asked to indicate whether a food is usually consumed on a daily, weekly or monthly basis and how often it is eaten within that time-frame. They are also sometimes asked to report on portion size.

FFQs have often been used with schoolchildren (Persson & Carlgren, 1984; Baranowski et al, 1986; Crawford et al., 1994; Domel et al., 1994a, 1994b; Rockett, Wolf & Colditz, 1995; Baranowski et al, 1997a). However they are not recommended for children less than 9 years of age without the assistance of parents or food providers, or without rigorous validation. Used with young children, FFQs are prone to yield a high percentage of phantom foods and errors in food quantification. On the other hand, the participation of parents during data collection and the use of common food terms increase reliability, even producing better test-retest reliability than 24-hour recalls (Randall, 1991). In fact, one study involving the use of FFQs with US children found relatively high agreement between children's reporting and validation methods and attributed this to parental participation in completing the form and use of common food terms (Baranowski et al., 1986).

Eventually, I judged the FFQ as a potentially useful tool for my research, given its efficiency in collection of information about general eating habits, yet despite its age-related drawback. Table 23 summarises key points which I felt would help me construct an appropriate FFQ for use with children as based on Randall's (1991) research. Table 24 outlines Teufel's (1997) six-step process for creating and testing a culturally-competent FFQ. I was struck by this latter process which Teufel had advocated in order to decrease miscommunication and improve the validity of the data. In fact, a study by Hertzler (1983) had illustrated the potential presence of many sub-cultural groups when working with children and food. In designing a FFQ for use with children, she had reduced a list of 134 foods generated from 113 children's food records to 20 foods by selection of those items consumed by 20% or more of the children being investigated. This was an interesting procedure and one which I felt would further help me construct a reliable FFQ.

TABLE 23
Constructing A Food Frequency Questionnaire For Use With Children

Aspect Of The Design	Guideline
The Food List	Food names listed have to be very specific. Children are prone to interpret questions literally and may fail to recognise that a composite food group name (e.g. tomatoes) may include commonly consumed items (tomatoes in salads, in sauce etc.)
Time Intervals	Time periods need to be fixed by meaningful start and end points. Children conceive of the past as being "before now" and this may make it difficult for them to estimate frequency of food use during a specific interval.
Response Set	Children tend to respond affirmatively to authoritatively phrased questions by adults and will often adopt a response set when they are unsure of the question, do not have an opinion or are disinterested.
Context of Questioning	Words used must be familiar to the child and consistent with the child's definition of a given situation.
Structuring the Questionnaire	Easy questions or topics of interest should be broached first, with difficult or threatening questions asked last. Active participation such as a card sort approach may facilitate data collection.

(Adapted from Randall, 1991)

TABLE 24
Constructing A Culturally-Competent Food Frequency Questionnaire

Step	Action
1	Development of a culture-specific food list
2	Determination of culture-specific food groups
3	Creation of a culture-specific database
4	Definition of culturally-defined portion sizes
5	Validation of questionnaire (e.g. comparison with 24-hour recalls)
6	Re-administration of questionnaire to test reliability

(Adapted from Teufel, 1997)

3.1.2.6 Food-Rating Techniques And Instruments

Instruments measuring multi-dimensional factors related to food choice have sometimes been used with adults, but less frequently with children (Lau, Krondl & Coleman, 1984; Michela & Contento, 1986; Rappaport, 1992; Steptoe, Pollard & Wardle, 1995; Monteleone, Raats & Mela). Different foods have been rated on a number of attributes, such as pleasure, taste, health, convenience, familiarity, tradition, prestige, social influence and price. The advantage of this rating method is that it circumvents the need for respondents to give introspective reports on their motives, but it has the drawback of being time-consuming, inappropriate for large-scale research and potentially too challenging for some children if only semantics are used. So much so, rating methods developed for work with young children have generally been more task-oriented and used props, such as smiling/neutral/frowning faces to assess food preferences (Birch & Sullivan, 1991), or cut-out circles of increasing size to denote a scale of 'worst' to 'best' foods (Michela & Contento, 1986). Reading up about food rating techniques, I considered them to be fairly attractive, as they could uncover children's valuation of foods and make the data collection process more animated. Nonetheless, I was aware that the constructs tested would need to be clearly comprehended by the children, that any props would need to be neutral enough not to create bias and that one-to-one sessions would be necessary. At best I felt the technique could be used as a follow-up methodology with a small group of children, focusing on a specific food issue of interest which emerged from the data. Alternatively, a variation of the technique could be used as a complementary method where the children rated food-related information which they had already provided.

This initial review of the methodology, helped me establish a fairly clear idea as to which methods, techniques and tools I felt would help me reach my research goals, whilst simultaneously providing me with the opportunity to trial new approaches in food research with Maltese children. It also helped to sensitise me to different methodological processes and tool design features which would help ensure successful data collection. General advice for researchers to increase accuracy when working with children included that data collectors need to minimise children's fear of evaluation, assist with spelling and discourage teacher intervention (Torres, Cullen & Baranowski, 1999).

3.2 Five Stages Of Data Collection

My research study evolved over five separate stages. Table 25 is a matrix of the different stages, outlining the main research questions, methods involved, sources of information and

TABLE 25
Matrix Of The Research Design Highlighting Ecological Levels Addressed

Stage	Method	Main research questions	Source of information	Ecological Level			
				Micro	Meso	Exo	Macro
Stage 1	Initial Investigation	Are there cuisine orientations in children's food preferences?	5-8-year-olds (N=172)	✓			✓
Stage 2	Database Compilation Survey	Which foods and beverages are most commonly consumed by children in different settings?	7-8-year-olds (N=163)	✓	✓	✓	
Stage 3	Eating Habits and Preferences Identification Survey	Which are children's most commonly consumed and preferred foods in ten different settings? Where do children typically eat certain meals? What are the characteristics of family meals? Are there cuisine orientations in children's food choices? Are there group differences in children's food consumption and preferences based on gender, household characteristics, school type and region?	7-8-year-olds (N=1088) Parents (N=935)	✓ ✓	 ✓ ✓	 ✓ ✓	 ✓ ✓
Stage 4	Focus group interviews	What are children's perceptions of healthy foods? What food-specific and environmental factors influence children's food consumption and preferences?	7-8 year olds (N=16 groups X 6 children = 96)	✓ ✓	 ✓	 ✓	 ✓
Stage 5	Telephone interviews	Which factors motivate parents to offer certain foods to their children? How do parents perceive school food policies? What do parents' perceive as motivating food requests by children? What are parents' behaviours in relation to children's food request?	Parents (N= 30)	✓ ✓ ✓ ✓	 ✓ ✓	 ✓ ✓	 ✓

the corresponding ecological levels addressed (following Bronfenbrenner, 1989a). No particular theory was used at the outset to design hypotheses; but rather I started by focusing on children's food choices in different settings according to certain background characteristics and then continued exploration based primarily on what was uncovered as relevant at each subsequent stage of the research. Thus, the questions presented in Stage 2 onwards were not determined a priori, but were developed as an ongoing process. Different ecological levels were addressed at the different stages so that the final picture would illuminate different facets of the phenomenon of Maltese children's food intake. Each stage of the research will be described below in more detail. Meanwhile, Table 26 lists the main assumptions made at the outset of the study.

TABLE 26
Assumptions Made At Outset Of Study

- | |
|--|
| <ul style="list-style-type: none">• That the children in the study were born in Malta and/or would have spent most of their childhood in Malta• That by limiting the study to Year 3 classes most of the children would be between 7 and 8 years of age; this would eliminate a potential confounding factor because the children would tend to be at the same developmental level• That the children had at least one meal a day, as well as one or more snacks• That parents or other adult caregivers provided the majority of the meals for children• That the mothers were most likely to prepare the school packed lunch for their children• That children sometimes consumed food outside the home in catering establishments• That the children would be able to distinguish between weekdays and weekend days• That all the children would have access to a television set which showed the basic channels |
|--|

3.2.1 Stage 1: An Initial Investigation Into Possible Cultural Bias Amongst Maltese Schoolchildren's Food Preferences

3.2.1.1 Objectives

An initial investigation was conducted during the first week of March 1999 to verify my intuitions on potential culture-cuisine orientations in the foods Maltese children consumed in different settings, with social class and regional differences. Children's preferences were

used as an indicator of these potential orientations. The influence of the health value of food in children's food preferences was also of interest.

3.2.1.2 Methodology

In this initial investigation I utilised a pen-and-paper survey, where children from different schools and year groups were asked to fill in questionnaires about their food preferences. Being a preliminary study, I did not strive for scientific rigour, neither with regard to technical representativeness of sample, nor in the validation of research tools. This was a semi-formal exercise to confirm that the major research theme was worth exploring. It was deemed necessary, however, as I wanted to ensure that the research would eventually offer useful results which would be applicable in the fields of health and nutrition education.

3.2.1.3 Description Of Sample

A purposive sample of Year 1 to Year 4 children attending four Maltese primary schools was selected. The sample consisted of girls and boys aged 5-8 years, attending three state and one independent school and representing rural, urban and suburban regions. One of the suburban schools was located close to a tourist resort area. A total of 8 classes were visited over a period of 4 days.

The sample comprised 172 children, split evenly between males and females, and fairly equally among the four sample schools. (See Appendix 3.1). At that stage it was assumed that children were mainly from a lower to middle-class background with the independent school children representing the upper class band due to the relatively high school fees when compared to the average national income.

The sample consisted predominantly of 7- and 8-year-olds (50% and 35.5% respectively) with only very few 5- and 6-year-olds. The reason for this imbalance is that after conducting the research in the first school it was decided that the methodology and tools being used were too advanced for the younger children and would very likely not produce valid and reliable results.

The original sample had consisted of 216 children. However, during data inputting 44 survey sheets were discarded, either because more than 10% of the responses were missing, or because there was evidence of a set pattern of responding.

3.2.1.4 Research Tools

Three original food choice measurement instruments were developed for this initial investigation. (See Appendix 3.2). Unlike traditional Food Frequency Questionnaires (FFQs), the designed measurement instruments did not require precision in period of recall and quantification of intake and were therefore less challenging for the children. Thus, recognising the logistical advantages of using self-report data collection tools, the instruments were regarded as appropriate for reaching the intended objectives.

The three measurement instruments developed comprised sets of foods and beverages (Appendix 3.2, Sheet 1), sets of dishes (Appendix 3.2, Sheet 2) and sets of meals (Appendix 3.2, Sheet 3). Each set included food items from different cuisine orientations - *Maltese*, *Italian*, *Westernised* - and foods representing healthy and not-so-healthy options. The items were chosen based on my personal upbringing in Malta and familiarity with local food consumption habits. Children were asked to choose two of the three options in each set based on their personal preference. The objective was to have children choose combinations of items from each set of three in order to assess (a) whether the common factor was the culture-cuisine background involved or the health value with regards to the foods sets, and (b) to assess which culture-cuisines predominated for the dishes and meals sets.

Sheet 1 consisted of fourteen sets of foods listed in groups of three. Though not indicated on the sheet, the foods were listed in the following order according to their properties: *Maltese Food Unhealthy* (MUH), *Maltese Food Healthy* (MH), *Non-Maltese Food Healthy* (NMH). Maltese foods were those commonly found on daily family menus, or in traditional recipe books. Foods were classified as healthy if their ingredients were primarily from the Breads, Cereals and Grains group, or from the Fruit and Vegetables group and were low-fat dairy or meat products. The foods represented varieties of cheese, breads and spreads, potato dishes, chicken dishes, pizzas, pastas, savoury biscuits, savoury snacks, biscuits, cakes, sweet pastries, packet snacks and milk.

In Sheet 2, six sets of different dishes were listed, this time according to the following classification: *Maltese Traditional* (DM), *Westernised* (DW), *Italian* (DI). *Maltese Traditional* dishes were those which would normally be found in Maltese recipe books and which are commonly served in family meals. *Westernised Foods* were those which one would perceive as legacy from the British colonisation and/or dishes depicted on British, American and

Australian television programmes. *Italian Dishes* were those which most Maltese people would immediately associate with Italian culture and/or which were frequently portrayed on the various Italian television stations received locally. The dishes represented six categories, namely Bread snacks, Soups, Fish dishes, Meat dishes, Pasta dishes and Desserts

Sheet 3 comprised seven sets of different meals also listed according to the following classification: *Maltese Traditional* (MM), *Westernised* (MW), *Italian* (MI). The seven sets consisted of foods generally consumed during Breakfast, Sunday Lunch, Saturday Evening Outings, an Outing to Valletta (the Capital city), Tea time, Snack time and At the Seaside. During analysis, responses for Outing to Valletta were divided into 'savoury' and 'sweet' sets of dishes, creating a total of eight sets. Different consumption settings were included as research with US schoolchildren had shown that location, day and time of meal influenced food intake (Baranowski et al., 1997b; Nicklas et al., 1997).

A complementary activity was conducted in order to collect data which would substantiate the information obtained from the other three measurement instruments. In this activity, the children were given clean sheets of paper on which they were required to draw and/or write down the names of one food and one drink they thought were healthy and one food and one drink they thought were not-so-healthy. Children in Year 4 classes were also asked to write down their most liked and their least liked foods. As I explained earlier in relation to Draw-and-Write Techniques, drawing and labelling has been reported as an effective method for delving into the belief systems of young children (Pridmore & Bendelow, 1995). At this stage, I merely wanted to trial the technique to assess its potential usefulness for later stages of data collection.

3.2.1.5. Data Collection Procedure

Completion of Sheet 1 (food sets) and the DWT task were conducted as class activities, generally with the help of the class teacher. This strategy is recommended for data collection amongst schoolchildren as it lessens any negative attitude on the part of the teacher or Head of School who may perceive such activities as loss of instruction time (Frank, 1994). However, Sheets 2 and 3 (dishes and meals sets) were completed by groups of two girls and two boys who were chosen by the class teacher from each class surveyed. (Three exceptions were a Year 1 and Year 2 class, where this task was not carried out, and a Year 3 class where I chose the children in the absence of the class teacher.) I decided to work with a smaller group for completing Sheets 2 and 3, as monitoring whole classes when

filling in Sheet 1 had proved to be time-consuming, and also because certain visuals had to be passed around. The group of four students was either taken to a separate classroom which was empty at the time, or else they joined me in a corner of the classroom. The latter arrangement was not suitable as the children's classmates were very interested in what was happening in the group and sometimes disrupted the activity.

Visual aids in the form of real foods or full-colour pictures were taken to each session to facilitate comprehension by the children. Use of these aids also made the research activity more enjoyable for the young respondents. These visual aids were used during completion of the all three Sheets.

3.2.1.6 Data Analysis

A simple coding procedure was adopted for responses to each question in Sheets 1, 2 and 3: If the first and second options were chosen this combination was coded as 1; if the first and third options were chosen this combination was coded as 2; and if the second and third options were chosen this combination was coded as 3. (See Table 27). Incomplete or missing responses were denoted with a 0. A number of descriptive tests were then run, including frequencies and cross-tabulations. Following recommendations by other researchers, results from the DWT activity were tabulated and the counts for each food and drink item obtained (MacGregor & Currie, 1998).

TABLE 27
Coding System Used For Classification Of Data

Food Sets			
Maltese Unhealthy	+	Maltese Healthy	= 1 (Maltese orientation)
Maltese Unhealthy	+	Non-Maltese Healthy	= 2
Maltese Healthy	+	Non-Maltese Healthy	= 3 (Health orientation)
Dishes Sets			
Maltese Dish	+	Westernised Dish	= 1
Maltese Dish	+	Italian Dish	= 2
Westernised Dish	+	Italian Dish	= 3 (Non-Maltese orientation)
Meals Sets			
Maltese Meal	+	Westernised Meal	= 1
Maltese Meal	+	Italian Meal	= 2
Westernised Meal	+	Italian Meal	= 3 (Non-Maltese Orientation)

3.2.1.7 Results And Discussion

Appendix 3.3 offers a detailed report on the pertinent outcomes of the survey, including commentary on gender, age, school and regional differences. The aim of this survey was merely to uncover the possible existence of certain patterns in Maltese children's food choices. The sample used was small and not representative of the local school population. Thus, it would be inappropriate to say that any results are generalisable; nor was this the intention at this stage of the research.

In synthesis, this initial investigation served to confirm my instinctive perceptions on Maltese children's food choices, to generate more precise questions for future investigation and to determine the age of the target study population. Cuisine differences did seem to emerge in children's preferences for foods, dishes and meals consumed in different settings, with *Traditional Maltese* items predominating in some settings and *Westernised* items in others. Children's perceptions of the health value of food were seemingly correct; however, the role of these perceptions in determining preferences required further research. Overall, food and drink preferences of Maltese children appeared to be akin to those of children in most Western countries, including for example pizza, pasta and soft-drinks. Region, school type, age and to a lesser degree gender all appeared to contribute to variance in results, but further enquiry would be necessary to uncover the extent and possible roots of such differences.

The study was an eye-opener concerning effective research methodologies and tools for obtaining valid and reliable results when working with young children. One prime decision was that, given the lack of human resources and limited time for actual fieldwork at my disposal, data collection with very young children would be impractical. I was more concerned with validity of data than variety of age groups in the sample. Thus, it was decided that future research would concentrate solely on Year 3 children; that is 7-8-year-olds. Some of the questions emerging from this initial investigation and recommendations regarding methods of data collection and research tools can be seen in Table 28.

At the end of Stage 1 of the research, it was clear that the phenomenon under study was extremely complex and that different issues would need exploring to produce useful information for application once the study had been completed. A multitude of factors seemed to influence Maltese children's food-related decisions and practices. Thus, the usefulness of working within an ecological framework was also confirmed.

TABLE 28
Questions And Recommendations Emerging From The Preliminary Study

Emerging Questions
<ul style="list-style-type: none"> • Were certain foods very popular amongst Maltese children because of taste, appearance, way of eating, availability, consumption setting, or other reasons which needed to be uncovered? • Were there differences in the culture-cuisine orientations of foods consumed in home-based and non-home based settings? • To what extent was the American cult aspect of fast food as portrayed on different television stations related to food choice?
Recommendations For Methodology
<ul style="list-style-type: none"> • For any future tools to be used with children, the foods listed as options should be pre-generated by children similar to the target sample group • Classification of food into culture-cuisine orientations should be validated by local culinary and media experts and/or members of the lay public • A repetitive questioning format over several pages should be avoided to lessen risk of response set • The use of small group interviews with children, using a standardized tool, would be used to allow for more in-depth exploration of children's food perceptions and choices. • Recording of interviews on tape recorder or video would help to preserve as much information as possible.

3.2.1.8 Limitations

This study was semi-formal in nature and did not purport to produce results which were generalisable to the larger population. A small non-random sample was used and neither church school nor Gozitan children were represented. The responses from both these latter populations may have influenced certain patterns in these preliminary results. The choice of items for the Foods, Dishes and Meals sets was arbitrary, based on my own criteria. Certain foods typically consumed by Maltese children may have been omitted and subsequently also led to certain bias in the results. The research tools were text-heavy and may have proved challenging to children with a low literacy level. The format was repetitive and this may have encouraged response set amongst some children.

3.2.2 Stage 2: Compiling A Database Of Food And Drink Items Commonly Consumed In Different Settings By Maltese 7-8-Year-Old Children

3.2.2.1 Objectives

The aim of Stage 2 of the research process was to identify food and drink items most commonly consumed by Maltese 7-8-year-olds in different settings, with a view of creating a measurement instrument for use in a large-scale survey in the following months. This strategy was decided upon based on the outcomes of the preliminary study which indicated

that my perceptions of commonly consumed foods and drinks amongst Maltese children required refinement. The end-product sought was a database of foods and drinks typically consumed by children in this age group.

3.2.2.2 Methodology

This stage of the research employed a primarily quantitative methodology involving a pen-and-paper survey, with a minor qualitative component in the form of one focus group interview. Quantitative data was collected over one week during February, 2000. Qualitative data was collected during one session on March 15, 2000. Stage 1 of the research had established that pen-and-paper surveys were suitable for use with Maltese 7-8-year-olds and were an acceptable data collection method with class teachers and Heads of schools, especially if they could be presented as a class activity. The use of a focus group interview was not part of the original plan for this stage of the research, but was included later on due to lack of representativeness in the sample. Eventually, it also proved a useful opportunity for defining logistical parameters for effective interviews, and for refining my personal technique as a focus group facilitator.

An ideal methodology for this exercise would have been the use of 24-hour recalls or food records with the participation of children, their parents and/or food providers to ensure validity (McPherson et al, 2000; Matheson et al., 2002). If conducted using the conventions and rigour required from such data collection strategies, 24-hour recalls would have provided precise information on Maltese children's food intake over a number of days which could have also lent itself to nutritional analysis of typical food consumption (Frank, 1991). However, whilst these techniques were very attractive, the extra burden on the participants and on myself to obtain precision in food description and quantity was unjustified in light of the simpler objective of the exercise. The orientation of this research was sociological rather than epidemiological, so that a nutritional assessment of children's food intake was beyond the scope of the study. In addition, the costs associated with 24-hour recalls and food records for children are a major concern, even in well-funded research studies (Smith et al, 2001). In my study, the logistics of gaining access to and conducting the recalls or records with an adequate number of parents and children would have been extremely challenging, given that I had limited resources and limited periods of time within which to conduct the fieldwork.

The 'freelisting' technique was used to elicit the most common foods and beverages consumed by children in different settings, revealing the foods which were the most important to the children themselves. Freelisting is a structured interviewing technique used to identify the organisation of items that comprise a cultural or cognitive domain (Weller & Romney, 1988). When compiling food lists, the goal is to obtain population-specific information to accurately assess usual food intake (McPherson et al, 2000). Freelisting tasks have been used with children to obtain the salient foods consumed in different circumstances, with special attention being paid to accuracy of recall, relevant ethnic foods in different regions of the country and the involvement of children of different abilities (Gittelsohn et al, 2000; Smith et al, 2001; Warren et al., 2003). Health promotion initiatives have sometimes been criticised because typically adults determine the questions to ask and the response options for those questions (Wood Charlesworth & Rodwell, 1997). In using an adaptation of the freelisting technique to identify foods and beverages Maltese children consumed in various settings, I was confident that subsequent tools developed would be both child- and culture-sensitive. In addition, recent research had shown that there was a fairly rapid increase in the capability of children to self-report on eating behaviour beginning at 7 or 8 years of age (Livingstone & Robson, 2000). High accuracy had also been reported for children's responses for liked foods and main meal foods in validation studies (Baxter et al., 2000; Baxter, Thompson & Davis, 2000).

Eventually, I also conducted one focus group interview in order to clarify the meanings of some items listed by the children and to obtain additional data from rural children whom I felt had not been represented adequately in the quantitative task. As I described earlier, focus groups had become a common technique in food-related research with adults, though less so with children. However, during this data collection phase of my study the use of focus groups was also increasing in food-related research with school-aged children. For example, Cullen et al (2000) had conducted focus group interviews with children aged 11 years plus to uncover socio-environmental influences on diet and Novotny, Han & Biernacke (1999) had used focus groups to identify motivators and barriers to calcium intake among adolescents. In general, focus groups were emerging as particularly useful for elaboration on quantitative findings and the development of measurement instruments. A more detailed discussion of recommendations from the literature on the focus group sample selection, group composition, interview setting, interview guide, interviewer role and analysis of data will be presented in the section on Stage 4 of the research. (See Section 3.2.4).

3.2.2.3 Description Of Sample

The sample for the pen-and-paper survey was made up of 163 Year 3 children from around Malta and Gozo. A detailed breakdown of the survey sample can be seen in Table 29.

There were slightly more boys than girls, though the difference was marginal (53.4% versus 46.6%). Initially, six schools were approached to participate in the study. However, eventually the data collected from the second pilot test was also used since it was deemed as reliable as that of subsequent data collection schools. The purpose of this sample was not to be statistically representative, but to be as representative as possible of the different children and schools in Malta and Gozo. The catchment area for the church and independent schools was island-wide and therefore not representative of any particular region. On enquiring with independent school teachers, it was revealed that the parents of their pupils ranged from high profile professionals, to farm owners, to self-employed taxi-drivers.

TABLE 29
Database Compilation Survey Sample Demographics
By School Type, Region and Gender (N=163)

School		Gender		Total No. Of Respondents	%
Type	Region	Girls	Boys		
State	Urban	10	8	18	11.0
State	Suburban (1)	9	11	18	12.3
State	Suburban (2)	12	11	23	14.1
State	Gozo	10	14	25	14.7
Church	Malta trans-island	6	21	27	16.6
Church	Gozo trans-island	14	11	25	15.3
Independent	Malta trans-island	15	11	26	16.0
Totals		76	87	163	
%		46.6	53.4		100.0

An eighth school was visited after the survey was concluded as the school previously chosen to represent the rural category was slightly more sub-urban than expected. In this school, a 45 minute focus group interview with four Year 3 girls and four Year 3 boys was conducted. Several of the comments made by the children during the interview ascertained their background and lifestyle, such as when one boy stated “I go to feed the farm animals after school” and another boy mentioned that he often ate a particular snack “when out in the fields”.

3.2.2.4 Research Tool

A pictorial data collection tool was developed (Appendix 3.4) depicting 12 food consumption settings and 3 beverage consumption scenarios. (See Table 30). I chose these settings based on my knowledge as a native of the typical daily routines of Maltese schoolchildren. Both meal- and snack-type settings were included as these were seen as truly reflecting Maltese foodways. Grazing or snacking has been described as the current modal behaviour amongst US children, warranting that researchers break out of the mindset of three meals a day as a typical eating pattern (Frank, 1994). Whilst acknowledging a similar increase in snacking amongst Maltese children, I did not seek to put emphasis on either snacks or meals, but rather to uncover typical food intake at home and out of the home. The idea of studying food consumption as 'activity settings' has also been suggested by Hawe (1998).

TABLE 30
Food And Drink Consumption Settings Investigated

Food Settings
Breakfasts
After-school meals or snacks
Tea-time snacks
Weekday supper
Saturday lunch
Sunday lunch
School packed lunches
Meals when the family eats out
Snacks for a Sunday afternoon outing
Meals or snacks when visiting Valletta (the Capital city)
Meals or snacks at the beach
Foods at a friend's party
Drink Settings
When eating a meal
When having a snack
When thirsty and not eating

The research tools consisted of five A4 pages. This length was necessary to include clear pictures for each setting, whilst allowing enough space for 7-8-year-old children to write, especially as the latter often still use fairly large lettering. Each page showed drawings of different consumption settings on the left-hand side and was ruled on the right-hand side for children to write their choices. The children were required to list foods and/or drinks they would normally consume in different settings, as well as indicate which one of the items listed was their preferred choice. In order not to lengthen the task unnecessarily, or to jeopardise teacher co-operation, children could only list up to three alternatives for each setting.

Maltese and English versions of the tool were developed, considering that there could be English-speaking children in the classes and that the church and independent schools often preferred all work to be carried out in English. The Maltese version was assessed by a professor of Maltese linguistics and minor modifications were made to the original wording in order to facilitate understanding and reduce possibility of unreliable responses.

3.2.2.4.1 Pilot Testing

A pilot test was conducted with eight children from one school and the following day with a whole Year 3 class from another school. The first test did not uncover any problems with actual wording, though it emerged that the children would need to have clear instructions as to what was expected from them. There also proved some difficulty amongst a few children in distinguishing between 'Tea-time snack' and 'After-School Meals or Snacks'. This first test was also audio-recorded.

The second pilot test involved both Maltese and non-Maltese speaking children, so both versions of the tool were used. In order to clarify what was expected from them, an analogy was used whereby the children were told that they had to list 3 outfits they would normally wear to go on an outing in the countryside. They needed to give the details for each outfit and then indicate which one was their favourite. An example was worked out verbally in class using the white-board to show how the items would be written down on separate lines, starting a fresh line for each new item.

During the pilot test sessions both the class teacher and myself moved around the class answering any queries and prompting for elaboration. The teacher was also tactfully cautioned not to make any leading or loaded comments. Children's questions were often about spelling, although they had been told that "just for this once" correct spelling was not important. Some children also commented that they didn't know what to write when they did not consume any foods in a specific setting. It was evident after this second pilot test that I would need the assistance of another person in order to prompt the children to give details related to the foods they were listing.

Following these two pilot tests a number of modifications and refinements were made to the tools and to the research protocol. These can be seen in Table 31 and Appendix 3.5.

TABLE 31
Modifications To The Research Tool And Protocol After Pilot-Testing

- The label 'Tea-time snacks' was changed to 'Snacks (tea-time or when I get hungry)' and the children were told this could refer to that time round about when they were on their way to religious catechism (a daily event in most Maltese 7-year-olds life).
- The numbers **1, 2** and **3** were written on each ruled section to emphasise with the children that they could write up to 3 responses for each setting. Additionally, three more dividing lines were ruled in to show children that they had two lines for each response.
- Before starting each data collection session, I would take a few minutes to explain some ground rules to the class teacher, indicating the necessity for ensuring reliability and for making the task more enjoyable and less strenuous for the children. (See Appendix 3.5).

3.2.2.5 Focus Group Interview Guide

The objective of the focus group interview was to gain a clearer understanding of some of the food practices which were mentioned in the quantitative survey. A list of questions based on a cursory study of the survey responses was prepared to serve as a guide. (Appendix 3.6). Nonetheless, the interview itself was semi-structured and did not follow the guide in a rigid manner. The importance of focus group guide flexibility and an open-ended questioning style has been repeatedly emphasised (Glesne & Peshkin, 1992; Wood Charlesworth & Rodwell, 1997). Eventually, less than half of the questions were covered due to time constraints and some interruptions. I preferred to exhaust and follow up on the issues mentioned by the children, rather than tackle the listed topics superficially.

3.2.2.6 Data Collection Procedure

The survey was conducted as a class activity and each session was led by myself with the assistance of the class teacher, or other substitute teacher present in the classroom at the time. Once the basic procedure was explained, the children were allowed to work on their own, but with constant monitoring. The children were stopped after completing the third setting on the first page and asked to indicate which one was their favourite from the different foods and/or drinks listed for each setting. One child's sheet was used as an example. The children were given self adhesive multi-coloured stars to stick next to their preference. They were asked to stick a star even if they had only listed one food or drink item for a setting. Extra stars were given in case of mistakes and stray stars. This procedure of stopping after completing three settings to indicate preferences was followed for each sheet so that the children could be kept on track and assistance could be given where

necessary. The children were allowed to keep any remaining stars after the session was completed as a token of appreciation.

The focus group interview was held in the school library after library hours and one hour before school was over for the day. The first few minutes with the children were used to dispel the novelty of being audio-recorded and to lay ground rules for speaking. Once the interview commenced, all of the children participated enthusiastically; giving details about foods consumed, different brand names and when and how the foods were typically prepared. The willingness of the children to co-operate and the extensiveness of their answers confirmed my conclusions from Stage 1 of the research on the benefits of utilising focus groups with children.

3.2.2.7 Data Analysis

For the quantitative data, the children's responses for each food and drink consumption setting were coded. All the different foods and drinks mentioned were listed and sorted into eighteen different groups as shown in Table 32. These groupings are similar to those in the National Cholesterol Education Program guidelines which have been used to classify data from dietary recalls conducted with children in the US (Dixon et al., 1997).

TABLE 32
Food And Drink Groups Used To Categorise The Coded Data

Breakfast Cereals
Breads
Savoury Snacks and Pastries
Pizzas
Pastas
Salads/Vegetables/Potatoes
Soups
Cheese
Eggs
Meat/Burgers/Sausages
Rabbit/Chicken/Other Poultry
Fish
Fast Food
Fruit
Dairy/Fruit Desserts
Sweet Snacks and Pastries
Sweets
Beverages

In total, 671 unique foods, drinks or food and drink combinations were coded. Missing responses were assigned a 0. *Nothing*, *Don't know* and *Don't go out* responses were also given separate codes. The maximum 'N' possible in each setting was the number of respondents multiplied by 3 (3 referring to the maximum number of responses possible per setting).

Basic summary statistical tests were run to obtain percentage frequencies for each variable. The main objectives were (i) to uncover the top six foods and/or drinks most commonly consumed in different settings and (ii) to pinpoint the three most favourite foods and/or drinks consumed in different settings. Since there was such a variety of food and drink items listed, percentage frequencies were also generated for (i) the top food/drink groups and, within these, the top food/drink items for each consumption setting; (ii) a number of food groups and specific food items which emerged as very popular; (iii) a number of specific food items which were much less commonly consumed.

The tape recording of the focus group interview was not transcribed verbatim as this particular interview was considered a trial of the method and the objective had been simply to elicit more detailed information in relation to what had been obtained from the freelisting exercise. I listened to the tape recording twice and key points which would help to give a more accurate picture of some of the children's responses in the quantitative survey were noted. Any new insights were also extracted for possible follow-up in future stages of the research.

3.2.2.8 Results And Discussion

The various analyses run on the data provided a comprehensive picture of the foods and drinks children consumed in different settings and scenarios. A detailed report on the findings and some initial interpretation can be seen in Appendix 3.7. This section will merely provide a snapshot of the major findings in order to show the link with the next stage of the research. The main purpose of the different analyses was to ensure that the foods chosen for response options in the subsequent quantitative stage of the research would truly reflect Maltese children's eating habits, whilst serving to obtain data to meet the different research questions. The most common specific items consumed in each setting were identified. For example, the exact type of sandwich (bread and filling), the exact pasta dish (pasta type and sauce) and the exact pizza (specific ingredients) were uncovered. Similar analyses identified the most common items from each of the three cuisine orientations – *Traditional Maltese*,

Italian, Westernised - which were consumed in each setting, as well as less common items which could be indicative of waning or novel dietary practices.

3.2.2.8.1 Top Foods And Drinks Consumed In Different Settings

Key findings which emerged from the quantitative survey are presented in Table 33.

Overall, it was clear that certain foods and drinks were pervasive in Maltese children's diets, emerging amongst the top six in several of the 12 consumption settings. These included pasta (5 settings), pizza (6 settings) and *hobz biz-zejt* (12 settings). Plain cheese and tomato pizza, pizza *Margherita* and pasta with tomato and garlic sauce, were the most commonly consumed pizzas and pasta dish. Such results were somewhat predictable and showed that certain food consumption patterns amongst Maltese children reflected international trends. In fact, in freelisting exercises conducted with children in the US to develop food frequency checklists (Gittelsohn et al, 2000; Smith et al, 2001) top items listed were beef (e.g. steaks, roasts), hamburgers, hot-dogs, fried chicken, chicken nuggets, chicken burgers, spaghetti or other pasta with meat and tomato sauce, lasagna, pizza, chips, apples, oranges, milk (white or chocolate) and ice-cream. These items were also commonly listed by Maltese children. In contrast, while very few of the American-Indian children in one of the above US studies listed traditional foods (Gittelsohn et al, 2000), Maltese children listed a number of traditional items, such as *hobz biz-zejt*, *pastizzi* and *Kinnie*. These traditional foods were perhaps a staple for some children, being consumed for Weekday Supper and School Packed Lunch; yet they also seemed to have a treat value, often being consumed during a Sunday Drive or outings to the Capital city Valletta or the seaside. At the same time, there was a heavy orientation towards Westernised foods for both home-based and non-home based consumption settings, especially for less substantial meals and drinks. The various influences on children's perceptions and intake of traditional foods and other cuisine foods, including for example consumption setting, would warrant further study.

3.2.2.8.2 Top Three Favourite Foods And Drinks Consumed In Different Settings

The children were also asked to select their favourite food from the ones they had listed for each setting. When one compares the results for the top favourite with the top consumed items, the first ranked is identical for each setting with only two exceptions. At face value, these results seemed to indicate that children's preferences were a good predictor of consumption, but the mechanism of this process would need to be explored further. Some other noteworthy observations concerning top favourite and top consumed foods were that in

TABLE 33
Most Commonly Consumed Foods And Food Groups In Different Settings

<ul style="list-style-type: none"> • Cold cereals were consumed most frequently for Breakfast.
<ul style="list-style-type: none"> • Limiting the first meal of the day to either tea or milk was common.
<ul style="list-style-type: none"> • For conventionally 'larger' or more substantial meals (i.e. Weekday Supper, Saturday Lunch or Sunday Lunch) chicken (unspecified), pizza (unspecified, or plain tomato and cheese) and pasta (unspecified, or with tomato sauce or a sauce) predominated.
<ul style="list-style-type: none"> • <i>Patata l-forn</i> (baked meat and potatoes) and 'meat and mashed potatoes' were commonly consumed for Sunday Lunch.
<ul style="list-style-type: none"> • Fish dishes were commonly consumed for Weekday Supper and Saturday Lunch.
<ul style="list-style-type: none"> • Macaroni dishes were commonly consumed for Sunday Lunch.
<ul style="list-style-type: none"> • 'Pasta with tomato and garlic sauce' was the most commonly consumed dish for the After-School setting.
<ul style="list-style-type: none"> • The After-School setting was another mealtime for some children, whilst for others it was merely an opportunity to have a drink, or perhaps consume a light snack or sweet treat.
<ul style="list-style-type: none"> • Items in the pizza category were the most commonly consumed when Eating Out.
<ul style="list-style-type: none"> • Burger meals and chicken nuggets were commonly consumed during a Valetta Outing.
<ul style="list-style-type: none"> • Within the snack-type meal settings (Tea-time or When Hungry, Sunday Drive, Seaside Outing, Party), breads with different fillings or spreads, <i>pastizzi</i>, packet snacks, fruit (unspecified), banana and different beverages were the most commonly consumed.
<ul style="list-style-type: none"> • Packet snacks were the most commonly consumed item for Sunday Drive and Seaside Outing.
<ul style="list-style-type: none"> • Fruit was the most commonly consumed food group for Tea-time or When Hungry.
<ul style="list-style-type: none"> • Overall, the most common consumed bread items were variations of ham sandwiches or rolls and <i>hobz biz-zeit</i>.
<ul style="list-style-type: none"> • Overall, the most commonly consumed pizzas were pizza <i>Margherita</i> or pizza with tomato sauce, mozzarella and olives.
<ul style="list-style-type: none"> • Overall, the most commonly consumed soups were broth (unspecified), chicken broth, <i>minestra</i> (vegetable soup) and noodles in <i>Bovril</i>.
<ul style="list-style-type: none"> • Overall, pasta dishes were more commonly consumed than rice dishes.
<ul style="list-style-type: none"> • <i>Coke</i> and water were the two most commonly consumed beverages within the three different drink consumption scenarios

three settings (Weekday Supper, Sunday Lunch, Sunday Drive) traditional Maltese dishes and foods achieved higher placings as favourites than their placing as actually consumed.

Likewise, within the Party setting, pizza emerged much higher in the placings as favourite food than its ranking as consumed food, even surpassing cakes, sweets and *Coke*. Once again, these results were indicative of certain trends in children's preferences, with a fondness for traditional Maltese foods and pizza. Further enquiry would be necessary to identify factors influencing these trends.

3.2.2.8.3 Insights On Food And Drink Consumption From The Focus Group Interview

The focus group interview confirmed several of the practices emerging from the quantitative survey, provided additional detail for certain responses and suggested new issues requiring further investigation. For example, chicken was confirmed as a very popular meat, being eaten frequently for Sunday lunch. Children preferred eating the chicken legs with "round" (boiled or roasted) potatoes or mashed potatoes. Meat was generally accompanied by potatoes and either carrots, tomatoes or lettuce. Rabbit was frequently eaten by these children hailing from a rural village. The children described it as either being prepared as a stew, as being served with a garlic and wine gravy, or as being baked. Tortellini were particularly popular as an After-School or Weekday Supper dish, served with white sauce, in broth, or on their own. Lasagna was both a weekday and Sunday dish; however, *ross il-forn* and *mqarrun* were mainly consumed on Sundays. Breakfast cereals with milk were further confirmed as a common After-School food. A popular dairy food was chocolate or vanilla yoghurt, often eaten for Breakfast or After School. Tea was generally accompanied by biscuits and cookies. Traditional tea-time sweets such as '*Number 8s*' and '*Fingers*' were rarely consumed, and then only at grandparents.

Some of the food practices mentioned, or issues implied during the interview were not that evident from the survey results. For example, children were very much aware of the ingredients in the foods they ate and of the different serving styles. Consumption of traditional foods was very much linked to availability and to provision by grandparents. Also, children used food packaging as a tool to identify consumed food items. These findings were noted for further exploration in later stages of the research.

3.2.2.8.4 Less Commonly Consumed Foods And Drinks

As a follow-up to insights emerging from the focus group interview, I also identified a set of foods which were less commonly consumed by Maltese children and which comprised foods and drinks with different culture-cuisine orientations. For example, some of the food items mentioned by the focus group interviewees, such as ricotta-stuffed pasta shells, *timpana*, tortellini in broth, baked pigeon with potatoes and wine sauce were only mentioned by a few of the survey respondents. These items were mainly traditional Maltese foods and the fact that they were mentioned by children from a rural area could have been indicative of regional influence. This is in contrast to the study conducted with American-Indian children in the US where the researchers actually commented on the fact that there was no suggestion of geographic variability in the list of top 20 consumed foods (Gittelsohn et al, 2000).

Other Maltese traditional food which I had assumed were generally available and popular, but were not mentioned as commonly consumed by the surveyed children included *ftira*, *galletti* and cheese, *bragjoli*, *stuffat*, *mqaret* and *qaghaq*. It could be that these foods were no longer being offered to Maltese children for various reasons, or that the children did not know their name. I therefore decided that later on in the research process I would try to establish whether some of these foods were common components of Maltese children's diets and what influenced their intake.

3.2.2.9 Conclusions

Stage 2 of the research provided the data with which to build a child- and culture-sensitive research tool for use in the following stage. It was clear that having adopted this grounded approach to establish a database of foods and drinks consumed by Maltese 7-8-year-old schoolchildren was a worthwhile strategy. Another US study on dietary acculturation subsequently confirmed the usefulness of such formative research to identify typical dietary habits of less-studied populations (Satia-Abouta et al., 2002).

This stage of my study offered a good insight into Maltese children's food intake in different settings. In general, children tended to consume a variety of foods and drinks, a particular group of which stood out as being frequently consumed in several of the different settings. A culture-cuisine bias in relation to consumption in different settings emerged once again. There were no strong discrepancies between top consumed and top preferred foods, except with regard to certain Maltese traditional dishes and pizza.

This brief experience provided me with a number of lessons on focus group facilitation, including that a limited number of topics should be chosen for the interview in order to allow time for elaboration and tangential exploration if necessary; and that working with a smaller group of children may be more productive by ensuring a more balanced participation and better management of disruptions. However, the experience also proved that using focus groups with Maltese children could work and that this research method did provide much 'rich description' to complement quantitative data.

3.2.2.10 Limitations

The survey was conducted with a small sample of children attending eight different schools. Despite efforts to ensure the participation of children from different regional and school type backgrounds, the food and drink consumption of these children may not have reflected the dietary practices of the universal population. The data was collected in a single session within a specific period so that children's responses may have had a seasonal bias reflecting currently available food products, especially fresh produce. Alternative criteria for classification of the foodstuffs into food groups during analysis may have resulted in different counts and frequencies and hence a different ranking of the top six foods and beverages. There were a few drawbacks with the methods and tools used (see Table 34) and these would have to be addressed in later stages of the research if similar techniques were used.

TABLE 34
Limitations In The Methods And Tools Used In Stage 2 Of The Research

- Difficulty in monitoring all the children during completion of the research tool, despite having the assistance of the class teacher or another person in the classroom
- Children having to write the names of several foods and drinks on the research tool, which may have hindered accuracy of responses and certainly made the task very time intensive
- Children having difficulty listing more than one complete meal for each consumption setting
- Possible lack of differentiation by the children between meals for Weekday Evening and meals for Saturday Lunch
- The pedagogically unethical rule of asking the children not to be concerned about correct spelling whilst completing the research tool
- Too large a group size for the focus group interview
- Being ambitious regarding the number of questions to be covered during the focus group interview

3.2.3 Stage 3: Large Scale Survey Of Maltese Children’s Food Consumption Patterns And Food Preferences

3.2.3.1 Objectives

The goal of Stage 3 in my research was to identify eating habits and food preferences of Maltese 7-8-year-olds amongst a statistically representative sample. Specifically, I sought to uncover the most common foods consumed by Maltese children in different settings, as well as their food preferences within these same settings. Parents or guardians of the studied children participated in a similar survey in order to assess reliability of the children’s responses, as well as to obtain accurate information about key background characteristics of the children. The objectives of the children’s and parents’ survey can be seen in Table 35.

TABLE 35
Objectives Of Children’s And Parents’ Surveys

Children
<ul style="list-style-type: none"> • To find out the child’s favourite food and drink • To determine where children usually have their first meal/snack after school, their Weekday supper and their Sunday lunch. • To identify the <i>most often</i> and <i>sometimes</i> consumed foods and drinks and the most <i>preferred</i> food and drink in ten different consumption settings
Parents
<ul style="list-style-type: none"> • To find out the level of education of the children’s parents/guardians • To find out whether the family subscribes to cable television • To determine where the Year 3 child has her/his first meal/snack after school • To uncover how frequently the family sits down together for the evening meal • To determine whether their Year 3 child eats the same food as the adults in the family during the evening meal • To obtain the parents’/guardians’ perception on what are their Year 3 child’s favourite food and drink • To identify the one food/drink the Year 3 child consumes most often and the one food/drink they believe their children would prefer, each out of six alternatives, in ten different consumption settings.

3.2.3.2 Methodology

Stage 3 used a purely quantitative methodology, as information was needed from a large number of children and in an efficient a manner as possible. In addition, the sample had to be large enough to allow for comparison between different groups of children through the generation of sub-samples. An adaptation of the FFQ method was used, based on the child-generated list of foods and beverages compiled via a survey and focus group in Stage 2 of the research.

As seen earlier, FFQs have certain limitations in validity and reliability when used with children. However, parental corroboration and use of food terms familiar with respondents improves accuracy. In fact, FFQs have frequently been administered in schools as part of a class activity and with the availability of adult assistance to provide a standard administration situation (McPherson et al, 2000).

Acknowledging the limitations and recommendations regarding FFQs, I decided that an adaptation of this method would be useful to obtain information on children's usual food intake. As the research was not conceived as an epidemiological study, the precision in frequency of consumption sought from conventional FFQs was not essential. I was more interested in dietary patterns than in accurate determination of food intake based on standard serving sizes and measurements. Asking about *Most Often Consumed*, *Sometimes Consumed* and *Preferred* foods would meet the research goals. The adapted FFQ would be relatively easy to administer, less expensive than other assessment methods and lend itself to use with the large sample required in order to obtain generalisable results.

3.2.3.3 Choice Of Sample

Random sampling within proportionate stratified sampling was the technique used to determine the sample for this stage of the research. The data collected from such sample would produce results that were generalisable and would reflect the various sub-groups in the population of 7-8-year-old Maltese schoolchildren. The goal was to collect data from approximately 1000 children. This would translate to about 40 classes of 25 pupils each. Table 36 shows how the final study sample was achieved. An up-to-date list of schools and the number of classes in each Year group was obtained from the Education Division. Within each school type (state, church, independent), the actual schools to be surveyed were selected lottery-style. All state schools drawn agreed to participate and permission was obtained from the Education Division. The six drawn independent schools also agreed to be part of the study sample. Only one of the drawn church schools refused to participate and an alternative was drawn. The final sample comprised 46 classes from 46 different schools out of a total of 100 eligible schools in Malta and Gozo. Table 37 provides a breakdown of the sample, based on participating classes by school type, region and gender of school population.

Further details based on number of respondents for both the children's and parents' sample will be given in Section 3.2.3.7.1.

TABLE 36
Sample Selection Based On Number Of Year 3 Classes Within School Types

School Type	Year 3 classes 1999/2000	Number of classes in sample ^a
State schools	168	30
Church schools	56	10
Independent schools	34	6
Total	258	46

a Approximate ratio = 1:6

TABLE 37
Sample Composition By School Type, Region And Gender Of School Population

School Type	Region						Total
	Malta			Gozo			
	Girls Only	Boys Only	Co-ed	Girls Only	Boys Only	Co-ed	
State schools ^a			27			3	30
Church schools	4	3	2			1	10
Independent schools ^b			6				6
Total	4	3	35			4	46

a All state primary schools are co-ed.

b The majority of the Independent primary schools are co-ed. There are no Independent Schools in Gozo.

3.2.3.4 Research Tools

Two questionnaire-type tools were developed: one for the children and a similar one for their parents/guardians. (See Appendix 3.8). Table 38 shows the different domains in both these tools, indicating where there was replication for comparison purposes and to assess reliability of children's results.

The major domains in the questionnaires were those which dealt with the children's food and beverage intake in different settings. The response options for each consumption setting were determined after analysis of the results from Stage 2 of the research. The items chosen generally represented the top two *Traditional Maltese*, *Italian* and *Westernised* foods and drinks listed by the children for each consumption setting in Stage 2. In other words, for both the children's and parents' questionnaires, respondents had six options to choose from which represented commonly consumed foods and beverages, but not necessarily the top six most commonly consumed items in that setting. The different cuisine orientations were chosen to be represented equally as this was a central theme of the research study. Such strategy has also been recommended recently in the study mentioned earlier on dietary acculturation (Satia-Abouta et al., 2002). Here the researchers specifically recommended

TABLE 38
Domains In The Children's And Parents' Questionnaires

Domain	Children's questionnaire	Parents' questionnaire
Child's favourite food	✓	✓
Child's favourite drink	✓	✓
Food most commonly consumed by child in different Settings	✓	✓
Food sometimes consumed by child in different settings	✓	
Drink most commonly consumed by child	✓	✓
Drink sometimes consumed by child	✓	
Child's most common location of consumption of after school meal or snack	✓	✓
Child's most common location of consumption of weekday evening meal	✓	
Child's most common location of consumption of Sunday lunch	✓	
Frequency of eating evening meal together as a family		✓
Frequency of child consuming same food as adults for evening meal		✓
Household level of education		✓
Family subscription to cable TV		✓

that to identify biculturalism, response options should allow respondents to select both traditional and adaptive practices.

3.2.3.4.1 Format

Both the children's and parents' questionnaires were produced in a Maltese and English version in order to cater for the non-Maltese speaking children and language medium of preference in the different schools or families. They were kept to one A4 sheet of paper, printed on both sides and with each side of the paper requiring different response styles. The questionnaires had two parts, with Part 2 of the children's version being task-oriented. The children's questionnaire was partially pictorial and necessitated the use of 10 different sets of colourful pictures for completion (6 pictures X 10 settings = total 60 pictures). These pictures were commissioned purposely for the research, each one drawn on an A4 sheet using coloured pencils. The parents' questionnaire was text-based and did not require additional materials for completion. Including graphics in the research tool is a strategy which has become increasingly popular in order to make dietary assessment tasks with children more enjoyable and to encourage more comprehensive food recall (Essa & Stadler, 2001; Goodwin et al, 2001; Edmunds & Ziebland, 2002). Similarly, when researching children's

knowledge and perceptions of fruit and sweets, Neale et al (1994, 1998) used photographs, illustrative material and coloured stickers to facilitate answering questions and to add variety to the session.

In total, 50 foods and beverages were offered as response options in Part 2 of the questionnaire. Some items were repeated as the results from Stage 2 had shown these foods to be widely consumed in more than one setting (e.g. pizza and pasta with tomato and garlic sauce). To facilitate analysis, the items from each culture-cuisine were presented consecutively: two *Traditional Maltese*, followed by two *Italian*, followed by two *Westernised* foods or beverages. However, this classification was not indicated in any way on the research tools and at no time during data collection was reference made to any such classification, either by the researcher or the respondents.

In the children's questionnaire, the text was written in a large, clear font suitable for 7-year-olds. A smaller font size was used for the parents' version. All the questions were close-ended, except for two questions asking about favourite foods and drinks. Respondents generally had to tick the most appropriate answer from a selection of options provided.

3.2.3.5 Pilot Testing

The draft questionnaires were piloted amongst 67 children and 4 parents. Both the Maltese and the English versions were piloted and different procedures for completion were trialed. Main modifications in the children's and parents' tools included reducing the number of food/drink consumption settings to be studied to ten and removing the open-ended 'Other' column as an option. Additional changes in the children's tool included omitting questions regarding television programme preferences, food advertising recall and parents'/guardians' occupation (reliability of children's responses was doubtful); and limiting open-ended questions to two (due to potential time restrictions). Some new questions were added which focused on where children usually consumed their first meal or snack after school, their weekday evening meal and their Sunday lunch. The parents' questionnaire was also modified to include additional demographic questions, as well as questions about the Year 3 child's eating habits. After revision, the children's questionnaire took about 1 hour 15 minutes to complete, whilst the adults' questionnaire required approximately 25 minutes.

3.2.3.6 Data Collection Procedure

I collected the data personally, during a single contact with a Year 3 class in each of the 46 schools over the period May-June 2000. The assistance of the class or subject teacher was requested to facilitate children's answering of open-ended questions, to ensure as far as possible that instructions were being followed, and to check that the sheets were being filled in appropriately. The survey was conducted as a class activity, although most of the time there was individual monitoring by myself and the teacher present. Children were asked to take turns in reading out the questions which I then explained.

A standard introduction was utilised in all classes, briefly explaining to the children the theme of the activity they would be participating in. Each child was then given one children's questionnaire to which was clipped an envelope containing one parents'/guardians' questionnaire. The children were told that on that particular day they were going to act as "post women/men" and that they would be "delivering" this envelope home. They would then need to ask an adult who took care of them to read the enclosed sheet and fill it in. The children would then need to be "post women/men" again and "deliver" the envelope with the filled in sheet back to their teacher. In each class a child was asked to repeat these instructions to ensure comprehension. Other queries were also answered and then the children were told to put away the envelope in their satchels for safekeeping.

Next, the children completed their questionnaire. An example was given for each type of question, utilising the responses of individual children to explain how to mark their chosen answer. The questionnaire included only two open-ended questions in order to reduce children's anxiety regarding correct spelling. In fact, the children were told that incorrect spelling "was O.K". Other questions in Part 1 required only ticking to indicate response choice.

Part 2 took on a game format. Sets of 6 pictures were hung up for each food/drink consumption setting and children had to use the numbers 1 or 2 or a self-adhesive star to indicate their response according to different criteria. Once a few children had correctly repeated the required procedure for answering Part 2 of the questionnaire, a simple note was also written on the whiteboard to facilitate recall. (See Figure 3). Queries and unanticipated difficulties were dealt with as a class, or individually as appropriate.

Food you eat most often	=	1
Food you sometimes eat	=	2
Food you really like	=	★

Figure 3. Note used to facilitate response to Part 2 of the children’s questionnaire

At the end of the session, I collected the filled in questionnaires and reminded the children about the envelope to be “delivered”. Children were also allowed to keep any extra self-adhesive stars as a token of appreciation. Meanwhile, class teachers were each given a large envelope in which to collect the returned parents’ questionnaires. Envelopes from Maltese schools were collected approximately 10 days after the original visit. Gozitan schools were given an addressed, stamped envelope in order to mail the questionnaires back to me directly.

3.2.3.7 Data Analysis

The collected questionnaires were checked and those with a large amount of data missing or unusable data were discarded. These were few in number and solely from the parents’ set. The data was coded using a simple allocation of consecutive numbers for the different response options in each question. Responses for the Table in Part 2 of the questionnaire were coded 1 to 6 for each setting. This standard coding facilitated inputting of the large amount of data which was done solely by myself. Where children had listed additional foods for the different consumption settings, these were classified as ‘other’ and coded as 200. A separate record was then kept of these specific foods and drinks and in which school they had been mentioned. Different codes were also given for missing responses (100) and for items where more than one response option was ticked (300). The latter sometimes occurred in the parents’ questionnaires and were classified as ‘Undecided’. A maximum of three ‘Undecided’ responses were allowed before a questionnaire was discarded.

For the open-ended questions on favourite foods and drinks, codes were established for each unique food and beverage item or composite. Sometimes parents listed more than one answer. In such instances, if one of the answers was the same as that of their children’s, this was selected. Otherwise, the first answer listed was inputted.

Descriptive and bivariate statistical tests were run on the data, including basic frequencies, cross-tabulations and Odds Ratios. Percentage frequencies were obtained on food intake and food preference in different consumption settings, as well as Weekday Supper and

Sunday Lunch family dining practices. Responses for reported food and beverage intake were compared to reported preferences. Children's answers were also compared to the parents'.

Differences in food behaviours of social groups were a major interest of my study. Usually, the central variables of sociological analysis are age, gender, education, class, ethnicity and locality (Warde, 1997). Age and ethnicity were eliminated as confounding factors from my research by limiting the sample to one year group and to schools where the majority of pupils were Maltese. Additionally, in earlier stages of the research I had explored food consumption differences according to urbanisation (urban vs. sub-urban vs. rural). By Stage 3 however, I felt that the categories of urban and sub-urban were somewhat artificial given the built-up status of so much of the island of Malta. Therefore, in Stage 3 Malta versus Gozo comparisons were made.

Education was considered in comparisons of children attending different school types (state vs. church vs. independent) and when computing the variable 'household level of schooling' (HLS). Data on the education levels of the respondents and their partners were re-coded to obtain two levels of HLS (average [up to secondary level] vs. high [post-secondary or higher]), based on the highest level of schooling indicated between the two adults in a household. The type of school attended by the child (i.e. fee-paying vs. non-fee paying) and the HLS were taken as indicators of social class. Families with children attending independent schools and/or with a high HLS were considered to represent the upper classes as perceived in developed countries. The children's precise socio-economic status could not be computed as information on parental occupation was not obtained. However, parental or household school attainment have been used as relevant indicators of social class in other studies related to children's food intake (Kennedy & Powell, 1996; Krebs-Smith et al., 1996; Hupkens et al., 1998; Strauss & Knight, 1999; Fraser et al., 2000; Baxter, Schroder & Bower, 2000; Cullen, Lara & de Moor, 2002).

The main variables in my chi square analyses were girls versus boys; children from households having an average versus high household level of schooling (HLS); state versus church versus independent school children; Maltese versus Gozitan children; and children from households having access to or not having access to cable TV (CTV). Chi square analyses were also run to compare the cuisine orientations of foods and beverages

consumed and preferred in the different consumption settings. For most cross-tabulations (unless otherwise indicated) $p < 0.05$ was generally used to indicate statistical significance.

Odds Ratios were also computed to identify likelihood of different groups of children following certain eating practices (e.g. regularly eating the Weekday Supper together as a family; regularly consuming Sunday Lunch at grandparents; eating traditional Maltese foods at grandparents). Odds Ratios were further computed to identify any groups of children who were more likely to exhibit certain healthy or less healthy eating patterns, such as regular consumption of fruits and vegetables, milk and milk products, pizza, high-fat/high sugar foods and traditional Maltese foods. The outcome variables were coded as dichotomous variables (i.e. eating practice/pattern: yes/no) and both Odds Ratios and 95% Confidence Interval were calculated. Data management and analysis was performed by using SPSS 10.0 for Windows (Chicago, IL) and VassarStats (Vassar College website for statistical computation, NY).

3.2.3.7.1 Description Of Sample

In order to provide the background for quantitative results to be described in Chapter 4, the following is a brief description of the sample demographics for the large-scale survey. A total of 1088 children's questionnaires and 935 parents' questionnaires were collected and analysed. This translates into a 100% response rate for the children's survey and an 89% response rate for the parents' survey.

The children's sample distribution by geographic region (Malta=90.3% vs. Gozo=9.7%) was similar to the true distribution on a national level. In addition, as school type was the major criterion for the proportionate sampling technique used, the sample was distributed in a representative manner across the three types of schools: State (60.6%), church (25.0%) and independent (14.4%).

The sample was split equally by gender (girls=50.2%; boys=49.8%), whilst there were slightly more 8-year-olds than 7-year-olds (54.0% vs. 45.9%). The latter was probably due to the fact that, although all the children were in the same year group (Year 3), quite a few had already celebrated their eighth birthday by the time the survey was conducted during the period May-July. Table 39 shows how the two genders were distributed by age group, HLS school type, region and household access to CTV. The proportions for both genders were very similar within each category.

TABLE 39
Children's Sample: Distribution by Age, Gender, Household Level Of Schooling, School Type, Region And Access To Cable TV

Category	Girls n=546	Boys n=542	% Of Total Sample
	% Within Category	% Within Category	
Age			(N=1088)
7 years or less	53.3	54.8	54.0
8 years or more	45.7	45.1	45.9
Non-respondents	0.0	0.2	0.1
Household HLS^a			(N=935)
Up to secondary level	25.8	27.0	52.7
Post-secondary and higher	25.4	21.1	46.5
Non-respondents (adults)	0.4	0.3	0.7
School Type			(N=1088)
State	56.8	64.4	60.6
Church	28.2	21.8	25.0
Independent	15.0	13.8	14.4
Region			(N=1088)
Malta	90.8	89.9	90.3
Gozo	9.2	10.1	9.7
Access To Cable TV^a			(N=935)
Yes	28.4	28.2	56.7
No	22.5	19.4	41.8
Non-respondents (adults)	0.6	0.9	1.5

a Information available from parents' questionnaire (N=935)

The adult sample was heavily biased towards mothers (82% vs. 12% fathers). Very few questionnaires were answered by both parents jointly (4%) and there were only 5 respondents who were guardians. It is common for mothers to be the major respondents in surveys on children's dietary habits; thus, this gender bias was expected. In fact, mothers are often sought as surrogate respondents with young children, as they are generally considered the main food gatekeepers in the household (Baranowski et al, 1986; McPherson et al., 2000). Therefore, one can assume a certain degree of accuracy in their responses regarding their children's consumption and preferences.

Table 40 shows that the proportions of the various levels of education for the adult respondents and their partners were very similar. Table 40 also shows that about two thirds

TABLE 40
Level Of Education Of Adult Respondent, Partner And Household (N=935)

Level of Education		Respondent %	Partner %	Household %
Primary	Average	13.2	12.4	65.7
Secondary		52.5	50.2	
Post-secondary/diploma	High	25.9	25.0	33.6
Tertiary and higher		7.7	7.6	
Non-respondents	-	0.7	4.8	0.7

of the households had an average level of education and about one third a high level of education.

Another background characteristic obtained from the parents' survey was family access to cable TV. This was also seen as a possible influence on children's food consumption and preferences. There were slightly more families who had access to cable TV stations (either through cable TV subscription or via satellite) than those who didn't (56.7% vs. 41.8%). Table 41 gives a breakdown of cable TV availability according to HLS, children's school and region of residence. Within the different categories, a greater proportion of families with a high HLS, or with children attending independent schools, or who were Gozitan had access to cable TV. There was a statistically significant relationship between school type and cable TV availability ($\chi^2=11.49$, $df=4$, $p=0.022$ [N=935]), implying that affordability might have had some bearing on these results. The reason why a relatively higher proportion of Gozitan families had access to cable TV could be that there are less entertainment venues on the smaller, rural island and families tend to congregate at home during the evenings.

TABLE 41
Access To Cable TV By Household Level Of Schooling, School Type And Region (N=935)

Category	CTV Available %	CTV Not Available %	Non-respondents %
<u>Household HLS</u>			
Up to secondary level (n=614)	53.1	45.0	1.8
Post-secondary and higher (n=321)	60.1	39.6	0.3
<u>School Type^a</u>			
State (n=538)	54.6	43.4	2.0
Church (n=253)	54.7	44.1	1.2
Independent (n=137)	68.6	31.4	0.0
<u>Geographic Region</u>			
Malta (n=849)	56.2	42.3	1.5
Gozo (n=86)	61.6	37.2	1.2

a Sigf. $p=0.022$

3.2.3.8 Limitations

Certain limitations emerged in the sample demographics, as well as in the research tool and data collection protocol. Firstly, it would have been useful to obtain information about household level of income or parents' occupation in order to better identify socio-economic status. It would have been equally useful to obtain information on the mother's job status outside the home (i.e. nil, part-time, full-time) so as to identify any relationships with children's food intake. Questions about these details were considered for inclusion in the parents' questionnaire, but eventually decided against as I felt that there was the likelihood of inaccurate information being given and that asking for such details may reduce the response rate. The parents' questionnaire asked about cable TV subscription, but did not ask about family ownership of satellite TV which gives access to a multitude of foreign stations, more so than cable TV. Nonetheless, at the time of data collection, satellite ownership was not so widespread: hence, responses on cable TV subscription are very likely a true reflection of children's access or lack of access to a broad range of foreign TV stations. Moreover, some parents indicated on the questionnaire that they owned satellite TV and their data was included with that of families subscribing to cable TV.

Data were collected for food and beverage intake in ten different settings. Thus, the class activity was somewhat lengthy and repetitive and may have been tiring for some children. However, the use of visual aids, exposing a fresh set of six pictures for every setting, made the task enjoyable and kept the children's curiosity aroused throughout. Children were also kept actively involved by taking it in turns to read out the questions, the description of the next setting to be tackled, and the names of the food and drink items in the pictures displayed.

In completing Part 2 of the questionnaire, the children had to write the letter above the displayed picture for each setting in the corresponding column on the Table. This transfer may have proved difficult for some children, especially for the first few settings till the procedure was learnt. In fact, it was primarily for this reason that both the teacher present and myself had to constantly monitor what children were writing, verifying that they had ticked in the correct column and row. Nonetheless, the children soon recognized there was a certain pattern to the task and even children with special needs participated fully with the help of their facilitator.

The six food and beverage items offered as response options for each setting may have forced some children to choose foods which in reality they did not consume very often. So much so, a few children told me that the food they would consume most often for a particular setting was not listed. In such instances the children were allowed to write this food at the end of the row for that particular setting. Originally, an 'Other' column had been included specifically with this eventuality in mind. However, after pilot testing it was decided to remove this column as it seemed that the children who would need to use it were more of the exception than the rule.

The pictures used as visual aids may have been too small for children to see from the back rows of the classroom. In retrospect, one could have used enlarged photocopies of the originals. The original plan had been to work with smaller groups of children around a table. However, time constraints, lack of any research assistance, together with a general desire by the teachers to involve the whole class necessitated a different procedure. Of interest is that the teachers thought the visuals were very well drawn and recommended that similar material should be made available for use as resources in primary schools. They also described the data collection task as a worthwhile experience for themselves and for the children. The exercise helped to create an awareness as to what was being consumed, and at the same time the children were learning how to fill in a form by following a set of instructions.

3.2.4 Stage 4: Children's Focus Group Interviews

By this stage of my research, the literature on use of focus groups with children to explore food, nutrition and health issues was increasing. Goodwin et al (2001) had used focus groups to develop a food and activity record and portion-size model booklet for use by US 6-17-year olds. Connors, Bednar and Klammer (2001) had used focus groups to study cafeteria factors that influenced milk-drinking behaviours of US 6-11-year-olds. Eventually, I included a few questions similar to those asked in the latter study for comparative purposes.

3.2.4.1 Objectives

Children's focus group interviews were conducted as a follow-up to the outcomes of Stages 2 and 3 of the research. Results from these two stages warranted further attention as they had either indicated promising or worrying trends from a nutrition and health perspective, or else they had suggested key factors which could impinge on children's food intake. Moreover, to maintain brevity and avoid superficiality, the Stage 3 quantitative tool had not

been used to probe for specific food-related themes which I was interested in (e.g. the influence of food attributes on intake). Thus, the focus group interviews would be used to explore these facets of children's food intake as well. The main objectives of the focus group interviews are presented in Table 42.

TABLE 42
Main Objectives Of The Children's Focus Group Interviews

<ul style="list-style-type: none">• To uncover children's perceptions of the health value of specific foods• To uncover children's perceptions of the prestige value of specific foods• To explore children's perceptions of different attributes of fruits, vegetables and milk which made these foods either more or less appealing• To explore children's attitudes and behaviours in relation to school milk provision and school food rules• To explore children's attitudes and behaviours in relation to school food rules• To identify determinants of children's exposure to particular foods

3.2.4.2 Choice Of Sample

Based on an analysis of the recommendations from different studies involving children's focus groups, my main conclusions were that: homogeneity in the age of focus group members was important due to developmental issues; the ideal group size was of around five or six children (with a maximum of eight) in order to balance tape audibility with flowing discussion; the facilitator needed to ensure that there would be at least three 'talkers' in the group to guarantee high quality discussion (Hoppe et al., 1995; Wood Charlesworth & Rodwell, 1997; Green & Hart, 1999). There was lack of consensus on gender composition, with some researchers recommending same-gender groups (Greenbaum, 1993; Hoppe et al, 1995) and others indicating that mixed-gender groups did not jeopardise ease of communication (Wood Charlesworth & Rodwell, 1997; Green & Hart, 1999). I eventually had both set-ups due to the co-educational status of the schools used.

Table 43 gives an overview of the different features of the focus groups conducted in Stage 4. Sixteen focus groups were organised and purposive sampling was used to include schools from different regions and to meet with children attending state, church and independent schools, attending single-gender and mixed-gender schools, and attending schools which had or did not have a school food policy. Meeting with such a diverse group of children would increase the likelihood of exposure to the different lifestyles of Maltese children and allow me to tap different repertoires of knowledge. All the schools included in

TABLE 43
Different Attributes Of The Focus Groups

Interview No. ^a	School			Recruiter		Origin of Group		Duration	Setting	Distractions	Special Circumstances
	Region	Type	Gender	Head or Assistant	Class teacher	Same class	Different class	Minutes			
1	Rural South	State	Mixed		✓	✓		65	Utility Room	Nil	
2	Trans island catchment	Independent	Mixed	✓			✓	65	Ballet studio	Nil	One boy was Russian
3	Gozo	Church	Mixed		✓	✓		75	Empty Staff room	High	Room surrounded by classes and yard
4	Gozo	State	Mixed		✓	✓		75	Empty classroom	Nil	
5	Gozo	State	Mixed		✓	✓		90	Unused staff room	Nil	One boy had a foreign mother
6	Gozo	State	Mixed		✓	✓		80	Unused classroom	Moderate	
7	Trans island catchment	Church	Boys	✓			✓	80	Art room	Moderate	Hyperactive boy: Left after 45mins
8	Urban South	State	Mixed		✓		✓	75	Empty classroom	Moderate	Two girls left after 30mins Another two replaced them
9	Trans island catchment	Independent	Mixed		✓	✓		75	Hallway	High	
10	Urban Central	State	Mixed		✓	✓		65	School library	Nil	
11	Trans island catchment	Church	Mixed	✓			✓	80	Video room	Nil	Younger group (old Year 2s)
12	Trans island catchment	Church	Girls		✓	✓		80	Small room	Nil	
13	Urban North	State	Mixed		✓	✓		80	School clinic	Nil	Foreign boy
14	Urban Central	State	Mixed	✓			✓	65	Video room	Nil	
15	Trans island catchment	Independent	Mixed		✓	✓		80	Vacant office	Nil	
16	Urban Central	State	Mixed		✓		✓	90	Resource room	Nil	One boy had a speech defect

a In order of implementation

the sample had participated in the large-scale survey with Year 3 children the previous scholastic year. However, as the children chosen for the focus groups were mainly from the current Year 3 population none of them had been involved in the survey.

Schools are an environment where a hierarchy of gate-keepers may influence the sampling process and have unpredictable effects on the composition of the focus group. The exclusion of children for one reason or other will likely bias the final sample of participants in a systematic way (Green & Hart, 1999). When I was planning my focus groups, it was still not the norm in Malta to obtain consent from parents before conducting research with children. Obtaining permission from the Education authorities and the Head of School sufficed. Following this standard procedure, I contacted the sixteen different schools speaking to one or more school administrators. None of the schools contacted declined to participate.

The participants for each interview were either recruited by the Head of School or the Assistant Head, or by the class teacher. Sometimes the children were from the same class and sometimes from different classes. Whilst setting up the interview appointments, some Heads of Schools asked me which criteria should guide them in their choice of interviewees. Invariably, my reply was that if possible children should reflect a range of intellectual abilities and not be either excessively boisterous or timid. Speaking to some of the teachers after the interviews, a few of them explained their recruitment strategies. These included involving the 'brighter' or 'more talkative' children, ensuring a mix of abilities and in one case involving a child because he was overweight and the teacher thought the interview might influence him positively. Two interviews involved children with special needs (a hyperactive child and a child with a speech impairment). In both cases the child's facilitator remained with the child for a short while and then left the interview room. One teacher explained how she had avoided showing favoritism during recruitment by telling the children that the list of participants had been given to her by somebody else. These latter circumstances perhaps point to the way some Maltese schools endeavour to be inclusive at all levels.

Each focus group was made up of 6 children. In mixed-gender schools they consisted of three girls and three boys. There was one exception, as in one church school no Year 3 children were available and so older children from Year 2 who had celebrated their 7th birthday were recruited. This resulted in a focus group comprised of four boys and two girls who were slightly younger than the rest of the sample groups.

3.2.4.3 Setting

Previous research had shown that the degree of formality of the context for the focus group sessions impinged on various aspects of the process, such as the relationship between facilitator and participants, explicitness of rules of conversation and smooth running of the session (Wood Charlesworth & Rodwell, 1997; Green & Hart, 1999). Where the session facilitator was perceived as an 'honorary teacher' it was easier to manage the discussion and children were more likely to control each other, to wait for permission to speak, or take turns to contribute to the conversation. Sitting in a circle around a table enhanced the output as children perceived this as symbolising an important and serious discussion. The informality of sitting on the floor was considered to make the children feel more comfortable; however, it also emerged as more conducive to distractions, such as arguments over violations of personal space. These different benefits and drawbacks were considered in the arrangements I requested for my focus groups, but the ideal situation was not always achieved.

I started each session by introducing myself and explaining how I could be addressed according to the norm in the respective school. In state schools the children tended to call me "Miss". In church and independent schools they used "Miss Suzanne". My introduction stated that they would be talking about food and that it was important that all of them participated in the conversation. In one church school, the class teacher (a nun) encouraged the children "to be honest and speak up".

Children were free to use whichever language they were comfortable with. Primarily, Maltese was used both by the children and myself. However, in the three independent schools the children preferred speaking in English and in the church schools some children spoke in English, others in Maltese. In three of the groups there was a foreign child. I asked these children about their comprehension of Maltese or English and then addressed them accordingly.

The physical location for the focus group interviews varied. With the exception of two locations, the interview sites were very private, ranging from vacant classrooms, to the school clinic. I had expressed this desire for privacy when setting up the appointments and most school administrators managed to oblige. In general, the children and I sat around a large table or desk, all seated at the same level. The settings varied with regard to comfort and level of distraction. The furniture was not always comfortable, such as when only stools

or pre-schoolers' chairs were available in the room assigned. Distractions ranged from banging doors on a windy day, to children's exuberant singing of Happy Birthday from adjacent classrooms, to the school bell ringing three times very loudly right above our head in a hallway. Nonetheless, the children were able to quickly refocus and immerse themselves in the session.

3.2.4.4 Research Tool

A semi-structured interview guide was developed for the focus group sessions, listing a number of primary themes and questions essential to cover, as well as probes which could be followed up depending on time constraints or previous discussion. (See Appendix 3.9). Once again I adhered to recommendations regarding flexibility, where the guide establishes the agenda for the discussion, but does not constrain it (Wood Charlesworth & Rodwell, 1997). Following Glesne and Peshkin (1992), I used a questioning style which was structured (having specific questions which needed to be asked), open (where I was prepared to follow leads), and depth-probing (where I expressed keenness to learn more). Research with US pre-school children had also highlighted the usefulness of a game approach to gleaning how children conceptualised food and nutrition (Plum et al., 1998). Consequently, for my focus groups I used a selection of props, including real foods and beverages and two sets of good quality colour photographs. Photos have often been used in interviews with children, such as to identify their food preferences (Guthrie, Rapoport & Wardle, 2000), their perceptions of vegetables (Baxter, Schroder & Bower, 1999), their choice of food for breakfast (Jonsson, Gummeson & Svensson, 1998), their organisation of meals for three days (Gutzeit, Bloth & Hagenow, 1995) and their classification of 'healthy' and 'unhealthy' foods (Calfas, Sallis & Nader, 1991). Researchers have claimed that, through use of photographs co-operation was more assured, and that photographs were more reliable than food models, but less reliable than the real food. The main themes in my focus group guide and corresponding props utilised can be seen in Table 44.

I followed the interview guide fairly rigorously for the first two focus group sessions. However, as the sessions progressed the interview guide was revised a number of times as a result of the answers given by the children. Known as progressive focusing, these modifications allowed me to explore different issues which were emerging from the conversations. In total, five different versions of the guide were developed over the span of the 16 sessions. In some instances probes were added to explore previously ignored aspects of a theme which emerged from the children's answers (e.g. within the theme of

TABLE 44
Main Themes and Complementary Props Used For the Children’s Focus Groups

Theme	Prop
Health value of food	Three different lunch boxes with real food: Lunch box A = White roll with salami, cereal bar, orange juice Lunch box B = White bread sandwich with <i>Nutella</i> , packet of salted snacks, orange squash Lunch Box C = Wholemeal sandwich with ham, lettuce, tomato, banana, water
Consumption of fruit	No props
Consumption of vegetables	No props
Consumption of milk: including focus on school milk	No props
School food policies: including focus on restrictions	No props
Consumption of common snack foods: focus on traditional foods and environmental factors including the mass media	Photos: Savoury snacks = <i>hobz biz-zeit</i> , bread with <i>Nutella</i> , hot dog Sweet snacks = <i>Qaghaq/biskuttelli</i> , <i>Kinder Delice</i> , chocolate chip cookies
Peer influence and prestige value of foods	Real food comprised of a selection of the following: bread roll with sliced cheese, white sandwich with <i>Philadelphia</i> cheese and tomato, apple, small container with fresh fruit salad, apple, packet of salty snacks, popcorn, <i>Ribena</i> , <i>Breakers</i> fruit drink ^a

a Additional items were included in the final sessions such as a baguette, cherries, dried raisins and apricots in a small container, apple chips, muesli bar, mini-pack of *Weetos* cereal, ice tea, 'light' juice

'healthy food' asking about their understanding of the term 'diet food'), whilst in other versions different props were used in order to generate more specific data about a particular question (e.g. adding apple chips and dried fruit to explore the value of novelty in creating a special packed lunch). Sometimes certain questions were omitted as it became clear that the children were repeating answers from previous lines of enquiry, or else I decided that the questions were not reaching their objective.

Various strategies were used in order to try to explore the prestige value of foods, however, this proved to be a difficult concept to tackle with the children whilst ensuring a reasonable degree of validity. For example, questions were asked in relation to creating a lunch box for themselves which classmates would also wish they had, listing the contents of a 'gift' lunch box which they knew would be desired by all their friends, preparing a 'special' packed lunch as a gift for a new friend at the beginning of the scholastic year, or preparing a 'special' packed lunch for their best friend. By the end of the sixteen sessions it was clear that the concept of prestige as perceived by myself was beyond the perceptions of the children being studied.

3.2.4.5 Data Collection Procedure

In preparing for and during the actual sessions, I kept in mind recommendations for successful interviews as described by Glesne & Peshkin (1992). These included anticipating what materials and equipment were required and using them strategically, being alert to establishing rapport with the participants, assuming a certain naivety by which assumptions and pretensions are set aside, being non-reactive and non-directive and establishing a non-threatening, warm and caring atmosphere. At the same time, I sensitised myself to the fact that the analytical process was ongoing, so that even during the actual sessions I would need to consider relationships, salience, meanings and explanations which could lead to new questions.

An audio test was held at the beginning of each session to ensure quality of recording and to introduce the tape recorder to the children. The children were very mature and though some of them giggled or teased each other when they heard themselves speak during playback, they very quickly settled down when I told them it was time to start. I also laid some ground rules, such as reminding children that they should let each other finish before starting to speak and to avoid speaking at once. These rules were somewhat difficult to maintain during a few of the interviews (sometimes minor reprimanding was necessary), but in general children co-operated and the tape recordings were nearly all clear enough to be transcribed in their entirety.

Overall, the children seemed to enjoy the sessions. The interview progressed from use of realia as prompts, to talking without visual aids, then to the use of photographs as prompts and finally finishing with realia again, where this time children had to physically sort foods to create a packed lunch. This sequence kept the children constantly involved and intrigued. Visual aids were removed when not in use and only taken out again when required. This helped to avoid any distractions and kept the children focused on the topic being discussed. If children indicated they were uncomfortable in their chairs they were allowed to get up and move around, or even kneel on their chair. This only happened twice however. As in previous data collection events, the one complaint by some of the children was that the sight of all the food was making them hungry.

At the end of the interview, children were given an envelope to take to their parents. This was an invitation and Consent Form asking for parent volunteers to participate in telephone interviews as a follow-up to the interviews with children. (See Appendix 3.10). The children

were asked to return the forms in the envelope provided to their class teacher. Heads of Schools were informed that the envelopes would be collected in two weeks time. Eventually, some Heads of Schools voluntarily mailed me the envelopes, once all six had been returned by the children.

3.2.4.5.1 Duration

The focus group interviews lasted between 65 and 90 minutes, with the average duration being 75 minutes. Glesne & Peshkin (1992) have stated that “qualitative researchers operate from the assumption that they cannot exhaust what there is to know about their topic...that the better you probe, the longer the interview becomes” (p.85). Focus group interviews with children have normally been of around 20-45 minutes duration (Houghton, Durkin & Carroll, 1995; Wood Charlesworth & Rodwell, 1997; Connors, Bednar & Klammer, 2001). My focus group sessions were extremely lengthy in comparison. This situation developed as the children engaged themselves enthusiastically in the task, revealing personal perspectives, offering various examples and recounting anecdotes. Most times I felt obliged to listen to the children as much of the information being forwarded was extremely relevant. None of the children complained about the length of the interviews, but a few did ask to be excused to go to the bathroom for a few minutes, or asked to return to their class quickly to have a drink. In the exceptional case where two girls did ask to leave, I immediately granted them permission to do so. (It seems the girls had been working on a computer before the session began, and this was a ‘treat’ as normally access to computers was limited). Similarly, when a hyperactive boy was part of the group, at one point he seemed to become very fidgety and so I actually asked him (unthreateningly) if he wished to leave. The boy accepted and the facilitator was called in to take care of the child.

3.2.4.6 Data Recording And Analysis

As already indicated, all the focus group interviews were audio-recorded using a micro tape recorder with an in-built microphone. After each session I transferred the tape recordings to regular audio cassette tapes, thus preserving the data in another format. In addition, on the same evening that a focus group was conducted, I would write down notes and reflections on the session. These described characteristics of the group members, the setting for the focus group and any procedural issues. They also highlighted any salient comments made by the children, evaluated any adaptations made in the research tool and suggested recommendations for future action. Thus, a day-by-day record of the key outcomes and progress of the focus group interviews was produced, contributing to confirmability of the

data. This procedure was in keeping with the anticipatory attribute of a good interviewer as described by Glesne and Peshkin (1992), where the daily task of log-writing prepares the researcher for what is next, both broadly in terms of the inquiry, but also narrowly in terms of the next day's activities.

The sixteen tape-recordings were transcribed verbatim, producing a total of 373 double-spaced typewritten pages, or an average of 26 pages per focus group. Inductive analysis using open, axial and selective coding was used to extract data from the transcripts (Strauss & Corbin, 1990; Miles & Huberman, 1994). Initially, I read through the transcripts and sorted the data school-by-school in an Excel spreadsheet, using the main topics of the interview guide and other sub-topics which started emerging from the data as headings. Then I read through this textual data again, identifying certain patterns, and eventually coding and collapsing it into web diagrams portraying different themes and sub-themes emergent from the data. Further study of the web diagrams identified certain areas which were inter-related and this step led to the creation of more focused tables of themes and sub-themes. Particularly pertinent quotes by the children which illustrated these themes and sub-themes were also noted. In addition, in order to identify saliency of certain themes the number of related responses was also recorded. The latter was the extent of quantification, since as stated by Singleton, Achterberg & Shannon (1992), qualitative data is rarely quantified except perhaps to give an indication of the magnitude of a trend.

Trustworthiness is the indicator of rigour in qualitative research and this is contingent on a study's credibility, dependability, confirmability and transferability (Lincoln & Guba, 1985). Creswell (1998) has outlined eight procedures which can be used for verification in qualitative research and recommends that at least two of these procedures are used in any given study. In the analysis of the children's focus group interviews, credibility was sought through the use of an audit trail (log of analytical notes) and peer debriefing via discussion of findings with another researcher interested in food choice. Moreover, thick description was used in the report to describe the participants' contributions in relation to the phenomenon of interest as accurately as possible. Dependability was enhanced through the use of a flexible interview format in data collection. This permitted me to use follow-up questions whenever needed, particularly to ensure that I had understood participants' meanings accurately. Providing rich, thick description of both the focus group participants and settings would allow future researchers to make decisions regarding transferability to other populations.

3.2.4.7 Limitations

The focus groups were conducted with 7-8-year-old children, so any conclusions reached may not be applicable to younger or older school children. Schools chosen to participate were based on purposive sampling; however, the interviewees were recruited by school administrators or class teachers and the selection may have been biased towards children who would portray a positive image of the school or teacher. Thus, the sample could also be labelled a convenience sample which was possibly not representative of the population of interest. Focus group composition differed, in that some groups comprised children from different classes, whilst others comprised children from the same class. The presence of 'friendship groups' or 'strangers' may have influenced the extent of willingness of participants to express themselves on the topics being discussed. The focus group interviews were conducted during the Summer season and, although I specifically asked about seasonality in food consumption, the period of the year during which the interviews were conducted may have limited the alternative answers given by the children.

In general, the duration of the focus group session tended to increase from one session to the next, peaking at 90 minutes. The length of the sessions could have been curtailed if I had been more sensitive to saturation of a theme and less ambitious in pursuing a theme which was not as salient as I had anticipated. For example, I persisted in trying to explore children's perception of the prestige value of food, whereas perhaps this concept was not part of the children's realm. The long interview sessions also resulted in extremely lengthy transcripts which were costly to produce and required scores of hours to read, code and analyse. This was of great personal burden as I collected all of the data and conducted all the analyses single-handedly. Biases in my perceptions prior to initiation of data collection may have influenced where emphasis was placed during the focus group interview guide design and during the actual sessions. Moreover, despite efforts to ensure consistent content analysis procedures, coding judgments by other investigators may have been different.

3.2.5 Stage 5: Parents' Interviews

Telephone interviews were conducted with parents as the final stage of data collection. Different researchers have recommended parental interviews in order to corroborate statements made by children, to increase completeness of data and to obtain parents' perspective on facilitating healthier lifestyles among children (Frank, 1994; Goodwin et al., 2001; Hart et al., 2003).

3.2.5.1 Objectives

The influence of parents on Maltese children's food perceptions and intake had emerged clearly from the focus group interviews in Stage 4. Thus, parental role with regard to access to food, food provision and as a source of information on the health value of food were aspects of children's food behaviours which I chose as the last areas to explore. This would also address different levels of McLeroy et al's (1988) Social-Ecological Model, primarily the interpersonal and organisational levels. The main objectives of the parents' interviews are outlined in Table 45.

TABLE 45
Main Objectives Of The Parents' Interviews

- To uncover motivational factors for parents' choice of foods for their children
- To identify parents' opinions on school food policies
- To explore parental perceptions of children's sources of food requests and subsequent outcomes of such requests

3.2.5.2 Choice Of Sample

During the period end of August to mid-September 2001, 30 telephone interviews were conducted with parents of children who had participated in the focus group interviews in June 2001. All those parents who had signed a Consent Form volunteering to be interviewed and returned it via their children to the Head of School were eligible to participate in the survey. Eventually, purposive sampling was used to choose the parents to be interviewed. My goal was to include parents who had children attending different school types, who resided in different geographical regions and who had asked to be contacted during different periods of the day, perhaps reflecting different lifestyle routines. (See Table 46). All of the parents contacted in August reconfirmed their willingness to be interviewed. Twenty-six interviews were conducted during the day, between 9.00 a.m. and 5.30 p.m. Four of the interviews were conducted after 7.00 p.m. Out of the 30 interviewees only one was the male parent. Moreover, though not asked directly, it emerged during the course of the conversations that a mix of working and non-working mothers were interviewed, with the sample more biased towards the latter.

3.2.5.3 Methodology

Telephone interviews are a popular alternative to in-person interviews for health-related studies, with such advantages as a high response rate, speed of data gathering, low cost for

TABLE 46
Attributes Of The Parents' Interviews

Interview No. ^a	Parent's Gender	Child's Gender	School Region	School Type		Additional Information
1	Mother	Boy	Trans-island	Independent	Mixed	
2	Mother	Girl	Trans-island	Church	Girls	Grandmother is Italian
3	Mother	Boy	Trans-island	Church	Boys	
4	Mother	Boy	Trans-island	Church	Boys	Mother is a midwife (currently not practising)
5	Mother	Boy	Gozo, Rural	State	Mixed	
6	Mother	Girl	Gozo, Rural	State	Mixed	Mother is 50-years-old
7	Mother	Boy	Gozo, Rural	State	Mixed	
8	Mother	Girl	Trans-island	Independent	Mixed	
9	Mother	Girl	Trans-island	Independent	Mixed	Mother is British
10	Mother	Girl	Malta, Urban	State	Mixed	
11	Mother	Boy	Malta, Urban	State	Mixed	
12	Mother	Girl	Trans-island	Church	Girls	Mother is a member of the School PTA
13	Mother	Girl	Trans-island	Independent	Mixed	
14	Mother	Girl	Malta, Urban	State	Mixed	Mother is a member of the School Council
15	Mother	Boy	Malta, Urban	State	Mixed	
16	Mother	Girl	Malta, Urban	State	Mixed	Mother is slightly older than the average; Brother-in-law is Italian with a passion for cooking
17	Mother	Boy	Malta, Urban	State	Mixed	
18	Mother	Boy	Trans-island	Independent	Mixed	
19	Mother	Boy	Malta, Urban	State	Mixed	
20	Mother	Boy	Gozo, Rural	Church	Mixed	
21	Mother	Girl	Gozo, Rural	Church	Mixed	
22	Mother	Boy	Malta, Urban	State	Mixed	
23	Mother	Girl	Gozo, Rural	State	Mixed	
24	Mother	Boy	Malta, Urban	State	Mixed	Mother is a doctor (currently not practising)
25	Mother	Boy	Malta, Urban	State	Mixed	
26	Mother	Boy	Malta, Rural	State	Mixed	
27	Father	Girl	Trans-island	Independent	Mixed	Father said he was answering on behalf of the mother; Interview held at 1730h
28	Mother	Girl	Malta, Urban	State	Mixed	Mother works outside the home; Interview held at 1830h
29	Mother	Boy	Gozo, Rural	State	Mixed	Mother works outside the home; Interview held at 1950h
30	Mother	Girl	Malta, Urban	State	Mixed	Mother works outside the home; Interview held at 2030h

a In order of implementation

implementation and good quality of data collected (Derr et al., 1992). Interviews with parents have been used for different purposes in food research, including the development of a research tool to assess children's eating habits (Wardle et al., 2001a), evaluation of the impact of a nutrition education programme on children's food intake (Koblinsky, Guthrie & Lynch, 1992), exploration of parents' perspective on improving children's lifestyle choices (Hart et al., 2003) and examination of relationships between the presence of television during meals and children's food consumption patterns (Coon et al., 2001). The goals of such interviews were to obtain a richer or more precise background on children's food-related practices.

Telephone interviews were chosen for Stage 5 of the research as these would be easy to organise logistically. Parents would be reached in the comfort of their home and at their convenience. Similarly, I could conduct the interviews from one location (my home), avoiding the burden of travelling from one place to another and incurring any transportation costs. Since the interviews were scheduled for the Summer months, such a set up was much more practical than organising a meeting with parents, perhaps on the school premises. The latter may have even compromised the quality of the data and the openness of the interviewees. In fact, during the interviews I sensed that parents were very candid in their comments, both with regard to their own, or their children's behaviours, but also in relation to certain school food-related policies and practices.

3.2.5.4 Research Tool

A standard interview guide was followed for each interview (see Appendix 3.11), although the order of questions sometimes changed depending on the previous responses of the interviewee. There were eleven questions in total, addressing three domains as seen in Table 47. I decided to keep the tool as simple as possible and the focus limited to three areas in the interest of efficiency and to reduce the burden on interviewees. Moreover, I had learnt from my experience in conducting the children's focus groups that addressing quite a number of topics would result in an overwhelming amount of data to be analysed. The interview guide was piloted with two mothers, but no modifications were necessary.

3.2.5.5 Data Collection Procedure

The telephone interviews were conducted according to the time preference indicated by the parents in their Consent Form. Thus, a high response rate was ascertained beforehand. At the beginning of the interview I introduced myself and explained the purpose of the phone

TABLE 47
Domains In The Parents' Interview Guide

Domain	Number of questions
Motivational factors for parents' choice of foods for consumption by children	3
Parents' opinions, behaviours and suggestions in relation to school food policies	5
Parents' perspectives on children's food requests	3

call, referring to the Consent Form and their children's participation in a survey a few weeks earlier. I then explained that the interview would last approximately 15 minutes and that it tackled three main areas. In reality, the interviews lasted between 10 to 30 minutes. All the parents co-operated fully, many offering to be interviewed further at a later date if necessary. Some parents were very willing to talk at length about the issues raised, particularly mothers who turned out to be members of the School Council. There were two such cases, a mother whose child attended a state school and a mother whose child attended a church school.

3.2.5.6 Data Recording And Analysis

During the interviews I made extensive notes, taking down direct quotes when striking statements were made. After each interview, I revised these notes and filled in any gaps from memory. A similar process to that used when analysing the children's focus group interviews was adopted, following the conventions of inductive analysis methods (Strauss & Corbin, 1990; Miles & Huberman, 1994). All notes were transferred into an Excel spreadsheet, categorised according to the interview questions. Within each category, the parents' responses were then coded according to emergent themes and sub-themes. Revision of these themes indicated a number of areas of overlap and led to further consolidation. Eventually a number of descriptive tables with themes and sub-themes were developed to synthesise the data obtained. A record was made of similar responses to indicate saliency.

As with the children's focus groups, certain steps were taken to ensure trustworthiness of the analysis (Lincoln & Guba, 1985). My interview notes and comments written immediately after each interview, as well as the hard copies of the coding sequence were kept as an audit trail of the analysis. A fellow-researcher was consulted regarding the coding system used and the emergent themes and sub-themes and appropriateness of illustrative quotes. This audit trail and review were used as methods of verification of credibility of the analysis. Thick

description was also presented in writing up the results with the purpose of adding to credibility and facilitating decisions on transferability by other researchers.

3.2.5.7 Limitations

The parent sample was selected from a group of parents who had volunteered to participate in the interviews. This group of parents was perhaps not representative of the general population as their offer to be part of the study may have resulted from an interest in the topic of children's diet and health. Thus, a certain bias in their perception of the importance of health in choosing foods could have been present. All the interviewees, except one, were mothers. Fathers may have offered a different perspective on the issues discussed and added to the richness of the data obtained. Nonetheless, in the request for volunteers I had asked that the person who normally provided the children's food would be available; so the fact that mainly mothers were the interviewees is indicative that this role is more or less still exclusive to the maternal domain. All the interviews were conducted during the Summer months and this may have biased parents' responses on their children's recent food requests: the latter could have been related to seasonal availability or preference for foods, or influenced by seasonality in advertised foods.

3.3 Conclusion

This chapter has given a detailed overview of the methodology involved in the five different stages of the research. The choice of methods and research tools for each stage were based on a study of the literature, on the outcomes of preceding stages in the research and related to my wish to employ diverse techniques and to trial certain methodologies with Maltese school children. Results from the first two stages were described in order to give richer meaning to various aspects of the subsequent stages. Results from Stages 3 to 5 will now be presented and discussed in the following chapter.

RESULTS AND DISCUSSION

4.1 Utilising An Ecological Model As A Structural Framework For The Results

This chapter will present the results and discussion of three different stages of the research: The large-scale survey on children's food preferences and consumption habits; the focus group interviews with children on various aspects of food choice; and the telephone interviews with parents on factors related to their children's food intake. Appendix 4.1 offers an overview of the information obtained in these different stages. Several aspects of the data were linked to each other in various ways, whereas some components of the data were deemed as more relevant to the research questions than others. I have therefore decided to present the most salient themes emerging from the results utilising an ecological-type model adapted from Bronfenbrenner's (1989a) Ecological Model of environmental influences on behaviour, McLeroy et al's (1988) Socio-Ecological Model for nutrition education evaluation and Story, Neumark-Sztainer & French's (2002) composite theoretical framework for understanding adolescent eating behaviour. The latter two are very similar to Bronfenbrenner's framework which I used earlier to guide my review of the literature, but the different levels of influence in Story et al's model seem to be more distinct and applicable to the Maltese children's context; thus, I feel this model is more functional as a framework for organising my results. Elements of Satia-Abouta et al's (2002) proposed model of dietary acculturation have also been included due to the culture-cuisine interest of my research. In this model, the researchers suggest a link between a group of environmental factors which lead to changes in food procurement and preparation and in turn help to maintain traditional eating patterns or generate bi-cultural eating patterns. This seemed very relevant to my findings. Finally I have also included elements of Social Cognitive Theory (Bandura, 1986; Reynolds et al., 1999), particularly because of the clear role of preferences, health value cognition and modelling in children's food intake. My working ecological model can be seen in Figure 4 and it will serve as a structural framework for this chapter.

A model based on concentric ellipses was chosen to emphasise the different ecological levels and the functioning of systems within systems in relation to children's food intake. The four broad levels of influence are Intrapersonal, Interpersonal, Community and Macro. The Intrapersonal level includes individual characteristics that influence eating behaviour, such as biological factors (e.g. gender), psychosocial factors (e.g. beliefs, attitudes and preferences) and behavioural factors (e.g. meal and snack patterns). The Interpersonal

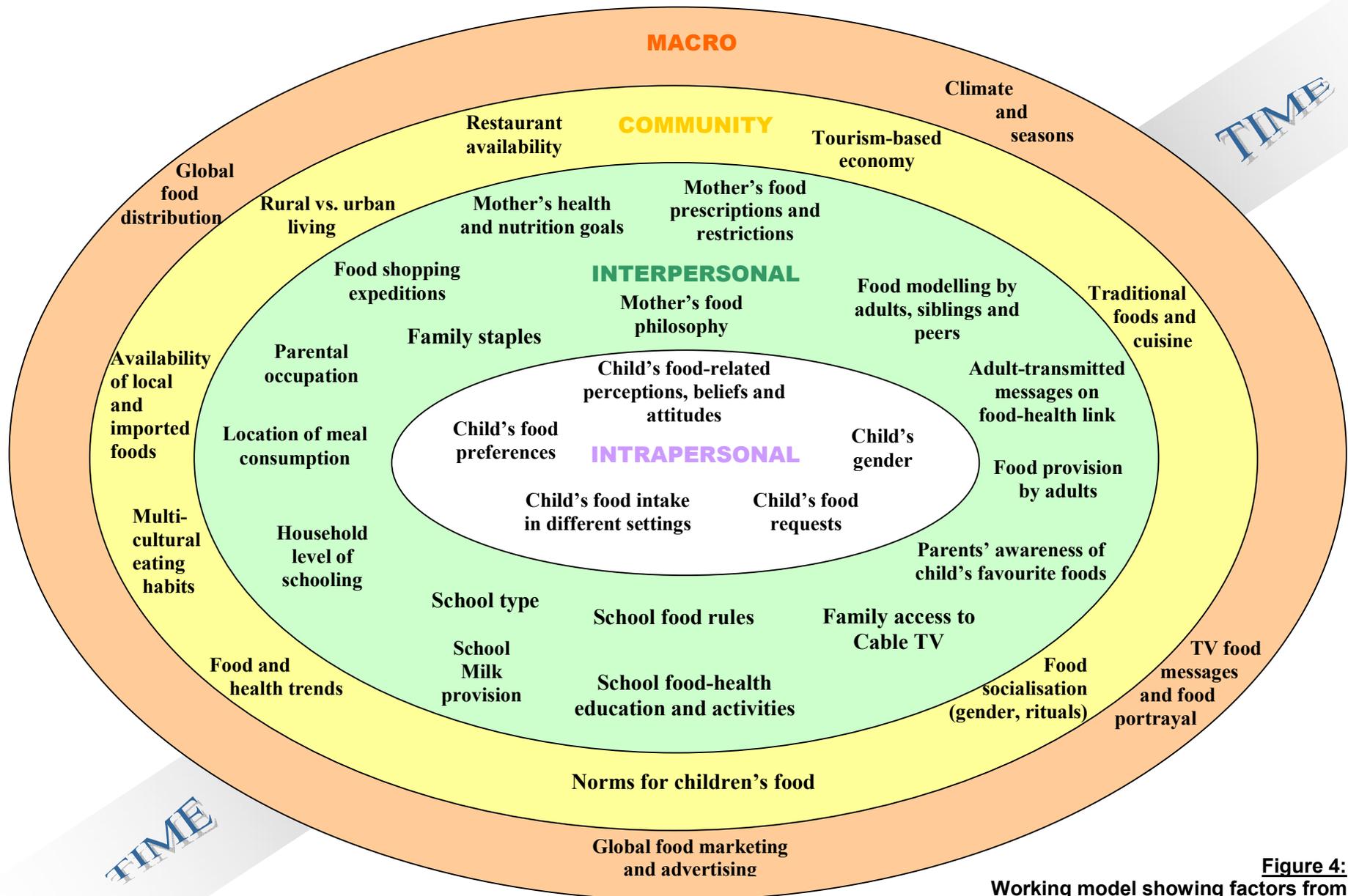


Figure 4:
Working model showing factors from different ecological levels influencing a child's food intake

level includes the social systems a child functions in. These primarily involve the processes and relationships within the immediate and extended family, within peer groups and within the school, which affect children's food intake; such as through food provision, modelling, instruction and social support. The Community level includes physical, economic and cultural factors, which influence food accessibility, availability and value; such as region of residence, the tourism industry and food-related norms. The Macro level includes factors which impact the various factors in the other levels and have an indirect influence on the child's food intake; such as climate, seasons and global food marketing and advertising.

The multi-level model is useful for trying to explain the determinants of food intake amongst Maltese children. It emerged from the results that sometimes the specific influence of one factor on the child's ultimate intake was direct and distinct; however, more often than not, a number of factors worked together in influencing food intake. In other words, factors in one level sometimes influenced factors in inner or outer levels before ultimately determining a child's intake. Moreover, within a particular level or across levels there could be interaction between two or more factors creating an embedded system. This two-way interaction is known as reciprocal determinism in Socio-Ecological Models and Social Cognitive Theory and is used to explain that behaviour and environment are continuously interacting and that influence occurs in both directions (McLeroy et al., 1988; Reynolds et al, 1999).

This chapter will present the various results obtained from the latter three stages of the research and explain them within different levels of the model, whilst looking at the inter-relationships between specific factors. A comparison with the literature will also be made. Part 1 will focus on the Intrapersonal level - mainly Maltese children's food-related beliefs, knowledge and perceptions, their food preferences, their food intake in different settings and specific dietary patterns. Part 2 will highlight the role of factors from the Interpersonal level – primarily the mother, family dining practices and the school. Part 3 will look at one particular aspect of the Community level - namely the culture-cuisine orientation of meals. Part 4 will also look at one specific factor in the Macro level - specifically TV food portrayal and messages, including food advertising. I must point out, however, that despite my seeking to focus on a distinct level of the ecological model in Parts 1-4, the reciprocal dynamism between levels and factors will be clear and was quite unavoidable in my discussion.

To facilitate reading, throughout this chapter the word 'food' should be taken to include both solid food and beverage items, unless it is clearly referring to solid food only. Similarly, the

phrase 'Maltese children' should be considered to include both Maltese and Gozitan children, unless it is clearly indicated that only children from the island of Malta are being referred to. When quotations from the focus group or parent interviews are given to substantiate commentary, the specific school source (and the gender of the child in the case of parent interviews) will be indicated in brackets. (See List of Abbreviations). An index and full details of each focus group and parent interviewed were presented in Tables 43 and 46 in the Methodology chapter. (See Sections 3.2.4.2 and 3.2.5.2).

4.2 The Intrapersonal Level

In this part of the chapter I shall focus on aspects within the intrapersonal level which could influence children's food behaviours. The first section will look at children's perceptions, beliefs and knowledge related to food, nutrition and health. The second section will look at children's reported general food preferences and compare these with those perceived by the parents. The third section will look at children's reported food preferences and intake in different consumption settings. The fourth section will focus on group differences in child reported food intake in the different settings. And the fifth section will look at profiles of child groups exhibiting particular dietary patterns.

4.2.1 Concepts Surrounding Health

I did not explicitly ask children about their understanding of health, but this theme frequently arose during the children's descriptions of the health value of different foods so that I felt it was important to report on it. As can be seen from Table 48, children tended to describe health in terms of its function and maintenance and exclusively limited to the physical domain. Their discourse was both positive and negative in orientation, explaining what health contributed to a person and also what health avoided. In general, the children found it somewhat difficult to give a clear definition of health. In the Maltese language, the word *sahha* means health, but it also means strength. *B'sahh tek* means both being healthy and being strong, which children equated with the ability to lift or carry heavy loads. Therefore, it is perhaps not surprising that the physical dimension of health is salient to the children. Moreover, the children may have been using the word interchangeably.

Processes mentioned by children in relation to health maintenance may have stemmed either from personal experience, or from cautionary or motivational remarks by adults, or from their observation of adult food behaviours. Beliefs on food-related strategies for maintaining health varied. These were linked to the quality of the food itself, to quantity and

TABLE 48
Concepts Surrounding Health

Functions Of Health	
Positive orientation	Negative orientation
To keep alive (1) ^a To grow (1) To grow taller (1) To have more strength (to play/read/write) (1) To be able to lift heavy items (2) To be agile (1)	To avoid becoming ill (3) To decrease the risk of becoming ill (1) To reduce the presence of germs (1)
Processes Involved In Maintaining Health	
Avoiding harmful products (1) Caring for ones teeth (1) Controlling blood pressure level (1) Being on a diet (4) Eating <i>good^b</i> food (1) Eating small amounts from all foods (2) Eating a lot (1) Taking supplements (1)	
Qualities Of Good Food	
Gives you energy (1) Contains vitamins, giving you health and <i>healthy brain cells</i> (1) Makes you hungrier (1) Does not lead to illness (1) Does not contain products which harm the body (1) Does not contain sugar (1) Helps to prevent illness (1)	

a Number in brackets indicates the number of focus groups where this concept was mentioned

b Italicised phrases are direct quotes

variety consumed and to the role of supplements. According to the children, “good food” contributed to energy, contained nutrients, did not contain harmful products (specifically sugar) and had a protective role. In fact, one child (10/M/U/S/MG) claimed: “If you eat good food you do not get sick.”

Children differed in their view of the link between quantity of food intake and health. For one rural child (1/M/R/S/MG), “good food” increased your appetite and it was acceptable to have a high intake of this food. Perhaps this was a message obtained from a parent or caregiver who regularly encouraged the child to eat more of certain foods. In contrast, two Gozitan rural children (6/G/R/S/MG) emphasised the need for dietary balance in relation to quantity and variety, with one child indicating obesity as a negative consequence of excess.

- Child 1: "We have to eat all kinds of food. We need to vary, because otherwise we'll get fat and we'll break our chair, if we eat a lot."
- Child 2: "But eating only vegetables isn't good. Because always, always vegetables... never changing. Or always pasta, or chips, it's not right. A little bit of everything."

Overall, some of my findings on Maltese children's beliefs regarding health and health maintenance are similar to those in the literature. The need for variety and balance in diet has been alluded to by US (Murphy et al., 1995) and British children (Hart, Bishop & Truby, 2002; Turner, 1997). In the British study, the concepts of moderation and variety were referred to by older children and those attending a high SES school. In contrast, in my study these concepts were mentioned by 7-8-year-olds attending a state school in rural Gozo. Of note is that research with US adults has shown that individuals whose healthy eating definition centred on balance, described how the importance of eating balanced meals was stressed during their childhood (Falk et al., 2001). Clearly, the concept of balanced consumption of foods from different food groups should be promoted further amongst Maltese children.

4.2.1.1 Health Value Of Specific Foods

The foods named by children as being healthy or not-so-healthy were classified into groups following the WHO Food Guide (WHO, 2000), with two additional groups for Beverages and Other foods (condiments and unclassifiable items). (See Appendices 4.2 and 4.3). Foods most frequently named as healthy were from the Fruit, Vegetables, Meat and Alternatives and Breads and Cereals groups. Top individual items were banana, water, brown bread, lettuce, tomatoes and salami. Foods most frequently named as not-so-healthy were from the Sugars, Fats and Oil, the Meats and Alternatives, the Breads and Cereals and the Beverages groups. Top individual items were crisps, *Nutella*, oil and salami. A number of reasons were indicated by the children to justify their choices, as seen in Tables 49 and 50. These mainly centred on a general perception of the health value of the food group, absence or presence of an ingredient or substance, the flavour of the food, the quality and processed state of the food and the mode of preparation.

Children also sometimes made comparative statements highlighting their choice as the better of two foods (e.g. brown bread healthier than white bread, packet orange juice healthier than orange squash, olive oil healthier than sunflower oil). In some cases, they also compared the health value of unprocessed and unrefined food with the more processed or

TABLE 49
Children's Criteria For Classifying Foods As Healthy

Justification	Examples Of Foods Or Substances
Food group is perceived positively	Fruits, vegetables
Food contains another healthy ingredient	Cereals, potatoes, oranges, meat, milk, honey
Food contains a nutritious substance	Vitamin C, fibre
Food does not contain an ingredient perceived as unhealthy	Chocolate, sugar, oil, yeast, colouring, "fizz"
Food is in its natural state or is minimally processed	Raw cauliflower, brown bread

TABLE 50
Children's Criteria For Classifying Foods As Not-So-Healthy

Justification	Examples Of Foods Or Substances
Food belongs to a food category perceived as unhealthy	Chocolate, <i>Nutella</i> , crisps= sweets; oil= fats
Food contains an ingredient which is perceived as unhealthy	Pork, fat, oil, chocolate, sugar, salt, vinegar, acid and fizz
Food lacks an ingredient perceived as healthy	Seeds missing in white bread
Food contains a substance which is perceived as unhealthy	Cholesterol
Food has a flavour linked with unhealthy ingredient	Orange squash and peach squash = sweet (sugar) flavour
Food has an unpleasant flavour	Oil
Food involves an unhealthy cooking method	Frying
Food is unfit for consumption	Salt, due to dirty salt pans

refined alternatives. Other children distinguished between foods on the basis of the relative proportion of unhealthy ingredients contained (e.g. more sugar than cereals in cereal bar).

Sometimes children qualified their choice by indicating that a small amount of a particular food was acceptable (e.g. salami, olive oil, salt), or that the food was "good and bad" (e.g. salami, crisps, cookies, cereal bars). Others qualified their choices by mentioning the need to limit frequency of consumption (e.g. salt, sugar), or the need to curtail quantities eaten (e.g. eggs, packet snacks).

Several of my findings on Maltese children's perceptions of healthy and not-so-healthy foods are in agreement with foreign studies where children were asked to list 'healthy' and/or 'unhealthy' foods (Michela & Contento, 1986; Bellisle & Roland-Cachera, 2000), food that is 'good for you' or 'not good for you' (Murphy et al., 1995; Gittelsohn et al., 2000), 'good' or 'bad' food (Hart, Bishop & Truby, 2002), or simply 'healthful foods' (O'Dea, 2003). Most of the Maltese children's perceptions of the food were in accord with current views of health. Therefore, plant foods and foods void of sugar were generally perceived as healthy and foods containing fat, sugar and salt as less healthy. Judging by the frequency of positive comments, it seems that fruits were perceived as being healthier than vegetables by Maltese children, and this parallels findings with British 9-11-years-olds (Wardle, Gibson & Watts, 1998). The strong perception of sugar-containing foods as less healthy foods parallels that of another study with US children (Lytle et al., 1997). Maltese children were aware of the fat content of many foods and they were also aware that olive oil was healthier than sunflower oil. This is consistent with findings from studies with US (Resnicow & Reinhardt, 1991; Murphy et al., 1995) and Greek (Turner, Zimvraiki & Athanasiou, 1997) schoolchildren. Maltese children's knowledge of the health benefits of olive oil could be due to the fact that this oil has been given a spate of publicity recently in Mediterranean countries, not only in terms of its health value, but also as a cuisine component of the cultural tourist product. Maltese children also identified chicken as being better than red meat because of a lower fat content. Similar findings emerged from a study with US pre-adolescents (Engell et al., 1998).

Not many children in my study seemed to perceive milk and dairy products as healthy items (mentioned as healthy in 6 focus groups), which parallels findings on classificatory schemes by US adolescents (Croll, Neumark-Sztainer & Story, 2001), but contrasts with findings from a study with younger 3rd grade (8-9-year-old) US children (Gittelsohn et al., 2000). The reason for this could be that Maltese children often hear older relatives talking about milk and dairy products as being the first food group to eliminate or reduce if they suffer from high blood cholesterol levels or obesity. In addition, this is a food group which contains items having great variance in fat percentage. In fact, children did make the distinction between regular and skimmed milk, often stating that the latter was less fattening. Thus, children may be getting mixed messages about the health value of milk and milk products. Evidence of this is perhaps the fact that cereal bars, cookies and chocolates were all erroneously classified as healthy products by some children (5 focus groups), with the children specifically justifying their classification by stating that these foods contained milk. For example, speaking about cookies, one child (5/G/R/S/MG) stated: "Because they contain

milk, and milk is good for the teeth.” This belief could be a reflection of Rozin’s (1990a) sympathetic magical law of contagion where the qualities of one food are transferred to another. In this case, children were reasoning that if a food contains milk, then it must be healthy.

Some justifications made by the Maltese children for their health beliefs were based on the food’s health value in terms of fitness for consumption from a food safety perspective. Such reasoning was particularly akin to that of a study with British children (Hart, Bishop & Truby, 2002). Maltese children also indicated the natural or unprocessed state of food as being a quality which made it healthy. This feature has been mentioned in studies with adolescents (Croll, Neumark-Sztainer & Story, 2001) and adults (Steptoe, Pollard & Wardle, 1995; Falk et al., 2001), but not in studies with younger children, perhaps showing a perception unique to Maltese children. This could stem from school-based nutrition education about the topic, or a physical proximity to the source of the food, especially for children from rural areas.

Overall, Maltese children had fairly accurate perceptions of the health value of foods, which could augur well for actual food choices, particularly lower intake of high fat and high sugar foods. Research with British 9-11-year-olds revealed that food health value ratings were significant predictors of confectionery consumption (Gibson, Wardle & Watts, 1998). Similarly, food health value ratings predicted consumption amongst Tasmanian adolescents, mainly for ‘unhealthy’ foods such as cakes, ice-cream, crisps and soft-drinks (Woodward et al., 1996). However, health value ratings were unrelated to the fat or sugar intake in diet diaries of younger British children (Wardle, 1995). Also food health value ratings were not significant predictors of fruit and vegetable consumption amongst British 9-11-year-olds (Gibson, Wardle & Watts, 1998). These results imply that perceived health value does not necessarily translate into corollary food behaviour, especially for healthier food items. Further research is necessary regarding the predictive value for consumption of children’s perception of the health value of different groups of foods, as well as influences on the predictive value.

4.2.1.2 Beliefs Regarding The Relationship Between Health Outcomes And Specific Foods

Children held a variety of beliefs regarding the relationships of specific foods with health outcomes. These are presented in Tables 51 and 52. Some of these beliefs were accurate; others were less accurate or totally inaccurate.

TABLE 51
Children's Perceptions Of Positive Health Outcomes Of Specific Foods

Positive Health Outcome	Foods	
	Accurate	Inaccurate
Provides a general sense of feeling healthy	Carrots	
Maintains or promotes health	Brown bread, bananas, orange juice	Hot-dogs
Provides energy for walking, working, playing	Brown bread, apples, bananas	
Aids physical growth	Ham, salami	Lettuce, tomatoes
Aids muscular strength	Bread, brown bread, milk, salami, chicken, fish, peanuts	Lettuce, spinach, tomatoes, apples with peel, water
Aids bone strength	Milk, fish	Bananas, water
Aids dental health	Milk, water	Bread, brown bread, bread crust, apples, apples with peel, bananas,
Aids eye health	Carrots, lettuce, fish	
Aids vascular health	Bananas	
Aids in weight management	Brown bread, skimmed milk	
Aids in diabetes management	Brown bread	
Aids lung function		Milk, water
Maintains blood health	Water	
Controls blood lipids	Brown bread	
Aids detoxification	Water	

TABLE 52
Children's Perceptions Of Negative Health Outcomes Of Specific Foods

Negative Health Outcome	Food	
	Accurate	Inaccurate
Threatens health	Packet breadcrumbs, <i>Nutella</i>	
Reduces muscular strength		Flour, black olives, flavoured milk, <i>Nesquik</i> , oily chicken, salami, cereal bar, chocolate, pizza
Reduces bone strength		Oily chicken
Leads to overweight	Bread, fruit juice, cheese, ham, sweets, chocolate, <i>Nutella</i> , fat, oil, butter, crisps, fast food, orange squash ^a	
Leads to high blood pressure	Salt	Sweets
Lowers blood pressure		Salt
Leads to vascular narrowing or blockage	Chocolate, <i>Nutella</i> , fat, oil	Apple peel
Leads to cardiovascular problems	Popcorn (salted)	
Linked to diabetes	Sugar	
Promotes tooth decay	Sugar, sweets, chocolate, <i>Nutella</i> , orange/peach squash	Milk, oil, crisps, popcorn
Leads to urinary tract problems		Pears
Causes gallstones		Strawberries
Reduced blood health		Sugar, sweets
Leads to blood or liver poisoning		Fruit juice, sugar
Leads to carotenosis	Carrots (in excess)	
Leads to stomach acidity	<i>Coke/Sprite</i>	
Causes diarrhoea		Chocolate
Allergenic	Bananas, milk	
Leads to acne		Biscuits, crisps

a All these foods will lead to overweight if consumed in excess

Foods which were accurately classified as healthy were either seen as promoting a positive health status, or as preventing the development of a health risk factor or an illness. Some children made reference to “diet foods”, linking them with weight loss or avoiding weight gain (e.g. skimmed milk). Food was often mentioned as particularly suited to, or used by specific groups of people, such as brown bread used by elderly people, diabetics and those trying to reduce their blood cholesterol levels or to lose weight. Such associations may act as a barrier to children increasing their consumption of these foods.

Foods which were accurately classified as not-so-healthy were perceived as either promoting the onset of disease or an undesirable condition, or else as barriers to maintaining health. Overweight, high blood pressure, cardiovascular problems and tooth decay were the diseases most frequently mentioned and in varying degrees of detail. Children also seemed to be aware of the potential for certain foods to cause allergies (e.g. banana and milk) and for excess intake of a healthy food to have negative implications (e.g. carrots leading to carotenosis).

In general, although the gist of the children’s arguments was often correct, there were instances where their explanation of ingredient proportions or the food-health link was imprecise. There were two main types of inaccurate beliefs. Firstly, certain foods were correctly perceived as healthy or not-so-healthy, but for the wrong reason. Secondly, there were instances where food was perceived as healthier than it really is and the reason given was incorrect. Inaccuracies of the first type were more common than those of the second type. Some of the major misperceptions held by the children included the following: attributing the health value of skimmed milk to the absence of salt and sugar rather than fat; perceiving hot-dogs as a very healthy food due to its being a ‘meat’ product; perceiving crisps and packet snacks as containing sugar and leading to tooth decay; perceiving bread as fattening and the crust as being healthy because it contained some beneficial substance.

Some other examples where children held misconceptions were that sugar leads to diabetes, sweets increase blood pressure, biscuits cause the growth of pimples, oil leads to tooth decay, salt is fattening, sugar can relieve headaches, strawberries lead to the formation of gall stones, apple peel causes vein blockage and the universal myth that spinach promotes muscle growth and strength. Similar misconceptions emerged in studies with British, American and German children (Neale, Otte & Tilston, 1994; Turner, 1997; O’Dea, 1999; Hart, Bishop & Truby, 2002). These misconceptions may result from lack of

comprehension of concepts at time of communication, confusion over information heard about different foods, or through actual misinformation. For example, one child (9/M/T//MG) proclaimed that chocolate benefited heart health, reinforcing this statement by saying, “My cousin said so. The radio said so.”

The fact that Maltese children have a fairly good knowledge regarding the relationship between specific foods and health was partially expected, as these topics feature at one point or another during primary level schooling (Fenech, 2001). Maltese children referred to benefits of consumption of certain foods in relation to physical growth and performance, as well as a source of energy for academic and physical tasks. Research with Australian 7-17-year-olds produced similar results, with the children describing enhanced cognitive function, physical performance, physical sensation and production of energy as benefits of healthy eating (O’Dea, 2003). Moreover, Maltese children’s generally good explanations about fat, salt and sugar and their effects on the body is consistent with findings amongst British and US primary school children (Singleton, Achterberg & Shannon et al., 1992; Murphy et al., 1995; Turner, 1997; Lytle et al., 1997; Hart, Bishop & Truby, 2002).

Maltese children also made reference to the association between milk and dental health. In contrast, US schoolchildren had a broader vision of the health benefits of milk, mentioning muscle-building and a source of energy, apart from dental health (Auld et al., 2002; Connors, Bednar & Klammer, 2001). It is interesting to note that there seems to be a lack of emphasis on the nutritive value of milk with regard to its bone and muscle-building functions amongst Maltese educators and parents, with the key message focusing on dental health.

Understandably, it is much easier for young children to assimilate the latter message, being able to actually visualise their teeth. In fact, Maltese children also mentioned that white milk was healthier as it contained less sugar – once again suggesting that the message they are receiving is probably linked to the negative impact of sugar on dental health. Looking at the literature, it seems that concern regarding the sugar content of flavoured milk has not been expressed previously by young children. In the US in particular, the focus of nutrition education on milk is generally much stronger for fat content than for sugar content, so that children’s perceptions are centred round the former rather than the latter (International Dairy Food Association, 2001). In Malta, the message on the health benefits of milk being transmitted to children needs to be broadened to incorporate dental and bone health, as well as physical growth. The awareness of added sugar content of some imported flavoured

milks needs to be maximised and extended to build an awareness of the potential high fat content.

The salience of body weight, blood pressure and heart health-related issues in the Maltese children's discourse was somewhat surprising and the quite advanced detail given on fats, heart disease and positive dietary behaviours has generally only been seen in studies with children aged 9 and older (Bellisle & Rolland-Cachera, 2000; Croll, Neumark-Sztainer & Story, 2001). This can be explained in different ways. First of all, Maltese teachers may be sensitive to the high prevalence of obesity and heart disease amongst the local population, and may make an extra effort to explain the link between diet and these diseases to their pupils. Children are also very likely to hear about these health problems via the various local mass media. It is also very likely that within the children's immediate or extended family one would find a person who suffers from high blood pressure, overweight or cardiovascular problems. As a result, children will be exposed to a direct source of information about these health problems and experience dietary regimens associated with these conditions. The role of the school, family and media in setting the agenda on food and health issues for children has been reported in previous studies (Contento et al., 1995; Turner, 1997). These roles will be discussed in more detail in later sections.

4.2.1.3 Children's Knowledge Of The Nutrients And Other Substances

Children had both correct and incorrect perceptions of the functions and sources of different nutrients and substances. (See Tables 53 and 54). They did not mention the terms carbohydrates or proteins, but they did mention fat, cholesterol, sugar, sucrose, fibre and vitamins. However, one has to be cautious here not to assume that all the children were using these scientific terms in full comprehension of their meaning. For example, some children may have not been referring to sugar and fat as nutrients, but indeed referring to the actual ingredients. On the other hand, one child (10/M/U/S/MG) did specify that, "You have a lot of fat in the oil." And another child (13/M/U/S/MG) accurately described cholesterol as "fat in the blood". Specific vitamins and minerals named were vitamins C and D, calcium and iron. Yet, when asked to elaborate on his use of the term vitamins, one boy's (7/M/TI/C/BO) response included both vitamin C and calcium, suggesting this child's use of the term vitamins in an all-encompassing manner. In fact, although the children were fairly accurate in their identification of the nutrient content of foods, it seemed that some of them considered anything which was nutritious as containing vitamins.

TABLE 53
Correct Knowledge of Nutrition

Nutritional Value	Food
Contains sugar	<i>Frosties</i> (1) ^a , <i>Frosties</i> cereal bar (1), <i>Rice Krispies</i> cereal bar (1), Chocolate (1), <i>Nutella</i> (1), juices (1), packet orange juice (1) Nectar (1), orange squash (4)
Does not contain sugar	Water (1)
Contains fibre	Brown bread (1)
High in fat	Mortadella (1), salami (1), oil (1)
Contains fat	Pork and beef (1), red meat (1), hot-dog, chicken (1)
Low in fat	Fish (1), octopus and calamari (1), chicken (1), low fat crisps (1)
Contains cholesterol	Non-home made pizza (1)
Contains calcium	Toast (1), <i>Frosties</i> (1), juice (1), milk (1), flavoured milk (1)
Contains iron	Tomatoes (2)
Contains vitamins	Brown flour (1), bread (1), brown bread (1), wholemeal bread (1), bread crust (1), Maltese <i>hobza biz-zeit</i> (1), lettuce (2), tomatoes (3), fruit (1), kiwi (1), apple (2), banana (2), fresh orange juice (1), orange juice (1), white milk (1), ham (1), fish oils (1), <i>Breakers</i> (1)
Contains vitamin C	Tomatoes (1), oranges (1), fresh orange juice (4), Packet orange juice (2), <i>Ribena</i> (1), squash (2), <i>Breakers</i> (1)

a The number in brackets indicates the number of focus groups where this food-nutrient link was mentioned

TABLE 54
Incorrect Knowledge of Nutrition

Nutritional Value	Food
Contains sugar	Crisps (3) ^a , packet snacks (2)
Low in sugar	Juice (1)
Does not contain sugar	<i>Cornflakes</i> (1), <i>Weetabix</i> (1), yoghurt (1)
Contains calcium	Banana (1), orange squash (1)
Contains iron	Lettuce (2), apple (1), banana (1)
Contains vitamins	Water (1), orange squash (1)
Contains vitamin C	Banana (2)
Contains vitamin D	Banana (1)

a The number in brackets indicates the number of focus groups where this food-nutrient link was mentioned

Incorrect beliefs related to nutrient content included identifying lettuce, apple and banana as containing iron and identifying yoghurt, *Weetabix* and *Cornflakes* as void of sugar. Banana seemed to be perceived as an extremely nutrient dense food, not only providing iron, but also calcium, vitamin C and vitamin D. Two children made erroneous comments when comparing plain and flavoured milk: “White milk has more vitamins I think.” (5/G/R/S/MG) “Flavoured milk has more calcium than normal milk.” (15/M/I/MG) The former statement could be a reflection of a general perception that plain milk is healthier. The latter could be a

result of some label on imported flavoured milk packaging, to which calcium may be added. In fact, children did sometimes obtain nutritional information from reading food labels or health claims on packaging, as evident from the following statement: "I have juice at breakfast because it has vitamins and calcium; it says so on the packet." (15/M/I/MG) Only very few of the children specified the function of the nutrient they mentioned. For example, calcium was correctly linked to teeth, whilst iron was considered to aid growth, which if interpreted broadly could be accepted as correct. A statement from one child (9/M/T/I/MG) suggested that vitamins were associated with providing energy: "*Breakers...* has vitamin C. It gives you energy." This reflects a common myth which perhaps stems from the fact that one will often overhear people stating that the doctor prescribed vitamins for energy when recovering from an illness. While this may hold true for the B vitamins, the message is then erroneously generalised to all vitamins.

The various findings on Maltese children's nutrition knowledge are consistent with other studies where young schoolchildren made both correct and incorrect food-nutrient associations and only a small number of children could provide explanations of the functions of specific nutrients in the body (Murphy et al., 1995; Lytle et al., 1997; Turner, 1997; Hart, Bishop & Truby, 2002). These results suggest that emphasising food-nutrient links may be beyond the cognitive level of some 7-8-year-old children and may not be a useful framework for guiding these children on making healthier food choices. From an educational perspective, correcting children's misconceptions on nutrient content of foods is advisable, as long as the language used is within the children's level of understanding. However, limiting messages on nutrient and health links to only a few key nutrients and associations which seem to be within the children's grasp seems warranted.

4.2.1.4 Children's Knowledge Of Food Technology

During the focus group conversations it emerged that children had a vast knowledge of different aspects of food technology, ranging from the source of food, to food production, to food packaging and labelling. This knowledge seemed to be linked to their everyday life experiences, but also seemed to impact on their attitudes towards certain foods.

Children from rural areas and Gozo were more familiar with traditional and modern processes related to agriculture, animal husbandry and the natural cycles. They spoke about participation in farming tasks, seasonality of crops, the action of sunlight on crops, quality,

use and storage of rain water, safety of food sources, presence of pesticides and freshness indicators.

Both Maltese and Gozitan children were also familiar with sources of common foods, such as bread, cheese, processed meats, chocolate and wine. They were also in tune with current food scares and topical issues regarding food hygiene. For example, at the time of the focus group interviews, BSE and the foot and mouth disease were still prevalent in Europe and children were aware of these diseases, their dangers to humans and measures taken to curtail their spread or harm.

As a result of instruction, observation or actual sensory or practical experience, the children could also explain different functions of certain ingredients and converse in simple terms regarding scientific principles involved in food preparation, production, storage and packaging. Concepts mentioned ranged from something as simple as putting chocolate in the refrigerator in order to prevent it from melting, to acknowledging that raw vegetables were healthier since boiling resulted in the leaching of nutrients, to explaining that plastic wrapping helped maintain freshness whilst being unsafe if in contact with food.

The children had also vicariously or personally experienced the production of different food, such as home-made egg paste, popcorn, cakes, apple juice and slush, and they could explain the different steps in quite some detail. Children's participation in food production will be tackled briefly in Section 4.3.1.2.3; however, at this stage it suffices to point out the educational benefits of allowing children to take part in food and meal preparation. This can expose them to a wealth of scientific concepts and either reinforce what is being learnt in school, or else inspire questions which could lead to further learning.

In four focus groups (1/M/R/S/MG; 3/G/R/C/MG; 6/G/R/S/MG; 16/M/U/S/MG) the children were very knowledgeable about food labels. The children were aware of various common terms, making reference to 'light', 'sugar-free', 'no sugar added' and the 'best before' or 'sell-by' date. They could explain the meaning of these terms, sometimes even being sceptical of what was implied. For example, one child (6/G/R/S/MG) stated: "I have a packet of juice with 'no sugar added', but it has a little for sure". A surprising discovery was that the children genuinely seemed to read the labels, particularly looking for the 'best before' or 'sell-by' date before making their purchase.

The literature on children's knowledge of food technology is very scarce. Different concepts are very likely taught to primary schoolchildren, both locally and internationally, during Science, or Home Economics or Design and Technology lessons. But published research on learning outcomes is limited. Similar to my findings, a study of US children's school milk consumption suggested that the children did read and evaluate package information (Connors, Bednar & Klammer, 2001). Of note is that in Malta this practice seemed more common amongst rural children, who may be more sensitive to the freshness aspect of good quality food. It could also be that these children are sent more frequently on shopping errands by their parents, as the roads are less busy and corner shops and small mini-markets may be more widespread in their neighbourhood. As a result, the children are 'taught' by their parents to look out for these indicators of freshness when shopping alone.

4.2.2 Children's Food And Beverage Preferences

Altogether, one hundred and nine different unique food items or composites and 40 different beverage items were indicated by the children and parents as children's favourites. To facilitate analysis, similar items were grouped together, creating 22 main food groups and 15 main beverage groups. Tables 55 and 56 provide an overview of the favourite food and beverage groups as reported by the aggregate of children and as perceived by the aggregate of parents. The results are presented with the food and beverage groups categorised according to predominant macro-nutrient content.

Carbohydrate foods accounted for three-fifths (60.7%) of the preferred foods whilst protein foods accounted for nearly one third (30.1%). Red meat, red meat products and red meat dishes emerged as the most popular protein foods amongst children. Twice as many children (11.1%) preferred these foods over rabbit, chicken and fish, which were more or less equally preferred (5.5%, 4.2% & 4.1%). Pasta and pizza dominated in the carbohydrates food group, accounting for approximately one fourth (26.3%) and one fifth (19.8%) of the overall preferences respectively. Chips emerged as the most preferred item in the Fats and Refined Carbohydrates group, surpassing fast food type meals and ice-cream. These results are similar to Costa's (1998) findings where pasta, pizza, chips, fruit and burgers were listed by Maltese 8-10-year-olds as their top five favourite foods. Somewhat contrasting results have emerged from research with US pre-adolescents where white meats tended to be slightly preferred over red meat, whilst potato chips and ice-cream were equally liked (Engell et al., 1998).

TABLE 55
Favourite Food Groups Divided By Major Macro-Nutrient Content
As Reported By Children And As Perceived By Parents

Food Groups ^a	Children % (N=1088)	Parents % (N=935)
<u>Protein Foods</u>		
Meat and meat dishes	11.1	10.2
Rabbit and rabbit dishes	5.5	5.3
Chicken and chicken dishes	4.2	6.8
Fish and fish dishes	4.1	3.4
Broth and chicken or fish soup	3.4	2.3
Eggs and egg dishes	0.9	0.6
International dishes (Chinese, Tandoori)	0.6	0.2
Cheese, yoghurt, white sauce	0.3	0.1
Group total	30.1	28.9
<u>Carbohydrate Foods</u>		
Pasta	26.3	41.0
Pizza	19.8	14.0
Fruit	6.6	0.7
Vegetables, vegetable dishes, soups & salads	4.4	3.1
Rice	2.1	1.5
Bread	0.8	0.4
Potatoes	0.5	0.9
Breakfast cereals	0.2	0.3
Group total	60.7	61.9
<u>Fat and Refined Carbohydrate Foods</u>		
Chips	4.0	2.1
Fast food type meals	2.5	4.4
Ice cream	0.9	0.0
Savoury pastries and pies	0.6	0.3
Savoury packet snacks	0.3	0.0
Chocolates and sweets	0.2	0.1
Group total	8.5	6.9
Non-respondents	0.7	2.3
Total	100.0	100.0

^a Listed according to ranking of percentage frequencies for children's favourites

TABLE 56
Favourite Beverage Groups As Reported By Children And As Perceived By Parents

Beverage Groups ^a	Children % (N=1088)	Parents % (N=935)
<u>Protein-based</u>		
Milk	7.3	11.8
Milkshakes	0.7	2.7
Flavoured milk and hot milk drinks	0.4	1.4
Group total	8.4	15.9
<u>Carbohydrate-based</u>		
Fruit juices	2.9	6.0
Fresh orange juice	1.4	2.5
Group total	4.3	8.5
<u>Refined Carbohydrate</u>		
Soft-drinks	49.5	46.5
Iced tea	2.2	2.0
Fruit drinks	0.6	0.3
Energy drinks	0.5	0.0
Group total	52.8	48.8
<u>Water-based</u>		
Water	25.6	17.4
Squashes and <i>Ribena</i>	6.4	6.3
Tea	0.3	0.4
Group total	32.3	24.1
<u>Alcohol</u>		
Beer	1.0	0.0
Wine	0.5	0.0
Spirits	0.2	0.0
Group total	1.7	0.0
Non-respondents	0.5	2.7
Total	100.0	100.0

^a Listed according to ranking of percentage frequencies for children's favourites

Overall, in the open-ended question on favourite foods, only a few Maltese children listed foods rich in fats and sugars as their topmost favourite (e.g. chips = 4.0%, sausages = 1.5%, ice-cream = 0.3%, chocolate = 0.1%). This contrasts with findings from research with French children (Bellisle & Roland-Cachera, 2000), where the most preferred foods were often high in sugar and/or fat, and included chips, ice-cream, nut spread, chocolate and cake.

One reason for this difference could be that Maltese children did not perceive these items as foods, in the same category as, for example, a pasta dish: Hence, their low identification as favourite foods. This would reflect cultural differences in food and meal perceptions as explained by Hertzler and Owen (1984), Murcott (1982) and Fieldhouse (1995). However, it could also be that Maltese children genuinely did not prefer these foods for different reasons. Results from a study with young children in the UK, seemed to refute the common assumption that simple sensory perceptions, such as sweetness, saltiness or fattiness, predict food preferences (Wardle et al., 2001b). Instead, the researchers suggested that there could be a more complex preference structure based on multi-modal sensory syntheses and which could have both biological and learnt bases. Some truth to this proposition in fact emerged during the children's focus groups I conducted. As will be seen later in this chapter (particularly in Section 4.2.6), children's attraction to fruits, vegetables and snacks depended on such factors as taste, texture, temperature, aroma and colour.

The six most favourite fruits amongst Maltese children were apple, banana, strawberry, watermelon, peach and tangerine in that order. Similar lists of favourites were obtained from research with Spanish (Perez-Rodrigo et al., 2003) and English and German children (Neale, Otte & Tilston, 1998). These results seem to highlight the universality of preference for certain fruits amongst children, which in turn seems to indicate that there are features in these fruits which make them attractive to most children. Though 'sweetness' may be one of these features, there could be other features which attract children to particular fruits as I will show later in Section 4.2.6.1. The children in my study also seemed to prefer fruits over vegetables. This latter finding is congruent to that of Baxter and Thompson (2002) who studied US children's preferences for school lunch fruits and vegetables, and Edwards and Hartwell (2002) who assessed British children's acceptability of readily available fruits and vegetables.

Within the beverage groups, Refined Carbohydrate and Water-based drinks dominated. The former made up about one half (52.8%) of the favourites and the latter about one third

(32.3%). Overall, soft-drinks and water were clearly the top preferred drinks (49.5% & 25.6%). Milk was listed as favourite by less than one in ten (7.3%) of the children. These findings are similar to those obtained from a study with US children, where preferred beverages at all meals included soft-drinks and water (Weber Cullen et al., 2000). However, a high proportion of US children also included milk in their list of preferred beverages, which contrasts with the findings for Maltese children and probably reflects a cultural difference in that US children perceive milk as an acceptable accompanying beverage to a meal, whilst Maltese children do not. This brings to mind the concept of cultural foodways and how children learn the appropriateness of food consumption at certain times which then reinforces preferences (Logue, 1991; Beardsworth & Keil, 1997; Cwiertka, 1998).

From a health perspective, these results on Maltese children's food and beverage favourites are both positive and negative. The preference for red meats and soft-drinks is in contrast to dietary recommendations for reducing intake of these foods; the preference for pasta, pizza and water are more in line with recent dietary guidelines (World Cancer Research Fund [WCRF], 1997; WHO, 2000). Of note is that research with schoolchildren has often shown that preferences are a strong predictor of food behaviours (Calfas et al., 1991; Harvey Berino et al., 1997; Birch & Fisher, 1998; Birch, 1999; Reynolds et al., 1999; Baxter & Thompson, 2002). Similarly, Rozin (1990b) has suggested that in affluent countries, as economic barriers to consumption are reduced, preference is more in line with intake. Considering these findings, the fact that one in four Maltese children indicated pasta and water as their favourite food and drink could be seen as providing positive prospects for intake. In contrast, the fact that less than one in ten children indicated fruit or vegetables or milk as favourites has negative prospects regarding intake. Indeed, the very low proportion of children naming fruit or vegetables as their favourites is of grave concern if one accepts findings from research with British and US children where preferences for fruit, juice and vegetables predicted consumption of these same foods (Baranowski et al., 1993; Domel et al., 1996; Resnicow et al., 1997; Gibson, Wardle & Watts, 1998; Kratt, Reynolds & Shewchuk, 2000; Baxter & Thompson, 2002; Siem Gribble et al., 2003). However, other research has shown that fruit, juice and vegetable preferences were only low predictors of consumption and the authors suggested that other socio-environmental influences could act as strong determinants of intake (Cullen et al., 2000). This perspective will also be tackled later on in Section 4.2.6.1.

4.2.2.1 Comparing Children's And Parents' Responses

Comparing the children's and adults' aggregate responses for food and drink groups, it is evident that they are fairly similar, giving a positive indication of the reliability of the children's answers and accurate perception by the parents - especially for the food groups. The five instances where there is more than a 4% discrepancy are pasta, pizza, fruit, milk and water. These results may reflect parental valuation of foods and have implications for provision.

Parents' over-rating of children's preference for milk perhaps reflects a subconscious desire for their children to consume what they perceived as a 'healthier' drink suitable for growing children. Parents' under-rating of children's preference for water perhaps reflects an adult perception of water as a symbolically low value drink. Some parents may hold a negative image of water inherited from elderly relatives who experienced poverty during the post-war era and perceived of water as the beverage to drink when you could not afford anything else. In addition, some parents may assume that their children would not be particularly fond of the bland taste of water, and consequently not offer it to their children.

Parents' over-rating of pasta has implications for the variety of foods they provide their children. It could be that parents rely on the assumption that their children enjoy pasta and make less effort to introduce different foods and new combinations of ingredients. In contrast, parents' under-rating of their children's enjoyment of fruit may result in their not making this healthy food so readily available in packed lunches, as a snack or as dessert.

The discrepancies between the children's and parents' responses with regard to the extent of preference for healthy items, such as vegetables, fruit, water and milk, prompted me to run further analysis to compare the specific responses of each child and his or her parent. Table 57 indicates how many children chose these four items as their favourites and how many of these children's parents correctly identified the item as their child's favourite. It also presents the data on how many parents indicated these items as their child's favourite and how many of them were in fact correct. The rationale for this analysis was that it would be useful to see how sensitive parents were to their child's preference in a more precise manner by comparing one-to-one. Extent of congruency could influence how much a particular item was offered by food providers and the effort food providers put into making food available in an attractive manner.

TABLE 57
Comparison Between Children's Preference For Vegetables, Fruit, Water and Milk
And Parents' Perception of Children's Preference (N=935)

Item	Number of children who chose this item as their favourite	Number of parents who correctly identified this item as their child's favourite	% of parents whose children chose this item as their favourite, who were correct	% of parents whose children chose this item as their favourite, who failed to identify this item as their child's favourite	Number of parents who indicated this item as their child's favourite	% of parents who indicated this item as their child's favourite who were correct	Parents' under-estimation or over-estimation of their children's favourites: % difference
Vegetables	64	19	29.7% ^a (n=64)	70.3% ^b (n=64)	43	44.2% ^c (n=43)	-32.8% ^d (n=64)
Fruit	56	4	7.1% (n=56)	92.9% (n=56)	7	57.1% (n=7)	-87.5% (n=56)
Water	235	110	46.8% (n=235)	53.2% (n=235)	162	67.9% (n=162)	-31.1% (n=235)
Milk	79	52	65.8% (n=79)	34.2% (n=79)	148	35.1% (n=148)	+87.3% (n=79)

a 19/64X100; b 100% -29.7%; c 19/43X100; d 100%-(43/64X100)%

A very high proportion of parents failed to identify vegetables and fruits as their child's favourite foods (70.3% and 92.9% respectively). Similarly, more than half (53.2%) of the parents did not specify water as their child's favourite drink when in fact it was. These findings have serious implications from a nutritional perspective, in that parents may not offer these healthy items to children as frequently as they could, perhaps being under the impression that these items would not be accepted. In contrast, nearly twice as many parents as was the reality indicated milk as their child's favourite beverage. This could have both positive and negative implications. Parents would be more likely to offer this foodstuff to children assuming that it was liked. This frequent exposure could in fact work to generate a keener preference for the food. Conversely, parents could be offering milk to their children on the assumption that they were highly enjoying it and would not be trying to present it in different ways to maintain or improve preference.

The negative implications of discrepancies in child- and parent-perceived child food preferences have also been referred to by Horne et al (1998) and by Birch et al (1987a and 1987b), especially with regard to children not receiving exposure to certain foods; which exposure might have led to increased preference. Research has also shown that parents have a mediating role in generating food preferences and should therefore expose children to a wide variety of healthy foods (Skinner et al., 1998). This role is particularly salient when healthy foods are disliked. In fact, studies with US schoolchildren have shown that extra efforts are necessary by parents to enhance accessibility among children who do not like fruits and vegetables, as even when taste preferences were low, if fruits and vegetables were available, intake increased (Cullen et al., 2003; Neumark-Sztainer et al., 2003). Unfortunately, research out of Britain has indicated, however, that parents tend to accept that children's existing preferences are fixed, and that the mother's mediating role is exercised through working with rather than changing children's preferences (Stratton & Bromley, 1999).

4.2.3 Foods And Beverages Consumed And Preferred In Different Settings

Table 58 summarises the most often consumed item and the most preferred item in each of ten studied consumption settings as reported by the children (N=1088). Figures 1 – 10 (Appendix 4.4) give more detail as to the consumption and preference rates for the different items which could be chosen in each setting. Following is an overview of the ten settings, highlighting main findings for each.

TABLE 58
Children's Responses For The Most Consumed And The Most Preferred Item
In The Ten Consumption Settings

Consumption Setting	Most Consumed Item	% (N=1088)	Most Preferred Item	% (N=1088)
Breakfast	cereal with milk	42.2	cereal with milk	26.0
School Packed Lunch	ham and butter roll/sandwich	29.0	<i>Nutella</i> sandwich	30.9
After-School Meal	Pizza	27.0	Pizza	55.1
Snack At Home	Fruit	39.4	Fruit	27.8
Weekday Supper	spaghetti with tomato and garlic sauce OR pizza	21.1	Pizza	33.3
Sunday Lunch	chicken legs with potatoes	21.7	chicken legs with potatoes	27.4
Eating Out	burger and chips and soft-drink or milkshake	25.3	burger and chips and soft-drink or milkshake	29.9
Going Out and Stopping For A Snack	burger and chips	22.2	chicken nuggets and chips	25.8
At the Beach	<i>Cornetto</i>	31.4	<i>Cornetto</i>	52.5
Drink With Meal, Snack or When Thirsty	soft-drinks	28.5	soft-drinks	39.9

4.2.3.1 Breakfast (See Figure 1, Appendix 4.4)

Nearly one half of the children (42.2%) consumed cereal with milk for breakfast; yet about one third of the children only had a beverage (fresh orange juice [12.5%]; or tea with milk [22.8%]; total = 35.3%). Very few children (4.5%) consumed only a roll with butter and coffee for breakfast, but quite a few more (8.2%) would choose this low-nutrient combination as their preferred breakfast. The most preferred items for breakfast were milk pudding or yoghurt (16.7%); however, only one in twenty (4.7%) actually consumed one or the other of

these calcium-rich options. Another highly preferred item amongst one in every four children (23.7%) was fresh orange juice, yet only half as many (12.5%) actually consumed it. It seems, therefore, that children would be happy to have more of the nutritious fresh orange juice and milk items for breakfast, but some would also prefer the less nutritious bread with butter and coffee.

It is generally suggested that breakfast should contribute to one third of the recommended daily energy and nutrient intake (Whitney & Rolfes, 2001), but this appeared not be happening for most of the Maltese children in my study. It would seem that the sources of energy and nutrients were cereal foods, such as breakfast cereal and breads, which could differ immensely in their contribution to Recommended Nutrient Intakes. For example, when combined with milk, cereals make for a substantial nutritious breakfast, especially given the fact that they are often fortified with a selection of vitamins and minerals. But, unfortunately, some of them are also high in sugar and/or fats, which then detracts from their positive nutrition profile (Liebman & Hurley, 2003).

One in three Maltese children only had a beverage for breakfast. This is an alarming proportion, given that the impact of breakfast consumption on school performance has been widely recorded; particularly its function in avoiding hunger pangs and in helping children to concentrate and achieve success (Simeon & 1989; Crockett & Sims, 1995; Kleinman, 1998 [online]; Worobey & Worobey, 1999; USDA, 2003 [online]). Luckily, it seems that only about 2.0% of Maltese 7-8-year-olds (based on the non-respondents for consumption) did not consume anything for breakfast. This is similar to findings from a study with Croatian children and adolescents, where 1.7% of the subjects skipped breakfast (Baric & Satalic, 2002). In fact, the number of Maltese children who miss out on breakfast seems lower than in other developed countries, such as the UK, where only about one in five of those surveyed ate breakfast, although not eating breakfast was associated with eating something on the way to school (Hackett et al., 2002; British Nutrition Foundation, 2003)

These results highlight the need for strategies to ensure that all Maltese children consume breakfast and that this consists of a balanced meal containing at least one cereal (preferably wholegrain and low in fat and sugar), one milk and one fresh fruit item (American Dietetic Association, 2003). Whilst some local school administrators are already organising Breakfast Days in their schools, these are often one-off events which when not followed up in the classroom or with parents may have minimal long-term impact. Based on their reported

preferences, it appears that a good proportion of Maltese children are already willing to include a milk or fruit item in their breakfast; so this positive attitude should be exploited.

4.2.3.2 School Packed Lunch (See Figure 2, Appendix 4.4)

The most common school packed lunch item, consumed by about one third (29%) of the children, was a ham and butter sandwich or roll. Cheese and butter sandwiches or rolls and the Maltese *hobz biz-zeit* with or without tuna were each consumed approximately half as much (15.2%, 17.8%, 14.6%). The *Nutella* sandwich emerged as the most preferred item for school packed lunch (30.9%). Yet, in combination, the two types of Maltese-style bread were more or less preferred just as much as *Nutella* (29.6%). Possibly, the chocolate flavour of *Nutella* plays a key role in its high preference. However, it appears that whilst children are willing to forego ham and cheese sandwiches for a *Nutella* sandwich, they still show a keen preference for the Maltese *hobz biz-zeit* varieties. When the traditional recipe is followed (e.g. using bread, tomato, tuna, olives, capers, lettuce, butter beans, olive oil), *hobz biz-zeit* is a nutrient-dense sandwich offering complex carbohydrates, different vitamins and minerals, monounsaturated fats, as well as both animal and vegetable protein. Given that over one in four Maltese children consumed and preferred *hobz biz-zeit*, children's food providers should be encouraged to follow the traditional recipe. Nonetheless, caregivers should also be encouraged to include vegetables in both the ham or cheese sandwiches/rolls.

Maltese children's school packed lunch preferences were somewhat similar to those of British school-aged children who cited meat sandwich or roll, cheese sandwich or roll, chocolate, crisps and an apple as their favourite school packed lunch items (Arthur Fewell, cited in Charter, 2000).

4.2.3.3 After-School Meal (See Figure 3, Appendix 4.4)

About one in four Maltese children reported either pizza (27.0%) or pasta (21.8%) as the most common foods for their After-School Meal. In contrast, broth or cereal with milk were only commonly consumed by about one in seven children (15.0% & 14.1%). Pizza also dominated as the preferred item in this setting, being chosen by slightly more than half the children (55.1%). In other words, double the number of children indicated a preference for pizza than those who actually consumed it. In contrast, all other items were consumed more than they were actually preferred.

These results show that, on returning from school, Maltese children tend to consume very simple fare, which is convenient to prepare and easy to eat. This would be an important feature given that children often have a large amount of homework to do, and/or may need to go out again for catechism lessons, private tuition lessons, sports training or other hobby-related activities. The four top items mentioned are quickly cooked or prepared (e.g. pasta, cereal), or probably only require reheating (e.g. broth, pizza).

From a nutrition perspective, the food consumed is mostly plant-based in origin. It is unclear, however, what type of cereal is consumed (e.g. whether wholegrain, high-sugar, high-fat), or what the toppings are on the pizza (e.g. if it is loaded with cheese, or contains sausage etc.), which could influence the nutrient and caloric value of these foods. As pizza is such a favoured item, this could be an opportunity for caregivers to include a variety of healthy toppings; emphasising vegetables and low-fat cheeses. Making their own pizzas on returning from school, could also be an opportunity for children to participate in food preparation which might encourage them to experiment with new tastes based on traditional or more modern recipes. It could also provide training in basic cooking skills, or help establish a routine, so that when they reach adolescence and perhaps have more spending power, they might be less likely to resort to buying a less healthy snack on the way home from school and more likely to prepare their own healthier snack on reaching home.

4.2.3.4. Snack At Home (See Figure 4, Appendix 4.4)

Nearly two out of every five children (39.4%) indicated fruit as the most consumed home-based snack. The second and third most consumed snacks, though to a much lesser extent, were tea or coffee with biscuits (17.0%) followed by toast with butter (14.9%). Preferences for snacks differed from consumption, although fruit also emerged as the most preferred item (27.8%). About one in four children (23.8%) chose *Nutella* sandwich as their favourite. Thus, once again it seems that *Nutella*'s chocolate flavour, attracts children whatever the consumption setting. With regard to fruit, the variety in flavours, convenience in eating and year-round availability may all play a role both in its high consumption and in its popularity. This in fact emerged during the children's focus groups and will be discussed later in Section 4.2.6.1 when looking at influences on fruit intake.

Snacking is a growing phenomenon with children in different countries (Cross, Babicz & Cushman, 1994; Arthur Fewell, cited in Charter, 2000; Lin, Guthrie & Frazao, 2001). Malta is no exception and opportunities for snacking arise mainly in the second half of the day, on

returning home from school, before going to catechism lessons and in the evening whilst watching television. The findings on common snacks often consumed by Maltese children are partially similar to those from one US study amongst pre-adolescents, where typical afternoon snacks were fruit, crisps, biscuits and sweets in that order (Cross, Babicz & Cushman, 1994). Of interest is that for a good proportion of Maltese children, bread-based snacks were common. The consumption of a bread item with either a sweet (*Nutella*) or savoury (butter) topping seemed the norm and was preferred by these children; a reflection perhaps of bread's cultural superfood status as described by Webb (1995). Also of note is that snacks do not generally displace set meals in Malta. Thus, this frequency of food consumption could be contributing to the high prevalence of overweight and obese Maltese school-aged children (Bellizzi, 2002).

4.2.3.5 Weekday Supper (See Figure 5, Appendix 4.4)

Spaghetti with tomato and garlic sauce and pizza were equally consumed most often for weekday supper by about one fifth of the children (21.1% each). Consumption rates for stewed rabbit and for meat with potatoes, carrots and peas were very similar (16.2% & 15.8%) and about 10% lower than the pasta and pizza. Results of preferences for weekday supper revealed an upward shift for pizza (+7.8%) and rabbit stew (+5.0%) and a downward shift for the meat dish (-5.5%) and spaghetti (-3.5%). There was also a heavy downward shift between consumption and preference for vegetable soup (-6.9%). The slight negative difference in Maltese children's preference and consumption for pasta seems to reinforce the earlier finding that parents over-rated their children's preference for pasta.

Spaghetti and pizza have certainly emerged as staple items in Maltese children's diets, which repeated exposure could also account for their popularity as preferred foods. Nonetheless, although in a different setting (school lunches), pizza and pasta were also reported amongst the favourite main courses by British schoolchildren (Arthur Fewell, cited in Charter, 2000), once again suggesting the universality of attraction of particular foods. Of note is that Maltese children's preference for rabbit stew was slightly higher than actual consumption, indicating a potential for encouraging children to switch from red to white meat. In fact, Maltese people are the largest per capita consumers of rabbit worldwide (10kg per person per annum) and around 15,000 households are believed to breed rabbits domestically (The Times [Malta], 5/12/01). In relation to type and frequency of meat consumption, research with Australian children has suggested that a stable pattern of meat-eating behaviour is established during the period 1-4 years of age and remains until 10-12

years for males and 14-16 years for females (Laing et al., 1999). In contrast, the amount of meat consumed increases with age. Therefore, although my research seems to suggest that by age 7-8 years some meat-eating patterns may have already been established amongst Maltese children, the amount of the different types of meats consumed can perhaps still be controlled in favour of white meats.

When comparing consumption with preferences, Maltese children seemed to be less keen on consuming meat with vegetables and potatoes and particularly less keen on vegetable soup. Perhaps the common factor here is the vegetables, which may be disliked by some. On the other hand, other characteristics of these foods may contribute to the lower preference rate. Features in vegetables and other influences on their intake were eventually explored with the children and will be discussed later in Section 4.2.6.1.

4.2.3.6. Sunday Lunch (See Figure 6, Appendix 4.4)

Approximately one fifth of the children (21.7%) indicated chicken legs with potatoes as their most often consumed Sunday lunch, though this was followed fairly closely by *imqarrun il-forn* (18.9%) and lasagne (17.2%). Thus, in combination, pasta dishes accounted for nearly one half of consumption (46.7%) for Sunday lunch. Chicken legs also dominated as the favourite dish in this setting, with a slight increase over consumption (+5.7%). However, the preference for lasagne was also clear, with a good upward shift from consumption (+7.8%). Both red meat dishes were less preferred than actually consumed for Sunday lunch (*patata l-forn*: 9.5% vs. 13.1%; meat and mashed potatoes: 8.9% vs. 14.3%). It seems, therefore, that chicken is the meat of choice in this setting, although the high consumption of and preference for pasta is constant. Of interest is that in a study with 10-year-old US children, poultry was also one of the main contributors to energy in Sunday meals (Nicklas et al., 1997). It is unclear whether it is the meat itself, or the mode of presentation which makes the chicken dish more attractive to Maltese children. Whilst in the open-ended question on favourites red meats had emerged as preferred over chicken, it seems that in this context chicken is preferred. This perhaps further substantiates the hypothesis that a feature within the meat itself influences preference. In fact, during the focus groups it emerged that stringy and chewy foods are perceived as unpleasant by some children and red meat sometimes has these features. When these features are removed, meat becomes more acceptable. So much so, lasagna is highly preferred by children and contains meat, but the meat is in a minced format which is much easier to swallow.

In another US study with 10-12-year-olds (Weber Cullen, Lara, & de Moor, 2002), high-fat lunchtime practices were lower on Saturdays and Sundays. It is somewhat difficult to determine the situation in Malta, given that the fat content of lasagne and *imqarrun il-forn* depends on the type and amount of meat, milk and cheese used in the sauces, as well as the number of eggs added. However, high-fat lunchtime practices are more likely amongst the Maltese on Sundays.

4.2.3.7 Eating Out (See Figure 7, Appendix 4.4)

A typical burger meal consisting of burger, chips and a soft-drink or milkshake was reported as the most consumed item when eating out by about one fourth of the children (25.3%). Chips and Pizza Margherita were a fairly close second and third (19.1% & 18.0%). Rabbit in garlic and wine gravy was the least consumed dish when eating out (7.0%); however, the percentage for preference was slightly higher (+2.8%). In general, discrepancies between consumption and preference rates were minor. In most cases, therefore, it seems that when eating out children are consuming what they prefer. This is to be expected in a context where the parents would want to ensure minimal wastage, yet a pleasant dining experience for the children. In addition, children are very likely given more autonomy in choice of food when eating out than what they would normally be given at home. This theme will emerge again in Section 4.3.1.2.1.

Recent research has indicated that Maltese families are eating out more often and that certain restaurant types, such as fast food, pizza and pasta places are more attractive to families than others (Costa, 1998; Camilleri & Scerri, 2002). Thus, the nutritional quality of food consumed by children when eating out plays an increasingly important role in determining the overall quality of their diet. Moreover, the location of consumption can be a determinant of the nutritional quality of the food. Research with US school-aged children has shown that one in three away-from-home meals were purchased at a fast food outlet and this affected the energy-density and nutritive value of their diets (Lin, Guthrie & Frazao, 2001). Specifically, foods obtained at fast food restaurants accounted for 10% of children's caloric consumption, were high in fat, saturated fat and sodium and were low in fibre and calcium.

The top foods consumed by Maltese children when eating out are also potentially high in fat and saturated fats and low in other nutrients and fibre. However, the nutritional value will depend on how the food is prepared (e.g. frying versus grilling), the type of oil used

(saturated/hydrogenated versus polyunsaturated) and the type of cheese used (e.g. cheddar versus mozzarella). The rabbit in garlic and wine gravy has the potential of being the most nutritious of the different meals. And the children's higher preference rate once again seems to indicate a desire for this dish. Yet rabbit in garlic and wine gravy was the least consumed item. Perhaps families do not frequent restaurants where rabbit dishes are offered, either because there are not many such restaurants available, or because rabbit meals can be comparatively expensive for children. In contrast, fast food outlets are much more prevalent, though to a lesser degree in Gozo, and a child's fast food meal may be cheaper. An interesting study of the influence of restaurant availability is currently underway in Australia, where researchers are exploring the link between obesity and the density of fast food outlets in different areas (Reidpath et al., 2002).

4.2.3.8. Going Out And Stopping For A Snack (See Figure 8, Appendix 4.4)

The most consumed items by about one in five children when stopping for a snack during an outing were burger and chips (22.2%) and ricotta *pastizzi* (21.7%). Close results for consumption also emerged for pea *pastizzi* and chicken nuggets with chips (15.9% & 15.6%). Thus, the top most often consumed items were evenly balanced out between fast food-style snacks (37.8%) and traditional pastry snacks (37.6%). With regard to preferences, there was a sharp decrease for the two varieties of *pastizzi* (ricotta; -9.5%; pea: -6.4%), but a negligible decrease for burger and chips (-0.8%). These decreases were offset by a sharp increase for chicken nuggets and chips (+10.2%).

The fairly high consumption of pastries for outing-related snacks is somewhat higher than results from a US study on snacking patterns of 5-12-year-old children, where baked items including pastries, generally made up only about one fifth (18.8 - 22.2%) of the snacks consumed at different times of the day (Cross, Babicz & Cushman, 1994). Unfortunately, the two commonly consumed Maltese pastry snacks use a high-fat pastry in the traditional recipe. On the other hand, some outlets do offer *pastizzi* using an alternative pastry which is lower in fat, and if ricotta or peas do make up the bulk of the filling these snacks can be relatively nutritious. One reason for the high consumption rate of *pastizzi* could be that parents may prefer buying these as snacks as they are cheaper than fast food type meals and the intention is to have something to eat, not a fully-fledged meal. This proposition is in line with Wood's (1995) assertion that there is a difference between dining out for its own sake and dining out as an ancillary activity.

The fact that two out of every five children snacked on burger or chicken nugget meals is also of great concern from the health perspective. As explained earlier, eating at fast food restaurants may no longer be an occasional treat amongst a number of Maltese children. Perhaps it is time for the local health authorities to acknowledge the potential negative short-term and long-term effects of these foods on the overall diet and consider multi-stakeholder strategies which could help reduce these effects. Whilst appreciating that a number of fast food chains are increasing the salad-type items on their menus even locally, marketing of these outlets amongst children still seems to focus heavily on the standard, less nutritious fast food items. In addition, the children may be very keen on the fast food type meals because of the toys which often accompany them, and on the chicken nuggets in particular because of their taste, bite-size form and crunchy outside texture. The influence of gifts has already been confirmed in research by Fenech (2000) on marketing of foods amongst Maltese school children, whereas the features of the chicken nuggets are amongst those described by Rousseau (1984) as characteristic of children's food culture.

4.2.3.9. At The Beach (See Figure 9, Appendix 4.4)

Cornetto was chosen by nearly one third of the children (31.4%) as the most consumed item at the beach. This was nearly double the second and third most consumed items which were packet snacks or crisps (16.4%) and *granita* (15.3%). In fact, *cornetto* also dominated as the preferred item at the beach, with just over half the sample (52.5%) choosing this food. This contrasts with the sharp negative difference between consumption and preference for *hobz biz-zeit* with tuna (- 9.9%). It is clear that ice-cream is the definitive seaside food item and, although a variety of items are actually consumed, this sweet snack is the favourite. One wonders whether it is the creamy chocolate flavour which gives *cornetto* the edge over *granita*, as both items are sweet and refreshing.

Food texture and convenience may also be influential in children's consumption and preferences for seaside snacks. Crisps and packet snacks were often consumed; perhaps because of their crunchiness and ease of eating, features described by Rousseau (1984) as pertaining to children's food culture. But very likely these two food items also made children thirsty due to their salt content - a feature which was mentioned by children as a negative consequence of consuming packet snacks during three focus groups (1/M/R/S/MG; 12/M/TI/C/GO; 14/M/U/S/MG) - hence, a lower preference rating. Similarly, the Maltese *hobz biz-zeit* is a refreshing item, yet some children may consider it too 'heavy' a snack for the beach. This feature was also mentioned as off-putting by children during one focus group

(14/M/TI/I/MG). Perhaps parents and caregivers can be offered recipes for creating a more refreshing and 'lighter' filling for *hobz biz-zejt* which could make this potentially nutritious and tasty food more attractive for children as a seaside snack.

4.2.3.10 Drink With Meal, Snack Or When Thirsty (See Figure 10, Appendix 4.4)

One half of the sample (49.5%) indicated some kind of soft-drink as their most consumed beverage. These children were made up of 28.5% who drank cola, lemon and orange type soft-drinks and 21.0% who drank the Maltese bitter-sweet soft-drink *Kinnie*. In comparison much fewer children drank milk-based beverages or water most often (14.2% & 14.1%, respectively). Preference listings saw an increase from consumption for cola, lemon and orange type soft-drinks (+11.4%) and a decrease from consumption for *Kinnie* (-6.1%).

These results highlight how Maltese children are a soft-drink-consuming and desiring generation. The lower preference rating for the locally produced *Kinnie* could be due to the somewhat bitter flavour and unusual colour, or to the much more limited marketing when compared to the international cola, lemon and orange soft-drinks. Nonetheless, the fact that one in five children consumed this bitter drink, and about one in six preferred it, suggests that children can also acquire a taste for less sweet beverages. Repeated exposure by grandparents or parents may have something to do with this. In the 1950s and 1960s when the children's grandparents were still young themselves, *Kinnie* was heavily promoted as a drink suitable for young children (Kinnie official website [online]).

The high proportion of Maltese children consuming and preferring soft-drinks reflects trends in other countries, such as the UK, US and Germany (Harnack, Stang & Story, 1999; Ballew, Kuester & Gillespie, 2000; Watt, Dykes & Sheiham, 2000; Ludwig, Peterson & Gortmaker, 2001; Alexy, Sichert-Hellert & Kersting, 2003; Economic Research Service/USDA, 2003a [online]). This trend is of grave concern given that such soft-drinks are calorie-dense, poor in nutritive value and high in cariogenic non-milk extrinsic sugars.

Various studies with school-aged children have shown that consumption of sugar-sweetened drinks led to higher daily energy intakes and was associated with childhood obesity (Harnack, Stang & Story, 1999; Ludwig, Peterson & Gortmaker, 2001; Mrdjenovic & Levitsky, 2003). Research with German children has also reported a nutrient-dilution effect of added sugars (Alexy, Sichert-Hellert & Kersting, 2003): The greater the proportion of added sugars, some of which came from beverages, the greater the reduction in nutrient-

bearing food groups. Excessive sweetened drink consumption (>12oz/day) has been shown to specifically displace milk from children's diets because caregivers served less milk and the children consumed smaller amounts of milk (Mrdjenovic & Levitsky, 2003). Similarly, US research has revealed that schoolchildren who drank soft-drinks were less likely to get enough vitamin A or calcium, often as a result of trade-offs between soft-drink intake and milk (Ballew, Kuester & Gillespie, 2000; Fisher et al., 2001).

This pattern also seems to be prevalent amongst Maltese children. Very few of the respondents consumed milk most often out of the beverage options indicated in the questionnaire, and preference was more or less at par. This low consumption could have serious health implications due to milk's role as a rich source of calcium in children's diet and its contribution to sustained bone mineral density and appropriate growth in stature (Cadogan et al., 1998; Black et al., 2002).

Research with young US children has also shown that, over the years, there has been a decline in milk intake, concomitant with an increase in fruit juice consumption (Dennison, 1996). Although there are no published studies in this regard for Maltese children, the local milk producers have reported a sharp decrease in school milk orders over the past decade, a period when there was a boom in the marketing of fruit juices to children and their parents (Oscar Attard, Malta Dairy Products Ltd. Sales Manager, personal communication, 21/7/03). Thus, the results from my study showing the fairly low popularity of milk could be a result of increases in soft-drink and fruit juice preference and consumption. Here, it is worth noting Ballew, Keustar and Gillespie's (2000) proposal that a decrease of one glass of soft-drink combined with an increase of one glass of milk could have a substantial positive effect on a child's daily nutrient intake – a message which should perhaps be transmitted to Maltese parents and caregivers.

4.2.3.11 Comparison Between Children's And Parents' Responses

Table 59 presents a summary of the most often consumed item and the preferred item in each of the ten consumption settings as reported by a matched sub-sample of the parents and their children (n=411). This sub-sample comprised those parents who had no missing responses in the consumption and preferences items in the questionnaire. Frequencies were also run using the total children's and parents' sample where missing values were replaced by the mode according to gender. Results generated were very similar to the matched sub-sample except where noted in Table 59.

TABLE 59
Children's And Parents' Responses For The Most Consumed And The Most Preferred Item In The Ten Consumption Settings

Consumption Setting	Most Consumed Item As Reported By Children	% (n=411) ^a	Most Consumed Item As Reported By Parents	% (n=411) ^a	Most Preferred Item As Reported By Children	% (n=411)	Most Preferred Item As Reported By Parents	% (n=411)
Breakfast	cereal with milk	43.8	cereal with milk	59.9	Cereal with milk	26.0	cereal with milk	37.2
School Packed Lunch	ham and butter roll/sandwich	29.9	ham and butter roll/sandwich	38.4	<i>Nutella</i> sandwich	30.9	<i>Nutella</i> sandwich	25.8
Meal After School	pasta with tomato and garlic sauce ^b	24.1	pasta with tomato and garlic sauce	38.9	Pizza	55.1	pizza	41.4
Snack At Home	fruit	41.4	Fruit	53.0	Fruit	27.8	tea or coffee and biscuits	22.4
Weekday Supper	spaghetti with tomato and garlic sauce ^c	23.6	meat with potatoes, carrots and peas	38.9	Pizza	33.3	meat with potatoes, carrots and peas ^d	34.5
Sunday Lunch	chicken legs with potatoes	21.9	chicken legs with potatoes	38.4	chicken legs with potatoes	27.4	chicken legs with potatoes	22.6
Eating Out	burger and chips and soft-drink or milkshake	27.5	<i>Pizza Margherita</i>	37.2	burger and chips and soft-drink or milkshake	29.9	burger and chips and soft-drink or milkshake	34.8
Going Out and Stopping For A Snack	ricotta cheesecakes ^e	23.6	chicken nuggets and chips	31.9	chicken nuggets and chips	25.8	chicken nuggets and chips	36.3
At the Beach	<i>Cornetto</i>	33.6	Fruit	52.8	<i>Cornetto</i>	52.5	<i>Cornetto</i>	35.8
Drink With Meal, Snack or When Thirsty	soft-drinks	31.1	Water	39.7	soft-drinks	39.9	soft-drinks	44.5

a Based on matched sub-samples (n=411) of the parents' and of the children's samples for whom none of the responses for the ten consumption settings were missing

b For the total children's sample (N=1088) pizza was the most consumed item; c For the total children's sample (N=1088) pizza was equally consumed

d For the total parents' sample (N=935) pizza was the preferred item; e For the total children's sample (N=1088) burger and chips was the most consumed item

There was agreement between children and parents for the most consumed item in five out of the ten consumption settings. Agreement was mainly for the routine and staple meals consumed or prepared in a home environment. If one is to consider the parents' responses as more accurate regarding actual food intake, children tended to under-estimate consumption of the items mentioned by 8.5% - 16.5%. Disagreement on items bought and consumed outside the home is to be expected as this would not be a daily practice and it could have been difficult for some of the children to recall and identify what they consumed most. Parents reported fruit as the most consumed item at the beach and water as the most consumed beverage overall. Children reported *Cornetto* and soft-drinks as the most consumed items. It could be that parents were reluctant to admit that children often consumed these sugar-laden items, perhaps being aware of the health-related nature of the research which was being conducted. It could also be that the children were so keen on the *Cornetto* and soft-drinks that they over-reported personal consumption.

There was agreement between children and parents for the most preferred item in eight of the ten consumption settings. Percentage differences between the children's and parents' preference rates ranged from 4.8% to 16.7%. Major over-estimation by the aggregate of parents was in their perception of cereal with milk as the children's preferred breakfast item (+11.2%). Parents also drastically under-estimated their children's reporting of *Cornetto* as the most preferred item for the beach (-16.7%).

The only setting where there was total disagreement was for Weekday Supper. Whilst parents reported that their children consumed and preferred meat with potatoes, carrots and peas most in this setting, children stated that they consumed spaghetti most but actually preferred pizza. Once again, it could be that the children's liking for these latter items distorted their perception of frequency of consumption, or else the parents were over-reporting on an item they wished their children would consume more. In fact, when the calculations were run using the children's and parents' total samples, pizza emerged as the most consumed item, at par with spaghetti as reported by the children, and as the preferred item as reported by the parents. Using these total samples, pizza also emerged as the most often consumed item for the After-School Meal as reported by the children.

Of note is that, parents failed to identify fruit as their children's preferred item as a snack at home. This recalls a similar lacuna in an earlier question on parents' perception of their children's favourite foods. Whilst this opens a challenge for educators to encourage parents

to recognise and satisfy children's preference for fruit, it also confirms reliability of the data collection tool.

Table 60 is being presented to highlight the relationship between children's statement of preference for fruit as a snack at home and water as a drink with a meal, snack or when thirsty and the children's actual intake. If one considers parents' responses to be more accurate, only 57.6% of children who indicated a preference for fruit actually consumed fruit most often in this setting and only 56% who indicated a preference for water actually consumed water. When parents correctly identified fruit as their child's favourite snack at home, it was more likely that their children would consume this item in this setting. So for example, whilst 62.5% of the children whose parents had recognised their preference for fruit actually ate fruit as a snack, only 56.4% of those children whose parents had failed to recognise their child's preference for fruit did so. For water, this pattern did not emerge. Whilst 46.2% of those children whose parents had recognised their preference for water actually drank water, 59.5% of those children whose parents had failed to recognise their child's preference for water did so. However, the alternative beverage offered to children by parents who had perceived water as their child's favourite drink was mainly fresh orange juice (38.5%); whereas for children of parents who had failed to perceive water as their child's favourite the most common alternatives were either fresh orange juice (10.8%) or soft-drinks (10.8%). These patterns suggest that parents' knowledge of their children's preferences for healthier items increases the likelihood that the children consume healthier items. The implications with regard to the two items discussed are that children could be missing out unnecessarily on added intake of vitamins, fibre and other beneficial substances because they are not offered fruit as a snack. In contrast, some children could be consuming energy-dense soft-drinks when in fact they would have also been agreeable to drinking water.

These findings shed new light on the relationship between parental perception and knowledge of the food preferences of their children and the children's actual food intake. Whilst there are a number of studies available on the predictive value of children's preferences on intake (Rozin, 1990a, 1990b; Calfas et al., 1991; Domel et al., 1996; Woodward et al., 1996; Harvey Berino et al., 1997; Resnicow et al., 1997; Gibson, Wardle & Watts, 1998; Birch, 1999; Reynolds et al., 1999; Baxter & Thompson, 2002; Skinner et al., 2002; Perez-Rodrigo et al., 2003) and to a lesser degree on concordance of children's and parental food preferences (Birch et al., 1987a, 1987b; Horne et al., 1998; Skinner et al.,

TABLE 60
Relationship Between Children's Preference And Intake: Fruit And Water (n=411)^a

Groups Within Sub-Samples	Sub-sample of children who chose fruit as their favourite item for a snack at home (n=118)	Sub-sample of children who chose water as their favourite item for a drink with a meal, snack or when thirsty (n=50)
Children who reported they consumed this item in this setting	49	12
Parents who reported their child consumed this item in this setting	68	28
Parents who correctly identified this item as their child's favourite in this setting	24	13
Children of parents who correctly identified this item as their child's favourite who actually consumed the item - as reported by the children	7	3
Children of parents who correctly identified this item as their child's favourite who actually consumed the item - as reported by the parents	15	6
Parents who failed to identify this item as their child's favourite in this setting	94	37
Children of parents who failed to identify this item as their child's favourite who actually consumed the item - as reported by the children	42	8
Children of parents who failed to identify this item as their child's favourite who actually consumed the item - as reported by the parents	53	22

^a Based on matched sub-samples (n=411) of the parents' and of the children's samples for whom none of the responses for the ten consumption settings were missing

1998), there seems to be little published data on how parents' view of what children enjoy eating can impact on what food is actually offered to the children. This issue warrants further research with regard to the potential for offering healthier items, especially since some parents may be influenced by perceived 'norms' for children's likes and dislikes. The literature is unequivocal in that more frequent exposure to foods will result in increased liking and ultimately in increased intake (Birch et al., 1987; Wardle, 1995; Birch, 1999; Wardle et al., 2003a, 2003b). Helping parents to be truly in tune with their children's food preferences, perhaps through shared child and parent education, is recommended.

4.2.4 Group Differences In Food Consumption And Preferences In Different Settings

Cross-tabulations were run so as to determine possible group differences in children's food consumption and preferences in different settings. The groups were chosen to reflect influences from different levels of the working ecological framework. The variables analysed were child's gender (intrapersonal level, though possibly also a function of food socialisation at the community level); household level of schooling (HLS) and child's school type (both at the interpersonal level); Malta versus Gozo (community level); and access to cable TV (macro level).

Following previous research on food behaviours and social class (Kennedy & Powell, 1996; Krebs-Smith et al., 1996; Roos et al., 1996; Strauss & Knight, 1999; Hulshof et al., 2003; Sanchez-Villegas et al., 2003a, 2003b, Vannoni et al., 2003), school type and HLS were used as indicators of socio-economic status (SES) and will also be discussed in such light. Attending an Independent school was used as an indicator of high SES in terms of household income, since the families of these children have hefty fees to pay (the fee for one term is equivalent to nearly one month's national minimum wage (The Times [Malta], 18/9/01). An average HLS was considered to be an indicator of an SES tending towards the lower levels. School type and HLS will be discussed separately, however, as I did not view them as interchangeable as indicators of SES. Recently, authors of Swiss and Australian research have adopted a similar stance, stating that use of separate indicators for education and household income each adds something unique to our understanding of how socio-economic position is related to diet (Galobardes, Morabia & Bernstein, 2001; Turrell et al., 2003). These SES indicators reflect different underlying social processes and hence do not serve as adequate proxies for one another.

Table 61 presents a pictorial summary of key results of chi squares analyses. Three sets of calculations were run using different samples. Originally, whole cases were used which had no missing values in the children's responses for the ten consumption settings (n=880) and in the parents' responses for HLS and Cable TV subscription (n=754). However, in view of a possible bias in results due to eliminated cases, two further analyses were run. In the second analysis all the child cases were used (N=1088), with any missing values for the ten consumption settings being replaced by the mode for the particular variable according to gender. For HLS and Cable TV analyses, there were fewer cases as these were dependent on availability of data from the parents' responses (n=927 and 921, respectively). In the third analysis, only those child cases for which data was available for the specific variable being tested were included. So the 'n' varied for each consumption setting. Table 61 indicates where statistically significant relationships emerged in the three analyses at the $p \leq 0.05$ level. In general, the second and third analyses confirmed the results of the original analysis with whole cases. Very few new significant relationships emerged, or in some settings significance emerged at the $p \leq 0.05$ level in one analysis, but only at the $p \leq 0.1$ level in other analyses. (See note in Table 61). In the following sections, those consumption settings where statistically significant relationships emerged in the at least two of the three analyses are being reported in full and a brief overview is given for the other settings. Tables showing detailed results from the second analysis (all child cases, N=1088) are included to facilitate discussion. Detailed tables of results from the other analyses are presented in Appendices 4.5 and 4.6.

4.2.4.1 Gender Differences

Table 62 shows that a number of statistically significant gender differences emerged across the settings. The strongest discrepancies seemed to be for Eating Out and Drink With Meal, Snack or When Thirsty, as differences were significant for both consumption and preferences. When eating out, girls were somewhat higher consumers of tortellini in white sauce and also preferred them more than boys did. On the other hand, boys were somewhat higher consumers of burger meals and preferred the Maltese-style pizza more than girls did. With regard to drinks, a distinctly higher proportion of girls consumed and to a lesser extent preferred water, whereas a somewhat higher proportion of boys consumed and preferred milk, chocolate milk or milkshakes.

TABLE 61
Significant Relationships Between Foods Consumed And Preferred In Different Settings And Different Children Groups (p≤0.05)

Consumption Setting		Gender			Household Level Of Schooling			School Type			Region			Cable TV		
		Girls vs. Boys			Average vs. High			State vs. Church vs. Independent			Malta vs. Gozo			Subscription vs. No Subscription		
	Behaviour	n= 880 ^a	n= 1088 ^b	n= Var. ^c	n= 754 ^d	n= 927 ^e	n= Var. ^c	n= 880 ^a	n= 1088 ^b	n= Var. ^c	n= 880 ^a	n= 1088 ^b	n= Var. ^c	n= 754 ^f	n= 921 ^g	n= Var. ^c
Breakfast	Consumed						✓	✓	✓	✓	✓	✓	✓			
	Preferred	✓	✓	✓												
School Packed Lunch	Consumed								x ^h	✓						
	Preferred							✓	✓	✓						
After-School Meal	Consumed	✓	✓	✓	✓	✓	✓	✓	✓	✓						
	Preferred															
Snack At Home	Consumed															
	Preferred										x	✓	✓			
Weekday Supper	Consumed		✓			✓	✓		✓	X				x	✓	✓
	Preferred					✓	✓							✓	✓	✓
Sunday Lunch	Consumed		✓	✓				✓	✓	✓				✓	✓	✓
	Preferred										✓	✓	✓			
Eating Out	Consumed	X	✓	✓				✓	✓	✓	✓	✓	✓		✓	
	Preferred	X	✓	✓	✓	✓	✓	✓	✓	✓						
Going Out & Stopping For A Snack	Consumed		✓											✓	x	x
	Preferred															
At The Beach	Consumed										✓	x	x			
	Preferred															
Drink With Meal, Snack Or When Thirsty	Consumed	✓	✓	✓				✓	✓	✓						
	Preferred	✓	✓	✓												

a Whole cases – no values missing in relevant variables in children’s data; b All child cases – missing values for consumption settings replaced by mode according to gender; c No missing relevant values for variable being tested; d Whole cases – no values missing in relevant variables in children’s and parents’ data (HLS values from parents’ data); e All child cases (missing values for consumption settings replaced by mode according to gender) except for child cases for whom HLS values were not available from parents’ data; f Whole cases – no values missing in relevant variables in children’s and parents’ data (Cable TV subscription values from parents’ data); g All child cases (missing values for consumption settings replaced by mode according to gender) except for child cases for whom Cable TV subscription values were not available from parents’ data; h p≤0.1000

TABLE 62a
Group Differences: Girls Versus Boys

Setting	Gender		χ^2	Df	p-value
	Girls % (n=546)	Boys % (n=542)			
Breakfast, Preferred			18.864	5	0.002
Fresh orange juice	27.3	21.2			
Toast, butter & coffee	11.9	13.5			
Roll, butter & coffee	10.1	6.3			
Milk pudding or yoghurt	17.9	15.5			
Cereal with milk	22.7	31.0			
Tea with milk	10.1	12.5			
After-School Meal, Consumed			36.639	5	0.000
Bread with tomato puree, oil	9.2	8.9			
Broth	17.9	12.0			
Pasta with tomato & garlic sauce	27.5	18.3			
Pizza	22.3	37.1			
Bread & butter	9.0	9.8			
Cereal with milk	14.1	14.0			
Weekday Supper, Consumed			19.676	5	0.001
Vegetable soup (<i>minestra</i>)	14.5	9.8			
Stewed rabbit (<i>stuffat tal-fenek</i>)	15.2	17.2			
Spaghetti with tomato & garlic sauce	26.0	19.6			
Pizza	19.2	28.0			
Fish with tomatoes & lettuce	9.7	9.2			
Meat with potatoes, carrots & peas	15.4	16.2			
Sunday Lunch, Consumed			23.966	5	0.000
Baked macaroni	25.5	16.2			
Baked meat & potatoes (<i>patata l-forn</i>)	14.5	11.8			
Lasagna	15.2	19.2			
Pasta with tomato & garlic sauce	11.2	10.0			
Chicken legs with potatoes	19.6	28.2			
Meat & mashed potatoes	14.1	14.6			
Eating Out, Consumed			20.378	5	0.001
Maltese-style pizza (<i>zalzett, gbejniet</i>)	13.7	14.9			
Rabbit with garlic & wine gravy	8.6	5.4			
Tortellini in white sauce	15.0	9.2			
Pizza <i>Margherita</i>	18.1	17.9			
Burger & chips & soft-drink/milkshake	24.7	34.1			
Chips with ketchup	19.8	18.5			

TABLE 62b
Group Differences: Girls Versus Boys (continued)

Setting	Gender		χ^2	Df	p-value
	Girls % (n=546)	Boys % (n=542)			
Eating Out, Preferred			11.610	5	0.041
Maltese-style pizza (<i>zalzett,gbejniet</i>)	9.9	13.5			
Rabbit with garlic & wine gravy	10.6	9.0			
Tortellini in white sauce	13.9	8.7			
Pizza <i>Margherita</i>	21.6	20.5			
Burger & chips & soft-drink/milkshake	32.1	35.1			
Chips with ketchup	11.9	13.3			
Going Out & Stopping For A Snack, Consumed			16.780	5	0.005
Ricotta <i>pastizzi</i> (pastries)	26.7	20.3			
Pea <i>pastizzi</i> (pastries)	15.9	13.8			
Pizza	13.9	11.8			
<i>Timpana</i>	7.5	8.5			
Chicken nuggets & chips	15.6	15.7			
Burger and chips	20.3	29.9			
Drink With Meal, Snack or When Thirsty, Consumed			13.402	5	0.020
<i>Kinnie</i>	21.6	20.5			
Fresh orange juice	8.6	8.7			
Water	17.6	10.5			
Orange squash	8.4	10.5			
Soft-drinks	31.0	34.3			
Milk, chocolate milk or milkshake	12.8	15.5			
Drink With Meal, Snack or When Thirsty, Preferred			11.336	5	0.045
<i>Kinnie</i>	16.7	13.1			
Fresh orange juice	10.4	9.0			
Water	13.2	9.4			
Orange squash	6.2	7.9			
Soft-drinks	42.7	45.8			
Milk, chocolate milk or milkshake	10.8	14.8			

Other strong differences emerged for Breakfast, where more girls preferred fresh orange juice or a roll with butter, whereas more boys preferred cereal with milk; for the After-School meal, where more girls consumed broth or pasta with tomato sauce, whereas many more boys consumed pizza; for Sunday Lunch, where many more girls consumed baked macaroni, whereas many more boys consumed chicken legs with potatoes; and when Going Out And Stopping For A Snack, where more girls consumed ricotta *pastizzi* and more boys consumed 'burger and chips' meals.

Overall, there were no major differences in food consumption and preference rates of 7-8-year-old boys and girls with regard to key basic meals such as School Packed Lunch and Weekday Supper. However, for other settings my results seem to show a pattern where girls opted for the plainer, 'lighter' choices and boys opted for the more robust, 'heavier' options – in both a physical and symbolical sense. The girls tended to consume and/or prefer more simple pasta dishes and fruit; whereas boys tended to consume and/or prefer more pizza and more red meat-containing items, such as burger meals and meat- and milk-rich lasagna. With the exception of creamy pasta dishes, it could be said that girls were slightly biased towards healthier fare, whereas boys were slightly biased towards less healthy fare.

These results tend to corroborate findings from other studies where gender differences in dietary practices were analysed. For example, in a study with 9-10-year-old British children, more girls than boys reported to have eaten food that would normally be encouraged as part of a healthier diet (Hackett et al., 2002). Similarly, in the European Health and Behaviour Survey conducted with older students, females ate more fruit and less red meat, and tried to eat less fat and more fibre than males (Wardle et al., 1997).

Whilst it is true that some 7-8-year-old boys may require more energy than girls to meet their daily requirements (USDA/ARS, 2003 [online]), one possible explanation for these differences in food behaviours may be associated with females being more concerned about their weight; so they seek options which are less calorie-laden. Although this behaviour is unlikely to be actively pursued by a majority of Maltese 7-8-year-old girls, as will be seen later in Section 4.3.1.2.1 they could be making food requests simulating behaviours of other family members in their household. In fact, foreign studies have suggested that girls are often recipients of a menu provided by adults who are consciously or unconsciously sensitive to weight or body image personal concerns, or those stereotypically associated with females (Smolak, Levine & Schermer, 1999). So for example, it could be that Maltese

mothers offered milk and milk-based beverages to their daughters less often due a concern for their daughter's weight. At the same time, as has also been suggested elsewhere (Auld et al., 2002), mothers may consider that boys require more milk and milk-based beverages to build more muscle and bones having a larger frame than girls. Meanwhile, one cannot overlook the fact that – although to a lesser extent than boys - girls still indicated a high preference for and intake of soft-drinks. This is of grave concern given that research has shown high-calorie sweetened drinks are displacing milk from young girls' diets with serious implications for risk of bone fractures later on in life (Cadogan et al., 1998; Wyshak, 2000; Fisher et al., 2001).

The 'light' versus 'heavy' dietary pattern which I am proposing also refers to symbolical properties of foods. Girls favoured or consumed creamy items, as well as 'lighter' items such as broth, fruit and water. Boys favoured or consumed 'heavier' items, such as burger meals, pizza, soft-drinks and milk-based drinks. These biases recall sociological theories on femininity and masculinity in food symbolism, which propose that items such as cream, fruit, vegetables and white meat are associated with females and more starch-based plant foods and red meat are associated with males (Hertzler, Wenkam & Standal, 1982; Hertzler & Owen, 1984; Fieldhouse, 1995; Mennell, Murcott & van Otterloo, 1992; Chiva, 1997). It could be that through the foods they provide their children, parents are unconsciously acting on and simultaneously perpetuating gender-related cultural norms in the realm of food.

4.2.4.2 Differences According To Highest Household Level Of Schooling (HLS)

Table 63 shows that there were few statistically significant differences in the food consumed and preferred by children from families with average versus high HLS. Strongest differences emerged for Weekday Supper, where a higher proportion of children from an average HLS consumed and preferred the traditional stewed rabbit, whereas a higher proportion of children from a high HLS consumed and preferred meat with potatoes, carrots and peas. A distinctly higher proportion of children from high HLS backgrounds consumed pasta with tomato and garlic sauce as their After-School Meal and preferred *Pizza Margherita* when Eating Out. In contrast, a somewhat higher proportion of children from average HLS backgrounds preferred burger meals when eating out. One final difference was for Breakfast, where more high HLS children consumed cereal with milk, whereas more average HLS children consumed fresh orange juice.

TABLE 63
Group Differences: Children From Households With
Average Versus High Levels Of Schooling

Setting	Household Level Of Schooling		χ^2	df	p-value
	Average % (n=492)	High % (n=435)			
Breakfast, Consumed			10.493	5	0.062
Fresh orange juice	13.4	10.8			
Toast, butter & coffee	11.4	10.6			
Roll, butter & coffee	5.3	3.2			
Milk pudding or yoghurt	4.9	3.0			
Cereal with milk	40.7	49.9			
Tea with milk	24.4	22.5			
After-School Meal, Consumed			12.392	5	0.030
Bread with tomato puree, oil	10.0	8.0			
Broth	15.7	14.0			
Pasta with tomato & garlic sauce	19.7	28.0			
Pizza	28.7	27.6			
Bread & butter	9.1	10.3			
Cereal with milk	16.9	12.0			
Weekday Supper, Consumed			11.379	5	0.044
Vegetable soup (<i>minestra</i>)	10.8	13.3			
Stewed rabbit (<i>stuffat tal-fenek</i>)	19.1	12.9			
Spaghetti with tomato & garlic sauce	21.3	24.6			
Pizza	24.4	22.1			
Fish with tomatoes & lettuce	10.2	8.7			
Meat with potatoes, carrots & peas	14.2	18.4			
Weekday Supper, Preferred			14.255	5	0.014
Vegetable soup (<i>minestra</i>)	6.3	3.9			
Stewed rabbit (<i>stuffat tal-fenek</i>)	25.0	17.7			
Spaghetti with tomato & garlic sauce	15.9	20.2			
Pizza	33.9	38.2			
Fish with tomatoes & lettuce	10.4	8.7			
Meat with potatoes, carrots & peas	8.5	11.3			
Eating Out, Preferred			15.385	5	0.009
Maltese-style pizza (zalzett,gbejniet)	13.6	11.3			
Rabbit with garlic & wine gravy	10.0	9.4			
Tortellini in white sauce	11.0	11.3			
Pizza Margherita	16.3	26.4			
Burger & chips & soft-drink/milkshake	35.2	29.9			
Chips with ketchup	14.0	11.7			

Overall, children from a high HLS were higher consumers of pasta dishes with vegetable sauce and pizzas with vegetable toppings. It could be that the food providers of children from a high HLS background were more aware of the specific dietary recommendation to increase plant-based meals (WCRF/AICR, 1997; WHO, 2000). On the other hand, more children from an average HLS background consumed a variety of meat dishes, including red meat, rabbit and fish. In general, it seems that average HLS children were more regularly offered or allowed to choose a selection of meat items, both inside and outside the home, with food providers perhaps following the traditional belief that meat was the requisite foundation of a nutritious diet for physically developing children.

My findings only partially corroborate those from different foreign studies on the relationship between eating habits and social class marked by educational attainment level (Kennedy & Powell, 1996; Krebs-Smith, et al., 1996; Roos et al., 1996; Turrell, 1998; Strauss & Knight, 1999; Fraser et al., 2000; Sanchez-Villegas et al., 2003a, 2003b; Vannoni et al., 2003). These studies have reported that higher SES groups tended to consume a variety of foodstuffs which were more likely to comply with dietary recommendations, such as for fruits, vegetables and meat. In contrast, lower SES groups were more likely to record diets with higher amounts of animal fats. In my study, children from both high and average HLS backgrounds consumed a variety of foods. Both groups consumed plant-based and meat-based items, but with slight orientations in favour of one or the other in keeping with trends reported in the literature. A specific finding in foreign research has been that in households where there is a low educational attainment there is a greater attachment to meat-based meals and poorer understanding of the relationship between diet and disease (Coon et al., 2001). The average HLS children in my study consumed and preferred a variety of meat dishes, though the traditional rabbit stew in particular for Weekday Supper. Rabbit is a low-fat meat and frequently served as a stew with tomatoes, onions, peas and potatoes, making it a healthy supper dish. Unfortunately, however, the average HLS children were also greater consumers of the high-fat burger meals when Eating Out. Perhaps this reflects a lack of nutrition knowledge on the part of the caregivers. Yet, this pattern could also be explained by research and theory on the relationship between social class, food rules and food status as shall be seen below.

A study with European mothers of 4-14-year-old children revealed that higher-educated mothers put more restrictions on food intake, while lower-educated mothers allowed their children more frequently to eat what they wanted (Hupkens et al., 2000). Similarly, UK

primary schoolchildren from low SES or low-education families more frequently reported having free choice or absence of rules than children from high SES or high-education families (Hart, Bishop & Truby, 2002). Thus, with regard to Maltese average HLS children, perhaps they were allowed more readily to choose which restaurant to visit, or allowed more freedom to select any menu item they wished. In addition, the parents of average HLS children may have been more reluctant to pay for pasta and pizza dishes which are generally plant-based items, and more willing to pay for meat-based dishes which following sociological theory would be perceived as offering more exchange and prestige value (Warde, 1997). Indeed, the pattern of food consumption amongst children from average HLS families substantiates conclusions reached by other researchers (Calnan & Cant, 1990; Turrell, 1998) that working class families seem to remain closer to traditional perceptions regarding the links between food, health and status. It also recalls Bourdieu's (1984) concepts of 'taste in necessity' and 'convivial indulgence' in his descriptions of the food choices of the industrial working class.

These various propositions merit further research, also to explore relationships between the food providers' level of education and children's food intake and health outcomes as suggested by previous foreign research. For example, whilst on the one hand neither vegetables nor confectionery consumption by 9-11-year-old British children were related to their mother's level of education (Gibson, Wardle & Watts, 1998), on the other hand a low maternal education has been associated with increased risk of obesity amongst children, possibly because of less healthy eating habits (Strauss & Knight, 1999; Gnavi et al., 2000). Related discussion on the mother's role in children's food intake will be presented in greater detail in Section 4.3.1.

4.2.4.3 State Versus Church Versus Independent School Children

Table 64 shows that quite a number of statistically significant differences occurred between children attending different types of schools. Perhaps this was to be expected as three groups were being tested for relationships, not two groups like in the previous comparisons. Differences emerged mainly for consumption in both home-based and non-home-based settings, although there were statistically significant differences for consumption and for preferences for School Packed Lunch and Eating Out. Of note is that these two settings require eating in public in the presence of peers (children at school; children and adults in restaurants or other food outlets) which may have some impact on preference and behaviour.

TABLE 64a
Group Differences: State Versus Church Versus Independent School Children

Setting	School			x ²	Df	p-value
	State % (n=659)	Church % (n=272)	Independent % (n=157)			
Breakfast, Consumed				70.985	10	0.000
Fresh orange juice	15.5	6.3	10.8			
Toast, butter & coffee	12.7	9.6	3.8			
Roll, butter & coffee	4.2	5.5	3.8			
Milk pudding or yoghurt	5.6	3.3	3.2			
Cereal with milk	39.0	45.2	68.8			
Tea with milk	22.9	30.1	9.6			
School Packed Lunch, Consumed				16.905	10	0.077
Bread with tomato puree, oil	14.7	17.6	8.9			
Bread with tomato puree, oil & tuna	18.2	18.8	13.4			
<i>Nutella</i> sandwich	12.0	8.5	17.2			
Crackers & pizza sauce	9.1	7.0	11.5			
Ham & butter roll/sandwich	30.5	33.5	34.4			
Cheese & butter roll/sandwich	15.5	14.7	14.6			
School Packed Lunch, Preferred				25.535	10	0.004
Bread with tomato puree, oil	9.7	9.9	12.7			
Bread with tomato puree, oil & tuna	17.5	23.5	20.4			
<i>Nutella</i> sandwich	32.6	34.2	38.9			
Crackers & pizza sauce	14.9	5.9	8.9			
Ham & butter roll/sandwich	15.2	18.4	12.7			
Cheese & butter roll/sandwich	10.2	8.1	6.4			
After-School Meal, Consumed				24.452	10	0.006
Bread with tomato puree, oil	8.0	10.3	10.8			
Broth	15.3	16.5	10.8			
Pasta with tomato & garlic sauce	19.1	26.8	31.8			
Pizza	32.3	24.6	27.4			
Bread & butter	9.9	7.7	10.2			
Cereal with milk	15.3	14.0	8.9			
Weekday Supper, Consumed				17.890	10	0.057
Vegetable soup (<i>minestra</i>)	11.8	12.9	12.1			
Stewed rabbit (<i>stuffat tal-fenek</i>)	17.0	14.3	15.9			
Spaghetti with tomato & garlic sauce	21.2	22.1	30.6			
Pizza	24.6	24.6	17.8			
Fish with tomatoes & lettuce	10.9	9.2	3.8			
Meat with potatoes, carrots & peas	14.4	16.9	19.7			
Sunday Lunch, Consumed				21.676	10	0.017
Baked macaroni	21.2	23.9	14.0			
Baked meat & potatoes (<i>patata l-forn</i>)	13.5	15.1	8.3			
Lasagna	17.1	15.8	19.7			
Pasta with tomato & garlic sauce	11.2	6.3	15.3			
Chicken legs with potatoes	22.0	25.0	29.9			
Meat & mashed potatoes	14.9	14.0	12.7			

TABLE 64b
Group Differences: State Versus Church Versus Independent School Children
(continued)

Setting	School			χ^2	Df	p-value
	State % (n=659)	Church % (n=272)	Independent % (n=157)			
Eating Out, Consumed				36.967	10	0.000
Maltese-style pizza (<i>zalzett,gbejniet</i>)	15.3	13.2	12.1			
Rabbit with garlic & wine gravy	7.4	7.4	4.5			
Tortellini in white sauce	14.1	8.1	10.8			
Pizza <i>Margherita</i>	14.1	19.5	31.8			
Burger & chips & soft-drink/milkshake	30.2	28.7	27.4			
Chips with ketchup	18.8	23.2	13.4			
Eating Out, Preferred						
Maltese-style pizza (<i>zalzett,gbejniet</i>)	12.6	11.0	8.9	29.959	10	0.001
Rabbit with garlic & wine gravy	9.3	11.4	9.6			
Tortellini in white sauce	10.9	9.9	15.3			
Pizza <i>Margherita</i>	17.3	23.9	31.8			
Burger & chips & soft-drink/milkshake	36.9	29.0	27.4			
Chips with ketchup	13.1	14.7	7.0			
Drink With Meal, Snack or When Thirsty, Consumed				22.484	10	0.013
Kinnie	23.7	17.6	15.9			
Fresh orange juice	10.2	7.0	5.1			
Water	11.7	15.4	21.7			
Orange squash	8.6	11.0	10.2			
Soft-drinks	32.6	33.5	31.2			
Milk, chocolate milk or milkshake	13.2	15.4	15.9			

In the breakfast setting, there was a sharp difference between independent school children and children from the other two school types in their intake of cereal with milk. Independent schoolchildren were much higher consumers of this breakfast choice. Reasons for more independent school children consuming breakfast cereal could be related to convenience of consumption. Most independent schools have an island-wide catchment so that children often have to travel some distance to school. Thus, a breakfast which is quick to consume before catching school transport, or which can be eaten whilst travelling would be sought. However, independent school children's higher consumption of breakfast cereals could also be related to accessibility. All breakfast cereals available locally are imported and they are fairly expensive. In families where there are less budgetary constraints, which is probably the case for those of independent school children, food providers can afford to buy a greater variety of breakfast cereals to suit different family members' tastes and avoid boredom. In contrast, a family on a tighter food budget, as could be the case for those of state school

children, may not be able to afford a choice of breakfast cereals so that children may become bored with consuming the same type and seek alternative breakfasts. In fact, sensory-specific satiety has been reported as being highly influential during childhood, often creating a short-term decrease in liking for a food (Hetherington, 1996). In other words, several factors may influence school differences in breakfast consumption, reflecting perhaps the economic availability and gatekeeper availability components in Wheeler's (1992) hierarchy of constraints.

State and church school children were relatively high consumers of the traditional *mqarrun il-forn* and *patata l-forn* for Sunday Lunch, when compared to independent school children. Of note is that independent school children consumed a similar pasta dish (pasta with tomato and garlic sauce) for both the After-School Meal and Sunday Lunch. This seems to indicate that the food provider made little distinction between the weekday and Sunday meals when it came to pasta eating habits. In contrast, state and church schoolchildren consumed different types of pasta dishes, being offered *mqarrun il-forn* for Sunday lunch, which is a traditional dish for this setting. Perhaps the children's school backgrounds influenced the maintenance of Sunday as a special day of the week – both church schools and state schools follow Roman Catholic practices, whereas Independent schools are more liberal.

This difference between a more traditional and a more modern diet also emerged for School Packed Lunch, After-School Meal and Drink With Meal, Snack Or When Thirsty. More state and church school children consumed the different varieties of the traditional *hobz biz-zeit*, whereas more independent school children consumed the more modern *Nutella* sandwich or crackers with pizza sauce in their packed lunches. Similarly, more state and church schoolchildren consumed the traditional broth on returning from school.

State school children also had a somewhat higher consumption of the traditional *Kinnie* and of fresh orange juice when compared to independent schoolchildren. In contrast, independent schoolchildren had a distinctly higher consumption of water. Both children groups were consuming a healthy beverage, but with the state school group being offered a drink traditionally perceived as beneficial for growing children and the independent school group being offered a drink which has only recently started being promoted locally as a healthy option for children. Even with regard to *Kinnie*, although this is a regular soft-drink, parents may still perceive it as a suitable drink for children because of its link with oranges,

because of its non-sweet taste and as a result of its traditional image as a children's drink. One must also acknowledge, however, that the difference in beverage consumption could arise from other factors. For example, it is likely that bottled water would be considered a luxury item by parents of state school children who may have a more restricted budget. Or else, fresh fruit juice was not offered by parents of independent school children because it may be more time-consuming to prepare.

When Eating Out, independent school children were distinctly the highest consumers and preferers of *Pizza Margherita* and the lowest to consume and prefer chips with ketchup. The former result is similar to that obtained for HLS differences, implying that attending an independent school and having a high HLS background generated similar consumption habits when eating out. It is somewhat difficult to explain the bias towards *Pizza Margherita*. Independent school children may have an affinity for this particular pizza, either because they consume it often at home and so familiarity leads to the same request when eating out, or else because they prefer simple fare with few ingredients. It could also be that these children go out to eat somewhat often and the family may tend to choose pizzerias for the regular family outing, reserving other restaurants for particular occasions. Independent school children's low consumption and preference for chips and ketchup when eating out could be related to the image portrayed. Parents of these children may not wish to be seen as offering a mere plate of chips when dining in public. This is reminiscent of the identity value of food described by Warde (1997) and Bourdieu's (1984) concept of 'taste in luxury', where the higher classes seek eating habits which separate them from other social groups.

Overall, however, there were similarities between school groups for many of the consumption settings. For example, irrespective of school type many children were regular consumers of burger meals when eating out and this was in keeping with their preferences. Other similarities were a comparatively high consumption of a ham roll for School Packed Lunch, pizza for After-School Meal, chicken legs with potatoes for Sunday Lunch and soft-drinks as a beverage. There was also a congruent high preference for *Nutella* sandwich for School Packed Lunch and pizza for Weekday Supper. Unfortunately, these various food items are, or have the potential, of being high in fat and low in nutrient density. Yet, the addition of vegetables to some of them would render them much more nutritious (e.g. vegetable toppings on the pizza, lettuce in the ham roll, vegetables with the chicken legs).

The results also seemed to indicate that state and church school children were closer in their consumption and preference patterns than either one of them was with independent school children. The latter had somewhat different consumption and preference habits, seeming to consume or prefer more processed foods (e.g. breakfast cereals, *Nutella*), or foods which reflected recent healthy trends (e.g. bottled water as a drink). They were also the lowest consumers in different settings of the traditional foods. Evidence for this eventually also emerged during the focus groups. For example, over the span of the 16 focus group interviews only one independent school girl (9/M/TI/II/MG) mentioned drinking soya milk, giving the following reasons for her preference: "I like the soya milk, white. Because soya milk is a bit healthier and it will have no animal product." It is evident that this child either hailed from a vegetarian family, or else from a family where a primarily plant-based diet was followed for health reasons. The influence of accessibility is very clear, with the independent school girl being exposed to a novel expensive milk of limited availability.

Of note is that children's reported preferences often suggested a desire for a food which was not consumed that often. For example, there were high increases in frequencies from consumption to preference for crackers and pizza sauce as a School Packed Lunch amongst state schoolchildren and the two versions of *hobz biz-zeit* amongst independent schoolchildren. From a novelty-seeking perspective this could reflect the trend for the former school group to long for more modern items and the latter group for more traditional items.

This study of Maltese children's eating habits differentiated according to school type reveals that in general there seem to be both similarities and differences in foods consumed. These findings are in contrast to those from other countries where distinct social class differences were shown to exist in children's food intake (Prattala, 1988; Johnson et al., 1994; Neale, Otte & Tilston, 1994; Kirby et al., 1995; Baxter, Schroder & Bower, 2000). They also contradict previous research out of Europe and the US which reported that lower SES children were more likely to eat foods higher in total fat and saturated fat (where parental income was used as a proxy for SES) (Kennedy & Powell, 1996) and that higher SES families reported consuming a diet which was closer to national recommendations (Calnan & Cant, 1990; Mennell, Murcott & van Otterloo, 1992; Hulshof et al., 2003). In fact, my results show that children from the different schools had both healthy and not-so-healthy food habits. All of them consumed a selection of healthy items from the cereals, meat, vegetables and fruit groups, though the specific items were not the same for all the groups. Also, all of them tended to consume or prefer potentially high-fat or high-calorie foods.

On the other hand, my results corroborate findings from other studies which concluded that large differences in food intake across socio-economic groups were difficult to find and which suggested that for the most part, people in all socio-economic groups ate much of the same types and varieties of food. Specifically, dietary differences are often of small magnitude and for some, but not all key components of the diet, so that eventually nutrient intake is similar across SES groups (Kinsey, 1994; Galobardes, Morabia & Bernstein, 2001). My findings also seem to fit with Mennell's (1985) theory of *diminishing contrasts* between social classes and Warde's (1997) and Ritzer's (1993) propositions that massification has led to dwindling of class differences in food behaviours. Given that Malta only produces a fifth of its own food and imports the rest (Country Profiler 2004b [online]) and that a diversity of catering establishments are available, I feel that new foods and subsequently food trends can be identified at all price levels in Malta.

At this point, my results seem to be pointing in slightly different directions with regard to the influence of SES. Whilst in the previous section I have similarly stated that there were minimal group differences in food preferences and consumption amongst children from different SES backgrounds, I have also suggested that children of a lower SES showed a stronger orientation to meat-based items and those of a higher SES to plant-based items. But this was based on using 'Household Level of Schooling' as the gauge. Now, the results seem to be indicating that minimal differences exist in the overall health value of the diet, when school type/family economic wealth is used as the gauge. Thus, it seems that educational attainment of the household overrides economic wealth as an influencing factor on the health value of Maltese children's food intake. A similar conclusion was reached by Galobardes, Morabia and Bernstein (2001) in their study with Swiss families, when they stated that both education and occupation measure aspects of SES; yet both indicators measure different pathways through which SES can have an independent effect on diet. They also proposed that the effects of education and occupation were additive for some foods. This is perhaps reflected in the higher consumption of meat-based meals by children from average HLS families and those attending state schools

Therefore, looking at this scenario from an SES and health perspective, it seems that although economic differences exist in real terms, the economic wealth of families of children attending different school types becomes less salient in terms of health value of eating habits. In fact, research from the US and UK has shown that those families who are financially disadvantaged or from working class backgrounds actually purchase food more

efficiently, obtaining more nutrients per monetary outlay than those who are more financially secure or from middle class backgrounds (Calnan & Cant, 1990; Senauer, Asp & Kinsey, 1991). This may actually be happening with the lower SES families in Malta. Speaking from personal experience and based on anecdotal evidence, comparison-shopping and bargain-seeking are common practices, especially amongst the Maltese working class families. This is especially evident in fresh food open markets and discount supermarkets.

Given that the majority of Maltese households fall in the middle class band when economic activity is measured and only a few in the lower or upper classes, this homogeneity in food intake was perhaps expected and any school type differences which emerged must be related to other factors. Indeed, factors such as family routines and convenience may play a greater role in the foods consumed by children from different SES or school types than economics. For example, school proximity to family home, school hours, method of home-school transport, working status of mother may singly or synergistically determine consumption of healthier traditional foods and/or less healthy processed foods. When the household's level of educational attainment is factored into this scenario, then the influence on children's food intake could be much stronger. In this regard, research out of the US has suggested that, as a result of the advent of dual earner families, family food consumption patterns have changed dramatically, with the impact being particularly manifested in the quest for convenience (Kinsey, 1994; Crockett & Sims, 1995).

Of note is that the results did show a tendency for children from Independent schools to diverge from traditional food habits. This would be in keeping with research from the US and Spain which has shown that younger adults, high education and employment outside the home were amongst the strongest predictors of acculturation to a Western diet (Satia-Abouta et al., 2002; Sanchez-Villegas et al., 2003). Somewhat arbitrarily, one could say that these would more likely be characteristics of mothers of Maltese children attending independent schools. In fact, I tend to agree with the research which states that convenience and new exotic foods are more likely to be purchased by upper income people (Hertzler & Owen, 1976a, 1976b; Calnan & Cant, 1990; Hannerz, 1990; Sanchez-Villegas et al., 2002, 2003b). As a result of work, lifestyle and social circles, more families of Independent school children tend to buy these more 'modern' items. Indeed, it might be wise to pay particular attention to this group of children and their families. Following Warde's (1997) concept of 'neo-tribes' and Rogers' (1995) description of the 'Innovators' group in his Diffusion of Innovations theory, the dietary habits of this population strata are more likely to be

transferred to the whole population. Therefore, perhaps one should consider targeting nutrition interventions specifically at this population group; not only for their personal health benefit, but also considering their role as agents of change.

Finally, one must acknowledge that any school differences could be a result of peer group influence, and/or extent and focus of classroom-based food and nutrition modelling or instruction. Children tend to talk about foods consumed and they also engage in social eating during school lunch-breaks. At the same time, teachers may emphasise different ideas when discussing healthy eating, depending on their personal experience, training and school resources available. The significance of the latter has been highlighted in both local (Attard, 2001; Fenech, 2001) and foreign studies (Hunton, 1994; British DOH/MAFF, 1998; Dixey et al., 1999; Celebuski, Farris & Burns, 2000).

4.2.4.4 Maltese Versus Gozitan Children

As can be seen from Table 65, there were few statistically significant differences based on region. Gozitan children tended to be greater consumers than Maltese children of toast with butter and coffee for breakfast and they also preferred toast with butter or fruit as a snack more frequently than their Maltese counterparts. This choice of bread items for breakfast and for a snack reflects a traditional practice which may be influenced by the presence of grandparents who often live in close proximity to their grandchildren in Gozo and act as surrogate caregivers. Regarding fruit as a snack, it is likely that a variety of fruits would be readily available in Gozitan households due to the high proportion of agricultural land and family fields. So having a wider choice of fresh fruit may have generated a higher preference for this snack food amongst Gozitan children. In fact, accessibility to fruit has been reported as a strong predictor of preferences and intake in studies with British and US children (Hearn et al., 1998; Economic Research Service/USDA, 2003b; Neumark-Sztainer et al., 2003; British Dept. of Health, 2004).

For Sunday Lunch the preference rate for lasagna was much higher amongst Gozitan children, whereas the preference rate for chicken legs with potatoes was much higher amongst Maltese children. Reasons for these differences could be linked to food status based on availability, ingredients and labour involved in preparation. Chicken may not be perceived by Gozitans as having high prestige value as it is often home-bred and considered an everyday food item being readily available. Lasagna, on the other hand, is a pasta dish typically cooked for special occasions, as it is much richer – containing minced

TABLE 65
Group Differences: Maltese Versus Gozitan Children

Setting	Region		χ^2	df	p-value
	Malta % (n=983)	Gozo % (n=105)			
Breakfast, Consumed			16.422	5	0.006
Fresh orange juice	13.2	5.7			
Toast, butter & coffee	9.9	18.1			
Roll, butter & coffee	4.6	3.8			
Milk pudding or yoghurt	5.1	1.0			
Cereal with milk	45.2	41.9			
Tea with milk	22.1	29.5			
Snack at Home, Preferred			11.181	5	0.048
Fruit	30.4	40.0			
Bread with tomato puree, oil	8.3	1.9			
Coffee with milk	8.0	5.7			
<i>Nutella</i> sandwich	24.1	21.0			
Tea or coffee & biscuits	16.1	13.3			
Toast with butter	13.0	18.1			
Sunday Lunch, Preferred			17.512	5	0.004
Baked macaroni	13.7	13.3			
Baked meat & potatoes (<i>patata l-forn</i>)	9.3	11.4			
Lasagna	23.5	39.0			
Pasta with tomato & garlic sauce	11.9	12.4			
Chicken legs with potatoes	32.5	17.1			
Meat & mashed potatoes	9.2	6.7			
Eating Out, Consumed			11.802	5	0.038
Maltese-style pizza (<i>zalzett, gbejniet</i>)	15.0	8.6			
Rabbit with garlic & wine gravy	7.1	5.7			
Tortellini in white sauce	12.5	8.6			
Pizza <i>Margherita</i>	18.5	13.3			
Burger & chips & soft-drink/milkshake	28.7	36.2			
Chips with ketchup	18.2	27.6			
At the Beach, Consumed			10.593	5	0.060
Bread with tomato puree, tuna & oil	13.5	12.4			
Fruit	16.0	9.5			
Granita	12.6	10.5			
<i>Cornetto</i>	35.2	32.4			
Ham roll	6.9	13.3			
Packet snacks or crisps	15.8	21.9			

meat, milk and eggs - and it is more labour and time intensive. Labour involved in preparation, meat as an ingredient, expensiveness and association with special occasions are all features which according to Fieldhouse (1995) and Hertzler and Owen (1984) imbue a food or dish with greater prestige value. This value may still be more salient amongst Gozitan families. In contrast, chicken legs may not be a staple food amongst Maltese families. They may even be perceived as a treat requiring some time to cook, and so they are reserved for Sunday Lunch.

The issue of availability arises again in explaining the differences in consumption when eating out. Whereas a higher proportion of Gozitan children reported consuming a burger meal, a higher proportion of Maltese children reported consuming the Maltese-style pizza. The latter pizza, or a variety thereof, would very likely be consumed more frequently, even during the week, by Gozitan children. Thus, for them it would have little symbolic value as a treat. On the other hand, restaurant burger meals would have a higher use and identity value (following Warde, 1997) as there is only one international fast food outlet (McDonalds) on the island of Gozo, which probably makes a visit to this place the obvious choice for something special when eating out with children.

Similarly, the relatively strong difference in consumption of packet snacks and crisps at the beach in favour of Gozitan children could be a result of these foods being less available at home than fruit. Thus, for Gozitan children they become part of a seaside food consumption ritual. In fact, fruit may be so accessible and considered such a common item by children from Gozo, that it is not necessarily perceived a staple for beach-side snacks. In contrast, for these children, a visit to the beach may involve the treat of buying an ice-cream, or a packet of snacks from the various on-site food vans and kiosks. It seems that the symbolic value of food rituals as described by Hertzler and Owen (1984) and Lalonde's (1992) reference to meal-as-event could both play a role in these various relationships.

In general, therefore, there were no very sharp differences in food behaviours based on region. A number of foods featured highly in the diets of both Maltese and Gozitan children, such as cereal with milk consumed for breakfast, *Nutella* sandwich as a preferred snack when at home and *Cornetto* as a snack consumed at the beach. Both traditional and 'modern' foods, as well as healthy and less healthy foods featured in the diets of the two groups of children. In fact, there was no clear cut bias towards either one of these food categories.

Research comparing food consumption of children living in rural versus urban areas is scarce. In one recent study with young children in Iran, amount and sources of iron differed between urban and rural 4-year-old children, with the latter having a higher intake of iron, 75% of which came from plant sources (Zohouri & Rugg-Gunn, 2002). Although my comparison of Maltese and Gozitan children did not show any distinct higher plant food intake by the latter group, except a keener preference for fruit, some differences are likely, given that the proportion of agricultural land is much higher in Gozo than in Malta. Thus, exposure and ease of accessibility to fresh produce would be greater for Gozitan children. In fact, according to Rozin (1996), food exposure is highly determined by one's ecology and the relevance of exposure in creating food preferences has been highlighted by various researchers (Sheiham et al., 1989; Birch & Fisher, 1996; Koivisto Hursti, 1999; Eertmans, Baeyens and van den Bergh, 2001). On the other hand, my findings do concur with those of a study among 10-15-year-old Polish children, where urban boys and girls were higher consumers of vegetables and fruit than rural boys and girls (Szponar & Rychlik, 1999). Perhaps ease of accessibility influenced the prestige value of these foods as perceived by the food providers of these two children populations, so that the plant foods were more readily sought and offered by urban providers.

4.2.4.5 Access Versus Non-Access To Cable TV

Table 66 shows that the strongest statistically significant differences between children from families having access to cable TV (CTV) and those not having access to cable TV (non-CTV) were for Weekday Supper. A higher proportion of non-CTV children consumed and preferred stewed rabbit, whereas a higher proportion of CTV children consumed spaghetti with tomato sauce and preferred pizza. Thus, the non-CTV children were more inclined towards the traditional dish, whereas the other children were more inclined towards items which are more convenience-oriented or heavily advertised on local and foreign TV stations.

Similarly, a much higher proportion of non-CTV children consumed the traditional *patata l-forn* for Sunday Lunch, and quite a higher proportion consumed the traditional pea *pastizzi* when Going Out And Stopping For A Snack. Access to cable TV did not seem to effect consumption of the traditional *mqarrun il-forn* or ricotta *pastizzi*, or the more modern chicken nuggets or burger meals.

Overall, no major differences emerged in consumption and preferences of children who had access to cable TV versus those who did not. A possible reason that the data did not show

TABLE 66
Group Differences: Children From Families With Access Or Without Access To Cable TV

Setting	Access To Cable TV		χ^2	df	p-value
	Yes % (n=530)	No % (n=391)			
Weekday Supper, Consumed			12.131	5	0.033
Vegetable soup (<i>minestra</i>)	10.8	13.3			
Stewed rabbit (<i>stuffat tal-fenek</i>)	13.4	20.2			
Spaghetti with tomato & garlic sauce	25.3	19.2			
Pizza	23.6	22.5			
Fish with tomatoes & lettuce	10.4	8.7			
Meat with potatoes, carrots & peas	16.6	16.1			
Weekday Supper, Preferred			15.983	5	0.007
Vegetable soup (<i>minestra</i>)	5.3	4.6			
Stewed rabbit (<i>stuffat tal-fenek</i>)	18.1	26.1			
Spaghetti with tomato & garlic sauce	16.4	20.2			
Pizza	39.1	32.0			
Fish with tomatoes & lettuce	9.4	9.7			
Meat with potatoes, carrots & peas	11.7	7.4			
Sunday Lunch, Consumed			17.563	5	0.004
Baked macaroni	21.5	20.2			
Baked meat & potatoes (<i>patata l-forn</i>)	9.6	18.9			
Lasagna	17.0	14.6			
Pasta with tomato & garlic sauce	12.1	9.5			
Chicken legs with potatoes	25.5	22.5			
Meat & mashed potatoes	14.3	14.3			
Eating Out, Consumed			14.544	5	0.013
Maltese-style pizza (<i>zalzett, gbejniet</i>)	15.8	11.8			
Rabbit with garlic & wine gravy	6.0	8.7			
Tortellini in white sauce	13.1	10.5			
Pizza <i>Margherita</i>	19.7	15.1			
Burger & chips & soft-drink/milkshake	28.4	31.2			
Chips with ketchup	17.1	22.8			
Going Out & Stopping For A Snack, Consumed			10.079	5	0.073
Ricotta <i>pastizzi</i> (pastries)	24.0	23.0			
Pea <i>pastizzi</i> (pastries)	12.6	18.9			
Pizza	12.8	12.8			
<i>Timpana</i>	9.4	5.9			
Chicken nuggets & chips	17.2	15.1			
Burger & chips	24.0	24.3			

any really major differences was that a number of the foods listed for the ten different consumption settings would be advertised on both local and Italian TV stations, which all children would have access to (Marmara, 2003). Perhaps one distinct pattern which seemed to emerge was that non-CTV children tended to consume or prefer the traditional foods more than CTV children. This finding will be explored further in Section 4.5.1.2. On the other hand,

Maltese children's Westernised fast food style meal consumption and preference did not seem to be influenced by cable TV access. However, a possible reason could be that these food items are also marketed to all Maltese schoolchildren via other media, such as children's magazines and sponsorship of school-based events and programmes (Fenech, 2000).

A finding worth mentioning is that, irrespective of cable TV accessibility, preference rates were much higher than consumption rates for heavily advertised food items. Examples of such trend can be seen in the children's choice of yoghurt or milk puddings for Breakfast (CTV: consumed=3.6% vs. preferred=17.0%; non-CTV: consumed=4.1% vs, preferred =16.9%), and *Nutella* as a Snack At Home (CTV: consumed=8.1% vs. preferred=24.7%; non-CTV: consumed=8.4% vs. preferred=24.8%). This perhaps indicates that TV advertising was creating a strong desire for the foods without directly impacting on consumption. For instance, both CTV and non-CTV children were about four times more likely to prefer *Nutella* than consume it (CTV: OR=3.7216, CI=1.5906-8.7079, p=0.0015; non-CTV: OR=3.5963, CI=1.5529-8.3287, p=0.0018). This proposition is also founded on my interviews with the mothers, most of whom ascertained that TV food advertisements were major triggers of their children's food requests. This issue will be discussed further in Section 4.3.1.4.1.

4.2.5 Profiles Of Children Exhibiting Specific Dietary Patterns

Spurred by the findings described in earlier sections with regards to healthy and not-so-healthy trends in children's food intake, I analysed the data to identify groups of children who seemed to follow certain dietary patterns. Table 67 details the five dietary patterns explored, classified under potentially healthy and not-so-healthy, as well as the specific variables used to identify these patterns. Each analysis was based on the children's responses for the *Most Consumed* item in the relevant consumption settings.

Three sets of calculations were run using different samples as described earlier for the chi square testing for group differences (calculation 1 = using whole cases, having no missing

TABLE 67
Identifying Groups Of Children With Specific Dietary Practices

Specific Dietary Practices	Variables	
Healthy	Consumption Settings	Foods
Consumption of at least 3 vegetables and fruits daily	Weekday Supper AND	<i>Minestra</i> (vegetable soup) OR Fish with tomatoes and lettuce OR Meat with potatoes, carrots and peas
	Breakfast OR Snack At Home OR Drink	Freshly squeezed orange Fruit Freshly squeezed orange
Consumption of milk and/or fresh milk products at least twice daily on weekdays	Drink AND	Milk or Chocolate milk or Chocolate milkshake
	Breakfast OR After-School Meal	Cereal with milk OR Vanilla pudding or Yoghurt Cereal with milk
Consumption of traditional Maltese food for school packed lunch and at least one other meal on weekdays	School Packed Lunch AND	Bread with tomato puree and oil OR Bread with tomato puree, oil and tuna
	After-School Meal OR Weekday Supper	Bread with tomato puree and oil OR Broth Vegetable soup OR Stewed rabbit
Not-so-healthy		
Consumption of pizza for the after-school meal and evening meal on weekdays	After-School Meal AND Weekday Supper	Pizza Pizza
	Breakfast AND	Tea with milk OR Toast with butter and coffee OR Bread roll with butter and coffee
Consumption of low-nutrient high-fat foods at school and at home on weekdays	School Packed Lunch OR	Bread with tomato puree and oil OR <i>Nutella</i> sandwich
	After-School Meal	Bread with tomato puree and oil OR Bread and butter

values for all variables required; calculation 2 = using total sample with missing values for each required variable replaced by mode according to gender; calculation 3 = using cases which had all required data for the specific profile being tested). In general, results from the second and third analyses were more similar to each other than to the first analysis using whole cases (see Appendix 4.7). Given that the third set of calculations were based on respondent data available for each specific profile sought, I felt that these most accurately reflected reality and subsequently used these results in the following discussion.

Table 68 shows the frequencies for the five dietary patterns. In keeping with the ecological framework and sociological orientation guiding the discussion, frequencies and Odds Ratios (OR) were also computed for different children groups to identify any differences or the likelihood of certain groups following the particular dietary practices. Children of different gender, HLS, school type, region and access to cable TV were compared. The rationale was to uncover which children would typically follow the studied eating patterns in order to better inform development of nutrition policies or interventions in the future. Analysis revealed, however, that there were no statistically significant ratio differences between these children groups. (See Appendices 4.8 - 4.10).

4.2.5.1 Children Consuming At Least Two Vegetables And A Fruit Daily

The benefits to health of regular fruit and vegetable consumption include an adequate intake of various micronutrients to meet recommendations, as well as decreased risk for certain diseases such as hypertension, cardiovascular disease and various cancers (Whitney & Rolfes, 2001). A global recommendation is to consume at least five fruits and vegetables daily (WCRF/AICR, 1997). With this in mind, the data was analysed in order to identify the group of children who would consume at least two servings of vegetables as part of their evening meal and an additional fruit serving daily, either as freshly squeezed orange juice or a fruit snack. These meals and options were chosen as they were within the dietary experience of the majority of children and a clear reference was made to fruits or vegetables. It was assumed that an additional two fruits or vegetables could be consumed in the School Packed Lunch or After-school Meal to make up the total to the recommended five fruits and vegetables daily.

Only about one out of every five children in the sample consumed at least three servings of fruits or vegetables daily from the analysed meals. This result indicates that very few children are consuming at least three vegetables or fruit from three of the common daily

TABLE 68
Specific Dietary Practices By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access
(Using cases which had no missing values for the specific variables being tested)

Specific Dietary Practices	Gender		Household Level of Schooling		School Type		Region		Cable TV Access		Average
	Girls	Boys	Average HLS	High HLS	State School	Non-State School	Malta	Gozo	Cable TV	No Cable TV	
	n=var.	n=var.	N=var.	n=var.	n=var.	n=var.	n=var.	n=var.	n=var.	n=var.	
At least three vegetables and fruits daily	(n=502) 113 22.5%	(n=482) 106 22.0%	(n=453) 99 21.9%	(n=398) 91 22.9%	(n=588) 138 23.5%	(396) 81 20.5%	(n=887) 197 22.2%	(n=97) 22 22.7%	(n=492) 110 22.4%	(n=355) 81 22.8%	22.4%
Milk and/or fresh milk products at least twice daily on weekdays	(n=509) 45 8.8%	(n=485) 43 8.9%	(n=456) 42 9.2%	(n=399) 33 8.3%	(n=597) 46 7.7%	(n=397) 42 10.6%	(n=896) 78 8.7%	(n=98) 10 10.2%	(n=493) 48 9.7%	(n=357) 25 7.0%	8.7%
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	(n=516) 90 17.4%	(n=488) 80 16.4%	(n=463) 89 19.2%	(n=400) 58 14.5%	(n=605) 109 18.0%	(n=399) 61 15.3%	(n=905) 158 17.5%	(n=99) 12 12.1%	(n=495) 75 15.2%	(n=364) 71 19.5%	17.0%
Pizza for after-school meal and supper on weekdays	(n=521) 35 6.7%	(n=496) 51 10.3%	(n=467) 39 8.4%	(n=403) 26 6.5%	(n=616) 56 9.1%	(n=401) 30 7.5%	(n=918) 77 8.4%	(n=99) 9 9.0%	(n=498) 40 8.0%	(n=368) 25 6.8%	8.3%
Low-nutrient high-fat foods at school and at home on weekdays	(n=521) 53 10.2%	(n=492) 49 10.0%	(n=465) 53 11.4%	(n=407) 43 10.6%	(n=612) 61 10.0%	(n=401) 41 10.2%	(n=912) 91 10.0%	(n=101) 11 10.9%	(n=503) 48 9.5%	(n=363) 47 13.0%	10.5%

meals. If this is not compensated for in their other daily meals, then the children could be missing out on a variety of nutrients and healthful phytochemicals. Frequency of this dietary practice was particularly similar across the different children groups studied.

4.2.5.2 Children Consuming Milk And/Or Fresh Milk Products At Least Twice Daily On Weekdays

Milk is one of the richest and most convenient sources of protein and calcium, both of which are essential for the growing child. Food guides generally recommend that schoolchildren should consume at least three servings of milk or milk products daily in order to meet their calcium requirements (USDA/ARS, 1999a [online]; BNF, 2004 [online]). The sample was analysed to identify a group of children who regularly consumed milk as a beverage and, either consumed milk with breakfast cereals, or consumed a vanilla milk pudding or yoghurt for breakfast. Throughout the scholastic year, state school children would also have the option of drinking a glass of milk (about 330ml) during their school lunch break.

Less than one in ten children in the sample emerged as regular consumers of milk or fresh milk products. These results show that very few children seem to be consuming milk as a beverage, as an accompaniment to cereal, or as a yoghurt or pudding. One has to acknowledge that children may be consuming milk in the form of cheese; yet this analysis specifically focused on milk as a fresh, liquid or semi-liquid item. It could be that the food providers are familiar with current recommendations regarding the need to reduce the intake of saturated animal fats (WHO, 2000) and have chosen to avoid offering milk and milk products to their family, including their children. Unfortunately, in so doing they are also depriving their children from a rich source of calcium. Yet, whilst some of them may be compensating for this by providing other calcium-rich foods, others may not have the knowledge to do this. Parents need to be told that fat-reducing strategies should concentrate on foods which are energy- rather than nutrient-dense. Simultaneously, family doctors need to be cautioned about how they transmit messages about dietary modification to their patients. Often when discussing how to reduce saturated fats, many Maltese doctors primarily recommend eliminating dairy products from the diet, thereby putting these foods in a very negative light.

Once again, frequency of this dietary practice was similar across all the different children groups studied. Similarly, a meta-analysis of milk consumption amongst European adults found no statistically significant associations for milk consumption in relation to educational

or occupational level (Sanchez-Villegas et al., 2003a). Of note is that in my study, despite the potential of drinking at least one glass of milk daily, overall fewer state schoolchildren than non-state schoolchildren seemed to be consuming fresh milk items daily. To date, no figures are available on the proportion of children who actually drink the milk which is provided for free in state schools and perhaps this is an area which needs to be studied further.

4.2.5.3 Children Consuming Traditional Maltese Foods At Least Twice Daily

The data from the sample was analysed to identify children who regularly ate traditional Maltese foods at least twice daily. The specific meals focused on were the School Packed Lunch and Weekday Supper. The objective of this analysis was to identify the children who were being exposed to traditional Maltese foods on a daily basis. Many of these foods are inexpensive, appetising and nutritious, and they could easily contribute to a meal pattern adhering to the national dietary guidelines.

From this analysis, only about one in five children emerged as consuming traditional Maltese foods daily in at least two meals. In addition, children from high HLS and having access to cable TV seemed to consume these foods slightly less. These results actually confirm those discussed earlier on group differences. High HLS and Cable TV-viewing children can be seen as being influenced by a background harnessing innovation and more modern styles of cooking. For example, more of these children may come from dual-career families where time for food preparation is limited and convenience is of primary importance. At the same time, they may have more exposure to new and modern foods through a broader selection of foreign TV stations via cable TV access. Thus, due to these various circumstances, traditional foods have a lesser role in these children's daily diet.

Overall, these findings point towards the need for a national awareness-raising campaign promoting traditional Maltese foods, demonstrating their versatility and healthfulness and also giving useful tips on how to facilitate their preparation. This could be implemented using various mass media vehicles, but also via different curricular areas and parent-child activities within schools. National initiatives could also be launched, such as the promotion of an 'Eat a Maltese Meal A Week' in all homes, or 'Family Maltese Meals' theme weeks in restaurants. A similar recommendation encouraging food providers to follow traditional alimentary habits, while allowing for modern adaptations, was made in relation to a study showing Spanish 6-9-year-olds' diet shifting away from the Mediterranean ideal (Garaulet et al., 1998).

4.2.5.4 Children Consuming Pizza At Least Twice Daily

Since pizza emerged as a staple item in many children's diet, the sample was analysed to identify children who consumed pizza twice daily - for their After-school Meal and for their Weekday Supper. About one in ten children emerged as following this pattern. Although this proportion is low, one would still be concerned regarding the implications for the nutritional profile and energy density of these children's daily diets. Much would depend on the toppings used for the pizza. If these were mainly vegetable-based and included mozzarella cheese, then the pizzas would be fairly nutrient dense and low in fat. If, however, the toppings were more meat-based and/or included eggs and higher fat cheeses, then the pizzas would still be nutrient-dense, but higher in total and saturated fats and therefore also more energy-dense. Once again this highlights an area for potential intervention: educating food providers or the children themselves on preparing and buying healthier versions of pizza.

4.2.5.5 Children Consuming Low-Nutrient, High-Fat Foods At Home And At School

A balanced diet necessitates that one consumes a variety of foods from different food groups, in sufficient amounts and in the recommended proportions (USDA/DHSS, 2000 [online]; WHO, 2000; BNF, 2004 [online]). Sometimes, children may be consuming an adequate amount of food which translates into sufficient energy to meet their requirements; however, the nutritive quality of their food intake may be low. Data for three common meals – Breakfast, School Packed Lunch and After-school Meal -- were analysed to identify a group of children who regularly consumed foods of low nutritive value and potentially high in fat. About one in ten of the children in the sample emerged as following this eating pattern. Although this may seem a small proportion, there are both short-term and long-term health implications for these children; including an increased risk for overweight and a variety of deficiency-related problems. No particular group of children were identified as following this dietary practice, which yet again contradicts foreign research that school-aged children from low SES backgrounds are more likely to consume a diet low in nutrients and high in fat. In fact, these results confirm my earlier findings and proposition that, from the health perspective, the diet of Maltese children is fairly similar across groups.

4.2.5.6 Areas For Potential Intervention

In general, these results show that for both the healthy and not-so-healthy dietary practices studied, change is required. Most children in the study were shown to be low consumers of fruits and vegetables, fresh milk products and healthy traditional Maltese foods. Quite a few

emerged as following certain dietary practices which could jeopardise their health in the short- and long-term. This analysis provided further insight for potential behaviours to target in nutrition education interventions.

4.2.6 Motivators And Barriers To Consumption Of Specific Foods

The quantitative results suggested that Maltese children's diets were deficient in vegetables and fruits, in milk and in traditional foods. Spurred by these findings, during the focus group interviews, I asked children when and how these foods were consumed, as well as features in these foods which acted as motivators or barriers to consumption.

4.2.6.1 Vegetables And Fruits

Tables 69 and 70 compare different features of vegetables and fruit which children perceived as attractive or less attractive. As was expected, certain categories such as flavour, texture and health were more salient for the children. Some of the specific features in these categories were common promoters or barriers to consumption for both vegetables and fruit. For example, attributes such as 'sweet', 'flavoursome', 'fresh', 'soft', 'juicy' and 'red colour' attracted children to both food groups; whereas attributes such as 'soft', 'soggy' and "*full of seeds*" were barriers to consumption for both food groups. Children were attracted by the health value of a number of vegetables and fruits, but specifically mentioned the vitamin content of fruits such as apples, kiwi and watermelon. However, one child looked less favourably on fruits considering some (e.g. strawberries and bananas) as potential sources of allergies.

Quite a number of children described consuming more vegetables and fruits during the Summer season because of their refreshing quality. One child (4/G/R/S/MG) explained, "In Summer we go and eat on the roof because it's hot and mummy always makes salad. I take [salad] in summer because it's fresh. I don't take fruit salad, but vegetable salad, with lettuce, carrots and cucumber. And when you eat it, it freshens your insides."

A few children made insightful remarks on convenience in preparation and eating of both vegetables and fruits. Some of these foods had attributes which made them convenient; others had attributes which rendered them less convenient. For example, one child (5/G/R/S/MG) commented favourably on the ease of preparation of bananas, saying: "Because the banana is not like the apple. You need to peel the apple with a knife, but the banana you peel with your fingers." Similarly, one child (4/G/R/S/MG) spoke positively about

TABLE 69
Features In Vegetables And Fruits Perceived By Children As Attractive

Features	Vegetables	Fruit
Flavour		
Pleasant	Lettuce (2) ^a , cabbage (1), carrots (1), cauliflower (1), globe artichokes (1), lettuce hearts (1), purple lettuce (1)	Apples (3), bananas (3), peaches (2), grapes (1), kiwi (1), oranges (1), pears (1), seckels (1) strawberries (1), watermelon (1)
Flavoursome	Shaped tomatoes (1)	Cherries (1), prickly pears (1)
Sweet	Tomatoes (2)	Cherries (1), pears (1), red apples (1), strawberries (1)
Vinegar flavour	Beetroot (1)	
Fresh	Cucumbers (1), lettuce (1)	Green apple (1)
<i>Special^b</i>		Watermelon seeds (1)
Texture		
<i>Thin</i>	Lettuce (1)	
<i>Light</i>	Lettuce (1)	
Soft	Globe artichoke hearts (1)	Apples (1), bananas (1)
Creamy		Banana (1)
Juicy	Tomatoes (1), <i>big red tomatoes</i> (1)	Apples (3), oranges (3), green apples (2), strawberries (2), watermelon (2), dark red apples (1), kiwi (1), melon (1), peaches (1), pears (1)
Crunchy	Carrots (2), cabbage (10), lettuce (1), turnip (1)	
Hard		Green apples (3), banana (1), peeled apples
Full of seeds		Figs (1), watermelon (1)
Colour		
Red	Beetroot (1)	Apples (1), prickly pears (1)
Violet		Figs (1)
Size		
Small		Seckels (1)
Shape		
Round	Potatoes (1)	
Convenience		
	Beef tomatoes (1): easy to cut wedges along the grooves	Bananas (1): peeled without a knife Watermelon (1): snack and drink in one
Health/ Nutrition value	<u>No reason specified:</u> Carrots (3), lettuce (3), spinach (2), tomatoes (1) <u>Reason specified:</u> Carrots for healthy eyes (3)	<u>No reason specified:</u> Apples (2), apple with peel (1), green apples (2), pears (2) <u>Reason specified:</u> Apples contain vitamins (2), dark red apple contains iron (1), kiwi is nutritious (1), kiwi contains vitamins (1), watermelon contains vitamins (1)
Enjoyment value	Cherry tomatoes (1), globe artichokes (1)	Water melon (2)

a Number in brackets indicates number of focus groups where this was mentioned

b Italicised words and phrases are direct quotes

TABLE 70
Features In Vegetables And Fruits Perceived By Children As Less Attractive

Features	Vegetables	Fruit
Flavour		
Unpleasant	Vegetables in general (1) ^a Raw carrots (1)	Apples (1), banana (1), figs (1), fruit in general (1) grapefruit (1), kiwi (1), raspberry (1)
Strong	Marrows (1), onions (1)	
Bitter	Cauliflower (1)	
Sour		Juice of green apples (1)
Texture		
Dry		Black grapes (1)
Soft	Cabbage (1), marrows (1)	Kiwi (1)
Soggy/squashy ^b	Cabbage (1)	Oranges (1)
Chewy	Tomato skin (1)	
Full of seeds	Tomatoes (1)	Unspecified (1)
Convenience	Cooked marrows: cannot lift on fork (1)	Oranges: inconvenient as TV snack as all the juice dribbles (1)
Health		
Allergies		Bananas and strawberries (1)

a Number in brackets indicates number of focus groups where this was mentioned

b Italicised words and phrases are direct quotes

tomatoes explaining: "I like those which look like clouds. So that when I want some I cut a piece off." Here the child was referring to the grooves in the tomatoes which acted as guides for cutting wedges. In a more negative tone, another child (12/M/T/C/GO) spoke about the difficulty of eating marrows: "When you try to pick them up they don't want to go on your fork, not even with the spoon." Perhaps, if the caregiver did not cook these vegetables till they were too soft, the child would be more inclined to eat them. An interesting remark was made by one child (3/G/R/C/MG) about the versatility of watermelons: "When eating watermelon you are drinking at the same time!"

Maltese children's sensitivity to convenience in preparation and consumption of vegetables and fruit is parallel to that found with Scottish primary school children, where convenience influenced perceptions of common vegetables (Baxter, Schroder & Bower, 1999). Similarly, 'Easy to eat' was also one of the reasons Swedish children liked vegetables and fruit (Koivisto Hursti & Sjoden, 1996). Other research with children has also highlighted a strong role for expedience in children's food preferences and intake (Rodin, 1980; Rousseau, 1984). The option of not having to use cutlery, as well as the ability to prepare some foods without adult supervision were two factors mentioned as attracting children.

Overall, children described vegetables in a variety of raw and cooked formats and often as part of a meal or in salads with foods from different food groups. The mentioning of salads is in contrast with research from the US, which proposed that children considered salads as a separate food group from vegetables (Cullen et al., 2000). Nonetheless, some of the children's descriptions of their preferred vegetable serving styles are similar to findings from other US research, where children preferred raw or slightly cooked vegetables (Baranowski et al., 1993) and where preparation methods which modified or softened the strong flavour of some vegetables resulted in increased acceptance (Ireton & Guthrie, 1972). Similarities with Baxter, Schroder & Bower's (1999) Scottish study also emerged, showing that certain vegetables are more readily perceived as being suitable for consumption in a raw state (e.g. tomatoes and carrots), whereas other vegetables are perceived as being more suitable cooked and as accompaniments to particular foods. A specific similarity seemed that children from high SES backgrounds in Malta and advantaged children in Scotland were more open to eating vegetables in their raw state, which could indicate a social group trend in keeping with nutritionally-recommended or more 'fashionable' food provision by parents. The diversity of vegetable recipes mentioned by the Maltese children is important. Research with US adults has shown that dietary variety within the vegetable group was negatively associated with energy intake and body fatness (McCrary et al., 1999).

With regard to fruit, apart from eating them on their own, peeled or unpeeled, children described eating a variety of fruit combinations mixed with other ingredients in order to make more substantial dishes. These included fruit salads, fruit and cereal mixtures, fruit and milk mixtures and fruit and jelly or yoghurt mixtures. Raw fruit kebabs were also popular, and one independent school child (15/M/T/I/IMG) described how the family even barbecued savoury kebabs consisting of fruit with ham. Fruit was also juiced or liquidised, and sometimes blended with milk. In contrast to some of these more 'modern' dishes, the children also made reference to what can be considered as traditional ways of using or serving fruit, including squeezing lemon in broth and adding currants to pies and baked pasta dishes.

Fruits tended to be eaten more in the afternoon and evening, and as a snack rather than part of a meal. For example, one child (6/G/R/S/MG) described snacking on fruit throughout the day: "I take a piece of orange before I come here [to school], one as soon as I go home and another one in the evening." Other children used fruit to assuage hunger till the mother prepared a meal, or whilst attending an activity outside the home, such as private tuition or a

sports event. For instance, one child (9/M/T/I/MG) narrated: “You make a fruit salad with all kinds of fruit. I put *All Bran* and I add banana, kiwi and strawberries... I do this when I arrive home after school, till mummy prepares the food for me.” Another child (4/G/R/S/MG) commented: “Before I go to private lessons I take a bowl of fruit with kiwi, apples, banana and oranges.”

In summary, Maltese children mainly associated vegetables with cooked meals and rarely described them as snack foods. In contrast, they mainly described fruits as consumed raw, often as snacks or beverages, and combined with dairy products or cereals. Fruits were also sometimes mentioned as a dessert after meals. Such findings concur with research out of the US which suggested that children distinguish between vegetables and fruits in terms of categories and preferences (Domel et al., 1996).

The results also seemed to indicate that certain children, such as Gozitans having home gardens or family fields, or children whose house was large enough to have a home garden with fruit trees have greater accessibility and perhaps greater exposure to different vegetables and fruits. This finding is worth noting since, as I mentioned earlier, fruit and vegetable availability have been identified as significant determinants of intake among young US and British pupils (Baranowski et al., 1993; Hearn et al., 1998; Cullen et al., 2000; Kratt, Reynolds & Shewchuk, 2000; Cullen et al., 2003; Siem Gribble et al., 2003; British Dept. of Health, 2004); and even when taste preferences for vegetables and fruits were low, if vegetables and fruits were available, intake increased (Neumark-Sztainer et al., 2003). Also of note is that the Maltese children who spoke about picking fruits from their own gardens or fields did so with a certain pride and positive attitude. This recalls Baxter, Schroder & Bower (1999) who commented that Scottish children from high SES families significantly mentioned “home grown” as a positive attribute in vegetables. In my study, however it wasn’t only high SES children (e.g. independent schoolchildren) who demonstrated such a positive attitude, but also children from rural Gozo.

4.2.6.2 Milk

My general impression from the focus group interviews was that flavoured milk was more popular than white milk; however, milk with a chocolate flavour was the favourite. Chocolate-flavoured milk was either bought by the parents or offered at school, or mainly prepared at home by adding essences or powders to white milk. Children were actually sensitive to the taste of different types of chocolate milk. One child (12/M/TI/C/GO) remarked: “The one in the

carton that's ready is not as good as the one you mix with *Nesquik* powder, because this has a stronger taste than the carton milk". Here again, Maltese children's liking for chocolate-flavoured foods emerges. This substantiates other results reported earlier, such as children's preference for bread with *Nutella* and *Cornetto* ice-cream. It also parallels findings from a number of US studies on school milk consumption, where chocolate flavoured was preferred (Connors, Bednar & Klammer, 2001; International Dairy Food Association, 2001).

Cold white milk seemed to be preferred over warm white milk, though for some children season was more of a determinant as can be seen from the following statement: "I like white milk on its own - cold now summer is coming" (16/M/U/S/MG). Of note is that children tended to consume white milk with cereal, even if they were not fond of white milk as a beverage. For instance, one child (8/M/U/S/MG) showed revulsion at drinking white milk on its own, but was comfortable consuming it with other foods: "I take white milk with tea, even in the *Weetabix*. But on its own no! On its own it makes me vomit!" In fact, many children described how they consumed some white milk in tea or coffee, or consumed milkshakes or *Ovaltine* made with white milk.

Maltese children seem to be socialised into a pattern where milk is limited to consumption alone as a beverage, or as an accompaniment to cereal. Milk as a beverage accompaniment to other snack items or a meal does not appear to be the norm. Out of the sixteen focus groups, only one child mentioned having a snack of milk and cake, whilst another child used milk to dunk biscuits in it. Both these children attended the same boys' church school (7/M/TI/C/BO), which could be an indication that their teacher(s) promoted milk as a healthy beverage to have with a snack, or that there was the strong influence of peers in projecting certain behaviours as the norm amongst their social group. My findings are partially similar to those of a study with US schoolchildren, where milk was perceived as a beverage, but also commonly associated with cookies (Connors, Bednar & Klammer, 2001). My findings are more similar to a study with pre-adolescent and adolescent US girls, where milk was most commonly associated with cereals, and to a lesser extent with cookies, chocolates and sweets (Auld et al., 2002). The latter study also reported that milk was sometimes served during meals. This behaviour would be rare in Malta, but would be worth introducing in order to counterbalance the highly sweetened drinks which are more commonly provided during family meals. In general, the use of milk as an accompaniment to snacks and meals should be promoted more widely amongst Maltese children and also amongst their parents.

From many of the focus groups conversations, it was evident that milk was consumed at various times of the day, though before going to school, on returning from school and before going to sleep seemed to be the more popular times. Of course, some children also consumed milk at school, but this will be discussed later in Section 4.3.3.4. Unfortunately, this time-specific consumption pattern was not explored further and could be an area for future research. However, an interesting justification for drinking milk at bed-time was given by one child (13/M/U/S/MG):

- Child: "In the morning I don't take it [milk] often. But when I return home from school and before I sleep I take it - a little while before, then I go to sleep."
SP: "Why?"
Child: "Because you feel comfortable. Because when I'm going to sleep I feel comfortable; not like usual when I want to toss and turn here and there."

Here the child has unwittingly provided a scientifically valid explanation for the benefit of consuming a milk beverage at bed-time, making reference to the role of milk proteins which stimulate the production of serotonin, and which in turn promotes a state of relaxation. (More specifically, milk is a good source of tryptophan which is the amino acid needed by the brain for the synthesis of serotonin. Serotonin may play a role in sleep induction and sleep latency reduction [Whitney & Rolfes, 2001]). Obviously, this child has been socialised into a bed-time ritual - that of drinking a glass of warm milk before going to sleep. Yet, it seems that this ritual is no longer so widespread and perhaps its revival should also be promoted. Previous research has shown that time of day often influences acceptability of foods even among young children (Birch, Billman & Salisbury Richards, 1984).

4.2.6.3 Traditional Snack Foods

During the focus group interviews, main traditional snack-type foods discussed were *hobz biz-zeit*, *qaghaq* and *biskuttelli*. Perceived positive health value was a strong motivator for children choosing *hobz biz-zeit*. The children referred to a general health value and health benefits, as well as to specific nutrient content. For example, one child (9/M/T/I/MG) commented: "I chose the bun because it's healthy and I like vegetables and the fish, the tuna fish." Another child (14/M/U/S/MG) chose the *hobz* "because it has tomatoes and things that make you strong." Whereas another child (5/G/R/S/MG) remarked on the nutritional value of the different ingredients: "I like all the things. Those things give you vitamins."

As a corollary to the above, some children explained their choice of the *qaghaq* and *biskuttelli* by highlighting the absence of less healthy ingredients. For example, one child (14/M/U/S/MG) chose the *qaghaq* “because they have neither sugar nor salt.” Though not entirely accurate, seeking traditional ‘sweet’ snacks because of their better nutritional profile would be a message to transmit to children and their parents. In fact, the health value was the most salient in the children’s justifications for not choosing certain snacks; with fat content and potential for causing health problems predominating. For instance, one child (16/M/U/S/MG) would not opt for the *hobz biz-zeit* because of its potential to contain a lot of oil. Maltese children’s strong valuation of health in choosing snacks parallels findings from research with young and pre-adolescent US children, where taste and health or nutrition were listed as the most important qualities of snacks (Cross, Babicz & Cushman, 1994). However, the importance seemingly attributed by Maltese children to health, contrasts with other studies where it was concluded that health was not a priority for young children (Turner, 1997; Tinsley, 1992).

A few Maltese children made reference to the texture of *qaghaq* and *biskuttelli*. Mostly positive remarks were made about the softness of *qaghaq*, though one child (2/M/T/I/MG) complained that the dough sometimes stuck to the throat. Some children enjoyed the hard and crunchy texture of *biskuttelli*, whilst for others this was a barrier to consumption. The following statement reflects these sentiments: “Because [*qaghaq*] it’s good. It has a good sponge like feeling...They’re soft, they’re like bread. I wouldn’t choose the *biskuttelli* because they’re hard” (12/M/T/C/GO). There is very little published research in health-related journals on the importance of texture in relation to snack-type foods. An old study by Szczesniak (1972) on children’s attitudes to food texture had suggested that this feature was of principal importance for children in foods that displayed crisp or crunchy characteristics. The differing results on texture suggest that Maltese children like strongly-flavoured soft foods and crunchy but not too hard biscuit-type snacks. Perhaps local food manufacturers could conduct further research in this line in order to develop child-oriented, healthy, traditional-style snack foods with these preferred attributes.

One motivation for choosing traditional sweet snacks seemed to lie in their appetising combination with beverages such as tea and coffee, as well as their potential for dipping. *Qaghaq* were described as being eaten in a variety of ways. Apart from the traditional way of eating them plain or dunking them in tea or coffee, children also mentioned more modern adaptations, such as spreading with jam or *Nestle cream*, or toasting and then spreading

with butter. Unfortunately, some of these modifications were not so healthy and it would be a useful exercise for teachers or parents to work with children in developing more healthy spreads.

Yet *qaghaq* were not only perceived from a 'norms' perspective as "what you have with tea" (11/M/T/C/MG), but also as a convenient food to assuage hunger. For example, one child (13/M/U/S/MG) explained: "Even when I go home and mummy has not cooked yet, sometimes I have cereal and sometimes I have *qaghaq*." Some mothers were obviously keen promoters of *qaghaq* as a quick healthy snack food as revealed in this child's (13/M/U/S/MG) comment: "Sometimes I even tell her, '*Mum let me go and buy some qaghaq*', and she tells me '*Take the money and go and buy*'. And I go and buy *qaghaq* and eat some of them."

Snack foods are an integral part of children's lives. Knowledge of what attracts children to traditional, healthy sweet and savoury snack-type foods will assist nutrition educators to prepare appropriate motivational messages and targeted learning activities for children and their caregivers. Such informed messages and activities will have a greater potential of prompting children to choose or request these healthier foods. In turn, a greater demand may influence general availability and the 'norms' surrounding how and when these foods are served.

4.3 The Interpersonal Level

In this part of the chapter I shall focus on three main influences on children's food preferences and intake which are present in the children's immediate environment. These are the mother, family dining practices and the school. The greater part of the discussion will be devoted to the role of the mother who emerged as being influential in a multitude of ways. Another section will give an overview of patterns in children's weekday evening meal consumption, focusing on location and co-participants. The third section will discuss particular modes of influence of the school in relation to school food policies.

4.3.1 The Mother's Influence

During the phone interviews, parents were specifically asked about motivations for choosing foods for their children, as well as their opinion and practices in relation to school rules and in relation to their children's food requests. Out of 30 interviewees, 29 were mothers. As a result, much of the data gathered was a reflection of the mothers' perspective and role. In addition, during the focus groups with children, mothers emerged as influencing children in various ways, such as through foods made available, verbal messages transmitted, preferences and behaviours demonstrated, behaviours encouraged, behaviours facilitated, and lifestyle issues. To facilitate the discussion of the mother's role in determining children's food preferences and intake a separate ecological model has been developed based on the key themes emerging from the data (see Figure 5). This model has the mother as food provider at the centre and shows how various factors in the different levels come into play. This model can be considered as an embedded system within the larger system of children's food intake and serves to highlight the complexity of the mother's influence.

4.3.1.1 The Mother's Intrapersonal Level

4.3.1.1.1 Food Provision Philosophy

The over-riding goal for most mothers when it came to feeding their children was that some kind of food was consumed. However, on analysing the data one could see a hedonic motive versus health motive continuum emerging. For some mothers it was more important that their child ate food which he or she preferred and enjoyed, and for others it was more important that their child ate food which was healthy. In reality, no mother held an extreme hedonic or health value perspective. Nonetheless, although the majority of mothers sought to find a balance of pleasurable and healthy food, a few mothers felt very strongly that food should be enjoyed.

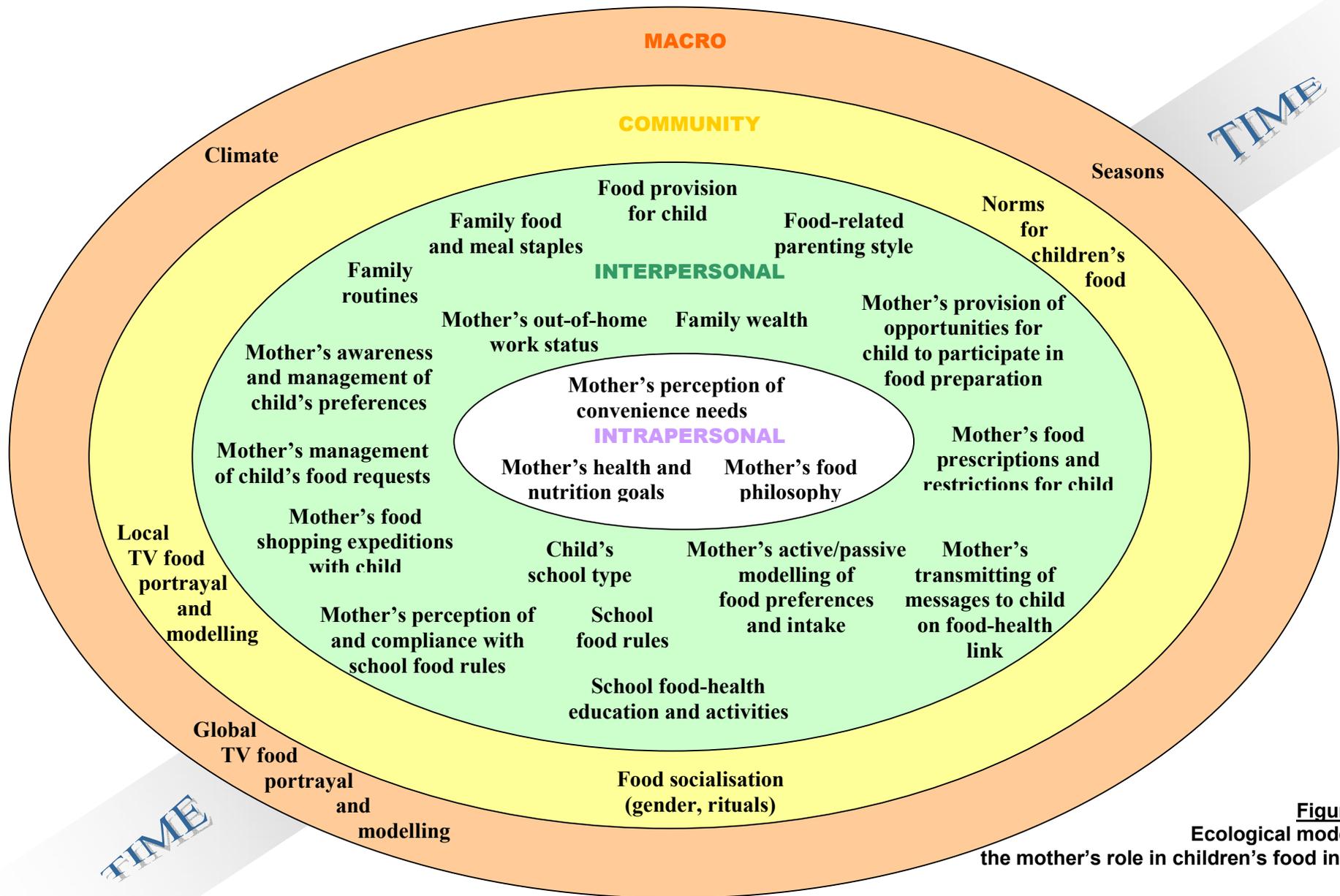


Figure 5.
Ecological model of
the mother's role in children's food intake

Three Gozitan mothers (4/G/R/C/G; 4/G/R/S/B; 7/G/R/S/B) and one Maltese mother (13/M/S/U/G) believed particularly strongly in the importance of their child's gratification when it came to food provision. These four mothers explained how they tried to make their children's menu interesting by varying what they bought, cooked and offered as snacks; by not repeating the same dish every day; and by consulting recipe books to find new ways of preparing food creatively. One Gozitan (7/G/R/S/B) mother stated: "I will not force my child to eat something he doesn't like. I will cook him a separate meal." The Maltese mother (13/M/S/U/G) emphasised the need "to provide new experiences for the child." Although these four mothers spoke to their children about healthy food, they would not impose it upon them. They recommended that a crucial goal of parents should be to teach young children to be willing to taste new food. One Gozitan mother (4/G/R/S/B) summed up her dictum succinctly: "You must teach children to taste food, not say it's bad straight away. You must teach about healthy food, but not fight with the child to force him to eat."

4.3.1.2 The Mother's Interpersonal Level

Mothers' food provision behaviours were inextricably tied to their children's preferences and wellbeing. Although, the mothers were clear regarding their health and nutrition goals, they did not refrain from admitting that for practicality's sake children's preferences were often placed first in food provision decisions.

4.3.1.2.1 The Hedonic Motivation: Meeting Perceived Children's Food Preferences

In sections 4.2.2.1 and 4.2.3.11, I recorded that parents' perceptions of children's preferences were mostly accurate, though there were particular foods where parents over-estimated or under-estimated preference. From the interviews, it eventually ensued that mothers mainly planned their children's meals based on what they perceived as their children's food preferences.

According to mothers, children manifested their food preferences in various ways, asking for specific ingredients, foods, food combinations, dishes, modes of preparation and serving (see Table 71). They also asked for food with particular flavours, such as chocolate; and particular characteristics, such as small pieces; and having no unrecognisable ingredients, or as one mother [6/G/R/S/B] put it: "no fancy stuff". These descriptions corroborate my earlier proposition (see Sections 4.2.3 and 4.2.6.3) that chocolate-flavoured items are particularly appealing.

TABLE 71
Manifestations of Children’s Food Preferences As Reported By Mothers

Children’s Preferences	Examples
Specific ingredient	“ <i>Something with chocolate</i> ” ^a
Specific food	Meat; pasta; <i>Cheerios</i> cereal
Specific food combinations	Rice with chicken sauce; boiled vegetables with a dressing of vinegar, oil and herbs; spaghetti with rabbit sauce
Specific food preparation style	Broth with small pieces of thinly sliced meat; ready-made pancakes stuffed with cheese; chicken breast in breadcrumbs chicken legs BBQ-style
Specific characteristics in end-product	Refreshing; moist; not mushy; distinguishable ingredients; different foods on plate; small portions
Specific flavour	Smoky, chocolate
“ <i>Maltese-style foods</i> ” ^a	<i>Hobz biz-zeit</i> ; cold rice salad with tuna, olives, capers; baked green peppers stuffed with tuna and tomato
“ <i>Home-made meals</i> ” ^a	Home-made dough and pastry; pasta with home-made sauces
“ <i>Meals like nanna’s</i> ” ^a	Baked macaroni

^a Mothers quoting their children

Six of the 29 mothers had a somewhat negative outlook on their children’s preferences. They felt that in order to make available only what their children liked, they were being restricted. For instance, one mother (16/M/U/S/B) explained that her son only liked vegetables raw, so she couldn’t offer him vegetable soups and sauces. Another mother (4/G/R/S/B) described how her son did not like beans in *minestra*, so for his sake she prepared it without. One mother’s (3/G/R/C/G) lament about her daughter’s preferences seemed to echo that of the others: “It is she who chooses rather than me. I would like to give her other foods, but I can’t.”

A few mothers also explained that they were guided in their food provision by what their children labeled as “real food” and “good food”. For example, one mother (10/M/U/S/B) reported: “Burger in a bun is not a meal in my children’s opinion. They want to have vegetables or potatoes as well.” Another mother (9/M//TII//G) described how her children conceived of “real food” as consisting of a meal containing potatoes or vegetables and how they complained if they did not get this at least once a day. Irrespective of how accurately the mothers’ perceptions reflected their children’s views, ultimately they still influenced what food was offered.

Three of the 29 mothers expressed concern regarding their children’s dislike of ‘large portions’. This seemed to be particularly disturbing for the mothers of two boys (6/G/R/S/B; 16/M/U/S/B) who both explained that they compensated by giving their sons frequent ‘small’

meals throughout the day. Again there seemed to be a gender-bias in some mothers' perception of the appropriate amount of food a son or daughter should consume. This could substantiate my earlier propositions (see section 4.2.4.1) that mothers' concern regarding weight gain was subconsciously manifested in attitudes towards daughters' food intake. So much so, one mother (6/G/R/S/G) spoke at length about her 8-year-old daughter's weight-related obsession and how the daughter was very "choosy" as to how much and what she ate. Another mother (10/M/U/S/G) explained that her 11-year-old son was on a weight-loss diet, but the 7-year-old daughter "more or less eats the same food." This latter behaviour suggests that while the mother was actively dealing with her son's weight problem, she was perhaps also showing concern for her young daughter's risk for weight gain. During data collection, an objective measure of what were considered large portions and small meals was not obtained. This merits a research project in itself, exploring both the food providers' and the children's perceptions.

A few parents spoke about how they had exposed their children to a 'new' food and how this had generated a new preference. The one father interviewed (2/M/T/I/I/G) narrated how that summer they had introduced watermelon to their daughter and that from then on she asked for it repeatedly: "She enjoys the novelty, and she sees that we are pleased so she is pleased too." This shows the reciprocal sense of gratification which can ensue when children's preferences are met. Unfortunately, as explained earlier (see sections 4.2.2.3 and 4.2.3.11), sometimes parents have misperceptions about children's preferences and may limit intake of a healthy food. For instance, speaking about her daughter's first experience of a miniature seckel pear, one mother (9/M/T/I/I/G) said, "I had assumed she didn't like it, but she tasted it at her cousin's and asked for it."

Some mothers gave examples of items which their children perceived as treats. These included individual foods, as well as novel food preparation, such as freshly squeezed grape juice or chicken strips fried in batter. The more 'modern' examples were often given by independent school mothers, perhaps further reflecting their role as innovators (Rogers, 1995), 'cultural entrepreneurs' (Bhachu, 1995) and members in Warde's (1997) so-called 'neo-tribe', introducing particular fashions even in the realm of food.

Mothers often accommodated children's preferences in out-of-home settings. Not only did they allow the children to choose foods they liked and which they would normally not eat at home, but they also based their choice of restaurants for family outings on their children's

likes. One mother (10M/U/S/G) commented: “The children die for chips when they eat out, as at home they only eat mashed or boiled potatoes.” Another mother (2/M/TI/I/B) admitted that to appease her son “We have to go to restaurants which offer chicken nuggets.”

All told, most mothers conceded that they had no choice but to abide by their children's preferences and provide foods which they knew their children would consume. In the following section, we shall see how mothers try to strike a balance between the need to please and their health goals and concerns. This practical comment by one of the mothers reflects this strategy:

“His meals are based on what he chooses really, what he likes. We have reached a compromise on certain foods which they like and which I feel are healthy. You try to teach them which are better, but they are very set in their ways sometimes.” (13/M/S/U/B)

4.3.1.2.2 The Health Motivation: Reaching Health And Nutrition Goals

As already described, safeguarding and optimising their children's health was the other key motive in determining most mothers' food choices for their children. In general, mothers sought to avoid over-consumption of food, increase consumption of healthier foods and limit consumption of less healthy foods or ingredients. They did this in two ways: controlling actual food provision and transmitting food/health messages (see Tables 72 and 73).

Some mothers clearly appreciated the need for balance. One mother (10/M/U/S/B) explained her practical approach to meal provision, stating that if her family ate a lot on one day, she would “balance things out and provide simpler, lighter meals the next day”. Reasons for mothers' specific concern regarding fat content of meals stemmed from a general comprehension of the increased risk of obesity and health problems from a high-fat diet, fear that the child may have inherited a tendency for a certain health condition, as well as fat-related myths linked to acne.

4.3.1.2.2.1 Providing Healthy Food

Mothers tried to present primarily healthy foods or meals, feeling that this was for the well-being of their child and that exposure would increase likelihood of consumption. Mothers also strove to make not-so-healthy foods less readily available in the home; for example, by not buying salty packet snacks, burgers and sausages. One mother (7/M/TI/C/BO) actually

TABLE 72
Strategies Adopted By Mothers To Reach Health And Nutrition Goals: Provision Of Healthy Foods

Focusing On Healthier Food Availability	Prescribing and Restricting Specific Foods	Facilitating Consumption Of Healthier Foods
Making available healthier foods (e.g. fruits, freshly squeezed orange juice, vegetables, low-fat foods, <i>biskutelli</i> , <i>qaghaq</i> , 'light' lemon squash)	Prescribing certain foods (e.g. vegetables; tomato used to spread bread; milk or water for quenching thirst)	Offering healthier foods with a known liked food
Making the main meal as nutritious as possible (e.g. including salads as accompaniment, adding vegetables and fruits)	Restricting certain, particularly high-fat, foods (e.g. limiting <i>Nutella</i> ; meals with meat offered 2 or 3 times weekly; chips once a fortnight; packet snacks occasionally)	Offering healthier foods which resemble favourite foods (e.g. soft ricotta cheese presented as resembling " <i>white butter</i> ")
Presenting good quality foods (e.g. home-bred chickens and rabbits, cod fillets and fish fingers made from 100% fish)		Preparing healthier foods to resemble favourite foods (e.g. pasta with beaten egg and cheese " <i>to look like an omelette.</i> ")
Presenting home-made food as far as possible (e.g. crackers, fruit smoothies, apple juice, burgers, cakes, roly poly,)		Using food preparation and serving methods favoured by child (e.g. pureeing <i>minestra</i> as child dislikes whole carrots; cutting tomatoes in wedges; presenting oranges peeled and in segments)
Preparing foods using healthier cooking methods (e.g. making popcorn and not adding salt; baking rather than frying chicken in breadcrumbs)		
Making less available less healthy foods (e.g. not allowing consumption of fries, soft-drinks or squashes in the home; not adding sugar to child's <i>Weetabix</i> bowl)		
Using low-fat methods of food preparation (e.g. avoiding the use of fats and oils; grilling, using <i>Grillioso</i> , roasting, removing skin from chicken)		

TABLE 73
Strategies Adopted By Mothers To Reach Health And Nutrition Goals: Transmitting Food/Health Messages

Making Health Value Statements	Modelling Food Preferences And Behaviours
Stating the food is healthy (e.g. milk with <i>Nesquik</i>)	Expressing liking for specific healthy foods (e.g. lettuce, tomatoes, pears)
Stating the food is healthier than a similar alternative (e.g. freshly squeezed orange vs. juice)	Regularly consuming healthier food in front of child (e.g. eats wholemeal bread, brown bread roll; drinks glass of milk before going to work)
Stating the food is a better source of particular nutrients than a similar alternative (e.g. brown bread roll vs. white bread)	Child shares in food consumption (e.g. eating turnip when mother does)
Explaining a positive health link (e.g. spinach is good for muscles)	
Explaining a negative health link (e.g. excess chocolate leads to tooth decay)	
Explaining need to curtail intake (e.g. sugar is permissible in limited quantities)	

stated that she purposefully presented healthy foods frequently, in the hope that this would convey a positive image of the health value of these foods.

Mothers were sensitive to the benefits of ready availability. One mother (14/M/U/S/B) stated matter-of-factly: “If fruit is available in the house or fridge, the children will eat it.” Another explained how having healthy snack food at hand would make up for any deficiencies in the main meal:

“I always try to include fruits and vegetables because I feel it’s important. If we don’t have fruits or vegetables with the meal I know she’ll go to the fridge at some time during the day and snack on tomatoes and cucumber.”
(16/M/U/S/G)

The mother’s potential role for increasing consumption of a healthy food by merely offering the food can be seen in the following statement made by one child (6/M/U/S/MG) with reference to wholemeal bread: “My mother sometimes takes some [wholemeal bread]...If she asks me what I want I tell her the white one. But if she gives me this, I’ll still eat it.”

Often mothers prepared items from scratch to guarantee good nutritive value, such as making home-made apple juice or burgers. They also prepared foods using healthier cooking methods, such as by opting to grill foods and not adding salt to popcorn, or sugar to strawberries.

Two mothers asserted that they would not compromise their health and nutrition goals in lieu of a less expensive food. One of these mothers (6/G/R/S/G) repeated a statement she often told her daughter: “If it’s good for you I will do my utmost to buy it, irrespective of cost.” The other explained how she supported her daughter’s healthier beverage choice, even in the face of criticism:

“She used to see her aunt drinking water and that was what prompted her to start drinking water and not other drinks. Now she only drinks water, even when eating out. Some people say, ‘*You’re paying money for water? Why not a soft drink?*’ But I’m willing to pay for the healthier drink.” (10/M/U/S/G)

Here we see a clear reference to the symbolic value of water as having less worth than a soft-drink – an idea which I mentioned earlier when discussing parents’ perceptions of children’s preferences (see Section 4.2.2.1). In past times, water was available free from family wells and was the only beverage accessible to many households. This could account for the low value it still holds amongst some adults.

Mothers also suggested or requested certain healthier food behaviours from children, often prescribing particular foods. Children's comments during the focus group interviews revealed that these requests met with mixed reactions. For instance, one child (3/G/R/C/MG) accepted that: "Mummy tells us to take certain things because they are good for health and if we do not have them we can get ill"; whilst another child (6/G/R/S/MG) stated: "I don't like vegetables. It's no use my mum telling me."

Mothers also restricted or prohibited the intake of less healthy food. One child (3/G/R/C/MG) remarked: "I never have the *Pokemon* milk because all it has is like water and sour milk. And my mother never allows me to have any." Sometimes only certain foods were allowed in particular consumption settings, or the intake of certain foods was regulated rather than banned.

Strategies overtly used by the mothers to encourage children to eat healthier foods, involved both food preparation and serving methods, including sprucing up boiled vegetables with a herb dressing, pureeing vegetable soups, making milkshakes with real fruit, serving fruit as kebabs, and presenting vegetables in attractive shapes. Other strategies included pairing liked foods with less liked foods, and preparing or presenting foods so that they resembled liked foods. Occasionally, mothers resorted to surreptitious methods to include healthier foods in their children's meals, such as mashing disliked nutritious foods with sauces and soups. Of note is that at least three children (4/G/R/S/MG; 6/G/R/S/MG; 13/M/U/S/MG) appeared sensitive to the fact that their mother often went out of her way to prepare a food to suit their likes, such as by cutting a tomato in the shape of a flower. Two of these children were Gozitan, which seems to corroborate my earlier statements on Gozitan mothers' strong hedonic motivations.

4.3.1.2.2 Transmitting Food/Health Messages

An insight into how mothers impart food health messages to their children was obtained from the children's focus groups. It emerged that mothers often made declarations about the health and nutritive value of foods and health consequences of eating certain foods. These were either positive or negative in orientation, were mainly accurate but occasionally imprecise, and sometimes impacted positively on children's preferences. For example, one child (G/R/S/MG) correctly explained: "A freshly squeezed orange is better, my Mum says - Because it is a real orange not with sugar. It's OK to take some sugar but not too much." In contrast, one boy (7/M/TI/C/BO) seemingly repeated an imprecise statement by his mother:

“I love spinach because it’s healthy for your muscles; because mum says so.” Another child (1/M/R/S/MG) declared, “My mother says that if I eat chocolate my teeth will become black”. Overall, it appears that mothers are passing on valuable health and information to their children regarding different foods, though this is not always scientifically correct.

Sometimes, mothers demonstrated their preference for specific healthy foods, or else purposefully consumed these foods in front of their children. Often when this happened, children reported that they also liked these foods and sometimes they shared in the food consumption event. One boy (7/M/TI/C/BO) spoke about eating turnip and remarked, “When my mum takes it, I take it.” One mother (7/M/TI/C/B) purposely ate plenty of salads and avoided chips so she would be a positive role model for her children. However, another mother spoke about the challenge of modelling appropriate food behaviours to her daughter:

“Last Friday she wanted to try tomatoes although she doesn’t like them... She said: ‘*Let’s make a bet; if you eat tomatoes, I’ll eat a piece too.*’ But I hate tomatoes, so I couldn’t give a good example, so she ended up not trying them after all.” (10/M/U/S/G)

Whilst acknowledging their own role in modelling food behaviours to their children, some mothers also described how they had to manage or control food modelling by other members of the family. Sometimes the young children chose to emulate food practices of a sibling or the father, which either led to health-enhancing behaviours, or to potentially health-detracting behaviours. For example, one mother (7/M/TI/C/B) complained that her children only drank *Breakers* fruit drinks to imitate their father who drank a lot of soft-drinks. Another mother (15/M/I/B) described how the father was very “fussy about food” and she was constantly trying to hide this from her younger children so that they would not be influenced by his negative attitude.

4.3.1.2.3 Permitting And Encouraging Children’s Involvement In Food Preparation

Children’s participation in food preparation tasks was often based on approval or encouragement by the mother. Children were allowed to prepare some foods or beverages on their own, others required adult collaboration. During the focus group interviews, a few children mentioned specific food preparation and production tasks they had participated in. These were mainly tasks where no or only minor cooking was involved, such as washing lettuce leaves, as well as making milk shakes, fresh fruit beverages, salads, fruit and cereal bowls, open sandwiches and ‘cold’ hot dogs. Only two children mentioned using a

microwave oven or cooker. The children were generally proud of their product and achievement and appreciated the opportunity to be creative and “experiment” (3/G/R/C/MG) with food.

Four mothers (three of boys - 4/G/R/S/B; 7/M/C/TI/B; 10/M/U/S/B; one of a girl - 9/M/TI/I/G) reported how their children actually sometimes requested a food because they liked being involved in its preparation, because they enjoyed preparing food with their mother, because the family made an event of cooking the particular dish together. These mothers also commented that children were allowed to participate in food preparation not only because of the enjoyment value, but also because of a potential opportunity for the children to learn about food and health and to be tempted to eat a healthy food. One of the mothers (7/M/C/TI/B) described how her son had participated in cookery lessons during the School Summer Club and this had increased his enthusiasm.

4.3.1.2.4 Accommodating Family Food Staples And Eating Norms

In describing determinants of food provision for their children, some mothers also referred to family norms with regard to eating patterns. (See Table 74). For example, pizza and pasta dishes were identified as staples, as were fruit and vegetable-based soups. The influence of availability clearly emerged in the foods mentioned, such as year-round availability of carrots and apples, and the ritual of making *caponata* during Summer when tomatoes are extremely cheap in Malta. There was also evidence of rituals and traditions, such as the provision of broth on a daily basis - a requisite first course for many families; the provision of fruit as dessert during the evening meal; and the inclusion of fish at least once weekly – possibly related to the Roman Catholic rule of meat-free Fridays. A ‘modern’ food which seems to have made it to the rank of staple foods is breakfast cereals. The presence of cereals in different formats and at different times is very likely related to their convenience - especially with regard to transportability and non-requisite adult supervision for preparation.

Although this aspect of food provision was not pursued in depth during the parents’ interviews, the findings outlined above confirm some of my earlier results and propositions. This area of research merits further exploration to determine the relative strength of social and family norms, in comparison to health and nutrition goals, when family food providers are choosing meals for their children.

TABLE 74
Family Food Staples And Eating Norms

Staple Foods			
Daily	Weekly	Seasonal	
		WINTER	SUMMER
vegetables (e.g. carrots) fruit (e.g. apples) broth	fish dishes pasta dishes pizza	ravioli soups <i>stuffat</i>	homemade <i>caponata</i> (Italian-style sauce with green peppers, onions, tomatoes, olives, capers, garlic) breakfast cereals on their own as snacks
Time-Specific Foods			
Morning	Afternoon	Evening	
fresh orange juice (child - for breakfast) cereal with milk (family - for breakfast) cereal bar (child - while waiting for school bus)	ice-cream, chocolate bar or packet snack (child - at 4.00 p.m.) cereal (child - as a snack) milk (child - after doctrine lessons)	soups (family – as a light meal since main meal consumed at lunchtime) <i>hobz biz-zeit</i> (family - as a light meal) fruit (family - after meal)	

4.3.1.2.5 The Convenience Factor

Both from the mothers' interviews and from the children's focus groups, it was clear that convenience was a factor which influenced mother's food provision. The need for convenience did not emerge only for mothers who worked outside the home, but for most mothers in different ways. Various aspects of convenience were mentioned during the mothers interviews, with the element of time being an integral component of all. This implies that time constraints were a primary influence on food provision. Yet, speed in preparation was not the sole priority. The mothers' comments suggested that they not only wanted to be able to prepare healthy meals quickly (sometimes from scratch and sometimes by using leftovers), but they also wanted to be able to delegate some food preparation to their children (e.g. preparing breakfast consisting of cereal and milk), or else they wanted to present foods which children did not spend a long time eating (e.g. offering apples and bananas as fruit as these did not contain pips). Awareness of the poor nutritional value of some convenience foods was evident in some mothers' remarks. A few mothers indicated that they found convenience foods acceptable if one other meal during the day was healthy, or if one other dish or food within the meal was healthy. For example, a mother whose

daughter attended an independent school (9/M/TI//G) explained that she would feel comfortable offering packet noodles to her child for supper if their lunch had been nutritious. Or else she would offer yoghurt as dessert after a meal of packet noodles.

The role of convenience foods was also mentioned by the mothers and children in relation to school packed lunches. One mother (15/M/TI//B) whose son attended an independent school commented that somehow some parents did not have time for food preparation, or else wanted to avoid this task; thus, they resorted to providing school packed lunches comprised of processed convenience items. As she explained: "The convenience factor is a problem. It's easier to put packet juices and a packet snack in the box, than make squash and a sandwich. Working mums have to wake up much earlier to make the different lunches."

However, for some mothers this resorting to convenience foods was evidence of lack of planning. One mother who was a member of her daughter's school PTA commented:

"They have a tuck shop at school. Parents give children money because they do not have time to prepare lunches. Sixty percent of the girls in the Senior school buy their lunch from school...Parents can prepare lunches in the evening. I find no excuse. They need to plan ahead." (12/M/TI/C/G)

Interestingly, one church school boy (11/M/TI/C/MG) specifically mentioned such planning as he described his mother's daily evening routine of preparing sandwiches with lettuce: "My mum makes them in the evening, she puts them in the fridge and then she gives them to me in the morning."

In fact, the focus group interviews revealed that the children were often very sensitive to their mother's lack of time; in most cases it seemed because she had to go out to work. There was either limited time in the morning for food shopping and preparation, or else items which were labour intensive but eaten quickly were deemed as not worth preparing by the mother. One child (11/M/TI/C/MG) described how his mother often promised to put lettuce in his school sandwiches, but then he usually ended up with none: "She forgets. Because she quickly forgets, because she's in such a hurry in the morning." Another child's comments (9/M/TI//MG) seemed to indicate that the mother found making fruit salad a waste of time: "Mum doesn't like making it, because my brother eats it quickly. So nanna makes it." Luckily, in this case the grandmother seemed to have more time on her hands. In fact, this facilitative role of grandparents did emerge in a few of the children's focus groups.

Of note is that the majority of children who referred to their mother's lack of time attended independent or church schools. Simultaneously, it was mainly independent and church school mothers who commented on the challenges and strategies in preparing healthy school packed lunches for the children. This could indicate a variety of factors. Firstly, perhaps the majority of working mothers had children attending independent or church schools. Working would have been necessary for these mothers in order for the family to pay the school fees. Secondly, the period between waking up and leaving for school was shorter for children attending church and independent schools. Commonly these children leave home earlier in the morning than state school children - either because the school day starts earlier, or because the school transport comes earlier, or because these children have a fair distance to travel to school. One church school child's (11/M/TI/C/MG) description of his mother's morning routine perhaps substantiates the latter proposition: "She brings us to school, then she goes home, then she drinks the milk all at once and she rushes off to work."

The issue of the cost of food was mentioned hardly at all by the mothers, and only alluded to briefly by a couple of children who spoke about how their mother prepared food at home in order to save money. For instance, one child (14/M/U/S/MG) justified why the mother made home-made burgers: "Mummy sometimes buys minced meat and she makes them herself. Mummy nearly always makes them herself because she doesn't waste money like that." Again, the lack of reference by mothers to the cost of food seems to indicate that this is less salient than other considerations, such as health or perhaps time management when choosing food. However, it could also be reflecting a cultural norm that the family food budget is flexible and manipulated as necessary to meet needs. Food is essentially given priority over other items. Moreover, the mothers may not have wished to appear 'stingy' during the interviews, but in reality they were perhaps very price-conscious. Evidence of the latter will be seen again later in Section 4.3.1.4.1.

4.3.1.2.6 Shopping For Food

This section will focus on the food choice processes involved when mothers went shopping for food in the company of their children, or as a result of such expeditions. Shopping outings generated a multitude of food requests by children and it seemed that the majority of the mothers accommodated such requests. A majority of the interviewees explained how their children would see the food item on a shelf and either recognise it from previous exposure and consumption, or else they would be attracted by the colour, format or packaging. This

would then trigger a request to purchase the food, either as a result of keenness to try the new food, or as a result of longing for a food which had not been consumed for some time.

The mothers also described how shops themselves were strong triggers of food requests by using point-of-sale promotions, 'free' toys or collectibles and points-collection schemes or competitions. According to the mothers, promotional campaigns such as foods with collectible stickers, were particularly influential and generated constant requests from the children. One mother (1/M/R/S/B) described her son's constant pleas for *Pokemon* lollipops: "Just for the sticker, to swap it at school."

An interesting comment made by one mother (10/M/U/S/B) revealed a democratic and pragmatic parenting style, with the mother showing her willingness to please her children, whilst simultaneously teaching them that she had a family budget which dictated food choices: "At the shop I ask the children to choose three cereals and that's it...I explain to them that they shouldn't ask for food while shopping because perhaps I can't afford it right then."

4.3.1.3 The Mother's Community Level

In the previous sections, the discussion referred to different factors in the mother's community level. These included the mothers' interaction with institutions outside the home, such as her place of work, her child's school or food shops or outlets. The phenomenon of mothers' out-of-home work status and its relationship with family eating patterns was not part of this study and, therefore, I cannot really present further evidence-based discussion. In contrast, the influence of the school on mothers' choice of food for their children was explored, primarily from the perspective of school rules, and this will be discussed later on. (See Sections 4.3.3.2, 4.3.3.3, 4.3.3.5). It suffices to say that mothers differed in their attitudes towards school food rules and also in their recommendations for school food policies. Meanwhile, the educational role of the school was evident when some mothers reported having attended a school talk about nutrition which recommended certain healthy foods or dishes and how they had taken action based on this talk. Amongst the new practices they had adopted were seeking to present home-made rather than shop-bought foods and offering cereal and milk as a "good start to the day for concentration" (8/M/U/S/B).

4.3.1.4 The Mother's Macro Level

Some factors within the macro level which influence mothers' food provision have already been touched on briefly, such as climate, season and the mass media. This section will focus solely on food portrayal on television and its link with the food mothers provided to their children.

4.3.1.4.1 Food Portrayal On Television

Food presented on TV, during programming or during advertising, mainly influenced mothers' food provision indirectly through their children. Only a couple of mothers mentioned watching cookery programmes themselves and presenting the family with a recipe they had seen. Similarly, only one child (3/G/R/C/MG) showed he was aware of the influence of cookery programmes on his mother, stating: "There will be *Nancy's* [cookery] programme and she [mother] sees it and she gets some ideas." None of the mothers mentioned the influence of TV food advertising on themselves.

In contrast, 17 of the 29 mothers described how within regular TV programming, cookery shows, children's programmes and food adverts their children either saw a new or familiar food, saw a child eating a new or familiar food, or were merely attracted by the advertisement; and this often resulted in requests for specific foods or dishes. One mother (16/M/U/S/B) lamented how her son often asked for unfamiliar sweets seen on TV, typically remarking: "*Mum you never bought me that type.*" Another mother (8/M/U/S/B) described how her son requested foods shown in TV food advertisements involving other children: "Ads for cheese and cereal, where he sees other children eating them." Yet another mother (1/M/R/S/B) described the role of TV advertisements in her son's shift to a new cereal: "We used to have *Weetabix*. He asked for *Kellogg's Cornflakes*. He said, '*Buy me like those in the advertisements*'". During the focus group interviews children also spoke along these lines, admitting to have a craving for a food after seeing it advertised. For example, one child (16/M/U/S/MG) described how a particular advertisement triggered a longing for ice lollipops: "Sometimes I've seen the penguin advert for the ice lollies, and I felt like them."

Occasionally, children made requests for specific TV-portrayed foods during shopping expeditions, when they saw the food on the shelves. This behaviour has already been referred to earlier in Section 4.3.1.2.6. Describing how this worked with her daughter, one mother (12/M/TI/C/G) explained: "She sees food on supermarket shelves and will say, '*We saw that on TV, It looked good. Let's buy it.*'" Further evidence of this link between TV food

advertisements and children's food requests is that such requests changed in line with seasonal changes in food advertisements. This emerged clearly in one mother's (6/G/R/S/B) statement about her son's behaviour: "When I take him to the supermarket the food tempts him. Sometimes he sees foods which he has seen in adverts, like the *Kinder Sorpresa*. In winter especially, he asks for the *Delice* and *Brioche*."

From the data collected it is not very clear whether children's food requests were always followed through by the mother. Whilst the mothers' and children's statements implied that in many cases they were, it seems that sometimes requests did not result in acquisition of the item, either because of the child's eventual disinterest, or because of a cautionary statement by the mother, or because of economic concerns. For example, one mother (10/M/U/S/B) described how she spoke to her children about cereals which were advertised on TV as offering a toy or sticker. She explained to them that if they did not like the cereal they could not buy it just for the toy. Her rule was: "If they ask for things, then they have to eat them."

Economic and ethical concerns were expressed strongly by at least two mothers (14/M/U/S/B; 3/G/R/C/B) with regard to children's fast food-related requests. Firstly, they did not consider the advertised fare provided at fast food outlets as offering value for money. Secondly, they complained that often children wanted to visit these outlets to obtain the 'free' gift advertised, rather than to eat the food. Thirdly, they were annoyed by the commercial exploitation of young children by the food industry. The mothers strongly disagreed with the fast food industry's sponsorship of children's TV programmes and berated the fast food industry for creating a craze for certain foods through heavy multi-site advertising for its products and through promotion of its restaurants as a venue for children's parties. Mothers also condemned the unethical subversive message conveyed where children were made to feel inferior if they did not frequent popular fast food establishments. One mother's emotional tirade succinctly reflects these concerns:

"They are bombarded by TV ads for fast food. These companies sponsor children's programmes. The toys even pop up during the programme itself, not just during adverts. We only go to a fast food outlet as a treat: For example, birthdays. The ads make children feel that they need to go there to be like other children. There should be ads for fruits and vegetables. The programmes should also present recipes for children with fruit and not with sugar." (3/G/R/C/B)

As can be seen, this mother expressed a strong desire for more balanced food exposure on TV, to include advertisements and recipes for healthier food items. A similar plea was made by another mother in discussing the presence of foods in programmes:

“There are a lot of good cookery shows on PBS. But during children’s programmes they allow too much unhealthy food to be shown. You can allow the unhealthy foods, but also show other healthier ones. You can also use cartoons to show healthy food.” (7/M/TI/C/B)

It is interesting to note that only the father (2/M/TI/I/G) of the thirty parents interviewed commented that the daughter was too grown-up to be influenced by fast food adverts: “She does not request McDonalds much. The ads do not influence her. She seems to be past that stage at seven and a half.”

However, the assumption that TV food advertisements were the major motivators of food requests made by children was evident in one mother’s (9/M/TI/I/G) remark about her own children: “They never ask so much [for food]. They do not see so many TV ads, so ads are not influential”. On the other hand, one mother’s rallying comment was perhaps more reflective of the challenge a number of mothers had mentioned: “TV adverts are influential, but parents have to put their foot down!”

4.3.1.5 Discussion And Comparison With Previous Studies

The previous sections have explained how an eco-system exists for mothers’ role in children’s food provision. Different factors at different ecological levels influence mothers’ choice of foods for their children. Some factors pertain to one level, whilst other factors are stronger and transcend different levels. Perhaps the results were sometimes presented somewhat artificially, in that factors were categorised in a particular level to facilitate reporting. Hence, in the following discussion I shall focus on key themes which have emerged from the results without being bound by the ecological framework.

Mothers’ motivations for choosing foods for their children fell along a continuum representing a hedonic orientation and a health orientation. Children’s preferences and menu variety dominated for a few mothers, yet avoiding provision of less-healthy foods and making readily available more healthy foods dominated for the majority. Similar findings emerged from a study with Latin-American mothers of 4-5-year-old children in the US, where six distinct subgroups of families who had different orientations ranging from ‘high health’ to ‘high taste’ were identified (Contento et al., 1993). Children in the ‘high health’ groups had diets

significantly lower in calories, fat, saturated fat, and sucrose and higher in fiber and vitamin A from 24-hour dietary recalls reported by mothers. Unfortunately, due to the qualitative nature of my study with mothers, this correlation of mothers' health motivation and Maltese children's food intake was not possible. However, it would be a worthwhile area to follow up in the future as it suggests that for those mothers whose food choices are dominated by children's tastes, interventions should be directed at how to prepare healthful foods to taste good to children.

My findings also confirm those of research conducted with British mothers of 9-11-year-olds, where health emerged as the most important factor, followed by taste and then prevention of disease when mothers were asked to rate the extent to which a number of factors played a part in their decisions about what to give their children to eat (Gibson, Wardle & Watts, 1998). Similarly, in a study with British mothers of 5-11-year-olds, the mothers stated that whereas they were motivated more by practicality (e.g. availability, cost) and calories when choosing food for themselves, nutritional value and long-term health were more important when choosing food for their children (St. John Alderson & Ogden, 1999).

Maltese mothers' perceptions of the link between food and health were deduced from their descriptions of how they operationalised healthy eating for their children. These included avoiding excess consumption of less healthy food, avoiding sugar, avoiding red meat, selecting low-fat foods, using low-fat methods of food preparation, providing variety, providing unprocessed foods and providing foods to prevent disease. A very similar list was obtained from research with adults in the US, where seven predominant healthy eating definitions emerged: low fat, natural, balance, nutrient balance, disease prevention, disease management, weight control (Falk et al., 2001). As would be expected, Maltese mothers did not consider weight control as a high priority in their food choices for their children, although a few instances did emerge where a conscious or sub-conscious weight-related restraint on foods provided to daughters surfaced.

Although the interviews did not directly seek to uncover parents' nutritional knowledge, some insight was obtained from both the children's and the mothers' responses to various questions. It was clear that mothers held strong accurate beliefs on the positive nutritional value of fruits and vegetables and the negative value of high-fat foods, or high-fat cooking methods. This attitude is laudable, as research from the UK has shown that mothers' nutritional knowledge was positively and quite strongly related to children's fruit consumption

(Gibson, Wardle & Watts, 1998). Similarly, research from the US has shown a positive relationship between mothers' health and nutrition knowledge and the quality of both pre-schoolers' and older schoolchildren's diets (Blaylock, Variyam & Lin, 1999). Other US research has revealed that greater parental nutrition knowledge was associated with lower prevalence of overweight children (Variyam, 2001).

Sometimes Maltese mothers directly imparted nutrition and health information to children to justify the presence of certain foods on the menu and to encourage the children to increase consumption of healthier foods. Some of this nutrition information transmitted by the mothers is assimilated by the children, as has also been recorded in other foreign studies. In a pan-European survey amongst children, the family was perceived by 67% of respondents as being the most important source of nutrition information (Children's Research Unit - EUFIC, 1995). In a study with Mexican American 4-8-year-olds, mothers' use of reasoning and verbal directiveness was positively related to children's nutrition knowledge and awareness (Hays, Power & Olvera, 2001). Unfortunately however, whilst it seems that a good portion of the messages being imparted by Maltese mothers are correct, others are sometimes erroneous or incomplete. Similarly, British researchers have also anxiously reported that parents were not giving their children regular, meaningful and useful messages about dietary health (Stratton & Bromley, 1999). Once again the need for parental education on food, nutrition and health emerges strongly. In a pilot nutrition education programme with Maltese mothers of primary schoolchildren, pre-post test evaluation revealed a strong increase in knowledge for a number of nutrition concepts and recommended dietary practices (Bonnello, 2000). This positive result indicates that such interventions are effective and should be organised on a larger scale.

Commendably, Maltese mothers' strategies to promote healthy eating amongst their children were positive rather than negative in orientation. Mothers tried to make healthier foods more readily available in the house and they offered the healthier foods more frequently. They also tried to prepare healthier foods in such a way as to make them more attractive to their children and to increase likelihood of consumption. Where convenience foods were used, these were counter-balanced by the inclusion of unprocessed healthy foods in the same meal, or in another meal served during the day. Mothers limited access to less healthy foods by not buying them for the family or allowing them only when eating out. Similar strategies involving adding favoured foods and modifying food preparation have been reported by US parents as the most frequent methods used to encourage liking for foods amongst their

children (Casey & Rozin, 1989). Comparable strategies have also been suggested as widely prevalent in the US for limiting children's opportunities to consume foods high in sugar and fat (Fisher & Birch, 1999a, 1999b). The influence of parental control over food supply was referred to by school-aged children in a study on barriers to healthful eating (O'Dea, 2003). A vast majority of the children stated that they ate what was available and allowable at home and at school. Maltese parents' perspectives on school food rules will be discussed in detail in Sections 4.3.3.2, 4.3.3.3 and 4.3.3.5.

A few Maltese mothers specifically described how they made vegetables and/or fruit easily accessible and readily available in the home. As mentioned previously, this strategy is particularly noteworthy as different British and US studies have shown that fruit and vegetable availability was a significant determinant of intake amongst school-aged children (Baranowski et al., 1993; Domel et al., 1996; Hearn et al., 1998; Cullen et al., 2000; Kratt, Reynolds & Shewchuk, 2000; Neumark-Sztainer et al., 2003; Siem Gribble et al., 2003). It also follows Cross, Babicz and Cushman's (1994) proposition that, as a majority of snacking events occur at home, what is eaten as a snack will be determined by what is available in cupboards or the refrigerator. Moreover, given that a greater frequency of child-led snacking has been reported, where children are allowed to help themselves from stored food when they are hungry (Gittelsohn et al., 2000; Robinson, 2000; Kaiser et al., 2001), perhaps fruit and vegetable-based snacks should be promoted amongst Maltese parents as the starting point for granting autonomy in food choices and food preparation to children.

Maltese 7-8-year-olds involvement in food preparation seemed to be limited primarily to preparation of snacks with minimal handling of heating devices. These findings differ slightly from those of a US study, where parents reported that children were allowed to help prepare some meals, particularly breakfast, lunch and snacks, and that children from all age groups were allowed to use the microwave oven without supervision (Cullen et al., 2000). Published research on children's involvement in food preparation and links with food preferences, food intake or food and nutrition knowledge is scarce. A few US studies have explored children's self efficacy in fruit and vegetable preparation and shown it to be one factor in determining intake (Baranowski et al., 2000; Keim, Swanson & Cann, 2001). In addition, British projects launched during the 1990s were based on the premise that children actually enjoy learning about food and getting involved in hands-on activities (Hunton, 1994; Friend, 1999). The goals of the 'Focus On Food' project included offering opportunities for children to practise cooking skills, whilst integrating food education with other classroom subjects. One positive

outcome of the project was that children who initially refused trying new foods, underwent an attitudinal change when they were involved in the food preparation. It would be interesting to conduct such research projects amongst Maltese children; perhaps initially seeking to study the extent of their involvement in food preparation, and to explore any relationships with food perceptions and dietary habits and then using the findings to identify and develop appropriate hands-on activities for promoting healthier food consumption.

In general, there seemed to be an underlying quest for balance in the diet Maltese mothers adopted for their children. This contrasts with US research which has shown that parents tended to have difficulty in operationalising dietary moderation and that even well-educated parents categorised foods as 'good' or 'bad' and adopted feeding practices accordingly (Rozin, Ashmore & Markwith, 1996). This strict categorisation was not so prevalent in the conversations with Maltese mothers, though some judgmental reasoning must have been at the basis of their choice of 'healthy' foods for their children. Overall, very few Maltese mothers seemed to emphasise the low nutritional or health value of foods to their children, but rather they adopted practices which would demonstrate their personal higher valuation of the healthier foods. Restriction was implemented by making foods less available, rather than by openly stating that certain foods were not allowed. This approach is worth promoting as research on ability to delay gratification has shown that children can exert more self-control in relation to a preferred food when it is 'out of sight' (Mischel & Ebbesen, 1970). Research has also shown that overtly restricting children's access to food may result in an eating environment in which children are focused on restricted palatable foods and who respond with an increased desire to consume those foods when available (Birch, Zimmerman & Hind, 1980). According to some Maltese mothers, such a situation often arises when eating out. Yet, US research has suggested that, in general, eating out is considered a special occasion by families and usually no conditions are applied to food choices (Baranowski et al., 1993). Very likely this is the spirit in which food choices are made when Maltese families decide to eat out.

When Maltese mothers did restrict their children's food intake this tended to focus more on reducing fat intake. This result contrasts with that from Australian research (O'Dea, 1999), where foods forbidden by parents were more likely to be foods containing sugar (e.g. sweetened breakfast cereals, ice-cream syrups), than foods containing substantial amounts of dietary fat (e.g. cakes, chips, pastries). Perhaps this reflects the differing public health agendas amongst Westernised nations, where the Maltese population is constantly being

reminded about the role of dietary fat in the epidemiology of various health problems. So much so, some Maltese mothers restricted access to high fat foods as a reaction to familial history of heart health problems, in support of the studied child's overweight sibling, or as a reaction to personal history of acne problems in their youth. This type of parental control in relation to areas of health which are potentially problematic for the child has also been suggested by Costanzo and Woody (1985). Similarly, in the Australian study mentioned earlier (O'Dea, 1999), children listed potential for weight gain and acne outbreaks as reasons why they thought certain foods were forbidden by parents.

A few Maltese mothers admitted that boys rebelled more against food restrictions or against sole provision of healthier foods. Thus, they found it more difficult to control and ascertain healthy food intake. This parallels findings by Fisher and Birch (1999a, 1999b) which suggested that boys may exhibit more verbally and physically reactive behaviour when food restriction is imposed.

Some insight into Maltese mothers' food-related parenting styles was obtained during the interviews. An earlier study with parents of Maltese 8-10-year-olds had revealed that 61% of parents put pressure on their children to eat certain foods and 28% felt that they succeeded (Costa, 1998). In my study there seemed to be more evidence of use of an 'authoritative' style, using negotiation and reasoning in an attempt to influence and determine a child's intake, as well as of more permissive styles where children's likes tended to dictate what was offered (Birch & Fisher, 1995). Authoritative food-related styles could be seen when one mother involved her child in choosing the menu for the day, when another described to her child the health benefits of particular foods and discussed how these foods could be included in the child's diet, and when another mother explained to her children why it was impossible to accede to all their food requests. Such parenting style has been lauded in foreign studies as being positively related to children's nutrition knowledge and awareness (Hays, Power & Olvera, 2001) and to adolescents' fruit consumption and fruit-specific cognitions (Kremers et al., 2003; Lytle et al., 2003). It has also been recognised as useful for facilitating the development of a child's self control in feeding (Nicklas et al., 2001a). Based on these findings, the behaviour of those Maltese mothers who employed an authoritative parenting style augurs well for their children's diet and health status, given their current low intake of fruit and the prevalence of juvenile obesity.

The more 'permissive style' (following Birch & Fisher, 1995), emerged amongst those Maltese mothers who said they would satisfy children's food preferences and who would prepare food on demand. Such attitude was also prevalent amongst British mothers who admitted to actively and willingly adjusting their provisionary food behaviour to the preferences of their children and that their main concern was not so much what the children ate, but whether they ate (Stratton & Bromley, 1999). Similarly, research with Swedish mothers has shown that the most frequent reason for not serving a specific food to a child was previous signs of distaste (Koivisto Hursti & Sjoden, 1999). A strong sense of permissiveness was particularly present amongst those stay-at-home mothers for whom the hedonic value in food choice was a priority and who proudly admitted to preparing all manner of food and dishes to keep their family happy. This approach to food seems to replicate results from a study contrasting food beliefs and attitudes of adults in Central England and Southern France (Pettinger, Holdsworth & Gerber, 2002). In this study, food quality, health and the pleasure of eating emerged as more important to the Mediterranean French than the English respondents.

Maltese mothers also mentioned how foods offered to the children were essentially compatible with the family's staple diet or were convenient. Similar attitudes have been shown by US (Coon et al., 2001) and British parents (Stephoe, Pollard & Wardle, 1995; Stratton & Bromley, 1999), with the latter referring to the 'usefulness' of food in fitting into the family food purchasing and eating patterns, as well as their lifestyle. In my study, specific mother-oriented and child-oriented factors emerged, where speed and minimal labour in preparation and consumption were mentioned as important criteria. The latter requisites are similar to those mentioned in US studies where adults specifically considered fruits and vegetables as bothersome to prepare (Kirby et al., 1995; Glanz et al., 1998). Luckily, this negative attitude towards fruits and vegetables seemed not to be the case amongst most of the Maltese mothers interviewed. In fact, a number of vegetable-based dishes appeared on the Maltese family's staple menu and fruit was a typical dessert. Overall, a list of different aspects of convenience emerged from the conversations with Maltese mothers and children, which offers a good insight on potential barriers to healthy food provision, as well as provides motivational 'hooks' for parental and child nutrition education.

Maltese mothers rarely made reference to economic factors when discussing criteria for choosing food, almost as if the price of food was of minimal import and other factors held a higher value. This contrasts with findings from a number of foreign studies which have

shown that adults report cost as a key consideration in choice of food, also for family meals (Stephoe, Pollard & Wardle, 1995; Lenneras et al., 1997; Glanz et al., 1998). However, one could also consider this omission on the part of Maltese mothers as a limitation of the study; in that mothers were reluctant to speak up about their monetary concerns for fear of being misinterpreted about this culturally meaningful issue. In the few instances where price was mentioned as a criterion when choosing food, the themes ranged from obtaining value for money, to consumer socialisation of children, to not putting a price on the health or hedonic value of food.

The concepts of observational learning or modelling as used in Social Cognitive Theory (Bandura, 1986; Reynolds et al., 1999) emerged with regard to food preferences and food behaviours in both the children's and mothers' interviews. Several of the children commented on parental food preferences and food behaviours observed and how these affected their own preferences and behaviours. The significance of such parental modelling has been frequently reported; particularly, how parents' preferences and behaviours provide encouragement or discouragement for specific eating behaviours (Olvera-Ezzell, Power & Cousins, 1990; Rozin, 1990; Birch & Fischer, 1998; Cullen et al., 2000; Cullen et al., 2001; Fisher et al., 2001). Interestingly, one Maltese mother admitted that she had nominated herself as a role model for her children with regard to healthy eating. This is in line with the "do what I do" rather than the "do as I say" approach which has recently been recommended in food exposure research with 5-year-old girls and their parents (Fisher et al., 2002). Such an approach would seem a worthwhile one to promote during nutrition education interventions involving Maltese parents.

Several Maltese mothers indicated that their children were quite forward in asking to try new foods. The latter has implications for theory on children and neophobia (Koivisto Hursti & Sjoden, 1996; Falciglia et al., 2000; Loewen & Pliner, 2000; Wardle et al., 2003a; Wardle et al., 2003b), in that perhaps there is less fear of unfamiliar foods amongst children than would be perceived by adults. It also has implications for theory on Diffusion of Innovations (Rogers, 1995). Perhaps children need to be given greater value as initiators of food habits in the family and groups of families. This role has certainly been maximized by the food industry, with children being targeted to introduce new foods to family members (Hastings et al., 2003). These propositions regarding children's openness to new foods have further implications for practice. Initiatives to promote healthy food choices amongst children and

families may benefit from more creative marketing strategies, especially through using mass media vehicles more effectively.

When questioned on the subject of children's food requests, a majority of Maltese mothers immediately expressed their belief that the influence of TV was particularly strong. In fact, previous research with Maltese children has shown that advertisements for foods and drinks are ranked amongst the most popular of all advertisements (Grixti, 2000). In addition, over a span of half a decade, Maltese children's requests to their parents to buy food items seen on TV increased from 58% in 1998 to 87.5% in 2003, with the majority of their requests being met (Costa, 1998; Marmara, 2003). This sharp increase was perhaps partly due to the proliferation of cable TV stations available and the introduction of Satellite TV during this period. In a study with British children it emerged that four of the ten most frequently requested foods were amongst the ten most frequently recalled television food advertisements (Hitchings &, Moynihan, 1998). Similarly, a number of US behavioural effects studies have shown that TV advertising is a major source of children's product requests (Valkenburg, 2000). In my study it also emerged that Maltese children often requested advertised foods when out shopping with their parents after recognising the packaging. This influence of packaging has also been recorded by Stratton and Bromley (1999) with British children.

Mothers' strong perception of the role of TV in generating food requests substantiates findings from other local and foreign research which showed that food marketers take advantage of children's second hand power to convince parents to buy an item and that as a result of advertisement-prompted requests children give direction to daily household purchases such as snacks, sweets and breakfast products (Clancy-Hepburn, Hickey & Nevill, 1974; Brody et al., 1981; Taras et al, 1989; Tilston et al., 1992; Morton, 1994; Kortzinger, Neale & Tilston, 1994; Crockett & Sims, 1995; Costa, 1998; Grixti, 2000; CSPI, 2003).

A number of Maltese mothers specifically voiced their anger over the prevalence of advertisements for less healthy foods during children's prime TV viewing hours, labelling this practice as unethical. Similar sentiments have been verbalised by US and British parents, even spawning consumer movements to lobby for changes in regulations (Stratton & Bromley, 1999; Cullen et al., 2000; Stop Commercial Exploitation of Children, 2001; The Parents' Jury, 2003). The Maltese mother's anxiety is not unfounded. In the first large-scale

content analysis of advertisements aired on different TV stations during Maltese children's prime TV viewing (3-6 pm), 77.2% (n=986) of the food advertisements were for foods in the high-sugar, high-salt, high-fat or fast food categories (Marmara, 2003). At the same time, advertisements for leading fast food outlets and for chocolate, sweets, ice lollies, cereals, fruit drinks and milkshake powder were amongst the top ten advertisements children reported seeing on TV on a daily basis. These results parallel those from a number of foreign studies, except that the fast food advertisements seem to be more prevalent locally (Lewis & Hill, 1998; Wilson, Quigley & Mansoor, 1999; Kuribayashi, Roberts & Johnson, 2001).

In Malta, regulation of TV food advertising targeting children is minimal. Thus, mothers and other caregivers have to shoulder the responsibility of controlling children's viewing and handling subsequent outcomes of exposure to food advertisements. The Maltese Broadcasting Authority's Code for the Protection of Minors states that "advertisements for confectionery and snack foods shall not suggest that such products may be substituted for balanced meals" and that "advertisements shall not lead minors to believe that unless they have or use the product advertised they will be inferior in some way" (2000, p.4). In this regard, one mother specifically felt that these regulations were not being followed.

However, another relevant regulatory tool which exists is the Maltese Broadcasting Authority's Guidelines on Advertising Concerning Medicines, Treatments, Health Claims, Nutrition and Dietary Supplements. These guidelines state that:

"Advertisements shall not encourage or condone excessive consumption of any food...advertisements shall not disparage good dietary practice and any comparisons between foods shall not discourage selection of foods such as fresh fruit and vegetables which current generally accepted dietary opinion recommends should form a greater part of the average diet... advertisements, especially those targeted at children, shall pay regards to considerations of oral health." (Broadcasting Authority, 2001)

Unfortunately, these guidelines are not legally-binding. Moreover, whilst the legislation and guidelines hold for local stations they do not apply to foreign stations received locally.

A few mothers recommended including more healthy eating messages during children's programming, perhaps even utilising cartoons. Such an educational role for TV has also been recommended by other foreign researchers (Bernard Bonnin et al., 1991; Contento et al., 1995; Crockett & Sims, 1995). A project was launched recently in the UK where a

cartoon involving four 'Food Dudes' had a positive impact on encouraging children to eat more fruits and vegetables (University of Wales, 2002 [online]). Perhaps these types of educational programmes need to be produced more frequently and adapted to be transmitted globally in order to help counterbalance the advertisements for less healthy foods which children worldwide are being exposed to.

Overall, it is clear that Maltese mothers have various roles when it comes to children's good nutrition. They can be seen as regulators of food availability, as marketers of healthy food products, and as models of healthy eating behaviour. Such roles have also been referred to in other food-related studies with children and their mothers or parents (Birch & Fisher, 1998; Koivisto Hursti, 1999; Nicklas et al., 2001a; McCaffree, 2003). What must be emphasised is that, although these roles may differ in their saliency in different children's lives, mothers need to be made aware that the manner in which they carry out these roles could have short-term and long-term implications for the dietary patterns, nutrition knowledge and ultimately health status of their children. I tend to agree with Hart et al., (2003) who have recommended that parent nutrition education interventions should focus on behavioural techniques, rather than fact transmission. They particularly suggest the promotion of parental self-awareness to reduce negative influences within the family food environment.

4.3.2 Characteristics Of Children's Weekday Evening Meal

Information on the characteristics of children's weekday evening meal was collected. Where and with whom children typically consumed this meal was identified, as well as universality of the family menu. Links between Weekday Supper consumption characteristics and different children groups were also explored, focusing on gender, household's highest level of schooling (HLS), school type, geographic region and cable TV access. Calculations were based on the children's and parents' total samples, or on sub-samples for which none of the required data for the specific variable being tested was missing. The goal was to uncover different factors which could influence children's food intake for this standard meal.

Nearly four out of five children (76.8%; N=1088) consumed their Weekday Supper at home. The remainder ate it at their grandparents, another relative, at a restaurant or from a take-away. Considering that for most children the evening meal is eaten at home, it is likely that the mother is the main food gatekeeper in this setting. As reported by the parents (n=923), over four fifths (84.9%) of the children ate the evening meal together with their parents more than four times weekly. A similar proportion of children (88.2%) ate the same food as the

parents during this meal, also more than four times weekly. However, chi squares analysis revealed certain patterns amongst groups. (See Table 75).

A statistically significant relationship emerged between gender and location of evening meal (girls=81.7% vs. boys=73.4%; $\chi^2 = 9.201$, $df=1$, $p=0.002$). Anecdotal evidence obtained from the respondents themselves during data collection, indicated that sometimes boys would accompany their father or an uncle to the family-owned or managed restaurant or take-away and then eat something there in the evening. Another statistically significant result seemed to substantiate this, as more girls than boys (90.1% vs. 86.1%; $\chi^2 = 3.627$, $df=1$, $p=0.057$) ate the same food as their parents for the evening meal.

A number of statistically significant relationships emerged for HLS, with more high HLS children consuming their evening meal at home (81.8% vs. 75.4%; $\chi^2 = 5.507$, $df=1$, $p=0.019$), yet more average HLS families (87.2% vs. 82.2%; $\chi^2 = 4.340$, $df=1$, $p=0.037$) eating this meal together more than four times weekly.

Within the school type category, the difference emerged between independent school children and the other two groups for evening meal consumed together ($\chi^2 = 20.103$, $df=2$, $p=0.000$). Over four fifths of state and church schoolchildren (state=88.0%; church=85.0%) ate the evening meal as a family more than four times a week, at least 10% more than independent school children (72.6%). That is, state and church school children (grouped as non-independent school children) were about twice as likely to have their Weekday Supper as a family more than four times weekly (OR=2.4182, CI=1.1741– 4.9808, $p= 0.0148$).

Although not statistically significant, relatively more Gozitan than Maltese children ate their evening meal at home (Gozitan=83.8% vs. Maltese=76.6%). However, statistically significant relationships emerged between region and eating the evening meal together as a family and eating the same food during this meal more than four times weekly. Nearly the whole sample of Gozitan children ate Weekday Supper as a family nearly everyday (96.5%), 12% more than Maltese children (83.8%) ($\chi^2 = 9.927$, $df=1$, $p\text{-value}=0.002$). In fact, Gozitan children were about five times more likely to practise this behaviour (OR=5.33, CI=1.6186-17.5517, $p=0.0026$). With regard to actual food intake during the evening meal, more Maltese children than Gozitan children consumed the same food as the adults present more than four times weekly (88.9% vs. 81.4%; $\chi^2 = 4.205$, $df=1$, $p\text{-value}=0.04$). In turn, nearly one

TABLE 75
Weekday Supper Characteristics By Gender, Household Level Of Schooling, School Type, Region And Access To Cable TV

Category	Location			Frequency Of Eating Together			Frequency Of Having Same Menu			p-value
	Variable	Home %	Non-home location %	Variable	>4 times weekly %	<4 times weekly %	Variable	>4 times weekly %	<4 times weekly %	
Gender	Girls (n=545) Boys (n=537)	81.1 73.4	18.9 26.6	Girls n=477 Boys (n=446)	85.5 84.3	14.5 15.7	Girls (n=477) Boys (n=446)	90.1 86.1	9.9 13.9	0.002 ^a 0.057 ^c
Household Level of Schooling	Average (n=483) High (n=433)	75.4 81.8	24.6 18.2	Average (n=483) High (n=433)	87.2 82.2	12.8 17.8	Average (n=483) High (n=433)	87.2 89.1	12.8 10.9	0.019 ^a 0.037 ^b
School Type	State (n=655) Church (n=272) Indep. (n=155)	75.0 79.8 82.6	25.0 20.2 17.4	State (n=535) Church (n=253) Indep. (n=135)	88.0 85.0 72.6	12.0 15.0 27.4	State (n=535) Church (n=253) Indep. (n=135)	88.4 87.0 89.6	11.6 13.0 10.4	0.000 ^b
Region	Malta (n=977) Gozo (n=105)	76.6 83.8	23.4 16.2	Malta (n=837) Gozo (n=86)	83.8 96.5	16.2 3.5	Malta (n=837) Gozo (n=86)	88.9 81.4	11.1 18.6	0.002 ^b 0.040 ^c
Access To Cable TV	Available (n=526) Not avail. (n=384)	78.7 78.1	21.3 21.9	Available (n=526) Not avail. (n=384)	82.3 88.3	17.7 11.7	Available (n=526) Not avail. (n=384)	87.8 88.8	12.2 11.2	0.013 ^b

a Sigf. for Location
b Sigf. for Frequency
c Sigf. for Eating Same Food

fifth of the Gozitan children (18.6%) only consumed the same food as the adults four or less times weekly, implying that for at least three days of the week these children ate something different from their adult meal partners.

Cable TV access only resulted in one statistically significant result. More non-CTV children (88.3% vs. 82.3%; $\chi^2 = 6.132$, $df=1$, $p=0.013$) ate Weekday Supper together with adult family members more than four times weekly.

4.3.2.1 Discussion And Comparison With Previous Studies

My findings parallel those of a French study where children most often had their evening dinner at home (Bellisle & Rolland-Cachera, 2000). They contrast, however, with studies conducted in the UK and the US which have shown that weekday meals are increasingly being consumed at fast food outlets or restaurants, or are comprised of partially or fully-cooked foods/meals bought outside the home (Adamson et al., 1996; Nicklas et al., 2001b; Stockmyer, 2001; Guthrie, Lin & Frazao, 2002; Paeratakul et al., 2003). In these various studies, the nutrient profile of the foods not consumed or prepared at home was analysed and a negative impact on children's diets and obesity risk was determined. A limitation of my study is that for those children who ate their Weekday Supper away from home, actual food intake was not identified; therefore the nutritional impact on their diet of this practice cannot be determined.

With regard to regional differences, eating out during the week may be less popular and culturally acceptable amongst the more rural Gozitan community. Moreover, the number of catering establishments staying open on the island during the week (especially in Winter) is probably very limited. Recent UK studies have been looking at so-called 'food deserts' (poor-food retail-access communities) and their impact on food-consumption patterns and by extension diet-related health (Cummins & Macintyre, 2002; Wrigley, Warm & Margetts, 2003). This same concept could be applied to identify the quantitative and qualitative availability of catering establishments in Malta and Gozo in order to further explain inter-island differences in families' and children's weekday evening meals.

My results also reveal that the evening meal is still much of a family affair for the majority of Maltese children and that few children are given foods different from those prepared for the adults. This contrasts with findings from some foreign studies, but is similar to others. In one US study with 9-15-year-olds, only about half (49%) reported that they ate with their family

everyday (American Dietetic Association cited in Neumark-Sztainer et al., 2000). However, in another US survey, 88.0% of 9-year-olds reported that the family ate together everyday or most days (Gillman et al., 2000). Similar results were obtained for French and Finnish 9-11-year-olds, with approximately four fifths of them consuming dinner at home in the company of family members (Bellisle & Rolland-Cachera, 2000; Haapalahti et al., 2003). Of note is that these foreign studies all involved slightly older children than my sample, which may account for the fact that I had a higher rate for shared family dinners. Nonetheless, these differences could also be a result of culturally different parenting styles.

The fact that the majority of Maltese children ate the same food as that of the adults seems to suggest a strong control by food providers on the kinds of food children consume for weekday supper. Similarly, in an early 1990s study, British schoolchildren's consumption of typical meals was consistent with that of adult caregivers (Thomas, 1991). However, in a more recent study, three-fifths of American adolescents reported that children in their families could make something else to eat if they didn't like the food being served (Neumark-Sztainer et al., 2000).

Independent school children did not eat together as a family that often, perhaps due to their own after-school schedules and/or their parents' work routines, evening commitments or leisure pursuits. Yet they did tend to eat the same food as the adults, suggesting that the food provider offers one common menu to all the family. This contrasts with the Weekday Supper scenario for Gozitan children and families, who ate together most evenings, though occasionally ate different foods. Independent schoolchildren's lack of sharing of dinner 'time' could be seen to reflect a move towards individualisation, which Warde (1997) has identified as one of the features of industrialised societies. Should this consumption trend become more widespread amongst Maltese families it could have socio-cultural repercussions, in that an opportunity to talk about family plans and family events, or share childhood memories and information on local history and traditions will be lost.

The result that less Maltese boys than girls ate the same foods as the adults during Weekday Supper seems to further substantiate the literature on gender differences in food prescriptions and restrictions and autonomy-granting opportunities (Birch & Fisher, 1995). This trait has already been discussed earlier, with mothers remarking that boys were less likely to be complacent about food provided than girls.

Overall, my finding that most Maltese children regularly experience a shared family dinner during the week has a number of positive health-related implications. First of all, foreign research has shown that patterns of food intake tended to be more healthful among children who often ate dinner as a family (Donkin, Neale & Tilston, 1993; Gillman et al., 2000; Haapalahti et al., 2003). This was manifested in higher consumption of fruits, vegetables and several beneficial nutrients, and lower consumption of fast foods, fried foods, sweets, soft-drinks and saturated and trans fats. One study has also suggested that family dinners may provide a particularly salient opportunity for children to observe their parents' fruit and vegetable eating patterns, as adults tend to consume more fruit, juice and vegetables at dinner (Baranowski et al., 1998).

These results highlight the need for providing Maltese family food providers with practical suggestions for healthy weekday meals, also as a means to introduce new nutritious foods or re-introduce traditional ones. This recommendation mirrors that made by foreign researchers who have encouraged nutrition professionals to build on the importance that families still seem to place on being together for meals and provide family cooks with uncomplicated recipes, shopping lists and preparation tips to meet the latest dietary guidelines and introduce healthy foods (Koivisto Hursti, 1999; Stockmyer, 2001). These various benefits of sharing weekday evening meals as frequently as possible need to be emphasised amongst parents and perhaps promoted through schools, places of work and the mass media.

4.3.3 The Influence Of The School: Focus On School Food Policies

During the scholastic year, Maltese primary school children spend at least one third of their waking hours at school and consume foods and/or beverages at least once, though generally twice, whilst they are there. In 2002, a task force was set up by the Maltese National Curriculum Council in order to provide a working document for the development of a National School Food Policy. Being one of the original proponents (and now the co-ordinator) of this Task Force for Appropriate School Nutrition Environments (TASNE), as part of my study I sought to obtain the perspectives of both children and parents on school food rules and related factors within the school environment. (See Table 76). As will be seen, there is a strong interplay between what schools allow, how children and parents respond and what children ultimately consume.

TABLE 76
Areas Researched Concerning School Food Rules

Aspect of School Food Rules	Children	Parents
Current school food rules	✓	✓
Rational for school food rules	✓	✓
Agreement with school food rules	✓	✓
Compliance with current/future school food rules	✓	✓
Strategies to facilitate compliance with current/future school food rules		✓
Recommendations regarding school food prescriptions/restrictions		✓

4.3.3.1 School Food Rules

Based on the children's and mothers' responses, a general picture has emerged of which foods were prohibited or restricted and, to a lesser extent, which foods were allowed or prescribed in the different schools visited. (See Table 77). It is clear that rules tended to focus on items in the Sugary, Fats and Oils food group and on high-sugar beverages. Birthday cakes, chocolate, *Halls* cough lozenges, chewing gum and sweets were both allowed and prohibited foods. When allowed this was subject to various conditions. For example, birthday cakes were restricted to the sponge-type with no cream and chocolate was allowed only during one lunch break.

One group of children from an independent school (15/M/TI//MG) described how their school had adopted a strategy where children were allowed to choose one day a week when they could bring sweets to school. This particular school has a fairly liberal school philosophy and such strategy can be seen as in keeping with their democratic principles of giving children some control even in school matters. A regulation imposed by one state school (16/M/U/S/MG) was that of not allowing packet snacks to be brought instead of a bread item in their lunchbox. This can be seen as a positive measure to ensure nutrient density; yet it could also be interpreted to mean that packet snacks were still allowed in addition to the bread item, which could lead to excess energy intake. Based on the children's responses, soft-drinks and squashes were prohibited by most of the sixteen focus group schools, whereas fruit juice was not allowed in three: two in Gozo (6/G/R/S/MG; 3/G/R/C/MG) and one in Malta (9/M/TI//MG). Perhaps some administrators were more aware of the cariogenic potential of fruit juices and felt that they should be banned during school hours. Informal conversation with administrators suggests that some local dentists are recommending such a move.

TABLE 77
Food-Specific School Rules

Food Group	Foods Allowed/Recommended		Foods Restricted	
	Item	Condition	Item	Condition
Breads & Cereals	Cereals (1) ^a			
Vegetables			Salad in a bowl (1)	
Fruit	Fruit (3)	No limits (1)		
Sugars, Fats & Oils	Birthday cake (3)	Sponge-type: e.g. packet mix (1)	Birthday cake (2)	Creamy-type (2)
	Chocolate (1)	Only during noon lunch break (1)	Chocolates (2)	
	<i>Halls</i> lozenges (1)	During lunch break in class, and only if child has a sore throat (1)		
	Sponge (1)	Not chocolate- coated varieties (1)		
	Sweets (4)	Limited quantities (3) Child chooses one day a week when to bring sweets (1)	Sweets (6)	Except during educational outings (1)
			Chewing gum (4)	
			Lollipops (3)	
			Salted packet snacks (3)	Cannot bring packet snacks instead of bread (1)
Food Group	Beverages Allowed/Recommended		Beverages Restricted	
	Item	Condition	Item	Condition
Fruit			Fruit juice (3)	
Sugars, Fats & Oils	Soft-drinks (1)	Poured into an alternative container (1)	Soft-drinks (4)	Specifically <i>Coke</i> (2)
			<i>Breakers</i> (2)	
			<i>Coke</i> in can (1)	
			<i>Diet Coke</i> (1)	
			Iced tea in can (1)	
			Orange squash (2)	
Water	Water (1)			

a Number in brackets indicates number of focus groups where this was mentioned

Only one focus group (1/M/R/S/MG) mentioned that bringing cereals instead of sweets and bringing water was recommended at their school. This same focus group, as well as two others (5/G/R/S/MG; 13/M/U/S/MG) also identified fruit as an item highly promoted for inclusion in packed lunches. One child (5/G/R/S/MG) explained that with regard to fruit they were allowed to “eat as much as you want.”

A fairly complex picture emerged when children were asked to express their feelings about current or potential food restrictions at school. Though it was not the purpose of the exercise to quantify responses, it was interesting to see that over the sixteen interviews a fairly equal number of statements were made in agreement or disagreement with school rules. (See Table 78). The responses proffered by children who agreed with or would obey restrictive rules could be seen as rational, pragmatic or indifferent. Reasons forwarded by children who disagreed with or would disobey restrictive rules could be seen as challenging authority, seeking to negotiate or reach a compromise, or highlighting a negative consequence.

TABLE 78
Children’s Reactions To Current Or Potential Food Restrictions

Agree With And/Or Obey	Disagree With And/Or Disobey
Rational Approach	Challenge Authority
Children acknowledge power of school authorities (1) ^a Children want to obey teacher (2) Children obey to avoid punishment (1) Children accept that it’s for their health and well-being (3) Children agree with competitive point system re nutritional value of school packed lunches (1)	Children openly disobey rules and willingly bear any punishment (2) Children do not pay much attention to any school policy (1) Children reveal aggressive attitude: Nobody likes being given orders (1) Children criticise school administration for not setting a good example (1)
Pragmatic Approach	Seek To Negotiate/Compromise
Children are sad, but acknowledge that prohibited foods could still be consumed at home after school (4)	Children would recommend against outright ban of sweets, chocolates, packet snacks and soft-drinks (2) Children would ask for concession on chewing gum and lollipops (1) Children would eat preferred banned item and donate lesser preferred banned item to the Mission Fund (1)
Indifferent	Emphasise Negative Consequence
Children are used to not bringing sweets to school (3) Children are not keen on sweets (1)	Children are sad (5) Children regret lack of instant gratification(1) Children would not eat anything at school if items like sweets, packet snacks and soft-drinks were prohibited (1)

a Number in brackets indicates number of focus groups where this was mentioned

One child (13/M/U/S/MG) rationalised food restrictions by acknowledging the school's authority in rule-making and disciplinary measures and stating "they're the bosses". Another child (16/M/U/S/MG) remarked that avoidance of punishment was a strong enough reason for obeying rules: "If we don't obey we'll get a punishment the next day." A few children reasoned that rules were there with children's health interests in mind and that "They [teachers and Heads of Schools] will be telling us for our own good" (3/G/R/C/MG).

A few children were pragmatic in their outlook on rules banning certain items. According to one child (14/M/U/S/MG): "We'd feel unhappy... But then at home you could do whatever you wanted." Other children projected an indifferent attitude to rules, such as this child (6/G/R/S/MG) who stated, "I wouldn't be very unhappy, because I do not bring sweets to school. I'm used to it."

Those children who disagreed with school rules, or admitted that they would be ready to break such rules, often presented quite emotionally-loaded arguments. Some took an aggressive stance, steadfast in their defiance of school rules, despite any negative repercussions: "When the teachers say I cannot bring cans to school I just ignore them. I don't care if they punish me - a whole week with no break" (2/M/T/I/I/MG). Children in one school (1/M/R/S/MG) felt very strongly about inconsistencies between the requests of people in authority and their actions:

- Child 1: "At least once a week they should let us bring, for example, squash; maybe Wednesday, or once every five weeks. Look at the Principal and Ms X, they bring orange [squash], but us..."
- Child 2: "They don't like it if somebody orders them not to bring this or that."
- Child 1: "And then the School Council comes along and gives us a hot-dog this big, and we can't even bring a packet snack!"

Some children who disagreed with rules would seek to negotiate with teachers as to what should and should not be allowed. They would be willing to concede to certain rules, but not to a heavy restrictive regimen: "It's not right, not to bring anything, anything, anything. You are like chained. If they tell us not to bring 'stickers', well we'd obey them." (13/M/U/S/MG)

A few children dwelt on the negative consequences of not being allowed to consume certain foods at school. In at least five focus groups, children commented on the 'sadness' of it all. One child (4/G/R/S/MG) alluded to the lack of instant gratification: "Because if certain things

are not allowed at school, then by the time one gets home you no longer feel like it.” Another boy (8/M/U/S/MG) admitted that he would probably not consume anything during school hours if sweets, packet snacks and soft-drinks were prohibited. The latter situation, although unlikely to be widespread and probably somewhat exaggerated, could ensue with a number of children. As such, some schools would probably be hesitant to insist on an outright ban of the high-fat, high-sugar foods and beverages. This particular issue will be discussed further from the mother’s perspective in Section 4.3.3.3 below.

4.3.3.2 Providing A Healthy School Nutrition Environment

When children were asked what they perceived as the rationale behind school food rules, responses mainly fell into two categories: the health and nutritional value of the foods, and safety and hygiene issues. (See Appendix 4.11). Similarly, several of the mothers referred to promoting good nutrition and health as a key rationale for school food rules. However, whilst mothers did not refer so much to hygiene and safety issues, they did mention other aspects of child well-being, such as the need for a disciplined ethos in schools, as well as ethical issues related to accessibility, rivalry and discrimination. Mothers and, to a lesser extent, children also highlighted the complementary role of the school’s social and physical environment in transmitting healthy eating messages.

Children’s and parents’ perceived health and nutrition-related reasons for school rules, centred round a general promotion of health and avoidance of ill health, particularly tooth decay, as well as restriction of high-sugar foods, high-salt foods and excess food intake. A lifelong vision of the benefit of food rules was expressed by one mother (9/M/TI/I/G) who stated: “When they are young, I am happy with the rules. It helps to set them on the right track to healthy eating.” At least two mothers referred to the need to provide an overall balance in the daily diet, making sure that children consumed healthy foods during school hours as well. One of these mothers (2/M/TI/I/B) stated: “It’s not good enough to spend a day at school and just eat packet snacks.”

Seventeen out of the 30 parents felt strongly that rules would help to regulate consumption of less healthy food. One mother (10/M/S/G) asserted: “Children will eat bread if they have bread. Children will eat *Twistees* [salted packet snack] if they have *Twistees*.” Another mother (7/M/TI/C/B) explained: “My son only drinks *Breakers* [fruit drink]. So if he was allowed only water at school he wouldn’t.” One mother (15/M/TI/I/B) commented that foods were sometimes banned to safeguard the health of a child who was allergic to a particular

ingredient. She narrated how that scholastic year the school her son attended had ordered a total ban on foods containing peanuts because of one allergic child in the whole school population.

A majority of the children's focus groups expressed a belief that some school food rules existed to prevent accidents and to keep the classroom clean. Beliefs related to safety issues evolved around avoidance of choking (e.g. lollipops), or of accidentally swallowing non-edible items (e.g. chewing gum), as well as avoidance of cuts or harm to the eyes from projectiles (e.g. soft drink can lids). Beliefs related to hygiene issues centred round avoidance of spillages, messiness, dirtying school items, attraction of pests and unhygienic conditions (e.g. overflowing bins).

Similarly, a few mothers also pointed to cleanliness factors in justifying food rules. However, two mothers revealed that, unfortunately, sometimes even healthy foods, such as tuna sandwiches and salad in a bowl, were prohibited by their children's schools because of potential spillages. Clearly, in such instances, a dialogue between teachers and parents would have been of greater benefit to the children, than simple restriction of these healthy lunch items.

A healthy school nutrition environment was seen as complementary to nutrition instruction taking place in the classroom. One mother (3/G/R/C/G) commented that schools should set a good example and match rules which parents were trying to follow with their children at home: "I do not give my daughter juice or sweets. On rare occasions I give a chocolate. I didn't like it when she used to have a teacher who used to give sweets as gifts." This is an interesting perspective, given that often the opposite occurs, and teachers complain that what they teach at school is not congruent with what children are exposed to at home.

Several parents highlighted the potential social influence of schools on their children's food habits, giving examples involving the teacher and classmates. Six mothers referred to the negative influence of peer modelling. They described how lack of rules facilitated modelling of less healthy food behaviours, whilst having rules could promote healthier food behaviours. One mother (15/M/TI/I/B) explained: "I would agree if we weren't allowed to give packets at school. Children want other children's lunch, so if it contains a less healthy food that's not good." Another mother (4/M/TI/C/B) shared her frustration regarding the power modelling had on her son: "He wants to copy his peers. For example, he will eat pizza like his friend,

even if he doesn't really like it!" Only three mothers described how peer modelling had worked positively with their children. Speaking about her son one mother (15/M/T/I/IMG) explained: "Children also talk at school. For example, he wants to try baked beans because a school mate said he had a hot dog with baked beans." Similarly, two mothers referred to the impact of schoolmates on their daughters. One mother (14/M/U/S/G) narrated: "Her best friend eats raw carrots, so she asked for them. So then we tried raw carrots and mayonnaise." The other mother (6/G/R/S/G) explained: "She sometimes has asked for a salad for school, because other children bring it".

At least three of the mothers felt that school rules were a sign of a disciplined ethos in the school, with one mother (9/M/T/I/I/G) complaining that without rules "it gets out of hand." One Gozitan mother (3/G/R/C/B) lamented: "I would like to have rules. In most schools in Gozo children are free to take what they like."

Some mothers saw the rationale for school rules from different ethical perspectives. They explained that rules helped to avoid competitiveness and jealousy among children regarding types of foods consumed; that rules helped to avoid discrimination against less financially secure children; and that rules prevented these less financially secure children from having to resort to asking their peers to share, or even from stealing. Rules also lessened the risk of children feeling marginalised if, for some reason or other, certain foods were not accessible to them. These mothers gave a number of concrete examples to substantiate their views. For example, one mother who was a member of her daughter's school council (10/M/U/S/G) declared: "At our school we do not allow sweets or birthday cakes. This is good for health reasons and to avoid rivalry." Another mother from the same school (10/M/U/S/B) remarked: "I agree that the school does not allow chocolate and sweets. Not all parents can afford them. Some kids even steal or ask to share if they don't have any." Similar sentiments were expressed by one mother (13/M/U/S/B) who was also a doctor and possibly met people from all social backgrounds: "Children imitate others. They see sweets and *Breakers* and will want these. It puts pressure on parents when there are no rules. It does not make the child feel an outsider when there are rules." Specific reference to self esteem was made by two mothers whose children attended church schools, perhaps reflecting a concern with social disparity from a charitable or moral perspective. Speaking about types of sweets, one mother (3/G/TI/C/B) commented: "Children feel inferior when they don't bring a particular brand and others do." In relation to tuck-shops, another mother (12/M/TI/C/G) opined: "It's

not ethical if a child can only spend so much, whilst seeing the other children spending so much more.”

Here I must mention, however, that Maltese church schools are much more likely to have a tuck-shop than state primary schools, especially when the school caters for both the primary and secondary level. Thus, most of the negative comments related to tuck-shops came from mothers whose children attended such schools. Three of the four mothers with children in church schools were fairly strong in their condemnation of school tuck-shops for different ethical reasons. Firstly, they commented on the fact that some tuck-shops sold all manner of less nutritious food; this was incongruent with class rules on healthy eating, making the latter very difficult to enforce both by the teachers and the parents. Secondly, one mother (7/M/TI/C/B) also complained that “tuck-shops abuse children by asking them high prices.” Thirdly, two mothers (7/M/TI/C/B) remarked that it was a challenge for parents to be disciplined and either not give money to their children to buy food from the tuck-shop, or else try to teach their children to use their money only on real needs and appropriate food choices. These mothers admitted that they were continually harassed by their children to give them money to spend at the tuck-shop, as expressed by one of them in the following quote:

“He drives me crazy to buy food from the tuck-shop. He says all his friends do. I am against the tuck-shop as I want him to learn to use his money wisely. Children get carried away by peers who drive them to buy foods.”
(7/M/TI/C/B)

Finally, another mother (12/M/TI/C/G) described how children saw tuck-shops as an opportunity for exercising some autonomy, an experience which they found enjoyable, but which also lead to conflict. This mother explained: “Children see it as something fun being able to buy their own food. My daughter says, ‘*Mum that girl has 60c a day to buy sweets and juice, why can't I have?*’” The mother then continued to describe how she sometimes felt awkward explaining to her young daughter that the family could not afford to give her that amount of money. Moreover, like the mother mentioned previously, she wanted to teach her daughter that buying foods from the tuck shop was a waste of money considering that she would already have a substantial and tasty lunch.

4.3.3.3 Parents' Perspectives On Imposition Of And Compliance With School Food Rules

Parents differed in their views on imposition of food rules. Twenty-six out of 30 parents were supportive of and keen for clear restrictions, but a minority of four mothers felt that rigidity was unethical, unrealistic and impractical.

Fifteen out of 30 parents and 4 out of 30 parents were in favour of a total ban on sweets and chocolates, and on salted packet snacks respectively. Five mothers were in favour of a total ban on fruit juices, five on soft-drinks and two on fruit drinks. In contrast, five mothers suggested a 'water-only' policy. However, some mothers felt that there should not be a total ban on any food and that flexibility was important. Two mothers qualified this sentiment by explaining that some children were very selective as to what they ate and would only eat a limited range of foods, particularly in the morning hours. One of these mothers (12/M/TI/C/G) commented that: "It's not right either if a child doesn't eat much. At least at school they'll have the sweets." Another two mothers made reference to the fact that some children's packed lunches regularly consisted of commonly banned items, such as salted packet snacks, confectionery and juices. These mothers felt that totally restricting processed foods had the potential of depriving these children of any kind of food intake during school hours.

One mother (7/M/TI/C/B) remarked that if rules were inflexible, this could actually be counter-productive and restrict children from having a somewhat healthy food. She described how her son's teacher had asked parents not to give children *hobz biz-zeit* because of the oil content. The mother respected the health and the messiness concern, though she knew that the tuna and other vegetable ingredients were healthy and perhaps an outright ban was not necessary. Some mothers suggested that a compromise strategy could be applied in the classroom, with teachers following certain criteria strictly and others less strictly. One comment from a Gozitan mother reflected this attitude:

"I agree that if children do not eat their bread they should not be allowed to eat their sweets. However, if there is a rule stating that only water is allowed and nothing else, it's not right if the child does not drink water."

Four mothers insisted, however, that for school rules to be effective they needed to be enforced consistently and adhered to by all involved. One Gozitan mother expressed this sentiment as follows:

“Rules are good, but everybody has to obey. I gave him fruit to school as the teacher requested, but the children still brought chocolate. So I gave him chocolate too knowing that my child would eat well at home anyway. I will tell my son off if he eats the chocolate and does not eat the bread I give him to school.” (4/G/R/S/B)

This mother’s statement shows that non-compliance by a few parents eventually led to the rules also being broken by those parents who initially had good intentions. It seems that parents did not want their children to suffer by longing for something and not getting it; they did not want to appear as being ‘cruel’ parents; above all, they felt comfortable giving less healthy foods to their child to consume at school, knowing that the child would eat healthy food at home and be punished for wasting food if necessary. One mother (10/M/U/S/G) mentioned the ironic situation where teachers themselves broke the rules: “I agree with rules, but these are sometimes infringed by the teachers themselves. Children come back and report to the parents. Rules must be enforced consistently”.

Two Gozitan mothers of a girl and boy attending the same school (6/G/R/S/G; 6/G/R/S/B) stated that school rules should not apply to all. They seemed to be implying that it was an insult to ask parents to abide by rules. They explained that most parents knew what was good for their child and only those who seemed totally oblivious to their child’s well-being should be controlled through rules. It is interesting to note that the various mothers who seemed offended by a universal application of food rules were all from rural areas. Perhaps these mothers regularly included a variety of fresh products in their children’s packed lunches and felt that they should be in control as to when and how often sweets and other less nutritious snacks were offered as well. In fact, another Gozitan mother (3/G/R/C/B) commented very unequivocally: “Many parents like to choose for themselves what they give their children.”

Two mothers felt strongly that imposing rules was a disservice to the children and it would be more beneficial if they were given the skills to make informed choices. One mother (7/M/TI/C/B) explained: “I do not believe that rules should be imposed. One needs to educate children so that they know how to choose.”

One British mother whose daughter attended the more liberal independent school raised the ethical issue of the school’s intrusion on the family’s way of life and its indirect demeaning of the family’s child-rearing practices.

"Parents can't be forced to obey rules. Food is part of their lifestyle, something very personal. You cannot dictate how they choose to live their life. Children can be taught that people eat differently, that this is better for health, but everybody has his opinion!" (9/M/TI/I/G)

With regard to compliance with school food rules, about half the parents were positive in their outlook and conceded that rules were either fairly easy to obey, or that that rules could be assimilated by mother and children, or that parents usually co-operated with schools. One mother (3/G/R/C/B) explained that "the majority of the parents would accept the rules and abide by them [because] most people are very conscious nowadays as to what is good for health." Two mothers (9/M/TI/I/G; 3/G/R/C/G) remarked that it would be easy for parents to obey school rules, because children normally wanted to imitate their peers and they tended to give more value to what their teacher ordered, than to what their parents wished.

An interesting comment was made by one mother (1/M/R/S/B) who stated that parents were naturally concerned for their children's reputation and did not want them to be labelled as 'rule-breakers'. This mother explained how she had once resorted to deception just to safeguard her son's reputation:

"The children are only allowed water at school. This rule came out overnight and my son did not like water. He used to come home not having drunk anything all day. So I used to dilute his water with 7-Up so nobody could tell and told him not to tell anybody. Now over summer I've helped him to get used to water."

Similarly, in three different focus groups (6/G/R/S/MG; 8/M/U/S/MG; 13/M/U/S/MG) children described verbal and behavioural strategies they had adopted to bypass food restrictions. These mainly involved keeping the prohibited item disclosed and then eating it discreetly, lying about the need to consume *Halls* lozenges because of a sore throat, or transferring a colourless soft drink to a small plastic bottle and passing it off as water.

Thirteen mothers viewed being able to abide by school rules in a somewhat sceptical, or very negative light. They perceived compliance with food rules as rather challenging or unachievable for different reasons. Some mothers felt that parents would be forced to modify their normal food choice and preparation habits in order to obey the food rules, though they would eventually find a solution even if some inconvenience was incurred. Other mothers remarked that actual food consumption was priority over the health value of the food. One mother (8/M/U/S/B) legitimised her reaction by stating: "You have to give them [children] bread with whatever they like, because they have to eat something for the seven hours they

are at school.” Another mother (7/M/TI/C/B) remarked that compliance was more difficult with sons: “It’s not easy for parents, especially those with boys. Boys rebel even if they know what’s good for them. For example, his sister will eat lettuce and tomato because she knows it’s good for her.”

Most of these mothers argued that the situation became very difficult when not all parents abided by the rules. This put a lot of pressure on the compliant mothers and jeopardised the validity of the rules from the obedient child’s perspective. As one mother commented:

“It’s not easy, but everybody has to stick to the rules. Children will come back and report on those who do not obey... they will want some of the forbidden foods too... The mother feels uncomfortable. She does not want to be seen as unkind.” (14/M/U/S/B)

Two mothers berated parents who did not show discipline and perseverance with their children. One of these mothers (6/G/R/S/B) disparaged as unrealistic the excuses which were sometimes used by parents to justify giving their children sweets: “Some parents say, ‘*I need to give him sweets to go to school*’. But you can train children not to have sweets at school!” The other mother (16/M/U/S/G) explained: “It’s not easy to comply. I insisted from the beginning, but some parents give in too easily. They say, ‘*That’s all my child will eat*’.” Another mother (16/M/U/S/B) was particularly disapproving of parents whose actions undermined the school’s authority: “Parents sometimes say ‘*And so what if they [the children] have some orange [squash] and some sweets*’. They say this in front of the children and so it goes counter to the rules.” In this regard, another mother (13/M/S/B) who was a doctor and seemed to be speaking from experience even claimed that, whilst the majority of parents were responsible and logical, for others breaking rules came naturally: “There are different kinds of parents: those who have common-sense, and those who are rebellious and will go against any kind of regulation.”

Four mothers were sensitive to the fact that occasionally rules were broken as a result of mothers’ limited time for food preparation, or lack of skill in time management and food production. They made it clear that they were mainly referring to working mothers. Whilst some of these four mothers distanced themselves from such a situation, others who were working mothers themselves explained that working outside the home was not an excuse for not preparing a school packed lunch incorporating fresh ingredients for their children. One mother (8/M/U/S/B) condemned those mothers who “give packets so they don’t make lunch.” However, two mothers whose children attended the same independent school were slightly

more sympathetic. They acknowledged that working mothers had myriad chores to do in the morning and other commitments to fulfill. Nonetheless, one working mother (12/M/TI/C/G) asserted: “Parents can prepare lunches in the evening. I find no excuse. They need to plan ahead.”

4.3.3.4 Children’s Perspectives On ‘School Milk’

‘School milk’ is currently provided for free to all children attending state schools. At the beginning of the scholastic year, Heads of Schools normally ask children and/or their caregivers to indicate whether they will regularly be drinking school milk. In such way administrators can calculate how much milk to order on a daily basis. Most schools offer children flavoured milk. A few offer white milk as well; and the exceptions have a ‘white milk only’ policy. Local white and flavoured milk is about 2.5% fat and flavoured milk contains artificial sweetener, flavouring and colouring. School milk is no longer budgeted for centrally by the Education Division, but has to be covered by the school budget. Therefore, administrators are very conscious of this expense and have been known to curtail quantities of milk ordered if they felt wastage was occurring. Neither church schools nor independent schools offer free school milk.

Reasons forwarded by children as to why they drank or did not drink school milk were predominantly related to flavour and serving preferences, as well as health value. (See Table 79). The same as for general milk consumption, chocolate was the favourite school milk flavour, followed by strawberry, vanilla and then white milk. However, this is a general impression I obtained from the focus group interviews, as quantification was not sought in this matter.

TABLE 79
Children’s Reasons For Consumption Or Non-Consumption Of School Milk

Influence	Reasons For Consumption	Reasons For Non- Consumption
Flavour preferences	Likes milk Likes all milk products	Dislikes milk Drinks only flavoured milk
Serving preferences		Dislikes warm milk Dislikes cold milk White milk consumed only with chocolate or cereal
Health issues	To improve dental health	Unable to swallow milk Causes vomiting Advised by doctor to limit intake
Hygiene		Milk is left exposed to the sun
Logistics		Plastic cup unavailable at home Dislikes washing cup at school

A 'white-milk-only' policy seems to have met with short-term success in one school (13/M/U/S/MG) where I interviewed children. The complex interplay of physical and social environmental factors in the children's willingness to accept a switch to a 'white-milk-only' policy can be seen from the following conversation:

- Child 1: "When white milk was introduced everybody liked it.
Child 2: "There was a box with coloured milk and another box with white milk and everybody went for the white milk and they left the coloured milk there. Only one girl went for it."
Child 1: "That was because it was the first time. For the children to impress. But then they soon stopped. Now we want the coloured milk, because we're fed up with the white milk."
Child 2: "Because they leave it outside, and open, and in the sun."

It is clear from this conversation that novelty, peer modelling and perhaps favour-seeking with teacher were motivational factors in the process of adoption of this new behaviour. Nonetheless, specific flavour satiety and location of storage were eventual barriers to continued adoption, with hygiene and presentation concerns emerging even amongst such young children. In other words, it seems that at least for this group of children, the overall sensory experience and food safety were of greater influence than other more social factors.

Indeed, some state schoolchildren justified their non-consumption of school milk by referring to logistical issues regarding serving practices. For example, one child (8/M/U/S/MG) mentioned not having a plastic cup at home which was the only type allowed for school milk: "I don't drink it [school milk] because my mum doesn't have a cup. She only has glass ones." Another child (4/G/R/S/MG) referred to the inconvenience of washing his milk cup: "I have milk at home, but not at school. Not because it puts me off, but it's just that because of the cup - so that I don't have to wash anything." The first child's statement is quite an eye-opener, as it would be extremely sad if a child refused to drink school milk simply because of lack of the requisite type of cup. Schools could have a stock of spare plastic cups and lend these to those children who do not bring a cup for one reason or another. At the same time, the recommended type of cup could be listed with the school rules shared with parents at the beginning of the year. As for the second child's comment, washing up should be integrated as part of the school lunch ritual. Nonetheless, should children and parents be more comfortable washing the cup at home, this should be allowed if it will facilitate the child's drinking school milk. In the future, schools might start offering milk in individual cartons with straws (Oscar Attard, Sales Manager Malta Dairy Products, personal communication 21/7/03). Should this happen, both the above problems would be eliminated.

4.3.3.5 Parent-Recommended School Food Policies And Rules

The food-related recommendations put forward by parents can be grouped under school administration and activities, school food consumption logistics and specific food rules. Some recommendations were mentioned by a majority of the parents; others by a few or even just individuals. An indication of the strength of the recommendation will be given in the following sections.

4.3.3.5.1 School Administration And Educational Activities

One mother (13/M/U/S/B) stressed that it was important for the school administration or the class teacher to meet parents at the beginning of the year, or whenever necessary, to explain the rationale behind any food policies or rules. She described a meeting she had attended when a 'white-milk-only' policy was introduced: "School X started bringing white milk only, but the parents complained. The Head of School held a meeting and explained that all flavoured milk only contained colouring, flavouring etc. Of course some parents still disagreed."

In light of such situations where parents and the school administration did not see eye to eye, three mothers suggested that occasionally the school should show that it was willing to compromise with regard to rules. Two mothers with children attending the same school (14/M/U/S/G; 14/M/U/S/B) spoke about the existing 'water-only' and 'white milk only' rules. They remarked that it was not so easy to abide by this rule and suggested that children should be allowed to at least dilute the beverages: "Giving them white milk is OK, but they need to be allowed to add essence." Another example of compromise mentioned by one mother (10/M/U/S/B) was at least allowing sweets during school outings.

The role of the school in educating parents about food and health was emphasised by three mothers. They commented that parents needed to be taught the importance of exposing children to a wide variety of healthy foods to encourage their consumption, whilst reducing the chances of boredom. They also needed to be taught about using healthy Maltese foods and about the link between food and dental health. As one mother (13/M/U/S/G) explained: "Parents learn from the radio about food. There are some very good programmes. But some parents do not listen to the radio, or listen to music only. Schools need to educate parents." Another mother (12/M/TI/C/G) highlighted the "need to teach young parents how to cook healthy foods quickly." In fact, organising shared cookery lessons, involving children and

parents in preparing quick and healthy school packed lunches, was proposed as a helpful strategy by two mothers (2/M/TI//B; 13/M/U/S/G).

Class-based nutrition education for children, targeting healthy food choices and dental hygiene, was also referred to as crucial by three mothers from different schools (6/G/R/S/B; 10/M/U/S/G; 16/M/U/S/G). One mother suggested that lunch breaks were an opportunity for class teachers to educate about a variety of healthy foods and she explained how this could be organised:

“The teacher should promote healthy eating during break. She can show something different which a girl or boy have brought that day in their lunch. Once a week they [the children] can talk about their lunches. Children will surely try to bring different foods then.” (6/G/R/S/B)

Another mother (16/M/U/S/G) recommended that the children be taken to brush their teeth after consuming their school lunch.

Four mothers of children attending different school types and regions (4/G/R/S/G; 7/M/TI/C/B; 9/M/TI//G; 15/M/TI//G) referred to a competitive element. They recommended having team competitions within the class where points were awarded for bringing fruits, vegetables and so on. According to one mother (4/G/R/S/G), “girls especially enjoy this.” Another mother (15/M/TI//G) suggested that points could also be awarded on an individual basis; for example, for reporting having had breakfast, for each healthy item in the lunch box, for eating a salad or for eating a fruit as part of one’s school lunch. These mothers asserted that where such schemes were already being implemented, teachers reported positive outcomes.

Three mothers from non-state schools (7/M/TI/C/B; 12/M/TI/C/G; 15/M/TI//G) suggested that the school calendar could be punctuated with a variety of events, such as a Health Week, a Salad Week, a Fruit Week, or even a Food Day. They explained that if these ‘special’ activities were scheduled at the beginning of the scholastic year it would help parents plan ahead when preparing packed lunches.

Individual mothers mentioned specific policies they would wish to see implemented. These focused on the content of the lunch boxes and actual consumption of the foods in the lunch boxes and involved monitoring by the teachers. One mother (6/G/R/S/B) insisted that teachers should ensure that children at least eat their sandwiches or rolls. She was aware

that “some teachers are capable of going round and checking that the children have eaten all their bread” and she felt such monitoring should be implemented in all schools. This mother also recommended that teachers should not allow children to eat any sweets if they had not eaten the rest of their packed lunch.

4.3.3.5.2 Food Consumption And Storage Logistics

Some of the parents’ recommendations were directed at food consumption or storage logistics. Two mothers suggested that enough time needed to be allowed for children to consume their lunches at a leisurely pace. If the lunch boxes contained a number of items it was unfair to have the children rush their meal in order to have time to go out to play. As one mother (14/M/U/S/B) explained: “Perhaps they could have a longer break in the morning, or equalise the breaks. My son sometimes says they do not have time to eat before going out to play.”

Another issue was the pleasantness or appropriateness of the food serving or consumption environment. One mother (8/M/U/S/B) described how her son refrained from drinking school milk as a foul smell of sour milk prevailed in the location of serving and this put the child off completely. Another mother (4/G/R/S/G) pointed out that children often did not drink the freezing cold milk during the winter months, as this was kept outside for a number of hours before being consumed. This mother described how one teacher had resolved this problem by adding a drop of boiling hot water to the milk in the children’s cup. This had helped to increase overall milk consumption in her classroom.

4.3.3.5.3 Specific Food Rules

Proposals for specific foods mentioned by the parents can be categorised under ‘prohibited’, ‘allowed’ or ‘recommended’. (See Table 80). These different proposals once again revealed the parents’ priorities related to food and health. It is clear that salty snacks and sweet confectioneries and drinks were not favoured by parents, whereas cereals, fruit, white milk and water were. The majority of mothers whose children attended state schools also mentioned that children should be encouraged to drink school milk.

Two mothers felt measures should be taken to prohibit children bringing excessive quantities of certain foods or of money to school. One mother (8/M/U/S/B) proposed a rule that fruit juices should be limited to “not more than one packet, otherwise the teacher will take it.” The other mother (12/M/TI/C/G) recommended that “No child is allowed more than so much

TABLE 80
Food-Specific Rules Proposed By Parents

PROHIBITED	ALLOWED	RECOMMENDED
Salted packet snacks	Some biscuits	Fruit
Large salted packet snacks		(one piece daily)
Chocolates	Water flavoured with squash	Tomatoes
Sweets	White milk flavoured with essence	(with bread or salads)
Soft-drinks		Cereals
Orange squashes		(instead of packet snacks)
Fruit juices	Daily limit of one salted packet snack	Cereal bars
Fruit drinks		(instead of chocolate)
Messy foods	Limit on amount of food money allowed per child (e.g. enough to buy just one salted packet snack)	Water
Oily foods		(instead of fruit juices)
Fried foods		School milk

money; for example, the cost of one snack packet up to 25c.” This would inhibit children from needlessly spending a lot of money at the tuck-shop, avoid exaggeration and curtail rivalry. The whole issue of school tuck-shops re-emerged in three interviews, with parents insisting that “tuck-shops not only sell junk food [but] provide more variety and healthier foods” (12/M/TI/C/G); “definitely no fried foods”. (2/M/TI/I/G) Contrastingly, one mother (2/M/TI/I/B) opined that tuck-shops were perhaps necessary and forwarded a number of justifications for her claim. (See Table 81).

TABLE 81
Beneficial Role of Tuck-shops

<ul style="list-style-type: none"> • Tuck-shops could sell healthy food to children whose parents did not have time to prepare a school lunch box with fresh items (so they would not resort to presenting lunch boxes consisting of only processed convenience foods) • Tuck-shops could provide a hot snack to children, especially those who had a long school day • Tuck-shops could expose children to a variety of less familiar healthy foods • Tuck-shops could prompt children to try a new healthy food as a result of peer modeling
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4.3.3.6 Discussion And Comparison With Previous Studies

These results have shown that some primary schools in Malta do have policies and rules regarding foods consumed on school premises. This concurs with previous research in 43 local primary schools which showed that about one half (43.8%) of the respondent schools had some form of written food-related policy (Attard, 2001). These ranged from one-

sentence statements on foods recommended for school packed lunches, to multiple references regarding permissible and prohibited foods and beverages, duration of lunch breaks and school milk provision. Foods prohibited by these schools were soft-drinks, chocolates, sweet snacks, salted packet snacks, packet juices, chewing gum and acid drops. These items are very similar to those which emerged from my research, even with regard to magnitude of prohibition. Additional items mentioned by my children were creamy birthday cakes and iced tea, whereas both children and mothers mentioned squashes and fruit drinks. It could be that certain items, such as the iced tea and fruit drinks, were not so readily available at the time of Attard's (2001) study. In contrast, they had become much more common in school packed lunches at the time of my research, so that some school administrators had taken measures to regulate their intake.

During the course of the interviews the parents made a number of recommendations which went beyond food restrictions to include the wider school nutrition environment. Their recommendations addressed administrative, pedagogical and physical issues, such as foods allowed on school premises, adjustment of school lunch periods, nutrition education in the classroom and parental education on healthy eating. The various recommendations which they forwarded are in keeping with a number of studies and reports which have been conducted on this theme. For example, a report titled 'Healthy Eating For Young People In Europe' described research on the school's role in promoting healthy eating and suggested a curriculum framework for nutrition education comprising the taught curriculum, the whole school ethos and family and community links (Dixey et al., 1999). Similarly, a recent position statement by the American Dietetic Association, the Society for Nutrition Education and American School Food Service Association (2003) described the need for school food policies which link comprehensive, sequential, nutrition education; access to and promotion of nutritious meals and snacks in the school environment; and family, community and health services partnerships supporting positive health outcomes for all children. In both documents it was implied that schools had a duty to model healthy food choices and assist parents in promoting healthful eating practices among their children. These obligations were mentioned by some Maltese mothers in my study. However, mothers also raised other ethical issues, such as: The need for schools to facilitate children eating or drinking something during the school day, the need for schools to regulate quantities of food brought from home or bought at school and the need for adaptation to individual and family circumstances.

Since I started work on my research, various foreign nutrition and/or health-related statutory institutions and professional organisations or associations have presented guidelines and frameworks for ensuring healthy school nutrition environments (Bogden, 2000; Cline & White, 2000; The Health Education Trust & The Design Dimension Educational Trust [UK], 2000; US Center for Food and Justice, 2002; American Dietetic Association, Society for Nutrition Education & American School Food Service Association, 2003; USDHHS/CDC [online]). These have mainly encouraged the involvement of all interested stakeholders and suggested different structures for policy development, implementation and monitoring. The British School Nutrition Action Groups (SNAGs) are one such example (The Health Education Trust & The Design Dimension Educational Trust [UK], 2000). These are school based alliances in which staff, pupils and caterers, supported by health and education professionals, work together to review and expand the range of food and beverages in schools in order to increase the uptake of a healthier diet and ensure consistent messages from the curriculum and the school food consumption setting.

In a similar vein, an evaluation of projects within the European Network of Health Promoting Schools has reported on the importance of working at different levels, focusing on the classroom, the school and the community for improving healthy food consumption amongst school children (Dixey et al, 1999; Sahota et al., 2001; Piette et al., [online]). In fact, one factor mentioned by both the Maltese children and mothers was the discord between the nutrition environment children were exposed to in schools and food rules regarding packed lunches, or teachers' and parents' efforts to encourage their children to eat more healthily. Maltese parents were concerned that many snack foods and beverages allowed on school premises lacked the nutrients necessary for growth, or could lead to excess weight and other health problems. Some children were also receiving a mixed message, because while they were learning about good nutrition during lessons or from their parents, they were free to consume low-nutrient and/or high-energy foods both in and outside the classroom. The negative impact of this lack of synchronicity on children's and parents' conformity with food policies was also reported in US studies (Gittelsohn et al., 2000; Borra et al., 2003).

In both the UK and the US, guidelines and regulations are being developed to control the nutritional value of foods available on school premises via vending machines or tuck-shops, and also what can be sold during school fundraising events (UK Department for Education & Employment, 2000; USDA, 2001; Agron et al., 2002; Valliantos, 2002). California Senate Bill 19 (Escutiam, 2001) requires that snacks in elementary schools are limited to a maximum of

35% of calories from fat, a maximum of 10% of calories from saturated fat, and a maximum of 35% sugar by weight. Simultaneously, California Senate Bill 677 (Ortiz, 2003) sets nutrition standards for beverages limiting these to milk, water, 100% fruit juice or fruit-based drinks with at least 50% fruit juice and with no added sweeteners. In the UK, as part of the National Healthy School Standard, it is explicitly stated that food on offer in vending machines and tuck-shops should complement the taught curriculum (Department for Education and Employment, 1999).

Previous research with Maltese 8-10-year-olds has shown that 25% of children bought foods from school tuck-shops and 23% from vendors parked outside the school gates (Costa, 1998). In both cases, much of the food purchased was of low nutritive value. At the same time, similar to the mothers in my study, the parents of these children felt that peers were a strong influence on such food behaviours.

The influence on children's food preferences and intake of peers acting in social contexts has been reported in US studies (Letarte, Dube & Troche, 1997). Of note is that in my study classmates seemed to positively influence vegetable intake through modelling of consumption. This concurs with findings from studies with US schoolchildren, where peers influenced vegetable intake through exhibiting consumption of such foods, especially during school lunch (Cullen et al., 1998; Cullen et al., 2000). This impact of observed and shared experiences in creating cultural norms for food preferences and intake is also explained by studies using Social Cognitive Theory (Glanz, Lewis & Rimer, 1990; Reynolds et al., 1999)

Various reasons presented by Maltese children on the rationales for schools rules have also been mentioned by Australian schoolchildren, showing the universality of concerns such as high fat and/or high sugar content, dental health, weight gain and choking (O'Dea, 1999). Yet, whilst Maltese children also mentioned hygiene and other safety issues, Australian children also mentioned hyperactivity, discomfort and religious reasons. The Maltese children's concern with hygiene could in fact stem from a general cultural obsession with indoor and personal cleanliness, from the renewed focus on food safety in recent campaigns by the Health Promotion Department and from food hygiene lessons in the classroom. The Australian children's mention of religious principles is probably a reflection of the multi-cultural setting in which Australian children are learning: a setting which is becoming increasingly prevalent in Malta and may also have to be considered in planning future school policies.

Whilst some Maltese children expressed sadness at not being allowed to consume certain foods, a few of them acknowledged that the desired food could always be consumed elsewhere out of school hours. As mentioned in previous sections, several studies with young children have indicated that restricting access to foods may increase children's preferences for these foods, while diminishing self control in eating (Birch, Zimmerman & Hind, 1980; Johnson & Birch, 1994; Fisher & Birch, 1999a, 1999b). Since foods high in sugars and fats are the likely targets of restriction in schools, this practice may draw children's attention to and focus their behaviour on foods that should be consumed in moderation. Whereas, on the one hand, this may not have detrimental outcomes if alternative palatable and healthy foods are recommended or made available. On the other hand, it has been proposed that children who experience restriction on a long-term basis will preferentially select and consume palatable, restricted foods when given the option of making their own choices (Fisher & Birch, 1999). This has implications for Maltese children who will have experienced restriction throughout most of their primary schooling, as they may lack self-discipline once they find themselves in the more liberal, autonomy-granting tuck-shop environment of secondary schools.

Maltese children and mothers also mentioned schemes which awarded children points when they brought 'healthy' foods for consumption as part of their packed lunch. These schemes seemed to be acceptable to the children and mothers who described them, as both appeared to find the in-built compromise as fair and the competitive element as a good incentive. This scenario supports Timberlake and Farmer-Dougan's (1991) suggestion that regulating feeding practices by encouraging intake of 'good for you' foods may have a different impact on children's eating behaviour, than by restricting children's access to so-called 'bad' foods. As indicated by some Maltese mothers, such schemes need monitoring by the class teacher to ensure that the 'healthy food' contents of the school packed lunch are actually consumed. However, here one must point out that it seems that non-state schools were more likely to organise such competitive point schemes based on children bringing in healthier foods in their packed lunches. It could be that state schools were reluctant to organise such schemes for ethical reasons, fearing that this would disadvantage children from less financially secure families. In a similar vein, non-state schools also seemed more likely to organise food-related days and events, perhaps because administrators and teachers felt less bound by the rigid NMC.

An unexpected consequence of food restrictions was revealed when some children and a mother described strategies adopted in order for the children to be able to consume a prohibited food at school. Such behaviour was also described as typical amongst US children (Gittelsohn et al., 2000; Kaiser et al., 2001). Creating an environment in schools which compels children to resort to deception may be seen as unethical and demeaning, especially by parents, and could be one barrier against establishing some kind of food policy in schools. This suggests yet another valid reason for involvement of all stakeholders when developing such policies.

Children spoke about motivators and barriers to consumption of school milk. Some spoke positively about the health value of milk and pleasant taste; others spoke negatively about lack of flavour options and logistics of serving. My findings parallel those of studies with US and Asian young and pre-adolescent children, where flavour preferences and beliefs on the health value of milk, as well as cafeteria rules and other environmental factors influenced milk-drinking behaviours (Novotny, Han & Biernacke, 1999; Connors, Bednar & Klammer, 2001; Auld et al., 2002). Having a personal cup for school milk is the general procedure in Malta; yet some children found this inconvenient as they either had to bring the cup from home daily, or wash it themselves to leave it at school. In one of the US studies, it emerged that children would have preferred a single-serve plastic bottle or straw to be available for ease of consumption (Connors, Bednar & Klammer, 2001). Also in the US, the use of milk vending machines is being particularly recommended as they have been shown to make milk more accessible and more appealing to students (US National Dairy Council, 2003; Wisconsin Milk Marketing Board, [online]). In Malta, any consideration of a single-serve disposable container needs to weigh in the waste management perspective, ideally seeking recyclable or biodegradable materials.

One Maltese mother specifically expressed concern that children did not have adequate time to eat their packed lunch and/or line up for school milk. Similar concerns were expressed by British parents (The Food Commission, 2001), by US teachers and administrators (Gittelsohn et al., 2000; Kaiser et al., 2001; Rainville & Brown, 2003 [on line]) and by US children and teenagers, especially elementary school boys (International Dairy Foods Association, 2001 [online]; Buerger et al., 2002). A strategy adopted a few years ago by some US schools was that of organising playtime before the children consumed their school lunch (Getlinger et al., 1996). This resulted in greater readiness to eat, reduced food waste, pupils eating more slowly, less disciplinary problems and a more relaxed and pleasant eating

environment with time to socialise. In another study, when playtime was held prior to eating lunch, children drank more milk, very likely because they were thirstier (Denise Higgins, teacher Douglas County School District, USA, personal communication 10/10/02). More recent published studies on the effectiveness of these strategies were difficult to locate. However, it would be useful to explore reactions to such a proposal for local schools.

Maltese mothers suggested that schools could offer cookery lessons to mothers, or involve parents in food preparation activities with their children. A few mothers specifically referred to 'working mothers' and how they perhaps lacked the skills to quickly prepare nutritious packed lunches for their children. As a result, these 'working mothers' resorted to giving their children less healthy packet snacks and other convenience items which required little preparation. Initiatives where parents participated in food-tasting or cookery sessions organised by their children's schools have been successfully implemented in other countries (James & McColl, 1997; Siem Gribble et al., 2003; BNF, 2004 [on line]). Other tools which were also used to teach parents about healthy snacks for children and how to present food attractively to children, included newsletters and websites. The potential to be able to access on line information and support from parents facing similar challenges was perceived as beneficial by US parents (Borra et al., 2003). The use of information communication technology to reach parents has yet to be harnessed by local nutrition educators.

Maltese mothers also referred to the usefulness of teachers asking children to talk about the health value of the foods in their lunchboxes in order to increase requests for healthier foods and ultimately increase consumption. This is a practical comment which is easy to implement. As the mothers are suggesting, children themselves can be seen as effective resources and interaction on a classroom level will be a potentially enriching experience for all. Similar conclusions were reached by teachers involved in action research on children's understanding of food and health in the UK (Turner, 1997).

In my role as co-ordinator of the task force established for starting the process towards developing a national school food policy for Malta, I hope to build upon the lessons learnt from my study and other local and foreign experiences. My research has indicated that most Maltese parents and mothers acknowledge the importance of school food rules, mainly to ensure the physical and social well-being of children. Similarly, most children acknowledge the benefits of school food rules. Existing rules are mainly applicable to school packed

lunches; however, parents feel that rules should incorporate both foods brought from home and foods bought from tuck-shops.

The extent of imposition of rules is more controversial, especially from the parents' perspective. Hence, one of the key tasks of TASNE will be the development of food-specific rules for school packed lunches, indicating clearly which are obligatory and which are non-obligatory, but should be considered as recommended guidelines. Meanwhile, TASNE will also need to develop guidelines for school administrators to help them draft contracts for prospective tuck-shop managers and caterers. Some parental input on the latter issue could also be sought by administrators via the school council or parent-teacher association. Tuck-shop contracts would then stipulate certain criteria which need to be met when it comes to food provision, based on the nutritive value of each item or on its main ingredient/s by volume.

Parents' food-specific recommendations as emerging from this research would certainly need to be considered by TASNE. A total ban on items such as sweets and chocolates, salted packet snacks, fried foods, soft-drinks and fruit drinks seemed to be acceptable by the majority. To a lesser extent, fruit juices were also considered a food to be prohibited. The US Academy of Pediatrics recommends that fruit juice intake is controlled and especially avoided between meals, warning that excess intake of juices by children can increase the risk of dental caries and obesity (Baker et al., 2001). Therefore, limiting the packets of juices consumed at school by Maltese children would likely be beneficial. It would also be useful to educate parents on differences between fruit juices and fruit drinks.

For other foods, such as biscuits, sandwich fillings, milk and water, Maltese parents seemed to prefer guidelines regarding restrictions on type and quantity, as well as certain flexibility regarding ingredients. TASNE would need to suggest appropriate healthy fillings for sandwiches, or identify alternative snack-type foods which are substantial, healthy, appealing and accessible to all families. Allowing children to add some kind of flavouring to water or to white milk seemed to be desirable by a number of parents, and this could be seen as a compromise strategy if other beverages are banned. Similarly, a list of sweet-tasting snacks which are less energy-dense could be presented to parents, although fresh fruit should be the primary 'sweet' snack recommended.

TASNE could also define certain minimum periods required for children to consume their packed lunches and describe the different logistics which have been trialled abroad regarding sequence of food consumption time and play time.

Clearly, realistic and practical food policies and rules need to be developed so that parents, children, teachers, administrators and any school-related food providers will be willing to cooperate and find it feasible to comply. Within my research I specifically explored children' and mothers' perspectives on school food rules, focusing on attitudes, compliance and problems faced. There is very little published research on this topic, so I had little means for comparison. Further research is warranted in this field, together with improved structures for the dissemination of reports on good practice and evaluation of effectiveness of school food policies in European countries. Recent initiatives, such as the EVA2 project on sustainable development and dissemination of successes within the European Network of Health Promoting Schools (Piette et al., [online]), are a first step in this direction.

4.4 Community Level Influences

In this part of the chapter I shall focus on one community level influence on children's food preferences and intake: namely, cultural foodways manifested in cuisine orientations of meals. The different response options in the children's large-scale survey on dietary intake and preferences (N=1088) had been chosen to reflect three different culture-cuisine orientations, based on the foods commonly eaten by children as determined in an earlier stage of the research. The three cuisines studied were traditional Maltese (M), Italian (I) and Western (W). Thus, from the data collected, any trends in cuisine orientations of meals or beverages consumed and preferred by children in different settings could be identified. Eventually, during both the children's and the parents' interviews some reference was made to cuisine issues by the participants, but these were minimal. However, one factor which did emerge fairly strongly and will be discussed briefly is the influence of grandparents on children's consumption of traditional food.

4.4.1 Cuisine Orientations Of Consumed And Preferred Foods And Drinks

Table 82 gives a general overview of the cuisine-distribution of children's food consumption and preferences for each of the consumption settings. Cuisine orientations for the three categories *Most often consumed*, *Sometimes consumed* and *Preferred* foods and drinks are shown. A more graphical representation of the extent of the orientations can be seen in Table 83, where the top cuisine orientations for each setting and category are indicated.

The Western orientation was very strong for Breakfast, with children significantly more likely to *most often* consume Western foods than Maltese or Italian foods in this setting (W vs. M: OR=6.1478, CI=3.307-11.4289, $p<0.0001$; W vs. I: OR=18.3292, CI=8.2943-40.5049, $p<0.0001$). The Western cuisine also dominated for Eating Out, surpassing the other cuisines in all three categories. Children were nearly three times more likely to *most often* consume and prefer Western foods rather than Maltese foods in this setting (Cons.: OR=2.9506, CI=1.5868-5.4867, $p=0.0005$; Pref.: OR=2.6987, CI=1.4513-5.0184, $p=0.0015$). Similarly, Western foods dominated for Going Out And Stopping For A Snack. Although the Maltese orientation was more or less equally present in the category for *Most often consumed* foods, children were more than three times more likely to prefer the Western over the Maltese foods in this setting (OR=3.4245, CI=1.8367-6.3855, $p<0.0001$). The Western orientation was also predominant amongst the responses for *Most often consumed* School Packed Lunch and for the responses for Drink options. In particular, the Western beverages were more than three times more likely to be preferred over the Maltese- or Italian-oriented

TABLE 82
Children's Frequency And Preference (Pref.) Of Consumption Of Different Foods And
Drinks By Cuisine Orientation In The Ten Different Consumption Settings (N=1088)

Setting	Maltese			Italian			Western		
	Most Often %	Sometimes %	Pref. %	Most Often %	Sometimes %	Pref. %	Most Often %	Sometimes %	Pref. %
Breakfast	23.2	33.5	36.4	9.2	23.7	24.9	65.0	36.6	37.3
School packed lunch	32.3	29.9	29.6	20.8	30.9	42.6	44.2	31.7	24.7
After-school meal	24.0	31.1	14.6	48.8	35.7	68.1	23.4	26.9	14.0
Snack at home	47.0	29.9	35.5	17.0	26.2	31.6	31.9	36.5	29.3
Weekday supper	28.3	25.6	26.5	42.3	41.1	50.9	25.3	27.9	19.9
Sunday lunch	32.1	27.3	23.2	27.8	34.7	36.9	36.0	33.0	36.2
Eating out	21.3	21.9	21.5	30.1	33.3	32.4	44.4	38.2	42.5
Going out & stopping for a snack	36.6	28.3	20.7	20.9	29.0	27.6	37.9	37.2	47.2
At the beach	28.8	25.8	16.9	43.8	37.9	67.9	23.9	30.9	11.9
Drink with meal, snack or when thirsty	29.7	33.7	24.6	23.5	24.4	18.4	42.6	35.3	52.7

TABLE 83
Extent Of Cuisine Orientation For Frequency Of Consumption And Preference Of
Foods In The Ten Consumption Settings (N=1088)

Setting	Maltese			Italian			Western		
	Most Often	Some-times	Pref.	Most Often	Some-times	Pref.	Most Often	Some-times	Pref.
Breakfast			m ^a				W ^b	W	W
School Packed Lunch		M	m		I	I	W	W	
After-School Meal				I	I	I			
Snack at Home	M		M					W	
Weekday Supper				I	I	I			
Sunday Lunch	m				I	I	W	w	W
Eating Out							W	W	W
Going Out & Stopping For A Snack	m						W	W	W
At the Beach				I	I	I			
Drink with Meal, Snack or When Thirsty		M					W	W	W

a A lower case letter indicates the result for this orientation was very close to the result of the dominant orientation

b An upper case letter indicates the dominant orientation based on topmost frequency

ones (W vs. M: OR=3.415, CI=1.8723-6.2289, $p<0.0001$; W vs. I: OR=4.9411, CI=2.6046-9.3724, $p<0.0001$).

The Italian cuisine dominated for After-school meal, Weekday Supper and At The Beach. For the After-school meal, children were about three times more likely to *most often* consume Italian foods than foods from the other cuisines (I vs. M: OR=3.0182, CI=1.6504-5.5195, $p=0.0003$; I vs. W: OR=3.1201, CI=1.7009-5.7234, $p=0.0002$). Children were also thirteen times more likely to prefer food with an Italian orientation in this setting (I vs. M: OR=12.4871, CI=6.2234-25.0551, $p<0.0001$; I vs. W: OR=13.1137, CI=6.4847-26.5191, $p<0.0001$). Similarly, for Weekday Supper children were three to four times more likely to prefer the Italian-oriented foods (I vs. M: OR=2.8753, CI=1.59-5.1995, $p=0.0004$; I vs. W: OR=4.1727, CI=2.2262-7.8211, $p<0.0001$). Yet, the Italian cuisine dominated outright in the At the Beach setting. Italian foods were about twice as likely to be consumed, than foods from the other cuisines (I vs. M: OR=1.9267, CI=1.0723-3.4619, $p=0.0273$; I vs. W: OR=2.4816, CI=1.3537-4.5492, $p=0.003$). However, preference was ten times more likely than for Maltese-oriented items (I vs. M: OR=10.4011, CI=5.3188-20.3398, $p<0.0001$) and nearly sixteen times more likely than for Western-oriented items (I vs. W: OR=15.6601, CI=7.4966-32.7134, $p<0.0001$).

The Maltese cuisine orientation only emerged strongly for the Snack At Home setting, being the top cuisine for the *Most often consumed* foods and *Preferred* foods. Maltese foods were nearly twice as likely to be consumed as Western foods (M vs. W: OR=1.8931, CI=1.0649-3.3655, $p=0.029$) and over four times as likely to be consumed as Italian foods (M vs. I: OR=4.3296, CI=2.2534-8.3189, $p<0.0001$). However, preference for Maltese foods in this setting was not that strong compared to the other cuisines. Of note is that the Maltese snack was more or less at par with the Western snack for *Most often consumed* foods when Going Out And Stopping For A Snack.

Sunday Lunch foods had a fairly equitable cuisine distribution, perhaps making this consumption setting the most balanced of the ten. The *Most often consumed* foods pertained to the Western orientation, but the Maltese orientation was nearly equally strong (M - 32.1% vs. I - 27.8% vs. W - 36.0%). In contrast, the Western orientation was marginally less strong than the Italian for both the *Sometimes consumed* and *Preferred* foods (sometimes: I - 34.7% vs. W - 33.0%; preferred: I - 36.9% vs. W - 36.2%), and the Maltese orientation was slightly weaker than both (sometimes: 27.3%; preferred: 23.2%).

4.4.1.1 Home-Based Versus Non-Home-Based Meals

Cuisine orientation of home-based versus non-home-based meals was compared to uncover any trends. From Tables 82 and 83 it is clear that, the Western orientation had emerged strongly for both home-based and non-home-based meals, such as Breakfast, School Packed Lunch, Eating Out and Going Out And Stopping For A Snack. The Italian cuisine had emerged strongly for two home-based meals - After-School Meal and Weekday Supper - and one non-home-based meal - At the Beach. The Maltese cuisine orientation was also stronger in home-based meals, namely Snack At Home and Breakfast. However, it was also fairly strong in one non-home-based setting - Going Out And Stopping For A Snack.

Based on these observations, the results for *Most consumed* and *Preferred* foods were combined and averaged to obtain a percentage per cuisine (M vs. I. vs. W) for home-based and non-home-based meals. (See Table 84). School Packed Lunch was categorised under home-based, as it is prepared at home for most children. Sunday Lunch was not included in this exercise as previous analysis of the results had shown that children were split as to where they consumed this meal, with some of them eating it at home or at grandparents' and others at a restaurant. Drinks were also not included in this comparison.

TABLE 84
Categorisation of Meals As Home-based Versus Non-home-based

Home-Based Meals	Non-Home-Based Meals
Breakfast	Eating Out
School Packed Lunch	Going Out And Stopping For A Snack
After-School Meal	At The Beach
Snack At Home	
Weekday Supper	

Figure 6 clearly shows that cuisine orientation differences between home-based meals and non-home-based meals were minimal for consumed foods in all three cuisines and nearly non-existent for Maltese preferred and Italian preferred foods. On the other hand, the Italian cuisine was by far the strongest for preferred foods for both home-based and non-home-based consumption settings. It seems that Maltese cuisine tended to be consumed slightly more in home-based meals than in non-home-based meals (31.0% vs. 28.9%). In contrast, the Western cuisine tended to be preferred for non-home-based meals somewhat more than for home-based meals (33.9% vs. 25.0%).

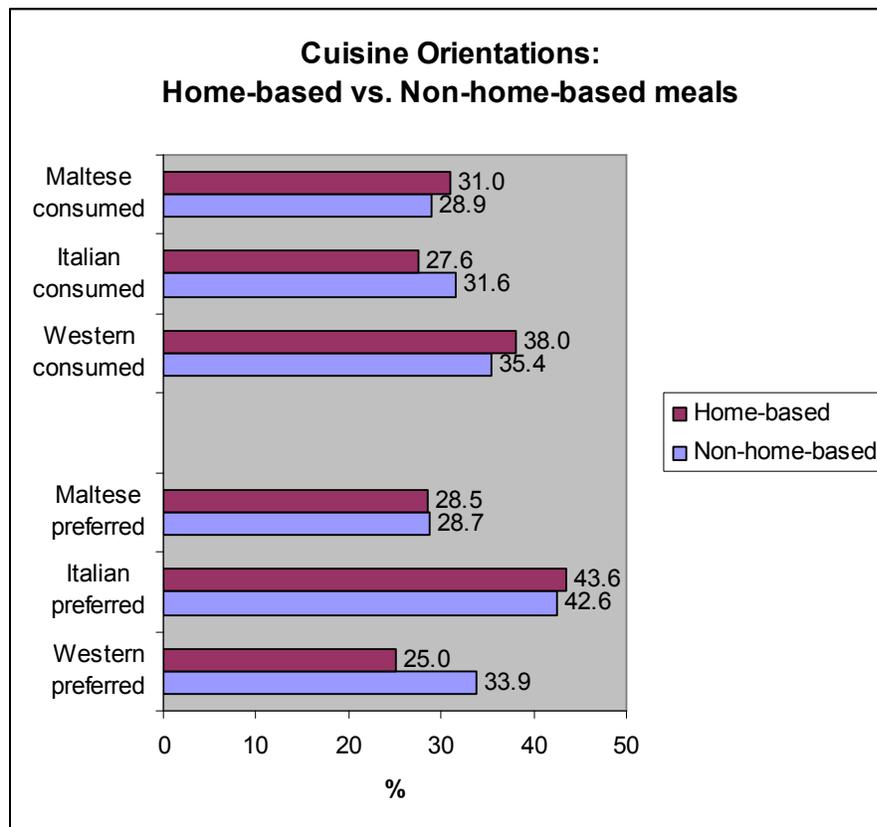


Figure 6. Cuisine orientation of home-based and non-home-based meals (N=1088)

These trends were in fact substantiated during the children’s focus groups. For example, hot-dogs were consumed both in public and in private settings, such as festas, soccer games, take-away kiosks and at home. *Qaghaq*, *biskuttelli* and cookies were generally consumed in the home or at grandparents. One child (9/M/TI//MG) even mentioned eating *qaghaq* and *biskuttelli* in the car after sailing lessons.

An interesting comment was made by an independent school boy (2/M/TI//MG) showing how he was much keener on foreign milk and skeptical of the taste of the local milk:

Child: “Because I drink the *Parmalat* milk and I wouldn’t be sure if it [school milk] would be good to drink.”
 SP: “You prefer to drink *Parmalat* milk...”
 Child: “Yes, because they are Italian.”

Such declaration not only reveals that the child is exposed to a variety of milk products which allows for critical comparison, but also that his family’s SES allows accessibility to an

imported food at the high end of the price bracket, and that the child has lack of confidence in the quality of locally-produced foods. The latter could be a generalised perception based on some objective reality. However, it could also reflect an attitudinal belief being transmitted by the parents that imported products are superior. Such belief is still quite prevalent in all strata of Maltese society.

The influence of exposure on familiarity with traditional snacks was evident from two children's contrasting comments when shown some *biskuttelli*. One Gozitan child (4/G/R/S/MG) immediately remarked that these were usually distributed during the feast of the 'Blessing of the Animals'. Yet, one independent school child (2/M/T/I/I/MG) did not even recognise the *biskuttelli*, but thought they were garlic bread like that which he ate at *Pizza Hut*. Clearly, there was a cultural-cuisine contrast in these children's backgrounds, very likely related to region of residence, which determined opportunities for exposure to foods in different contexts.

The Westernisation of traditional foods was vividly revealed in one child's (5/G/R/S/MG) description of how *qaghaq* reminded him of the doughnuts seen in American police TV series or films:

“Because when you eat a *qaghaq* it's like eating a doughnut. I pretend to be playing policemen. Because those in the films, they eat doughnuts. Then my sister and I eat *qaghaq* pretending to be like the policemen. Yes, in the film he has a box of doughnuts, he gets one and he eats it.”

If this association served to encourage the child to eat more *qaghaq*, then perhaps this was a positive outcome. In contrast, if the child modified the *qaghaq* by sprinkling with sugar or adding jam to make it more like a doughnut, then the outcome would be negative. This global impact of TV images on children's snack food culture was also reflected in one independent school child's (9/M/T/I/I/MG) description of *qaghaq* as being “soft, like doughnuts with sugar”, implying that he was more familiar with the latter than the former.

4.4.2 The Influence Of Grandparents On Consumption Of Traditional Maltese Foods

Eating meals at grandparents' increased the likelihood that children were exposed to traditional Maltese cuisine (M). Table 85 shows that for the three different meals where location of consumption was determined, a higher proportion of children ate Maltese cuisine foods than Western foods (W) when these meals were eaten at grandparents. Although, Italian cuisine food (I) predominated, this was not the case for Sunday Lunch where

TABLE 85
Cuisine Orientation of Different Meals According to Location of Consumption^a

Location Of Consumption	Cuisine		
	Maltese %	Italian %	Western %
After-School Meal (n=1043)			
Home (n=908)	24.3	50.9	24.8
Grandparents (n=83)	31.3	47.0	21.7
On the way home (n=34)	17.6	52.9	29.4
Somewhere else (n=18)	33.3	55.6	11.1
Weekday Supper (n=1038)			
Home (n=804)	28.2	44.0	27.7
Grandparents (n=138)	38.4	40.6	21.0
Restaurant (n=86)	26.7	48.8	24.4
Somewhere else (n=10)	40.0	40.0	20.0
Sunday Lunch (n=1036)			
Home (n=481)	32.2	27.9	39.9
Grandparents (n=300)	37.7	32.7	29.7
Restaurant (n=213)	31.9	25.4	42.7
Somewhere else (n=42)	31.0	31.0	38.1

^a Using cases for which data was available for the variables being tested

traditional Maltese foods were consumed most out of the three cuisines when the venue for this meal was the grandparents' home. For the After-School Meal, children were twice as likely to eat Maltese traditional foods than Western foods when they consumed this meal at their grandparents (OR=2.3451, CI=1.2519–4.3929, p=0.0071). These results were perhaps expected, with the older relatives perpetuating local culture and traditional dishes, especially for Sunday lunch.

This influence of grandparents was, in fact, confirmed during the focus group interviews when children mentioned that specific traditional foods, such as *stuffat tal-fenek*, ricotta pies, *gnocchi*, *hobz biz-zejt*, *qaghaq* and *biskuttelli*, were either eaten regularly at grandparents', eaten mainly at grandparents', eaten only at grandparents', or usually eaten in the company of grandparents. For example, one child (9/M/TI//MG) described how the family ate rabbit "Every Sunday at my nanna's, with spaghetti." Another child (15/M/TI//MG) expressed a strong fondness for grandmother's ricotta pie: "I only have it at nanna's. I love it!"

Grandparents also provided traditional sweets as alternatives to the more Westernised biscuits and cookies. In fact, one child (3/G/R/C/MG) commented: "When I go to my nanna's

I always eat *qaghaq tal-hmira*.” Whereas another child (16/M/U/S/MG) stated that *biskuttelli* were a portable snack eaten “when we go out with nanna; when she takes us out.”

4.4.3 Discussion And Comparison With Previous Studies

From Tables 82 and 83 it is clear that the Western cuisine orientation dominated in six of the ten settings. The Italian orientation dominated in three of the settings and the Maltese orientation was strong in only one setting. The strength of prevalence of the Western orientation is perhaps not unexpected, but still alarming. Bell and Valentine (1997) have spoken about the heavily marketed Western food and its role in jeopardising the existence of traditional national cuisines. In fact, preliminary research comparing the Maltese and Sardinian diet has shown that over the past three decades there has been an increase in consumption of foods normally associated with a Westernised diet (Tessier & Gerber, 2002). This Westernisation of the everyday diet has also been recorded in other Mediterranean countries, amongst both adults and adolescents (Trichopoulou & Efstathiadis, 1989; Greco et al., 1998; Rumm-Kreuter, 2001; Karamanous et al., 2002; Moreno, Sarria & Popkin, 2002; Sanchez-Villegas et al., 2002; Tessier & Gerber, 2002; Tricopoulou, 2003). Westernisation is reflected in the types of foods consumed by Greek adolescents in different meals (e.g. burgers, chocolate milk, breakfast cereals) (Kafatos et al., 2000) and in the proportions of saturated versus monounsaturated fats and of carbohydrates in the diet of Spanish adolescents (Cruz, 2000). Ironically, a study comparing blood lipids of Portuguese and German pre-schoolers indicated that the food habits of Portuguese children were even less closer to the traditional Mediterranean diet than those of German children (Guerra, Feldl & Koletzko, 2001). A similar conclusion regarding divergence from the traditional Mediterranean diet was recorded for 6-9-year-old children in Murcia, south-east Spain (Garaulet et al., 1998).

Unfortunately, in various countries, Westernisation of the diet has been linked with increased risk for a number of conditions including obesity, hypercholesterolaemia, insulin resistance, type 2 diabetes and allergies (Fukushima et al., 1999; Couch et al., 2000; Gracey, 2000; Albala et al., 2002; Uauy, Albala & Kain, 2001; Lee, Popkin & Kim, 2002; Moreno, Sarria & Popkin, 2002; van Dam et al., 2002). In several of these studies the researchers have commented on the importance of reviving the traditional diet and planning culturally sensitive food-based strategies for health promotion and disease prevention. At the same time, research on adoption of dietary habits from a different culture suggests that nutrition educators need to determine the degree to which educational interventions should focus on

maintaining traditional habits and/or adopting the healthful aspects of Westernised dietary habits (Satia-Abouta et al., 2002). These recommendations are pertinent to my study given that Maltese children are exposed to a multi-cuisine environment.

A possible common factor within some of the settings where the Western orientation was strongest in my study was the need for a quick light meal. For example, breakfast cereal or tea with milk would be easy and quick to prepare in the morning, as would the cheese or ham sandwiches for a school packed lunch. At the same time, health would not be compromised, especially if the cereal is wholegrain and low in sugar, or the cheese is low fat and the ham is lean. This proposition is influenced by findings from dietary adaptation research with Korean-American and Chinese-American women, where it was reported that breakfast was usually the first meal to be Westernised and convenience and food quality were amongst the most important predictors for dietary change (Lee, Sobal & Frongillo, 1999; Satia et al., 2000). It is also clear that certain British rituals still hold strong hold in Malta, such as the practice of having tea and biscuits, or toast with butter as a snack. The strength of the Westernised orientation for restaurant meals and snack foods was entirely expected. Even in Malta, the fast food industry mainly targets families, presenting a menu which is appealing to children, as well as offering 'free' gifts and an efficient, attractive yet informal consumption environment. The industry is omnipresent in children's environments through television, product placement in movies, magazines, school materials and clothes. According to the US-based Center for Science in the Public Interest (2003), "chain restaurants use aggressive and sophisticated marketing techniques to attract children's attention, manipulate their food choices, and prompt them to pester their parents to purchase products" (p.50). In fact, confirmation for the latter was seen in the Maltese mothers' interviews. What is perhaps surprising is that fast food outlets are still patronised heavily locally, despite their meals being relatively more expensive than other restaurant fare. Very few mothers commented about this economic aspect; the majority didn't. The parents' willingness to pay for the more expensive fast food meals could be a manifestation of Warde's (1997) thesis on the values guiding consumption. The exchange value of an item (being ready to pay comparatively high prices for the fast food fare) is sometimes less salient in the face of its use value (satisfying children's [and personal?] tastes and desires in a pleasant child-friendly environment) and its identity value (child being able to impress others by saying fast food outlets are frequented regularly and showing off free gifts).

Both convenience and enjoyment, but this time in relation to a more substantial meal or snack, could have been the common factor tying together the settings where the Italian orientation dominated. Due to the myriad semi-prepared food items available locally, pasta dishes and pizza are fairly easy to prepare in a short time, whilst having the potential of being nutrient dense. These features would be considered advantageous by most family food providers, especially mothers working outside the home. At the same time, pasta dishes are constantly portrayed in a positive setting on Italian television in relation to 'happy' family meals, both everyday and special occasion. This would probably help reassure family food providers that their food choices are in no way demonstrating a lack of affection for their family. On the contrary, pasta meals portray a sense of family togetherness and celebration.

The patterns in home-based versus non-home-based meals extend Mennell's (1995) theory of diminishing contrasts. The three different cuisines were almost on a par for consumption both in home-based and non-home-based settings, indicating that non-traditional foods were well-integrated in Maltese children's diets. These findings are similar to those from research with Chinese-Americans and Korean-Americans, where highly-aculturated and bi-cultural people regularly incorporated more different types of foods into their diet (Lee, Sobal & Frongillo, 1999; Satia et al., 2000). In contrast, the pattern for Maltese children's preferred foods seems to reflect Fieldhouse's concept of biculturalism, where people choose to eat the adaptive-culture food in public whilst retaining their own cuisine at home. So much so, the Maltese cuisine is preferred in the home-based setting, whereas the Western and Italian cuisines, which can be considered the adaptive-cultures, dominate for preference in the non-home-based settings. This situational ethnicity also parallels findings from the US where maintenance of traditional cuisine was encouraged or constrained in particular settings (Devine et al., 1999).

My results also suggest that grandparents may have a particularly salient role in exposing children to traditional Maltese foods. This especially seems to hold true if there is regular interaction between grandparents and their grandchildren. Foreign studies have concluded that grandmothers' influence on young children was more pronounced when they had extensive physical access to grandchildren and when mothers were dependent upon grandmothers (Bentley et al., 1999; Sear, Mace & McGregor, 2000). Such is still the case for some Maltese families where the mother is working full-time outside the home or works during the afternoon and/or evening. Grandmothers may take on a care-giving role for a few hours daily; primarily from 2.30pm till the mother or father returns home.

Published literature on the influence of grandparents on children's diets is scarce. A search of the main research databases mainly yielded references on the grandmother's role in determining breastfeeding and weaning practices and inter-generational comparisons of eating habits, nutritional status, diet-related conditions and fat-related knowledge and attitudes, but focusing on adults (Stafleu et al., 1995; Stafleu et al., 1996; Bentley et al., 1999; Higgins, 2000; Sear, Mace & McGregor, 2000). My findings offer an additional dimension to the propositions emerging from some of these studies that grandmothers have a dietary-counselling role and that their cultural values, life-ways and philosophical beliefs influence younger generations' food choices and feeding practices. In fact, my study showed that this role and influence also pertained to 7-8-year-olds. Thus, based on my findings, there is clearly a strong need for grandparents, especially grandmothers, to be made more aware of their responsibility in providing nutritious traditional food to their grandchildren. Many, non-working grandparents (who would very likely be the ones providing child care) could easily be reached via the mass media, especially radio. However, senior citizens' Day Care centres could also be a practical venue for reaching grandparents with this message.

Considering the ecological framework of my study, it would be amiss not to acknowledge that the formal and informal curriculum of the school could also have an influence on cuisine orientations of foods consumed and preferred by Maltese children. Whether teachers make a specific effort to promote traditional Maltese foods will depend on their obligations to fulfil curricular requirements, as well as their personal motivations, skills in cross-curricular integration and interest in the subject. Their school's 'School Development Plan' and participation in different school projects also comes to bear. In a study on Home Economics education in Maltese primary schools, Maltese cuisine topics were scarcely mentioned by teachers (Fenech, 2001). Out of 171 respondents, 4 teachers mentioned that their school had organised a '*Ftira* Day' and two mentioned that their school had organised a '*Pastizzi* Day'. In turn, 9 teachers reported that their school had organised a hot-dog day, whilst another 8 mentioned a 'Pizza Day'. Only one teacher out of 171 respondents had developed a class book of Maltese recipes. The school is a major environment for social learning about food. Formal instruction, participation in informal activities, or the observation of others eating certain foods can all potentially influence the cuisine orientation of Maltese children's diets. In fact, one of the Maltese mothers (14/M/S/U/G) interviewed felt strongly that "schools should teach about Maltese foods which are healthy."

4.5 Macro Level Influences

In this part of the chapter I shall focus on one macro level influence on children's food preferences and intake; namely, television. This influence has been alluded to in previous sections, with particular reference to the role of TV programming and advertising in children's food requests. In this part I shall offer some additional quantitative findings linking cable TV access to children's food intake, as well as additional qualitative data on different routes of TV's influence on children's food intake.

The parents' large-scale survey identified which families had access to cable TV and which didn't. Therefore, statistical tests could be run to compare cable TV (CTV) and non-cable TV (non-CTV) child viewers in relation to favourite foods and to foods consumed and preferred in different settings. Given the globalisation role of television in food portrayal, any statistically significant relationships between availability of cable TV in the home and cuisine orientations of foods consumed and preferred were also explored. Eventually, during the focus group interviews children were also asked to comment on foods viewed on television, whether during programming or advertisements.

4.5.1 The Influence Of Television

The following section will present results comparing food preferences and consumption of children from CTV and non-CTV households, based on the responses of children and parents for whom cable TV household subscription and other required data was available.

4.5.1.1 Differences In Food And Drink Favourites According To Cable TV Access

Figures 7 and 8 compare CTV and non-CTV children's top five favourite food groups and top five favourite drink groups. Overall, the differences between groups were minimal. There was a 3.5% or smaller difference for all food and drink groups between CTV and non-CTV children (n=921). Perhaps worth noting is that non-CTV children preferred foods and drinks in the Pasta, Rabbit and Milk groups slightly more than CTV children. These can be considered to be primarily healthier items. In contrast, more CTV children listed items from the Pizza, Meat & Meat Dishes, Broth, Chicken Soup & Fish Soup and Fruit Juices groups. Some of the more highly-processed items in these groups could be considered as potentially unhealthy. One must point out that several of the items favoured more by children having access to cable TV are heavily advertised on local and foreign TV channels. Quite a few of these, such as the frozen pizzas, sausages, packet soups and fruit juices may be less healthy, depending on their fat, sodium or sugar content, or if consumed in excess. CTV

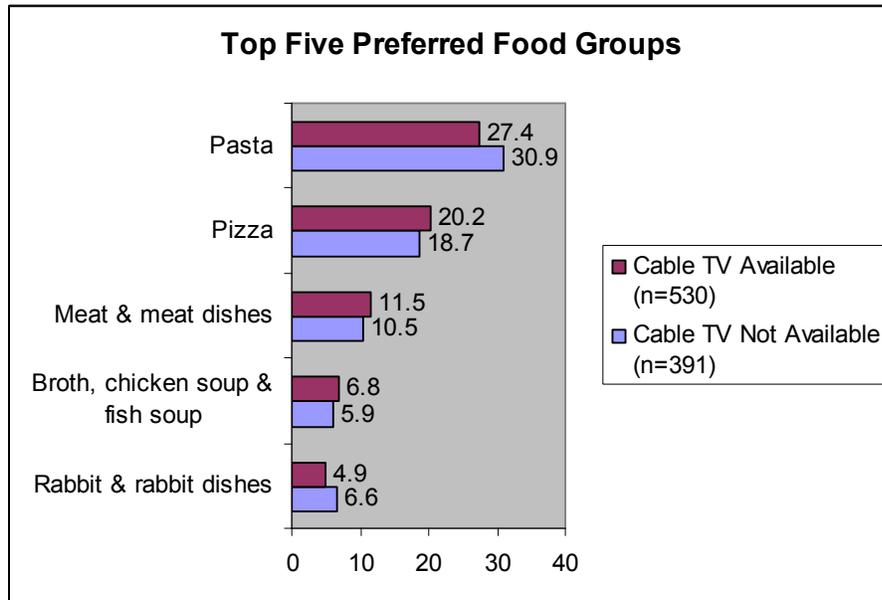


Figure 7. Top five favourite food groups: Comparison by access to cable TV

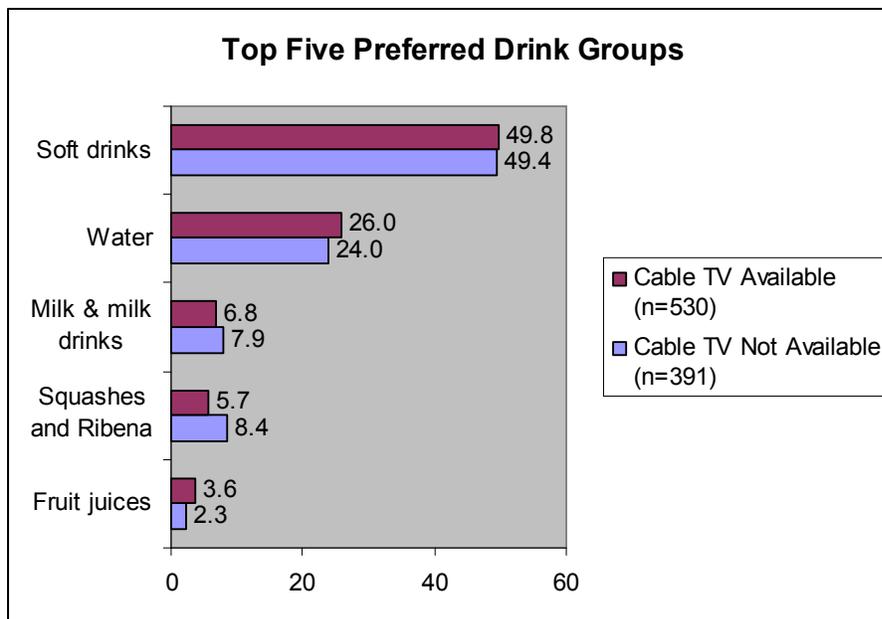


Figure 8. Top five favourite drink groups: Comparison by access to cable TV

children also chose water as their favourite drink, more than the non-CTV children – an item which is heavily advertised on both local and Italian stations, but which in this case is beneficial to health. These results were based on responses to open-ended questions, whereas the results for children’s food preferences and intake in different settings (already reported in Section 4.2.4.5) were based on closed response options. Nonetheless, very similar patterns emerged, further confirming that availability of cable TV was not a strong determinant of children’s food preferences and intake. The similar results also re-confirmed reliability of the research tool.

4.5.1.2 Relationship Between Cable TV Access And Cuisine Orientation Of Food Consumed And Preferred In Different Settings

Considering the cuisine patterns which had emerged in children’s consumption, additional chi square tests were run in order to uncover any statistically significant cuisine orientations related to cable TV access. The two settings where a cuisine bias emerged were Weekday Supper and Sunday Lunch ($p \geq 0.05$). (See Table 86). These results confirmed earlier indications that Maltese traditional foods were consumed more by children who did not have access to cable TV in their homes.

TABLE 86

Statistically Significant Relationships Between Cuisine Orientations of Foods Consumed And Preferred in Different Settings And Children’s Access To Cable TV^a

Cuisine/Setting	Access To Cable TV		χ^2	df	p-value
	Yes %	No %			
Weekday Supper, Consumed	(n=509)	(n=377)	9.872	2	0.007
Maltese	25.1	34.7			
Italian	46.8	39.5			
Western	28.1	25.7			
Weekday Supper, Preferred	(n=517)	(n=383)	6.723	2	0.035
Maltese	24.0	31.3			
Italian	54.4	51.2			
Western	21.7	17.5			
Sunday Lunch, Consumed	(n=515)	(n=374)	6.556	2	0.038
Maltese	30.7	38.8			
Italian	29.9	25.1			
Western	39.4	36.1			

^a Based on cases for which there was no missing data for the specific variables being tested

For Weekday Supper the Italian cuisine dominated for both consumption and preference, irrespective of cable TV availability. However, whilst similar proportions of CTV children consumed Maltese and Western cuisine foods, a greater proportion of non-CTV children consumed Maltese rather than other cuisine foods. For Sunday Lunch, there were equal proportions of CTV children who consumed a Maltese- or Italian-oriented dish, with a much higher proportion consuming a Western dish. However, a slightly larger proportion of non-CTV children consumed Maltese foods for their Sunday lunch as compared to the other two cuisines. Non-CTV children were nearly twice as likely to consume Maltese dishes, than Italian dishes in this setting (OR=1.8919, CI=1.033-3.4648, p=0.0377).

4.5.1.3 The Influence Of TV Food Messages And Images On Children's Knowledge And Perceptions

During the focus group interviews, children recalled food-related messages they had heard on TV, as well as specific foods they had seen in advertisements or in TV programmes. Sometimes TV emerged as a source of nutrition information about particular foods. For example, one child (4/G/R/S/MG) referred to TV when describing the impact on health of consuming *Nutella*:

SP: "So *Nutella* is sweets. So what happens then?"
Child: "It increases your blood pressure and sugar."
SP: "Have you sometimes heard them say this?"
Child: "Yes, on TV."

In this case, TV may have been the original source of information, or it may have reinforced previous knowledge or exposure to the health message.

The influence of television on knowledge and preference also emerged with regard to carrots. Two boys (7/M/T/C/BO; 14/M/U/S/MG) and one girl (12/M/TI/C/GO) from different schools specifically referred to the *Bugs Bunny* TV cartoon character to explain their liking for carrots and their belief in the health value of this vegetable. One boy (7/M/T/C/BO) remarked: "I like carrots because I see the *Bugs Bunny* cartoon and it tells you that is good for your health and strength." The other boy (14/M/U/S/MG) admitted liking carrots: "One because *Bugs Bunny* eats it and two because you see better in the dark." These two examples clearly show the role of child-friendly television characters in transmitting health messages and modelling healthy food behaviours. This recalls the suggestion made by some Maltese mothers to use cartoon characters for promoting healthy eating. It also serves

to highlight the importance of developing educational materials suited to the maturity level of children with respect to their willingness to simulate TV cartoon characters.

TV images also led to certain perceptions of the components or characteristics of foods. The implications of this depended on the health value of the food. For instance, one group of children (5/G/R/S/MG) described how they associated cereal and cereal bars with milk as a result of advertisements seen on TV. One of the children justified the link by stating: "Because on TV there will be the boxes of *Frosties* or *Coco Pops*. Out comes the cow and pours some. And then the other cow comes to eat it - the one with the milk." In the same discussion, some of the children substantiated their claim for the presence of milk in cereal bars as follows:

- Child 1: "We sometimes see it [cereal bar] on adverts, and there's a cow."
Child 2: "Yes, a cow. They call it a milky cow".
Child 3: "It has a pipe and it shoots milk."

Cereals and cereal bars are potentially healthy foods, but some may have a high fat and/or high saturated fat and/or high sugar and/or high sodium content. In the above examples, one can applaud the cereals advertisement for encouraging milk consumption and the cereal bar advertisement for promoting a potentially healthier snack. On the other hand, one can also consider these advertisements as misleading, in that they convey a slightly biased picture of the nutritional value of the foods portrayed, overemphasising the presence of milk.

Nonetheless, a few children made very perceptive comments about TV food advertisements, showing a certain level of critical awareness. In three separate discussions (1/M/R/S/MG; 3/G/R/C/MG, 6/G/R/S/MG) children showed their skepticism regarding food advertisements and advertisements in general. It is evident from their statements that they had been trained to analyse advertisements, either formally by a teacher, or informally by a parent or other caregiver. Their reasoning shows that even at such young age, children can understand and see beyond the strategies used by food manufacturers and advertisers if they are given the skills to do so. One child (3/G/R/C/MG) spoke about the deceptive nature of a fruit drink advertisement: "On the *Breakers* they say that the colouring is like that of fruits. So it's not real. What is written is true, but the colouring is not the same as the fruits." Another child remarked: "They don't show many adverts for those foods which are good for health." Of note is that the various perceptive comments were made by children from rural schools, particularly Gozitan. It could be that these children's backgrounds and proximity to foods in

their original state influenced their perception of advertised processed foods. Or it could be that their parents or caregivers emphasised the superior quality of natural foods and explained that often one paid for the addition of inferior ingredients when a food was processed. It could also be that these children's families were training them to avoid being misinformed and cheated. In previous sections I have already suggested that children from rural areas are more precocious when it comes to food quality.

From the focus group conversations, it also emerged that TV programming was a vehicle for teaching children how to be creative with food. Referring to a local TV programme, one child (12/M/TI/C/G) vividly described what she had seen:

“Once on *Zig Zag* they had a roll, and they got those sweet like things – they're black and white -- and they put them as pretend eyes. They dug the roll a little bit and they put them there. And then they got straws and they placed them like legs.”

It is clear that such programmes are enjoyed by some children, though the foods used are not always very healthy. This confirms what I reported earlier regarding mothers' feelings on TV-portrayed food and reinforces their suggestion that children's TV programmes should be used to present nutritious foods in an attractive manner. The latter could lead to children being more willing to accept unfamiliar healthy food – both novel and traditional.

In fact, TV also emerged as having a role in promoting traditional foods and increasing their appeal. For example, one child (12/M/TI/C/GO) described seeing *qaghaq* in a local children's TV programme: “I saw the *qaghaq* on *Zig Zag*. They were making a crab with it.” Other children mentioned seeing Maltese traditional *qaghaq* and *biskuttelli* being made in local cookery programmes. In one case (11/M/TI/C/MG), the child specified both the programme and the method used: “In Claudette's [programme]. Sometimes they cooked the *qaghaq* in the *Grillioso* [work-top oven].” Such level of awareness seems to indicate that these cookery programmes are also reaching the younger audience, perhaps because they are often shown at a time when children tend to be indoors on returning home from school. Nutrition educators would perhaps be wise to take advantage of this potential opportunity for reaching both the child and the food provider simultaneously as they are watching TV together in order to highlight healthy and perhaps traditional healthy snack recipes.

4.5.1.4 Discussion And Comparison With Previous Studies

Although there continues to be no consensus about the way in which TV influences children, my results tend to substantiate some of the findings from the literature, to extend others and even suggest new areas of research on children's relationship with TV-mediated food messages and images.

First of all, the food media in general has been described as increasing awareness of what is available and influencing choice of specific commodities (Fieldhouse, 1995). Perhaps a reflection of this was the association uncovered between non-CTV children and consumption of Maltese cuisine foods, especially for Weekday Supper and Sunday Lunch. Whether this is related in any way to more limited TV exposure in general, or to more limited exposure to alternative food items is difficult to say. In fact, there may be a more indirect influence of cable TV via the children's food providers, related to extent of TV exposure to foreign foods and dishes. These propositions are reminiscent of Warde's (1997) assertion that media exposure is at the basis of expanded knowledge of alternative cuisines, and of Cook and Crang's (1995) description of the media as promoting 'edible cultural geographies' by providing knowledge of food cultures other than one's own. In other words, perhaps due to a more restricted TV station access, the food providers and the children themselves experienced a more limited portrayal of foreign cuisines and thus were more familiar with traditional food items and eating patterns for Weekday Supper and Sunday Lunch menus. Nonetheless, a number of other social and cultural factors could play a role in determining consumption of these foods. Thus, proposing a definite relationship between cable TV access and traditional food consumption is inappropriate.

In contrast, there seems to be a stronger link between overall TV food portrayal and food-related messages and children's food perceptions, knowledge and requests. Many foreign studies have suggested primarily negative effects of TV advertising on children's nutrition (Jeffrey & French, 1998; Center for Science In the Public Interest, 2003; International Association of Consumer Food Organisations, 2003). However, I tend to agree with Harris (1994) and feel that one has to be cautious of statements indicating a direct cause-effect link between TV advertising and food behaviours. It seems to be more justified to state that TV creates certain motivations; for example, to feel like eating specific foods, to try new foods or to make certain food requests. These motivations are either generated in the child or in the child's food provider, and are in turn weakened or strengthened by other personal and

environmental factors. These motivations may eventually manifest themselves in actual food behaviours, but this will depend on a number of mediating factors.

Various statements made by the Maltese children during their interviews substantiate the differing points of view on TV food advertising and children's knowledge and perceptions. First of all, Maltese 7-8-year-olds were able to name brands or distinguishing features of different food brands and they could also describe properties of certain food items. This concurs with other research findings that advertising provides children with valuable product information which supports them in their development as consumers (Hite & Eck, 1987; Grixti, 2000), whilst weaning them into the arena of brand loyalty (Valkenburg, 2000). Moreover, Maltese children were able to name foods viewed in specific advertisements and on specific TV stations, sometimes giving precise details on actual presentation features. This reinforces Grixti's (2000) finding that Maltese children were highly knowledgeable as a result of watching so many advertisements about different brands of groceries which they would not normally be buying themselves. This is particularly worrying given that research has shown how repeated selective promotion of certain types of foods may crowd out ignored foods out of a typical diet over the long run (Coon et al., 2001). In fact, only a few Maltese children pinpointed instances where healthy or traditional food had been presented, either in TV programming or advertisements.

The focus groups interviews also revealed that food advertisement messages were sometimes misleading. This concurs with previous studies where the media were reported as playing a crucial role in children's food and nutrition knowledge. In the US, up to one half of the nutrition-related information in food advertisements shown during children's prime time viewing was found to be inaccurate or misleading (Byrd-Bredbenner & Grasso, 2000). Meanwhile, other local and foreign studies have shown that nutritional information obtained from television is often taken at face value by young children (Turner, 1997; Costa, 1998; Gibson, Wardle & Watts, 1998; Hart, Bishop & Truby, 2002). The latter may explain the prevalence of imprecise concepts amongst Maltese children; such as that chocolate and cereal bars are healthy because they contain milk. These inaccurate beliefs are often the result of carefully coined and depicted messages within marketing strategies targeting schoolchildren and their food providers (Center for Science In the Public Interest, 2003).

Around the world several countries have introduced a ban or strict regulations regarding amount and type of advertising allowed during children's programmes or prime viewing time

(Hawkes, 2004). For example, Sweden and Norway do not permit any television advertising to be directed towards children under 12 years. Australia and Ireland do not allow advertisements during programmes for pre-school children. Austria, Belgium (Flemish region), Luxembourg and Norway do not permit advertising 5 minutes before or after children's programmes. Sponsorship of children's programmes is not permitted in Denmark, Finland, Norway and Sweden. In the UK, children's TV personalities are prohibited from appearing in any advertisement before 9pm and merchandise based on children's TV programmes must not be advertised within 2 hours preceding or succeeding the programme concerned. Similarly, Finland prohibits advertisements where sales pitches targeting children are delivered by familiar cartoon characters.

Perhaps similar regulations need to be adopted as legislation in Malta. Certainly, there is a global move to protect children from this mass media phenomenon, and the relevant Maltese authorities should take advantage of this momentum to review the local situation and initiate changes for the better. For nearly two decades foreign researchers have shown concern regarding the advertising of 'junk food' to children and favoured state intervention to regulate food advertising to children (Baghurst & Crawford, 1988; Ovington, 1994; Hastings et al., 2003). So much so, representatives from the medical profession have recently called for European Union restrictions on advertising targeting young children to consume "inappropriate foods and drinks" (IOTF/EASO, 2002; The Times [Malta] (13/9/02).

An interesting finding from my study was that some 7-8-year-old Maltese children were highly suspicious of the trustworthiness of advertising, also exhibiting a certain critical acumen as to the intent and validity of messages. Such behaviour was also uncovered by Grixti's (2000) research, although with slightly older pre-adolescent and adolescent Maltese children. It also concurs with findings from affective effects studies of advertising, which demonstrated that children's responses to commercials gradually became less favourable as they entered the concrete operational stage (Barling & Fullagar, 1983). In my study, scepticism and criticism of TV advertising was expressed mainly by children from rural schools and Gozo. These children tended to be more critical of the type of foods advertised (from a health and level of processing perspective), as well as of deception by food advertisers.

The importance of media education has been highlighted in the local National Minimum Curriculum (Malta Ministry of Education, 1999) and by foreign organisations, such as the

American Academy of Pediatrics (2001). In the UK, Canada and the US, media education programmes have been included in national and regional school curricula, beginning in early primary school (Kubey & Baker, 1999; Stafford, 2001 [online]; Media Awareness Network, 2003 [online]). Overall, my findings provide further fuel to arguments by several international institutions and authors that TV advertising aimed at children has a negative impact on beliefs and is highly unethical due to children's vulnerability in the face of the attractive and cleverly produced advertising messages (Golberg & Gorn, 1978; Galst, 1980; Dawson, Jeffrey & Walsh, 1988; Hammond, Wyllie & Casswell, 1999; American Academy of Pediatrics, 2001; Atkins & Bowler, 2001; Stop Commercial Exploitation of Children, 2001; IOTF/EASO, 2002; Hastings et al., 2003; Partos, 2003 [online]; The Parents Jury, 2003 [online]). On the other hand, my findings also suggest that even 7-8-year-old children have started to acquire the aptitude to be wise and informed consumers and this should be the basis for strengthening media and consumer education on making healthy and appropriate food choices.

**SOCIO-ECOLOGICAL FACTORS
INFLUENCING FOOD CHOICES AND BEHAVIOURS OF
MALTESE PRIMARY SCHOOLCHILDREN**

by

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TABLE OF CONTENTS

	Page
 VOLUME 2	
CHAPTER 5 - CONCLUSIONS & RECOMMENDATIONS	297
5.1. Beyond Theories Of Class And Consumption	297
5.2. Sociological Theory And Food Consumption	297
5.2.1. Bourdieu's Theory Of Practice	297
5.2.1.1. The Habitus Of Region Of Residence	300
5.2.1.2. The Habitus Of Social Lifestyle	301
5.2.1.3. The Habitus Of Household Level Of Schooling	302
5.2.1.4. The Habitus Of School Type	303
5.2.1.5. The Habitus Of Gender	304
5.2.1.6. Cable TV Access And TV Food Portrayal And Advertising	304
5.2.1.7. The Role Of Capital	305
5.2.1.8. Scales Of Distinction	306
5.2.2. Mennell's Theory Of Diminishing Contrasts And Increasing Varieties In Food Consumption	307
5.2.3. Warde's Consumption Theory	309
5.2.4. Functionalism, Structuralism And Developmentalism	311
5.2.4.1. Delocalisation And Glocalisation	313
5.2.4.2. McDonaldization	313
5.2.4.3. Cultural Entrepreneurship	314
5.3. Ecological Theory And The Role Of The Chronosystem In Food Habits And Norms	314
5.4. Social Cognitive Theory And Modelling	315
5.5. Food Preferences And Exposure	316
5.6. Children's And Mothers' Food Perceptions	317
5.7. A Culture Of 'Children's Food'	318
5.8. Developing A Model To Explain Influences On Maltese Children's Food Intake	319
5.8.1. Explaining The 'Socio-Ecological Culture-Cuisine Food Model' Of Influences On Maltese Children's Food Intake	320
5.8.2. A Narrative Using The 'Socio-Ecological Culture-Cuisine Food Model' For Maltese Children's Food Intake	327
5.9. Implications Of The Findings For Policy, Practice And Research	330
5.9.1. Health Promotion And Nutrition Education	330
5.9.1.1. Promoting Healthy Traditional Cuisine	333
5.9.2. Children's TV Programming, Advertising Laws And Media Education	334
5.9.3. A National School Food Policy	335
5.9.3.1. The School Nutrition Environment	336
5.9.3.2. The Food And Nutrition Curriculum	337
5.9.3.3. Nutrition Education For Mothers, Grandparents And Caregivers	339

5.9.4. Critiquing The Research Process	341
5.9.4.1. Value Of Using A Grounded Approach	341
5.9.4.2. General Limitations Of The Methods And Tools	344
5.9.5. Implications And Suggestion For Further Research With Children	346
5.9.5.1. Research Methodology	346
5.9.5.2. Areas Warranting Further Research	347
5.9.6. Conclusion	347
 LIST OF REFERENCES	 350
 APPENDICES	
 APPENDIX 1	 1
1.1. Maltese National Nutrient Goals And Dietary Guidelines	2
1.2. The 'CINDI' Dietary Guide: '12 Steps To Healthy Eating – WHO 2000	4
1.3. The 'CINDI' Food Pyramid – WHO 2000	6
 APPENDIX 2	 8
2.1. Results Of Online Literature Search For Use Of Ecological Models In Food Choice Research With Children	9
2.2. Criteria For A Health Promoting School – WHO 2003	11
 APPENDIX 3	 13
3.1. Preliminary Survey - Sample Demographics	14
3.2. Preliminary Survey – Research Tools: English And Maltese Versions	16
3.3. Preliminary Survey – Report On Findings	30
3.4. Database Compilation Survey – Research Tools: English And Maltese Versions	49
3.5. Database Compilation Survey – Protocol For Data Collection In Class	60
3.6. Database Compilation Survey – Children's Focus Group Interview Guide	62
3.7. Database Compilation Survey – Report On Findings	67
3.8. Food Consumption Survey Research Tools – Children's And Parents' Questionnaires	101
3.9. Children's Focus Groups Interview Guide	108
3.10. Parents' Consent Form: English And Maltese Versions	114
3.11. Parents' Telephone Interviews – Interview Guide: English And Maltese Versions	117
 APPENDIX 4	 120
4.1. Information Obtained From The Different Stages Of The Research	121
4.2. Food Perceived By Children As Healthy	125

4.3.	Food Perceived By Children As Not-So-Healthy	128
4.4.	Foods And Beverages Consumed And Preferred In Ten Different Settings	132
4.5.	Group Differences In Foods Consumed And Preferred In Ten Different Settings (Based On Those Child And Parent Cases For Which None Of The Data For The Ten Consumption Settings Was Missing)	143
4.6.	Group Differences In Foods Consumed And Preferred In Ten Different Settings (Based On Those Child Cases For Which Data Was Available For The Specific Variable Being Tested)	151
4.7.	Frequencies Of Specific Dietary Patterns Comparing Children By Gender, Household Level Of Schooling, School Type, Region & Cable TV Access (Comparative Chart Showing Three Calculations)	159
4.8.	Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access (Based On Those Child And Parent Cases For Which None Of The Data For The Ten Consumption Settings Was Missing)	161
4.9.	Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access (Based On Total Sample With Missing Values Replaced By Mode For Gender)	164
4.10.	Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access (Based On Those Child Cases For Which Data Was Available For The Specific Variable Being Tested)	167
4.11.	Rationale For School Rules: Children's And Parents' Perceptions	170

CONCLUSIONS AND RECOMMENDATIONS

5.1 Beyond Theories Of Class And Consumption

In this final chapter, I shall assess applicability of different theories and theoretical concepts to explain my research results and justify my interpretations. In doing so, I shall offer a synthesis of the major themes which have emerged from the study and, subsequently, propose a more refined ecological model to start explaining the phenomenon of Maltese children's eating habits. Ultimately, implications of the study results for policy and practice will be presented, together with suggestions for further research.

5.2 Sociological Theory And Food Consumption

This study was primarily sociological in orientation, aiming to explore group differences in the food habits of Maltese children based on a variety of factors. In my literature review I had explored a number of theories, focusing on their explanation and interpretation of consumption practices. This section will review these theories in light of my findings and my own interpretations.

5.2.1 Bourdieu's Theory Of Practice

A key sociological theory which guided my research was Bourdieu's (1977) Theory of Practice. I had posited that Bourdieu's concept of fields could be equated to factors in different ecological levels which influence a child's food intake. I was rather skeptical, however, of the applicability of Bourdieu's concept of habitus to children. Whilst acknowledging that children were being exposed to and functioning in different habitus, I felt that probably it was their food providers who were working with the social rules. Similarly, I felt that Bourdieu's concept of individuals striving for different types of capital applied more to the children's food providers than the children themselves. However, I did feel that possibly children did exhibit certain behaviours which reflected a striving for distinction. Another aspect of Bourdieu's theory which I disagreed with was his inclination towards social reproduction rather than social change. My hesitation was spurred by my awareness of the number of foreign influences on Maltese children's food intake and our historical cultural attitude of embracing what is foreign and what is new. I was also somewhat cautious of the applicability of his theory in its entirety to Maltese society, with its broad band of homogenous working/middle classes.

The results described in Chapter 4 serve to confirm certain aspects of Bourdieu's theory whilst challenging the universality of others. They also serve to confirm or clarify some of my own initial thoughts. Maltese children's world is characterised by constant exposure to 'new' knowledge and experiences in the realm of food. Different human sources provide children with information about food and health and act as gatekeepers with regard to food consumption. Television is also a source of food-related information and it continuously shapes an image of which foods and food practices constitute children's diets. Therefore, in general, children's habitus is still developing. Nonetheless, given their greater interaction with certain fields, it is likely that their discourse and actions will already be more established in particular habitus. On the other hand, children's food providers are functioning in more established habitus and child-related food decisions will be guided by the relevant norms and conventions.

Table 87 presents an overview of the various habitus-field interactions influencing Maltese children's food intake. This matrix was developed considering the quantitative statistically significant relationships identified, as well as key patterns which emerged from the qualitative data. I am proposing five types of habitus which reflect food behaviour patterns and thirteen fields (within four ecological levels) in which various factors act to determine food behaviours. The five habitus are gender, household level of schooling (HLS), school, social lifestyle and region. Here 'school' is referring to the school system as defined by the physical, administrative and curricular structures within the school attended by the child. However, I am also proposing another habitus which I have termed 'social lifestyle'. This is an amalgam of factors related to the type of school attended by the child and the child's HLS. In combination, these different factors can be considered an indicator of the type of food-related lifestyle experienced by the child within the school and family setting. Of note is that earlier on in my study I had felt that household accessibility to cable TV could also create a distinct habitus in relation to foodways; yet, the results showed that my initial perception was misguided.

As can be seen, the greatest interaction seems to take place in the habitus of social lifestyle and region of residence, and to a lesser degree in the habitus of gender, HLS and school type. When Bourdieu discusses habitus he underlines how certain practices of groups of people forge a particular style or way of doing things among the group. Bourdieu focuses on class as the boundary of the group. This is partially evident amongst Maltese children, since school type - distinguished amongst others by fee-paying status - and HLS did emerge as

TABLE 87
Different Habitus-Field Interactions Influencing Children’s Food Intake

FIELD		HABITUS				
		Gender: <i>Girls vs. Boys</i>	Household Level of Schooling: <i>Average Vs. High</i>	Social Lifestyle: <i>Non-State School+ High HLS vs. State School+ Average HLS</i>	School Type: <i>State vs. Church vs. Independent</i>	Region: <i>Malta vs. Gozo</i>
INTRA-PERSONAL	Food Perceptions			✓	✓	✓
	Food Beliefs and Knowledge			✓	✓	✓
	Food Preferences	✓	✓	✓		✓
INTERPERSONAL	Mother	✓	✓	✓	✓	✓
	Family Weekday Supper Practices	✓	✓	✓		✓
	Grandparents		✓	✓		
	Peers			✓		
	School Administration and Policies	✓		✓	✓	
COMMUNITY	Food Norms And Socialisation	✓	✓	✓	✓	✓
	Traditional Cuisine		✓	✓	✓	✓
	Foreign Cuisines			✓		✓
MACRO	TV Food Portrayal, Messages and Advertising					✓
	Climate and Seasons					✓

✓ Salient

group differentiators and both of these could be taken as a proxy measure of class. However, region of residence was also a strong group differentiator amongst Maltese schoolchildren. Thus, whereas on the one hand, the diet Maltese children consume is quite homogenous across groups, on the other hand the habitus of social lifestyle and region account strongly for variations in the food children are exposed to and provided.

It seems that the mother and food norms and socialisation are the fields with greatest potential for being influenced and being influential. All the five habitus pin-pointed are salient for both these fields. Food preferences, weekday supper practices and traditional cuisine also have a strong potential for being influenced and being influential, with four habitus being salient for each of these fields. Food perceptions and food beliefs and knowledge interact with social lifestyle, school type and region. Grandparents interact with the habitus of HLS and social lifestyle, and foreign cuisines interact with the habitus of region and social lifestyle. Peers interact with social lifestyle; whereas TV food portrayal, messages and advertising and climate and seasons interact mainly with region.

5.2.1.1 The Habitus Of Region Of Residence

Within the habitus of region of residence, differences in food preferences and intake of Maltese and Gozitan children seem to stem from physical accessibility to food and food socialisation. Gozitan children mainly live in rural surroundings. Their first-hand contact with agriculture and animal husbandry, as well as their awareness of the impact of climate and seasons, influence their food perceptions, beliefs and knowledge. Also Gozitan mothers' food philosophy determines certain food socialisation patterns, including the importance of a varied and balanced diet and shared family weekday dining. Gozitan children are also more critical of the credibility of food advertising and the quality of advertised, commercially-produced foods, perhaps reflecting a regional cultural trait of purchasing wisdom. Extent of fresh food and restaurant availability may influence Maltese and Gozitan children's perceptions of the prestige value of foods from a quality and novelty perspective; thus also influencing preferences for traditional and foreign foods.

Admittedly, there were some surprising results in that actual food intake was not as traditionally-oriented as expected among the Gozitan rural children. It could be that Gozitan children's diets comprise a more balanced mix of traditional Maltese and Westernised foods so that no bias emerged one way or the other. In fact, Gozitan children seemed to consider balance and variety in food intake as important for health. Similarly, the Gozitan mothers interviewed stood out as placing emphasis on the joy of eating and the need for a varied menu. More Gozitan children ate their Weekday Supper with their family at home, although they did not necessarily eat the same food as the adults. It seems, therefore, that the value of sharing and enjoying the family meal was uppermost, so that sometimes different dishes were prepared by the mother in order to accommodate different family member preferences.

When meals were more 'special', such as Sunday Lunch or Eating Out, then foreign meat-based dishes were consumed more by Gozitan children. This reflects a somewhat conservative behaviour, in that conventionally meat has a higher prestige value, and perhaps Gozitan families tend to reserve this food for 'special' meals. It could also reflect the higher prestige value of these dishes because they are foreign. At the same time, it is very likely that differences exist in the foods consumed by Maltese and Gozitan children when eating out as a result of family staples and restaurant availability. Maltese children's food providers and the children themselves may consider elaborate traditional Maltese foods and traditional pizza as a treat when eating at a restaurant (with more basic traditional foods and simple pizzas being eaten by some at home). In contrast, Gozitan children and parents very likely perceive fast food-type meals as a treat when eating out, since there is only one foreign fast food restaurant on the island.

One has to acknowledge that Gozo represents quite a unique microsystem. A variety of family types live side-by-side, including those with a strong rural background and those who are returned migrants from the USA, Canada and Australia. An interesting sociological study would be to track the paths of acculturation in these different families. Questions to explore might be: Are the returned migrants influencing the diets of other families? To what extent do returned migrants re-embrace traditional food practices? In what ways do returned migrants and other families adapt modern food practices to be more in keeping with traditional practices or vice versa?

5.2.1.2 The Habitus Of Social Lifestyle

My results revealed a number of differences in children's food intake based on HLS and school type. HLS is very likely linked to the family attributes of parental occupation and family wealth. Similarly, the type of school children attend is partially determined by these same attributes. In turn, these family attributes will determine food exposure, accessibility and preferences (e.g. imported foods, novel foods, traditional foods), certain family food-related routines (e.g. weekday supper practices, meals at grandparents, eating out) and convenience-seeking by the food provider (e.g. use of processed foods, avoidance of foods which require lengthy preparation). HLS could also be linked to food providers' knowledge of current dietary guidelines and adherence to conventions regarding foods for growing children. These will determine whether children are provided with a plant-based or meat-based diet and whether they are exposed to traditional foods.

One can illustrate how this habitus functions using concrete examples. For example, cost of imported cereals and frequency and type of dining out very likely determine the variety in the foods children experience. At the same time, as a result of the children's school schedule, home-school distance and parental occupation, there are differences in family routines and need for expediency which may influence use of convenience foods. In fact, state school-children tended to consume healthier, less processed items, whereas independent school-children tended to consume more processed convenience items. In addition, more average HLS children ate their Weekday Supper at grandparents, who may have been acting as carers as a result of the parents' working hours, and this very likely increased the children's exposure to traditional foods and conventional 'children's foods'.

Overall, a particular food-related social lifestyle emerged as being followed by non-state schoolchildren and children from high HLS backgrounds, which resulted in certain food practices different from those of state school and average HLS children. Independent school children ate less frequently with their parents and ate out more during the week. Perhaps these patterns were linked to the economic ability to 'pay for convenience' which was necessitated due to parental occupation, but also facilitated due to parental occupation. In fact, non-state school children seemed more sensitive to their mothers' lack of time and the importance of convenience factors in food provision. These children also tended to eat at grandparents for Sunday Lunch. It could be that eating at grandparents satisfied the need for "real" "good" food as expressed by the children. Independent school children were also more likely to eat 'modern' foods and high HLS children were more likely to consume a diet in keeping with current nutritional advice. The latter behaviours imply that acculturation to certain aspects of a Westernised diet may be more advanced among these children. In fact, these various characteristics of independent school/high HLS children's social lifestyle are reminiscent of those of Roger's (1995) 'early knowers' in his Diffusion of Innovations Theory.

5.2.1.3 The Habitus Of Household Level Of Schooling:

My results show that, taken singly, the habitus of HLS is not strongly determinant and only a few differences emerged in the food patterns of children from high HLS and average HLS backgrounds. To add some more detail to what I have already mentioned in 5.2.1.2, the main differences were that children from high HLS were less likely to consume milk or milk products on a daily basis, pizza during the week and low nutrition/high fat foods in general. They were also less likely to consume traditional Maltese food on a daily basis. Thus, the high HLS children's eating habits reflected current dietary recommendations in some ways,

but possibly diverged in others. Their diet was also comprised of more non-traditional Maltese foods.

In contrast, it seemed that the food providers of average HLS children still placed quite a lot of emphasis on meats and milk, perhaps perceiving them as essential foods for growing children, and considered meat to have a high exchange and identity value (e.g. when eating out). Whilst acknowledging that consuming low-fat milk products and lean meats in appropriate amounts is recommended for growing children, the emphasis on these food groups amongst average HLS families reflects a somewhat conservative attitude. One possible reason for this could be that there is still strong interaction between children of average HLS families with grandparents. In fact, as already indicated, more average HLS children ate their Weekday Supper at grandparents. The findings seem to confirm theory that the working class diet is closer to traditional ideas concerning linkages between food and health status (Calnan & Cant, 1990). However, here I have offered a possible reason for this pattern based on variations in the regularity of interaction with grandparents. Future studies could explore further the impact of grandparents on their grandchildren's food intake, through looking at relationships with grandparents' nutrition knowledge and stage of acculturation to a more Westernised diet, as well as frequency and type of food-related interaction between grandparents and grandchildren.

5.2.1.4 The Habitus Of School Type

One must also acknowledge that the type of school itself also influences children's and food providers' food perceptions, beliefs and knowledge. Although I did not explore children's exposure to food and nutrition instruction within the formal curriculum, specific school differences in children's knowledge and awareness were evident, indicating that some kind of instruction does take place. Some mothers also referred to nutrition information which they recalled from talks by health professionals, which had been organised by the school and which they had attended. This highlights at least a short-term impact of such events.

Children's and food providers' food perceptions could also be influenced via school administration and policy (e.g. school schedules; school food rules), as well as children's exposure to foods by peers (e.g. foods in packed lunches, foods bought from tuck-shops). Food trends may even appear on an individual school or school-type basis, developing into 'norms' if they are sustained (e.g. 'white-milk-only' policy). Of note, is that children from state and church schools tended to experience traditional foods and food practices (both at

school and at home) more than independent schoolchildren, which may be a reflection of a more conservative ethos in some of these schools and a stronger allegiance to Roman Catholic rules.

5.2.1.5 The Habitus Of Gender

In Chapter 4, I explained differences in girls' and boys' food consumption by proposing a 'light' versus 'heavy' dichotomy having both a physical and symbolic dimension. Girls were more likely to eat vegetables and fruit three times daily and less likely to consume pizza or milk and milk products daily. A few girls and their mothers also showed weight management-related concerns, through controlling the amount of food eaten and/or the fat content of food. In contrast, some mothers of boys showed greater concern when the portion sizes their boys consumed were small. In addition, more boys ate their Weekday Supper at a restaurant or from a take-away. Overall, therefore, girls revealed food patterns which were less calorie-dense, whilst boys revealed food patterns which were more calorie-dense. These food consumption practices have physical validity from an energy needs perspective, but they also confirm that gender bias in image-weight concerns starts at an early age. At the same time, one could propose that there was a certain symbolism in girls' and boys' food intake based on norms surrounding what is feminine and masculine (Hertzler & Owen, 1984; Mennell, Murcott & van Otterloo, 1992; Fieldhouse, 1995; Chiva, 1997; Birch, 1999).

Another food behaviour pattern which emerged could also be a reflection of food socialisation. According to mothers, girls were generally more accepting of food provision and they also ate the same foods as adults for Weekday Supper more frequently than boys did. On the other hand, mothers reported that boys were more likely to refuse foods, so that they had to be more accommodating with regard to their sons' preferences. This behaviour was in fact demonstrated when some boys themselves expressed a negative attitude towards school food rules, presenting a number of arguments why these were unjust, unethical and unacceptable. A few boys were even willing to defy school rules and disregard restrictions, irrespective of any consequences they might suffer.

5.2.1.6 Cable TV Access And TV Food Portrayal And Advertising

Based on my results, I shall not consider access to cable TV as a habitus similar to those mentioned above. Whilst food portrayal on cable TV stations extends what is shown on other non-cable stations, this may only have an impact with regard to exposure to a greater variety of new foods, different cuisines and foreign eating norms. My results suggested that this may

have a role in children's food preferences; perhaps also playing a negative role in traditional food intake as a result of requests made for newer foods. However, the results are inconclusive. On the other hand, mothers asserted very strongly that TV food portrayal, and TV food advertising in particular, influenced their children's food requests and behaviours. An indication that TV influences children's nutrition knowledge also emerged. Thus, some national regulation of TV food portrayal and advertising during children's viewing time may be worth exploring; although the impact of such interventions internationally has been difficult to ascertain (Hawkes, 2004).

5.2.1.7 The Role Of Capital

Bourdieu describes how habitus is characterised by different forms of capital. Looking at the presence of capital in the foodways of Maltese children, one can state that economic capital is not so much of a differentiator at face value when it comes to food provision. Its role is mainly in the extent of variety in children's food experiences. Cultural capital – that is legitimate knowledge and behaviour – is present across groups in certain settings, yet acts as a differentiator in others. Cultural capital common to all groups is evident in the fact that most children participate in food practices legitimised by TV food portrayal as the norm (e.g. eating at fast food outlets). Cultural capital as a differentiator is evident amongst particular groups of children whose diet seems to reflect a greater awareness on the part of the provider of current food-health knowledge. It is also evident amongst children from Gozo, as a result of their proximity to food sources and food production, as well as amongst children who are frequently exposed to and/or have access to Maltese traditional cuisine, based on their patterns of interaction with grandparents. Social capital – that is resources gained via relationships with significant others – is not so evident in Maltese children's foodways. Perhaps there is some link with type of school attended, in that independent school children are more likely to be exposed to and adopt certain novel food practices as a result of their interaction with classmates and this may facilitate their popularity amongst peers inside and outside the school. Symbolic capital – that is prestige awarded after having gained one of the other three capitals – rarely appeared in the children's or mother's discourse, except for certain references to achievement in cultural capital. Perhaps the gain in popularity resulting from being seen consuming certain novel foods could be interpreted as a form of symbolic capital. Of note is that from a health perspective, the different aspects of economic, cultural and social capital as described above could promote both positive and negative food behaviours amongst Maltese schoolchildren.

5.2.1.8 Scales Of Distinction

Bourdieu (1984) talks about distinction, where individuals strive to lend an aura of cultural superiority to their own life by distinguishing their taste from that of the masses. Rare instances of distinction as perceived by Bourdieu were seen when a few Maltese children spoke about preferring foreign foods over local foods. However, a more pronounced trend which perhaps reflects distinction-seeking is the situational ethnicity or biculturalism (following Devine et al [1999] and Fieldhouse [1990]) which seemed to emerge in the foods Maltese children consumed in different settings. Foreign, adopted, Westernised and Italian foods tended to be consumed in public settings and traditional Maltese foods tended to be consumed in home-based settings, or in relation to home-prepared food. This could have been a result of children's situation-specific food requests, but also very likely determined by the food providers' perceptions and values. This private versus public divergence could be evidence of distinction being sought through demonstrating certain food behaviours in front of others (Kalcik, 1984), though as a conscious choice it was more probable amongst adults, but less probable amongst children.

Maltese children and their food providers appear to seek distinction using different scales from those proposed by Bourdieu, though their scales are also based on availability and/or accessibility to food items. Some children and mothers spoke about certain foods as if they had a higher value because they were made from scratch, or were less processed and closer to their natural state. For example, they proudly described the preparation of home-made rather than shop-bought/mass-produced foods and meals. A few children also 'boasted' about having easy access to all varieties of fruits and vegetables from the family fields, or having access to fresh fruit from the family garden. In other words, some children experience distinction because their food providers have the luxury of time to prepare home-made foods, whereas other children experience distinction because of the luxury of having fresh produce at hand.

Another distinction scale was implied when a foreign food was sought by the children or offered by their parents because of its recent availability. In this case, novelty is the marker of distinction. On the part of children, it might make them more popular amongst peers if they demonstrate consumption of this new food. On the part of the parents, they may seek to offer a child a new food, either because the food has recently been promoted as having a higher health value, and/or because previously it was only seen on TV but is now available in local food outlets. In either situation, through offering the food to their child it may boost

their own self esteem as a knowledgeable caring parent, or possibly also give them a higher status as a parent amongst peers if the latter see them offering the food. One must also acknowledge, however, that once the novelty effect wanes, if the food is still widely sought by children and offered by parents, it could be that certain attributes of the food itself have encouraged adoption into the mainstream diet. Once this happens, very likely, it is no longer a marker of distinction.

In summary, in Maltese children's realm four scales of distinction seem to exist, with home-made, fresh/natural, novel and non-Maltese at the top of each, though the latter is probably more a reflection of the food providers' scale. Amongst children, therefore, high status foods are not necessarily those which are habitually eaten by certain social groups as has been historically defined (Bourdieu, 1984, Fieldhouse, 1995). The ultimate in distinction from the children's perspective was perhaps reflected in one rural child's description of how the mother made chicken nuggets by using meat from the family supply of chickens, rolling the pieces in home-made breadcrumbs and then cooking them to resemble those bought at fast food outlets. Undoubtedly, promoting distinction-seeking amongst children and their food providers based on purity, freshness and genuineness of food would be very beneficial from the health perspective and one strategy nutrition educators should consider.

5.2.2 Mennell's Theory Of Diminishing Contrasts And Increasing Varieties In Food Consumption

The results have shown that Maltese children ate much of the same types of food, with minor group-specific food variations and trends. This finding fits with Mennell's (1985) theory of diminishing contrasts and increasing varieties in food habits and culinary tastes. In Table 88 I have listed the various factors which Mennell proposed as causing this trend and their applicability to the ecology of Maltese children's food intake. Clearly, there are various similarities. But Mennell was criticised because parts of his theory were based on casual observation rather than evidence. Therefore, in Table 88 I have differentiated between those factors which emerged from my data and those which like Mennell I have proposed as possible causal factors.

Considering both my quantitative and qualitative results, Mennell's theory is somewhat applicable to Maltese children's food consumption, but much more applicable for preferences. That is, actual food intake is still heavily controlled by the food providers who are functioning in their own habitus and fields and this leads to differences. I propose,

TABLE 88
Diminishing Contrasts And Increasing Varieties In Maltese Children's Diets
Following Mennell (1985)

DIMINISHING CONTRASTS		INCREASING VARIETIES	
Contributors	Maltese Children's Ecology	Contributors	Maltese Children's Ecology
Decline in social inequalities	Proposition	Contribution of technology in bringing a larger variety of foods to tables in the home	Proposition
More secure food supplies	Proposition	Contribution of global marketing in bringing a larger variety of foods to tables in the home	Proposition
Use of convenience foods by all social classes	Data	An abundance of cookery publications (<i>and TV programmes</i>) ^a showcasing different cuisines	Data
Patronage of fast food outlets by all social classes	Data	More eating out in general	Data
A change in hierarchical valuations of different foods (association between prestige and expense being eroded)	Proposition	The spread of international restaurants (<i>or international menu items</i>) ^a	Data
A decline in ostentation in cooking and eating	Proposition	Competition of tastes encouraged by fashion	Data
A general concern with weight and body image	Data		
Less seasonal differentiation in food intake	Data		
Less regional differentiation in food intake (rural vs. urban)	Data		
Less occasional differentiation in food intake (regular vs. feast days)	Data		
Less differentiation between domestic and professional cooking	Proposition		

^a My addition

however, that preferences are being nurtured by a more universal mechanism - global food marketing – which is reaching children directly through the mass media, particularly TV. So it seems that for staple meals, such as School Packed Lunch, Snack At Home, Weekday Supper and At The Beach most children eat and prefer the same type of food. For other meals or scenarios there was greater diversity. Differences emerged for Breakfast, After-School Meal, Sunday Lunch, Eating Out and Drinks. These were consumption settings which were somewhat more flexible and more strongly linked to family wealth, family

routines and family week-time menu. For example, Breakfast and After-School Meal food intake could be related to parental occupation, school schedules and family wealth; as well as time available and/or affordability of foods. Sunday Lunch composition could be related to the traditional practice of eating at/with grandparents, or related to family wealth and the option of going to eat a restaurant. Eating Out could be related a) to family staples - in that different items are sought when eating out from those foods normally eaten at home; b) to prestige-seeking - in that items chosen are perceived as having a high symbolic status; c) to family wealth - in that items chosen are perceived as having appropriate exchange value. Overall, Maltese children have a fairly congruent staple diet, with differences more likely to occur in non-basic or non-home based meals. This is reminiscent of Webb (1995) who said that changes in food intake are more likely to be feasible in secondary rather than core foods.

An interesting pattern emerges for Sunday Lunch. Here differences may occur as a result of movement away from the traditional cuisine, or perhaps return to the traditional cuisine. For some families, the adopted traditional British Sunday Lunch of roasted meat with potatoes and vegetables is the norm in this setting and its availability may increase the self-esteem of the provider. Within these families, Maltese traditional dishes are rarely consumed in this setting. In contrast, Sunday Lunch may be the sole link with traditional food practices for some families, so that the menu sought is traditional (whether at home, at grandparents, or in a restaurant) and this menu has high status from the symbolical perspective. This pattern suggests an interesting perspective on the food acculturation process. It could be that Maltese families are experiencing different phases of acculturation which are related to availability and which determine prestige value of traditional food. This process of food acculturation has been used to describe the experiences of migrants to foreign countries (Williams & Qureshi, 1988 cited in Webb, 2002), but there seems to be no published research on within-country acculturation comparisons.

5.2.3 Warde's Consumption Theory

The applicability of Warde's (1997) Consumption Theory to my findings is somewhat strong. Table 89 indicates how Warde's three different values guiding consumption were observed in or inferred from statements made by the children and mothers. The 'use value' of food was the most salient for both children and parents, primarily in its role of sustenance and to provide pleasure. The 'exchange value' was less salient. A few children and mothers did discuss the importance of ensuring value for money, but most did not actually mention cost

TABLE 89
Saliency Of Warde's Values Which Guide Consumption For
Maltese Children And Mothers

Value	Child	Mother
Exchange		
Evaluating monetary price one is willing to pay	-	✓
Use		
Satisfying needs and wants	✓ ✓	✓ ✓
Identity		
Impressing others of different status group	-	-
Impressing others of own group	✓	✓
Impressing oneself	✓	✓

✓ ✓ Very salient; ✓ Salient; - Not salient

as a criterion for food choice. As I have explained earlier, this may have been a superficial indifference, or a genuine reflection of the flexibility of family food budgets. The 'identity value' of food seemed to be important for children and possibly their food providers in trying to impress peers that they were in tune with latest food fashions. Additionally, personal food preparation or creativity with food served to raise children's self-esteem, whereas the ability to provide a varied and/or innovative diet served to boost the self-esteem of mothers.

Warde referred to individualisation, informalisation and communification in discussing the decline of importance of social class in consumption patterns. My results indicated that individualisation was not so prevalent amongst Maltese children and their families. Few children or mothers spoke of any food trends which were unusually different, and at the same time the majority of children ate together with their parents and/or ate the same meal as their parents for Weekday Supper. Informalisation was perhaps creeping in more rapidly amongst Maltese children. There seemed to be a decline in adherence to norms regarding food combinations, food sequencing, implements used to consume food and time of specific food consumption. In fact, there seemed to be a greater accommodation by mothers of children's food preferences, with less rigidity and enforcement on what should be eaten. Due to exposure to a greater variety of foods and to foreign foods, children's vision is not restricted to traditional food norms, but they are demanding new food combinations, new food serving styles and so on. At the same time, food consumption is often taking on a snack-type orientation where no utensils are required, where food is eaten while doing other activities, or where food is not consumed at the table in a formal organised dining setting.

Communification as perceived by Warde (1997) was evident in a variety of ways in Maltese children's dietary patterns. Warde (1997) explains that communification is a trend amongst

modern societies where individuals seek knowledge on appropriate ways to act, seek to share in a consensus on what comprises a decent life and seek to have their choices affirmed by like-minded people. For example, amongst Maltese children this could be seen in their seeking to participate in food behaviours which are common amongst their peers, whether it is specific food consumption, or participation in food gift/collections schemes, or patronage of certain food outlets. Amongst Maltese mothers it could be seen in their seeking to offer foods perceived as 'children's foods', or in seeking to provide foods appropriate for children from a health perspective. Warde explains communication as becoming immersed in a way of life. This is somewhat akin to Bourdieu's habitus. Yet, while there is certainly some validity in these theories, at the same time increased exposure to information about new foods, food preparation and serving alternatives prompts changes in the children's and their food provider's needs and wants so that change is on-going.

Stylisation is a process identified by Warde as a tool for distinction (following Bourdieu, 1984). It occurs when a trend is initiated and practised amongst a group of people with a shared lifestyle and eventually is sought after by other social groups as well. However, the trend is often short-lived. Very likely stylisation is common in Maltese schools, as children spoke about being introduced to new foods or food practices through observation of classmates' packed lunches. Sometimes these new foods or food practices are adopted by the whole class or by friendship groups. Eventually, they are either forgotten when a novel food or behaviour enters the limelight; or else their special value diminishes as they become ingrained in the children's food ecology for a particular setting.

5.2.4 Functionalism, Structuralism And Developmentalism

Taking a functionalist approach in my exploratory study proved useful. It helped to uncover social patterns in children's food consumption (based on exposure and availability), as well as differences in such patterns and their implications for dietary intake from a health and cuisine perspective. However, as I was interested in the rationale for certain social patterns, it was necessary to delve deeper in order to uncover children's and their primary providers' food-related perceptions and motivations, together with environmental influences on these perceptions and motivations and ultimately on children's food preferences and intake. My successful adoption of a structuralist approach, supports Douglas' (1984) assertion that valid analysis of food behaviour must be a 'bottom-up' exercise. My results have shown that in studying food intake one has to look at systems within systems and that ignoring social relationships, or the interaction of factors across ecological levels offers a limited picture. As

already explained, mainly social lifestyle and regional group differences were uncovered in children's food preferences and intake. The social lifestyle differences were partially explained by school location, school schedules and family routines. The regional differences were partially explained by proximity to source of fresh foods, restaurant availability and valuation of food quality.

Barthes (1979) also came from a structuralist background and he looked at food as an item of information having cultural meaning for all those who consumed it. However, some foods had meaning at a personal level and others at a collective social level. In addition, food advertising reflected shared meaning about foods. In applying Barthes' theory to my findings, one needs to differentiate between the children and their food providers. With regard to children, this theory probably works more strongly in acknowledging existence of personal food preferences and tastes and any associated personal meanings. Yet, for the food providers, the theory works at both the personal and collective social level. An interesting observation, however, is that whilst Barthes considered advertising to reflect shared meanings, I am more inclined to suggest that in the realm of children's food, advertising functions to *create* shared meanings. In fact, mothers explained that food advertisers repeatedly portrayed certain food during children's TV viewing hours so that a widespread desire was created. Oftentimes, the food was eventually adopted into many children's diets, having a shared physical and symbolical image amongst the children and their food providers. The way children spoke about certain properties of advertised food indicated that nutritional knowledge is being transmitted through advertisements, though this is sometimes misleading. However, children rarely mentioned advertisements for local foods which emphasised historical links or generated a sense of oneness with traditional food practices as described by Barthes. This perhaps reflects the current lack of such a nationalistic attitude in Maltese society, with advertising serving to sustain rather than remedy this lacuna.

Another sociological approach which guided my work was developmentalism and the study of the evolution of food preferences and intake. I was particularly interested in identifying the status of the traditional component of Maltese children's diets and the presence of Italian- and Western-oriented foods. In other words, I was seeking to explore acculturation trends and the movement away from traditional Maltese foods and practices. My results were, in fact, supportive of Hertzler and Owen (1984) and Rao (1986) who proposed constant change in cultural foodways. A number of sociological concepts are evident in my findings.

5.2.4.1 Delocalisation And Glocalisation

The phenomenon of delocalisation as described by Peltó and Peltó (1985) is particularly strong in Malta which relies so heavily on imported food supplies. There seems to be an ever-increasing variety in the foods available in different food retail outlets and children showed they were very much aware of the different brands of these imported products, probably reflecting effective marketing strategies. Another phenomenon which was evident from the results was that of glocalisation (Tonna, 1997). Children are being exposed to foreign foods via TV, through contact with foreigners and during special events. They then either adapt local foods to resemble these foreign foods (*qaghaq* being equated to doughnuts), or else they adopt the foreign foods into traditional settings (e.g. offering hot-dogs at birthday parties).

5.2.4.2 McDonaldization

The concept of McDonaldization as described by Ritzer (1993) is partially visible in Maltese children's dietary patterns; principally in relation to his criteria of *interchangeability* and *convenience*. As I have already indicated, Maltese children are being exposed to and consuming some of the same foods which other children are consuming in other countries; especially foods which have a global distribution, such as particular brands of fast foods, soft-drinks and cereals. It is also quite clear that expediency in food provision is an important factor in children's food intake, both from the children's and the mother's perspectives. This probably holds true for most families, but perhaps slightly more for families of children attending non-state schools. In fact, independent school children were the group least likely to eat the weekday evening meal together as a family.

My results diverge, however, from Ritzer's criterion of *predictability*. Ritzer posits that with McDonaldization the food provider prepares or offers a limited repertoire of dishes to the family. This is not applicable to Malta, where overall it seemed that children are consuming quite a varied diet and mothers are fairly pro-active in introducing new foods to their families and children. Nonetheless, independent school children did seem to emerge as consuming the same foods for their weekday and weekend meals, as well as home-based and non-home-based meals. In addition, the triad of pizza, tortellini and burger and chicken nugget meals did emerge strongly as common restaurant meals for children. In general, one can conclude that the phenomenon of McDonaldization is impacting the local food culture, in particular with regard to massification in provision of children's restaurant menus. In fact, as a result of globalised marketing it seems that we are moving to a universal set of 'children's

foods'; as can be initially attested perhaps through a study of the items listed on children's restaurant menus in different industrialised countries.

5.2.4.3 Cultural Entrepreneurship

The totality of Maltese children's food requests, whether prompted by exposure to a food in different social settings, or by mass-mediated food marketing strategies, is leading to cultural change. Based on my results, Maltese children can be considered as 'cultural entrepreneurs' (Bhachu, 1995) or 'taste-makers' (Appadurai, 1988; Fantasia, 1995) in that new foods which children constantly request gradually come to be seen as the 'norm' amongst food providers. Once a widespread demand for a food item occurs, then it truly becomes adopted into the mainstream. Of note is that independent school children and high HLS children tended to be the groups to portray or mention 'newer'/non-traditional foods and dietary habits. Thus, their food providers are equally critical as cultural entrepreneurs, a reflection also of Roger's (1995) 'social innovators' and 'early knowers'.

5.3 Ecological Theory And The Role Of The Chronosystem In Food Habits And Norms

One of my initial concerns regarding Bourdieu's (1977) Theory of Practice was his assumption of a certain permanency in food behaviours. In fact, my results offered evidence to sustain Bronfenbrenner's (1989a) concept of the chronosystem (as one of the systems in his Ecological Theory) where both consistency and change occur over time. Maltese children spoke about consuming traditional foods and regularly consuming certain foods at specific times. These behaviours certainly reflected a certain permanency in foodways. In contrast, change in foodways has clearly occurred as a result of changing food norms pertaining to children, as a result of changing family routines with an increased reliance on convenience foods, as a result of an all-year-round availability of previously seasonal foods, as a result of increased importation of a larger selection of foods, as a result of decreased availability of traditional foods, as a result of assimilation of certain foreign cuisine features, and as a result of a general Westernisation of the diet. For example, children did not speak about consuming traditional *hobz biz-zeit* at feasts, but of buying hot-dogs; they did not mention eating traditional roasted dried beans or chickpeas at the beach, but packet salty snacks. Some changes have been nutritionally positive, others less positive. The potential long-term impact of interaction between human and non-human factors on a child's diet and ultimately health status is part of the chronosystem.

A similar process was alluded to by Beardsworth and Keil (1997) when they suggested that each person has a 'nutritional career' and that throughout the lifecycle there are bodily needs and cultural expectations pertaining to each stage. They also suggested that people go through sporadic episodes of resocialisation in respect of food beliefs and practices. Given my results, I propose that the latter would be particularly evident amongst mothers who are constantly being up-dated to varying degrees on children's nutrition and/or the food-health link, as well as amongst children who are frequently targeted by food marketers as the agency through which new foods are introduced to families. Once these foods become accepted and incorporated into the mainstream, they create new or modified norms.

5.4 Social Cognitive Theory And Modelling

My results are especially supportive of Social Cognitive Theory (Bandura, 1986; Reynolds et al., 1999) which proposes that modelling is critical in influencing food preferences and behaviours. Both the Maltese children and their parents referred to instances of direct modelling of food preferences and/or behaviours by parents, adult relatives, siblings and other young relatives, classmates, teachers and school administrative staff. However, my results also confirm that modelling can take place indirectly via television (Zuckerman & Zuckerman, 1985). In fact, responses from both mothers and children indicated that observational learning takes place when children see other children, adults or cartoon characters consuming or preparing food in TV programmes or advertisements. Children could even mention specific female adults who demonstrated different recipes or creative food activities, confirming the potential power of such adult figures in encouraging certain food behaviours as has been suggested by other researchers (Logue, 1991; Thomas, 1991).

My results also suggest that other interpersonal (e.g. school food policy), community (e.g. food retail outlets) and macro factors (e.g. climate, seasons and global food marketing) impact on the foods offered to children and on children's motivation to consume these foods. Whereas on the one hand Social Cognitive Theory looks at the interplay between personal characteristics, behaviour and the immediate environment, it tends not to explain how cultural and other macro level ecological factors influence food preferences and intake. This is a deficiency in Social Cognitive Theory with respect to explaining my findings. Community and other Macro level factors need to be included in any model trying to comprehensively describe Maltese children's dietary habits.

5.5 Food Preferences And Exposure

Fieldhouse (1995) has stated that children's food preferences are based on experiences and associations which are made in the family sphere. My results confirm this, but also necessitate acknowledgement of other influences on children's preferences functioning outside the family sphere. It is true that Maltese mothers will generally offer foods known to be preferred by their children and repeated exposure often increases preference. Also, some parents purposefully expose their children to new foods, or to familiar foods prepared or presented differently, in order to broaden their youngsters' taste preferences and encourage consumption of healthier foods. However, children may develop a preference for a food after exposure by factors outside the immediate family, such as via grandparents, classmates, peers, or television. The children then request the food, experience it and acquire a taste for it. Occasionally, the food experience takes place in a pleasurable social setting, such as at a party, wedding, feast, public event, restaurant, or Sunday Lunch at grandparents. This positive association seems to help increase the child's preference for the food. Thus, I fully agree with Birch, Zimmerman & Hind (1980) who stated that providing an enjoyable social eating environment potentiates preferences. Yet, I also agree with Birch (1990, 1999) that exposure without a positive sensory experience very likely does not lead to preference.

As has already been mentioned, TV is making children and their food providers aware of new foods and this sometimes promotes new consumption behaviours. In particular, once children see the TV-portrayed items in shops they often request these foods. Thus, based on my findings, I agree with Crockett and Sims (1995) and Fieldhouse (1995) who stated that media promotes brand choice, but disagree with Fieldhouse (1995) who also stated that media does not create a desire for previously unthought of wants. This is certainly not the case in Malta and it is unfortunate that traditional Maltese foods are rarely portrayed or promoted via the powerful medium of TV given its direct and indirect influence on children. It is equally unfortunate that the balance of healthy and less healthy food exposure from TV is counter to current dietary guidelines concerning different food groups. So much so, several Maltese mothers complained about the domination of advertising for less healthy food items, especially during children's prime viewing time. It seems, therefore, that the situation in Malta is very similar to that of several other developed countries where TV food advertising is offering children a skewed version of what constitutes a healthful and balanced diet (Kotz & Story, 1994; Gunter & McAleer, 1997; Hastings et al., 2003).

5.6 Children's And Mothers' Food Perceptions

My study of children's food intake suggests that children and their food providers each have their own perceptions of foods which differ based on personal perception of the physical properties and the symbolic properties of the foods. The former is strong for both the children and the mothers; whilst the latter is stronger for the mothers. My findings substantiate Chiva's (1997) idea of food referencing where individuals develop food constructs based on specific qualities for each food. These food constructs are developed and exist in a pre-set social frame which will be transmitted to young children by adult caregivers and food providers. My findings also substantiate Hertzler, Wenkam & Standal's (1982) proposition that sociological classification of foods has a connotative aspect involving appearance, aroma, flavour, convenience, versatility, ease of storage and availability. These properties all emerged in the children's or mothers' discourse at one point or other; with flavour, appearance and convenience being salient for both. Yet, Hertzler also proposed an imagery aspect in food classification related to age, gender, SES and power hierarchy. As I was focusing on children, power hierarchy was not studied. Nonetheless, gender and age did emerge as factors in mothers' food-related decisions, whereas SES did not seem to have such a strong role.

Beardsworth and Keil (1997) have also proposed a framework for food classification based on six different 'menus'. They claim that individuals have sets of principles which guide their choice of foods from those available. Table 90 shows the saliency of their different menus in Maltese children's and mothers' food choices.

TABLE 90
Saliency Of Beardsworth And Keil's Menu Classification Scheme In
Maltese Children's And Mothers' Food Choices

Menu	Children	Mothers
Traditional	-	✓
Rational	✓	✓ ✓
Convenience	✓	✓ ✓
Economy	-	✓
Hedonistic	✓ ✓	✓ ✓
Moral	-	-

✓ ✓ Very salient; ✓ Salient; - Not salient

The hedonistic menu scored highly in this classification exercise, as both children and mothers frequently referred to the enjoyment value of food in their conversations. Some children associated food consumption with fun and creativity and some were against food restrictions at school as this prevented instant gratification of food wants. Most mothers reported a hedonic motivation for their food provision, where food provided was food which would be enjoyed.

Other salient menus were the rational (incorporating health value of food) and convenience. These were both stronger for the actual food providers. Nonetheless, my results confirm Michela and Contento's (1986) proposition that 7-8-year-old children do use health and nutrition value as a criterion for selecting certain foods over others. Moreover, Maltese children also identify and seek certain features in foods which make them easier to prepare, consume and transport. They also critically compare food attributes and demonstrate reasoned trade-offs. Such value negotiation has been reported for adults (Furst et al., 1996), but scarcely studied in children.

Moral menus were not mentioned at all during the conversations, indicating that religious restrictions, or other beliefs such as vegetarianism, were not salient in the food choice process of the majority of Maltese children and their mothers.

5.7 A Culture Of 'Children's Food'

My results suggested a number of attributes in food which attracted Maltese children and which were typical of 'children's food'. Table 91 lists these attributes, indicating which were more salient and which were common with those identified nearly two decades ago by Rousseau (1984). My list is fairly comprehensive, including various physical and functional properties. At the same time it provides an indication of what is important for children in the realm of food and eating.

Two attributes mentioned by Rousseau did not seem to emerge from my data; namely, food which can be chewed and food which requires minimal packaging. In fact, a chewy texture tended to be perceived more negatively than positively by Maltese children. On the other hand, 'minimal packaging' is somewhat similar to the attribute 'food which requires no peeling or is easy to peel', indicating that the idea of expediency was common to Maltese children and Rousseau's findings.

TABLE 91
Attributes Typical Of Children's Foods

Food Attributes Emerging From Data	Saliency Of Attribute Amongst Maltese Children	Similar Food Attribute Proposed By Rousseau
Food which has identifiable ingredients	✓	
Food which is red	✓	
Food which tastes sweet	✓ ✓	
Food which has a chocolate flavour	✓ ✓	
Food which is creamy	✓	
Food which is juicy	✓ ✓	
Food which is refreshing	✓	
Food which is spongy	✓ ✓	
Food which is crunchy	✓	*
Food which is small	✓	
Food which offers variety	✓	
Food which can be dipped in tea/coffee	✓	
Food which can be eaten in small quantities	✓	*
Food which is shareable with other children	✓	*
Food which allows for fantasising and play	✓ ✓	*
Food which can be eaten at any time of day	✓	*
Food which can be eaten in any place	✓	*
Food which is portable	✓	
Food which requires no peeling or is easy to peel	✓ ✓	
Food which requires no utensils to be eaten	✓ ✓	*

✓ ✓ Very salient; ✓ Salient; *Common

5.8 Developing A Model To Explain Influences On Maltese Children's Food Intake

Previous models and frameworks which have been proposed to explain food choice or intake have in combination incorporated the properties of the foods, the properties of the individual and the properties of the environments in which the individual acts. They have proposed that all these factors influence preferences and/or intake, in that the orientation of preference leads to acceptance, rejection or selection of a food. Moreover, food preferences and food choice are not constant, but change over time. Given the multitude of variables involved, a socio-ecological model would seem an appropriate framework for explaining the various influencing factors at different levels in Maltese children's food choices and behaviours.

In my literature review I had referred to Wheeler's (1992) model which depicted a hierarchy of constraints on food selection starting from physical availability through to economic, cultural, gatekeeper and personal availability. I had been skeptical of his ordering of the

constraints, particularly his placing of cultural availability midway in the hierarchy. Based on my results I feel that my initial skepticism was founded and that cultural availability should be placed higher up in the hierarchy, as what is physically available and economically available depends a lot on consumer demand; on what the consumer desires for pleasure and for his or her physical and mental well-being, as well as on what the consumer feels is worth paying for. These factors are influenced by the prevailing food culture, whether local or global, whether traditional or assimilated.

Based on the working model I have used in Chapter 4 and my discussion on the applicability of different theories and theoretical concepts to my results, I would like to propose a food choice model which utilises ecological levels as a framework, highlights the major sub-systems, and shows the key factors which ultimately influence a child's food intake.

5.8.1 Explaining The 'Socio-Ecological Culture-Cuisine Food Model' Of Influences On Maltese Children's Food Intake

The 'Socio-Ecological Culture-Cuisine Food Model' (see Figure 9) can be used to identify the different factors which influence a Maltese child's food intake. It is a *socio-ecological* model as four different levels of the environment are considered: the intrapersonal, the interpersonal, the community and the macro level. The child is at the centre of the model, where his or her various mental, emotional, behavioural or biological processes and/or characteristics directly influence food intake. Food perceptions are major players in generating preferences and/or requests and in determining intake. Perceptions can be sensorial, cognitive or affective. Flavour, texture and appearance are sensory-related attributes of foods which influence a food's appeal to children's senses. Health value (nutritional property and food safety), food quality and convenience properties are cognitive perceptions which influence a child's liking or valuation of a food. Enjoyment value of food, the treat value of food, association with pleasurable occasions, or value as a tool for communication with peers are positive affective perceptions which may motivate a child to make particular food choices.

At the interpersonal level, the key players are the mother, members of the immediate and extended family, and members of the school system. The model delineates these three different sub-systems at this level and the multitude of factors within each one which have a role in the child's food intake directly or indirectly. These factors may interact within the sub-

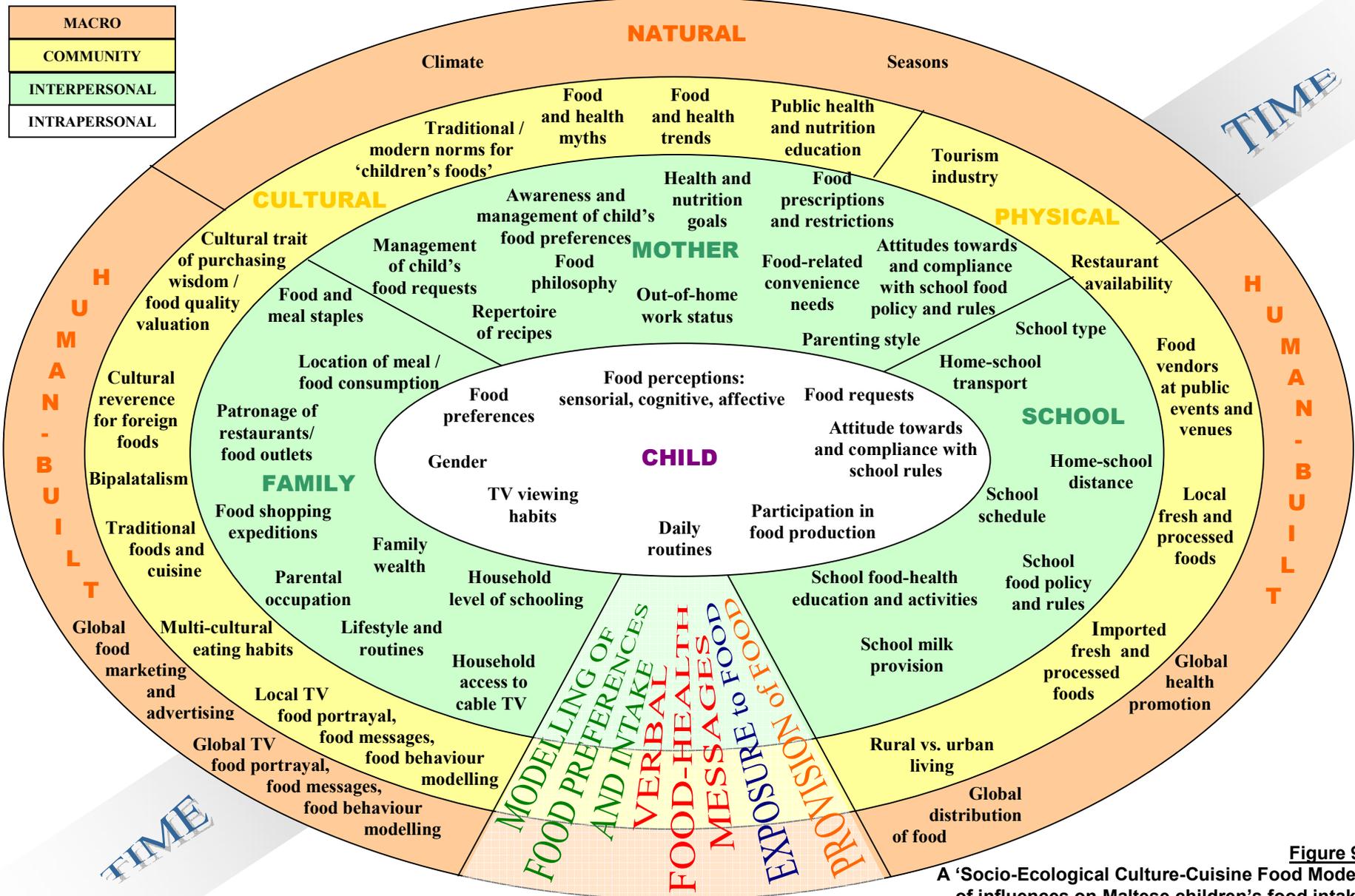


Figure 9.
A 'Socio-Ecological Culture-Cuisine Food Model' of influences on Maltese children's food intake

system, or with the other sub-systems, or across levels to the inner or outer systems. For example, the mother's hedonic motivation in providing food for her children (as part of her food philosophy) may influence the extent of her food prescriptions and restrictions, as well as her general food-related parenting style. (See Figure 10). This in turn will influence her provision of opportunities for the child to participate in food production activities and ultimately the child's self-provided food intake. Interaction between the family and school sub-systems can be seen in the process where family wealth may influence school type attended by child; in turn, home-school distance and home-school transport may influence family lifestyle and routines, which will eventually influence location of consumption of meals by the child and patronage of restaurants and food outlets.

At the community level, two major sub-systems emerge: physical and cultural food availability. Extent and variety of local and imported fresh and processed foods available on the market influence orientation of the nation's overall diet. Certain foods are more accessible to children as a result of events and venues they typically experience, as well as due to their region of residence. Increasing presence of international fast food chains and take-away outlets offers convenience in food provision.

The tourism industry falls primarily within the physical system, but also has a role in the cultural system. On the one hand, it impacts on the quantity of catering establishments available and their location. On the other hand, it also exposes local families to foreign and traditional menus by influencing the variety of restaurants available - some of which cater for foreign tastes and some of which showcase traditional cuisine.

The cultural system is made up of factors related to cuisines, food norms, diet-related acculturation and consumption traits. It comprises community level trends, such as multi-cultural eating habits which embrace traditional foods and cuisine to different degrees and in different settings. The cultural system also comprises factors which could influence norms for children's food, such as local TV modelling of food choices and behaviours, food and health trends and public education on children's nutrition needs. It also comprises certain cultural traits related to monetary value of food and prestige value of foreign food, which could influence the quality and 'foreignness' of food selected by the children's food providers. Community level factors influence each other, as well as factors in both the interpersonal and intrapersonal level. For example, local TV food portrayal and food-health messages may serve to dismantle certain food and health myths among food providers,

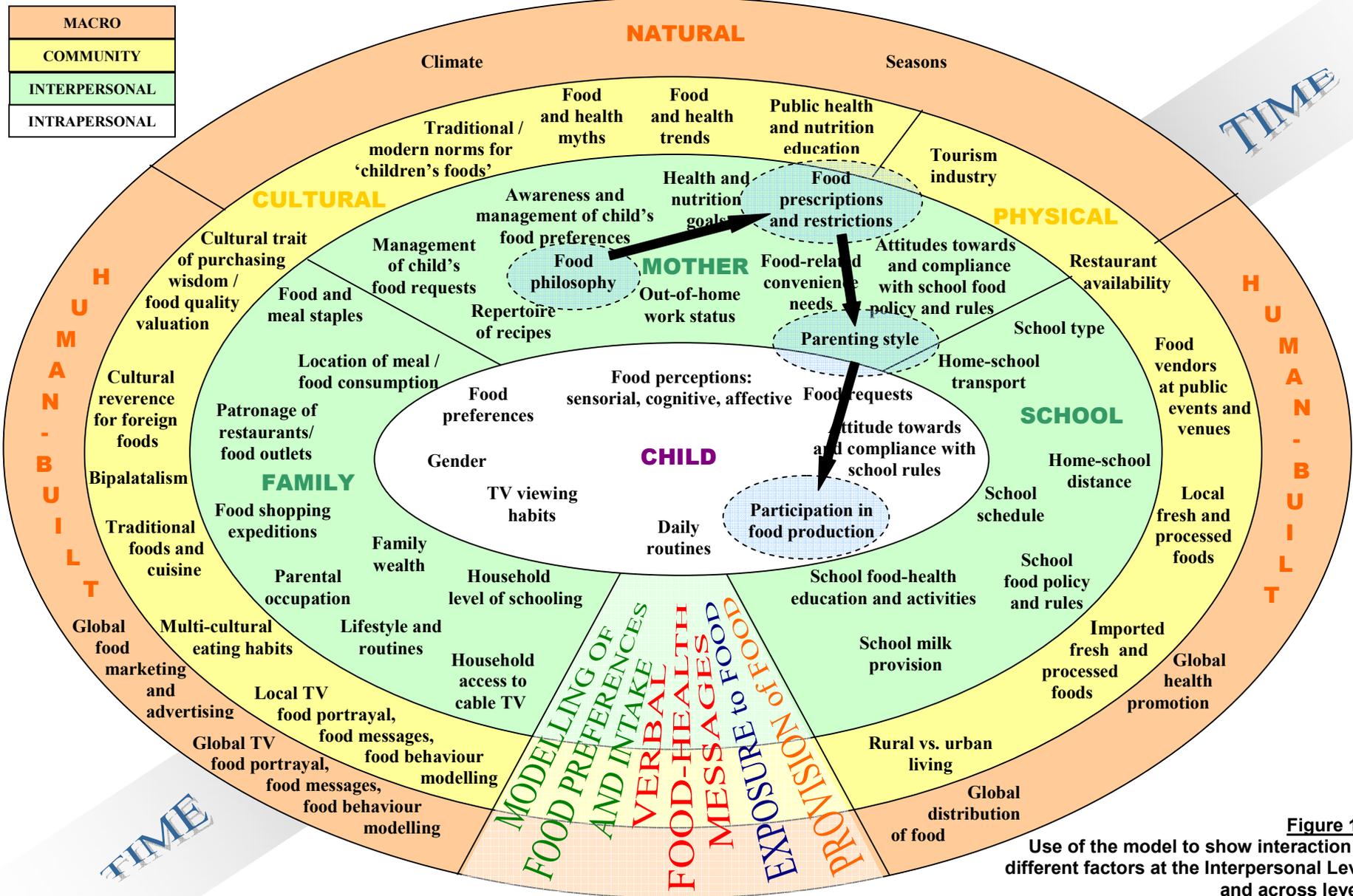


Figure 10. Use of the model to show interaction of different factors at the Interpersonal Level and across levels

whilst creating new norms for 'children's foods' amongst both the providers and children themselves. (See Figure 11). These norms may impact on the family's food and meal staples and on school food policy and rules, which in turn will determine which foods are offered to the children.

The outermost ecological level is the macro level. Here again two major sub-systems are functioning: natural processes and human-built processes. Two natural processes which effect children's food intake are the climate and seasons. The former affects global food production and sustainability of the local tourism industry. These have an indirect influence on children's food intake via food availability. Seasons have a more direct influence on children's intake, in that certain foods are provided or presented in particular ways by the gatekeeper according to season. Children also have seasonal food preferences. The human-built sub-system mainly comprises global processes related to food availability, food awareness and food and health knowledge. These processes affect a multitude of factors in the lower ecological levels, though they also interact with each other. For example, the global food marketing and advertising machine often utilises TV to transmit its messages. (See Figure 12). Occasionally, these messages are counteracted by other messages within global health campaigns which in turn generate national public health campaigns. The various messages communicated influence mothers' health and nutrition goals and/or children's sensory, cognitive and affective perceptions, ultimately determining mother's food provision directly, or as a result of children's food requests.

The model also shows that there are four key processes which traverse the four ecological levels to influence children's food intake. These are provision of food, exposure to food, modelling of food preferences and intake and verbal food-health messages. These processes can determine the quality of a child's diet from a variety, culture-cuisine and nutritional perspective. Different factors are present in the four ecological levels which contribute towards these processes. For example, modelling of food preferences and intake may take place in various ways: Global TV food modelling acts directly, or complements or reinforces local TV food modelling. In turn, family members (including mothers, siblings, grandparents and other adult or young relatives, and/or classmates, teachers and school personnel) may model food choices or food behaviours. This modelling may be intentional or inadvertent and may result in health conducive or health detracting perceptions amongst children. Ultimately, children's food perceptions may impact on their food requests or intake either directly or indirectly via preferences.

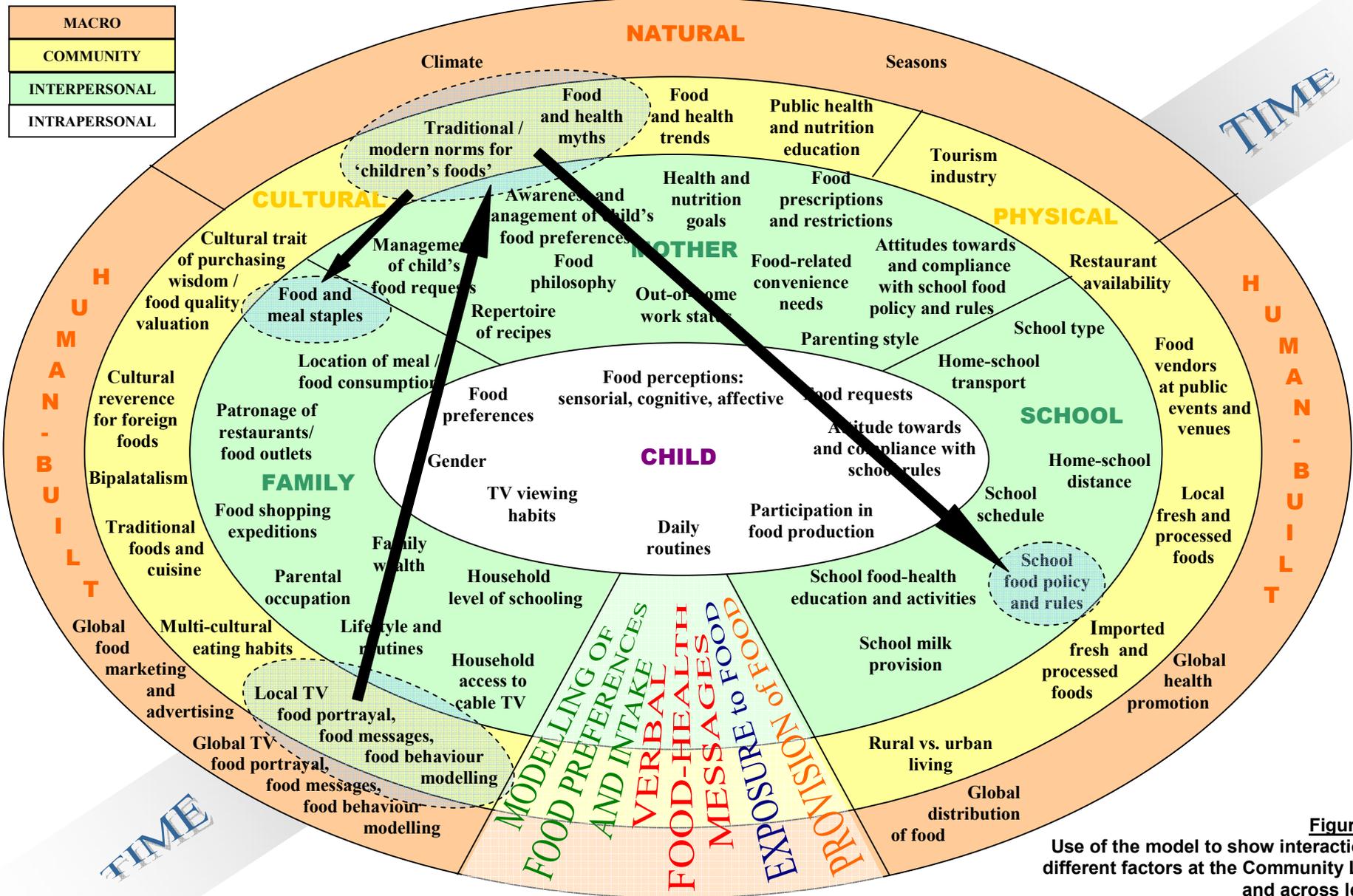


Figure 11. Use of the model to show interaction of different factors at the Community Level and across levels

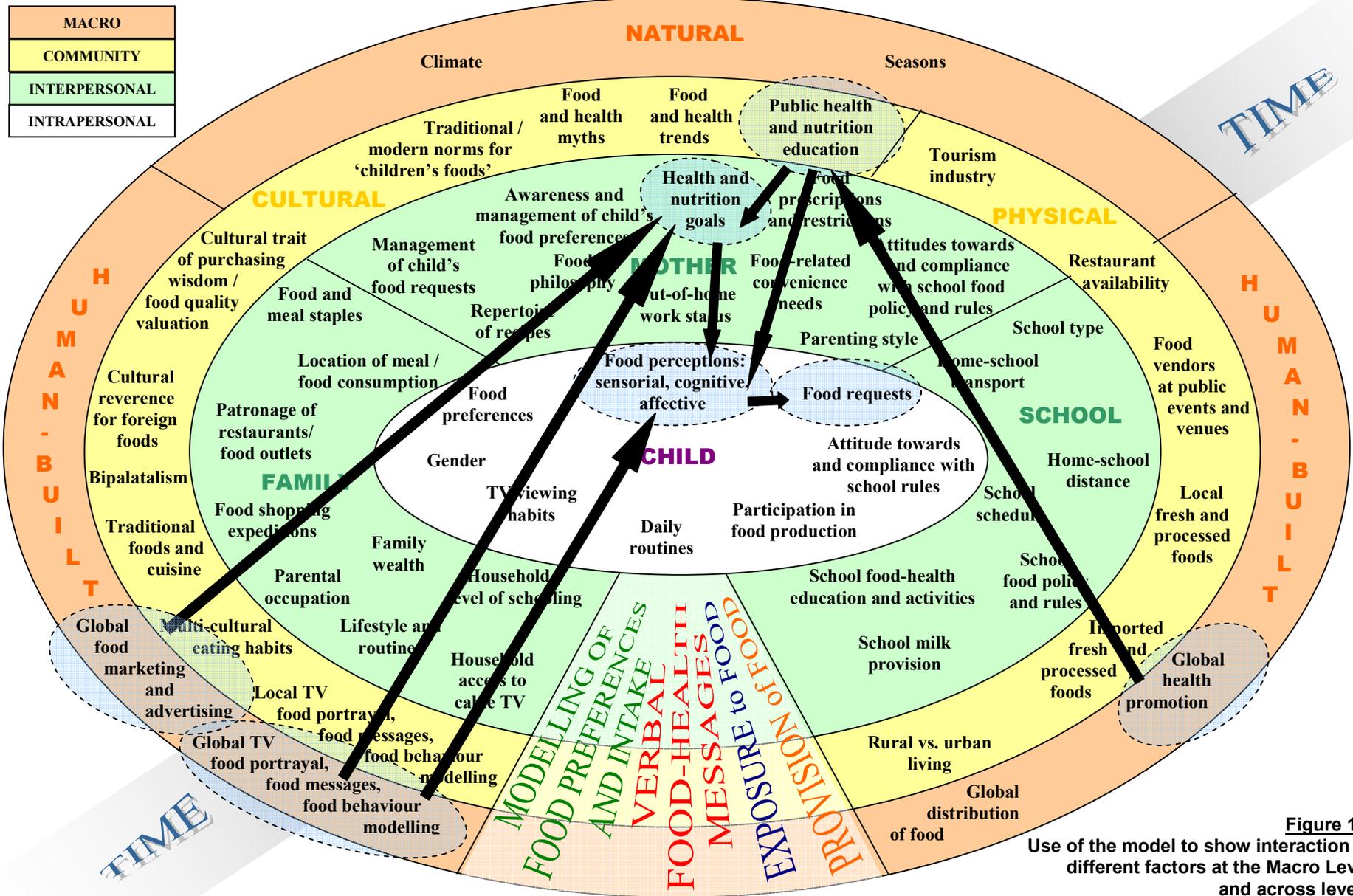


Figure 12. Use of the model to show interaction of different factors at the Macro Level and across levels

The socio-ecological model also incorporates the label *Culture-Cuisine*, as consideration has been given to the different factors which may influence the acculturation process in food preferences and behaviours. Utilising the model, one can trace pathways away from a traditional Maltese diet to an Italian and/or more Westernised diet. Or vice-versa, one can also propose pathways how to revive a more traditional Maltese diet. So for example, through global food distribution a number of imported foods are available in local outlets; simultaneously, global TV channels expose children to a myriad of non-traditional novel foods; children are attracted to the properties of these TV-portrayed foods and request them from their mothers; mothers meet these requests and provide the foods. Repeated TV portrayal, repeated requests and repeated fulfillment of requests create a new 'adopted' or 'adapted' children's food norm. In contrast, knowledge of children's sensorial food perceptions illuminates the rationale for certain food preferences amongst children and may assist mothers to be more aware of and manage these preferences. By utilising local TV stations to provide mothers with a selection of healthy traditional snack food recipes which meet their children's preferences, meet their own food-related convenience needs and utilise locally available foods, traditional foods and cuisine may be promoted and sustained.

One final component of the model is the reference to the chronosystem. Here I extend Bronfenbrenner's (1989a) concept to explain that time influences children's food intake in myriad dimensions. Certain foods are typically eaten at certain times of day, on particular days of the week, within particular seasons. This is the physical dimension. In a more symbolic dimension, norms exist for child-appropriate foods and children's food socialisation occurs over time. In addition, children and their food providers experience re-socialisation as changes occur in food availability, food exposure and food-health messages. Cuisine-related acculturation also occurs over time. It is a gradual process, the speed of which differs amongst social groups. Thus, the chronosystem pervades all ecological levels, functioning obtrusively in certain settings and less obtrusively in others.

5.8.2 A Narrative Using The 'Socio-Ecological Culture-Cuisine Food Model' For Maltese Children's Food Intake

Global food distribution, global food marketing and global food health promotion are creating a culture of 'children's food' which is common at least to industrialised countries with similar lifestyles and standards of living. Countries retain their traditional norms for 'children's foods', yet these are constantly being challenged and/or changing through nutrition education and assimilation into the culture of new foods. Certain foods in particular are ubiquitous in their

presence, being available in several countries around the world. Even if a food is not available in a particular country, but consumers are regularly exposed to it (via TV or travel) it is often simulated by local food manufacturers or even by food providers within the home. Therefore, new foods are frequently available at different price levels to suit different income levels, although the quality may not always be at par. At the same time, in countries such as Malta where there is generally good food security, providers may place less of a budgetary constraint on food purchases, simultaneously being fairly wise in obtaining value for their food lira.

Mothers are the primary gatekeeper in Maltese children's food intake. Mothers provide children with foods which they consider as suitable for children, with foods which children request, with foods which children are permitted to eat in certain settings and with foods which as mothers they consider convenient. What mothers consider as suitable for their children is based on traditional cultural norms surrounding foods for children, and on emerging norms for children's foods which are generated through various marketing strategies by food manufacturers, as well as by health promotion entities. The traditional norms are often sustained by grandparents; the emerging norms are often strengthened by the children's requests, by informal communication with other mothers and parents, by more formal communication by nutrition educators and by what is available in food outlets (shops, restaurants etc.). Mothers also tend to try to accommodate their children's food requests, whether these are made in the home, whilst shopping or when eating out. Whilst on the one hand mothers do make certain prescriptions and to a lesser degree impose restrictions on their children's food choices and intake, children's requests do influence which food items are bought, as well as which restaurants are visited by the family. Children are also granted more autonomy when eating out. Yet, mothers are also constrained by certain regulations, such as school food rules. The extent of compliance with school rules is influenced by the mother's own attitude, by the child's attitude and by the strength of communication and enforcement by school administration. Convenience in food preparation (by the mother or child), storage for later use, transportability and acceptance and ease of consumption by the child are all factors which influence a mother's food provision.

Children personally determine availability based on their perceptions of foods. Positive perceptions can generate preferences and lead to food requests and/or intake. Perceptions can be sensorial, cognitive or affective and can work alone or synergistically in generating preferences. Sensorial perceptions are developed through direct exposure and/or actual

tasting of the food. They may also be developed vicariously via modelling by others directly or indirectly (e.g. on television). Sensory experiences may be provided by mothers, grandparents, siblings and other young relatives, as well as classmates, teachers and school personnel. Sensorial factors may include flavour, aroma, colour, texture and ease of swallowing.

Children's cognitive perceptions regarding food-health links result from transmission of messages directly by mothers, grandparents, siblings and other young relatives, classmates, teachers, school personnel, the mass media and food packaging. Sometimes messages are transmitted indirectly when adults make healthier foods more available and not-so-healthy foods less available. Occasionally, imprecise messages are transmitted by the source, or children associate certain healthy food practices only with particular groups of people. Imprecise messages lead to erroneous health valuation of a food, either promoting or restricting consumption. This impacts negatively when the resultant food behaviour is contrary to what is recommended by health authorities. Similarly, by associating specific healthy foods with elderly people or people with certain diseases or conditions, children sometimes impose a non-essential limitation on personal use of the food.

Cognitive perceptions regarding food quality are often a result of formal or informal education by teachers and parents. Consumer education and media education lead to both critical and purchasing skills. But perceptions of food quality are also generated by proximity to the source of fresh food, or by actual observation of or participation in food growth and production. Convenience is also a factor in cognitive perceptions. Convenience in preparation, consumption and transportability of a food contributes to children's perceptions of a food's quality. Perception of convenience is generated as a result of direct handling of the food, as well as a result of impact of the food on family and personal routines. Cultural emphasis on purchasing wisdom and value for money may be pertinent factors in some children's food quality assessment. Unfortunately, a historical cultural attitude of reverence for what is foreign over what is produced locally may sometimes be transmitted to children, biasing both their cognitive and affective perception of local food quality.

Affective perceptions of food which influence children's food preferences and requests often evolve around pleasurable food experiences. Children may associate desirable foods with enjoyable occasions, such as parties, *festas* and public events. Desirable foods may also be perceived as 'treat' foods as they are less frequently available, thereby increasing their value

from the child's perspective. Treat foods not usually available in the home are often provided by grandparents, allowed when eating out, or available at special events such as those mentioned above. Moreover, the potential for individual or shared 'play' whilst consuming a food is appealing to children.

Affective perception is also reflected in children's consumption of a food to be like the rest of their peer group. Although the children themselves may not always consciously express such perception, it is often mentioned by mothers as a trigger for children's requests for particular foods. Children sometimes see their classmates purchasing or consuming a particular food and either ask their parents for the food, or for money to buy the food. Television advertisements often portray particular food behaviours as being the norm amongst children. At times the food involved is unfamiliar to the child, whilst at other times it is similar to a known food. However, despite the lack of familiarity and despite an occasional inferiority with regard to the quality of a bought food versus a home-made food, children still desire the food for its role in communication.

The new socio-ecological model I have presented to explain Maltese children's food intake is a grounded model based on the data obtained from the various stages of the research, yet also incorporating elements from sociological, psychological and ecological theories. Whilst the model has been developed around the phenomenon of Maltese children's ecology, it may also be useful for other researchers who are studying children's eating habits especially in Mediterranean countries, or countries where there is a strong tendency for Westernisation of the diet. Different factors of the model could be studied individually in more depth, or collectively to trace pathways of influence on children's food intake.

5.9 Implications of the Findings for Policy, Practice and Research

This exploratory study has helped to start painting a picture of the various influences on Maltese children's eating habits. In this final section I shall present the implications of the research findings for policy and practice, ending with suggestions for further research.

5.9.1 Health Promotion And Nutrition Education

Overall, Maltese children have emerged as consuming a variety of foods from different food groups. This balance augurs well for the nutritional profile of their diet. However, certain excesses or deficiencies were also identified and merit attention.

A number of foods were pervasive in Maltese children's diets, being consumed by many children and in different settings. These were primarily pasta, pizza and fast food style meals. Other foods with high rates of consumption were breakfast cereals and soft-drinks. This heavy emphasis on carbohydrate foods, suggests the need to promote a higher consumption of complex carbohydrates, such as wholemeal pasta, wholemeal bread and vegetables and fruits. The Maltese Health Promotion Department's national campaign to promote a more plant-based Mediterranean diet should continue, with particular focus on targetting the 5-A-Day fruit and vegetable message to families and mothers.

In fact, very few Maltese children seem to be consuming at least three vegetables or fruits from three of the common daily meals. If this is not compensated for in their other daily meals, then the children could be missing out on a variety of nutrients and healthful phytochemicals. The 5-A-Day campaign in Malta may need to utilise different marketing strategies to reach children and their food providers, also focusing on the attributes which attract children to vegetables and fruit and their preferred ways of consuming them. Promotional campaigns involving collectable stickers are very influential in triggering food requests according to mothers. The Health Promotion Department could partner with the Ministry for Agriculture, local agricultural co-operatives and/or importers of fresh produce to utilise a similar strategy encouraging children to consume vegetables and fruit. Such campaigns have been launched previously in relation to packet fruit juices with great success (Fenech, 2000).

Another deficiency is that very few children seem to be consuming milk twice daily (as a beverage and as an accompaniment to cereal or as a yoghurt or milk pudding). Yet, the recommendation for children of this age group is for at least three servings of milk or milk products daily. Simultaneously, children's intake and preference for milk is lower than it is for soft-drinks. The low nutritive value of soft-drinks and the negative impact of these highly-sweetened drinks on dental health are well known, and the fact that they might be displacing milk in children's diets is of concern. Moreover, girls were less likely to consume milk or milk products daily than boys. This could stem from the message girls may be receiving that milk and milk products are fattening. As a result, they avoid consumption of these items for fear of gaining weight.

The exact amount of milk consumed by children was not measured, and intake of alternative sources of calcium was not explored, so this is a limitation of the study. However, the above

scenario for milk consumption justifies recommending a strategic marketing campaign by the health and education authorities, in conjunction with interested parties from the health professions and industry, promoting consumption of milk in general, but also school milk if this continues to be offered. The campaign could focus on simple, unambiguous and practical messages about ways of incorporating milk and milk products into the daily diet, explaining how to make healthier choices by looking for nutrient density and avoiding energy-density. One such message could be urging children to replace one glass of their daily soft-drink intake with a glass of low-fat milk. Other messages could encourage using milk as a beverage accompaniment to snack items or during meals, or reviving the traditional bed-time ritual amongst children of drinking a warm milk beverage before going to sleep.

Maltese children may sometimes have a negative perception of a food due to an image they pick up from their social environment. In this regard, Maltese family doctors and medical students may need to be cautioned as to how they transmit messages about dietary modification to their patients. When advising patients on how to reduce saturated fats in their diet many doctors primarily recommend eliminating dairy products; thereby putting these foods in a very negative light. The Health Promotion Department and/or other NGOs which have health education as part of their mission, could collaborate with the local medical and dental professional associations on the production of patient fact sheets and complementary educational material for the general public. The goal would be to help dismantle stereotypical food images and avoid the creation of others. Medical students may also benefit from additional training in their course on appropriate communication of nutrition messages to patients and their families.

The avoidance of high-sugar and/or high-fat foods is currently a strong public health message on the Maltese islands and this seems to be filtering down to primary schoolchildren as these were the two substances often singled out as negative ingredients in foods and snacks. The minimal reference to salt content indicates, however, that salt avoidance is not presented strongly enough as part of the healthy snack message to Maltese children or their parents. This lacuna needs to be addressed by the Health Promotion Department, given that the sodium content of certain snack foods is often very high. Simultaneously, children need to be exposed to a variety of low-sodium snack options (apart from fruit), such as the traditional *qaghaq*, *biskuttelli* and a variation of *hobz biz-zejt* made using fresh vegetables and the fresh unsalted sheep or goat's cheese *gbejniet*.

The majority of young Maltese children still eat their weekday evening meal with their family. The Health Promotion Department and Home Economics educators could build on the importance that families still seem to place on being together for meals and provide family cooks with uncomplicated recipes, shopping lists and preparation tips to meet the latest dietary guidelines whilst being sensitive to general cultural preferences. Furthermore, the various benefits of sharing weekday evening meals as frequently as possible need to be emphasised amongst parents and perhaps promoted through schools, places of work and the mass media.

However, eating out is also a common practice amongst many Maltese families and fast food restaurants are popular venues. Lecturers, chefs and students at the Institute of Tourism Studies could be encouraged to develop attractive healthy dishes for children's restaurant menus. These could be based on more modern ingredients, or utilise traditional recipes, yet with novel presentation ideas. Some preliminary work could be conducted by Home Economics and Technology Education teachers with their secondary level students, which product ideas could then be communicated to the Institute of Tourism Studies in order to create menus which are healthy yet appealing to young children. Overall, it would be useful for the local Health Promotion Department to conduct a national awareness-raising campaign offering tips to families for making take-away, fast food and restaurant dining experiences nutritionally healthier.

5.9.1.1 Promoting Healthy Traditional Cuisine

Culture-cuisine patterns emerged in Maltese children's food consumption in different settings. Children mainly consumed Italian-oriented foods, but tended to consume Westernised foods in non-home based settings. The only setting where traditional Maltese foods predominated was as a snack at home. For Sunday Lunch, Maltese, Italian and Westernised foods were consumed more or less equally. Most often children consumed what they preferred in the different consumption settings. However, some children would have preferred more traditional Maltese foods than was actually consumed for Weekday Supper and when Eating Out. They showed a particular preference for rabbit stew which was not consumed that often. Within their public health campaigns the Health Promotion Department may need to decide which benefits of the Italian and Western-oriented cuisines to emphasise and which of the Maltese traditional food practices it would be useful to revive.

In general, many traditional Maltese foods have the potential of being nutrient dense and low in fat and there needs to be more promotion of these foods as part of the family menu. National or community-based initiatives could be launched, such as a campaign urging families to 'Eat a Maltese Meal A Week', or travelling exhibitions and demonstrations of 'Maltese Family Meals'. Local rabbit breeders and entrepreneurs could be encouraged to develop new food products which will make it easier for food providers to offer this low-fat meat to their children. Home Economics educators could be collaborators in product development and promotional projects on a school and community level.

My results also suggested that Maltese children like strongly-flavoured soft foods and crunchy, but not too hard biscuit-type snacks. Perhaps local food manufacturers could conduct further research in this line in order to develop child-oriented, healthy traditional snack foods with these preferred attributes. Of note is that several international food companies are developing less healthy snacks and foods which are a toy in themselves: for example, in the way they are shaped, how they are eaten from the package, or their effect on the colour of your tongue once consumed (Nestle, 2002). Some of these strategies could be adopted by local food manufacturers for developing healthier snack items, based on traditional recipes.

5.9.2 Children's TV Programming, Advertising Laws And Media Education

Initiatives to change food behaviours amongst children and families may benefit from more creative promotional strategies using the mass media, especially TV. Nutrition educators could take greater advantage of children's TV programmes to showcase nutritious foods – both novel and traditional - in an attractive manner, whilst ensuring that any nutrition messages are suited to the cognitive maturity level of the children targeted. Maltese mothers recommended that children's TV programmes demonstrate healthy recipes suitable for preparation by children themselves. They also suggested that there should be more cartoons emphasising healthy eating. Perhaps, foreign cartoons purposefully produced to highlight healthy food choices and behaviours and which have been successful internationally could be adapted to be aired locally. At the same time, nutrition educators could work with different government departments (health, education, consumer and agriculture) to develop a series of public service announcements on healthy food choices to be shown during children's prime viewing time. There is an urgent need for local child-friendly television characters to transmit food-health messages and model healthy food behaviours.

Another pressing need is for the Malta Broadcasting Authority to liaise with the local Commissioner for Children's Rights, the Health Promotion Department and other interested parties, to revise some of the current TV advertising legislation and guidelines in order to better protect children from commercial exploitation in the sphere of food. This task will likely be facilitated in the near future as a result of the current international and European lobbying for standard and stricter regulations on food marketing and TV food advertising targeting children. Moreover, given the importance media and consumer education has been given in the local National Minimum Curriculum, practising primary school teachers and student-teachers would benefit from additional training in provision of food-related media and consumer education, possibly using a cross-curricular approach. In this regard, plans have already been drafted for the provision of a specialisation in Health and Consumer Education within the B.Ed. (Hons) Primary course.

5.9.3 A National School Food Policy

There is large amount of material out of the US and also Britain on developing, implementing and monitoring School Food Policies. However, the material available on evaluation of effectiveness is limited. A one-stop online database could be established of local and foreign School Food Policies which would eventually be expanded into a website for promoting efficient dissemination of results of good practice, as well as relevant reports and publications in the Euro-Mediterranean region. Some initiatives by the European Network of Health Promoting Schools have this goal in mind (Piette et al., [online]), but further multi-nation collaboration for evidence-based research projects and training purposes would also be beneficial.

Parents in my study made various recommendations for school food policies, incorporating administrative, logistical and curricular issues. In my role as co-ordinator of TASNE, I shall use these findings whilst developing the draft of a national School Food Policy for Malta. This document will initially focus on school food rules, eating environments and related administrative and logistical issues. However, a comprehensive School Food Policy essentially incorporates guidance on the implementation of nutrition education in the curriculum. Eventually, TASNE or another entity may be given the remit to work on designing a formal nutrition education curriculum for local Primary schools. The need for this next step will certainly be a recommendation within the initial policy document produced by TASNE.

5.9.3.1 The School Nutrition Environment

Many of the parents and children in my study acknowledged the importance of school food rules, but the extent and manner of imposition of rules was a major issue. One of the key tasks of TASNE will be the development of food-specific rules indicating clearly which are obligatory and which are non-obligatory but should be considered as recommended guidelines. Care will need to be taken so that healthy foods are not prohibited for the sake of minor hygiene issues (e.g. prohibiting salad in a bowl because of potential spillages). Additionally, any drafts of rules and guidelines should ideally be tested with parents, teachers, heads of schools and perhaps even children before being finalised. Such dialogue will uncover potential barriers to implementation. It will also help establish practical procedures for monitoring and enforcing implementation of the policy.

One of the central issues pertaining to Maltese primary schools is 'school milk' provision. As at 2004 we still have a situation where some children are being offered a free nutritious beverage during school hours, whilst other children are not. This raises the ethical issue of inequality in school nutrition environments. Should this service continue to be offered to state school children, the Education Division needs to partner with milk suppliers to promote school milk consumption, boosting intake where the set up exists and recommending that structures are put in place where milk is not offered. In general, children are not averse to drinking school milk. Yet attention needs to be given to using a type of packaging which will not only attract children, but also facilitate consumption by being convenient to use. Packaging should also be environment-friendly. Meanwhile, schools need to ensure that the location where milk is stored is hygienic and suited to seasonal temperatures, and that the location where it is served is pleasant and odour-free. If school milk is served during the first morning lunch-break, schools may decide to do this after children have returned from playing and have settled down in class. Alternatively, schools might decide to organise milk breaks outside the normal lunch breaks. Any procedures regarding school milk should be communicated to parents at the beginning of the year and discussed with parents whenever any changes are planned.

Decisions on implementation of a 'white-milk-only' policy will need to be considered on a school-by-school basis. If offering only white milk results in a large decrease in consumption, schools might consider allowing children to bring their own essence to flavour milk or packet cereals to add to milk as part of their school lunch. Perhaps a 'white milk – flavoured milk – white milk' rota could even be established. However, if only flavoured milk serves to promote

or increase consumption of milk in favour of other highly-sweetened beverages, then a 'white-milk only' policy may be less suitable. Of note is that teachers should find out at the beginning of the scholastic year if a child has a medical condition which precludes them from consuming milk, so that arrangements can be made for other beverages to be allowed, especially in schools where most beverages are prohibited.

5.9.3.2 The Food And Nutrition Curriculum

Some planned and incidental instruction on food and healthy eating does seem to take place in primary schools. This was not an area I explored, but evidence for this emerged from both the children's and parents' interviews. As part of the NMC implementation structure, work is currently underway for starting the formalisation of nutrition education in the primary curriculum as part of Personal and Social Development. However, as explained above, a comprehensive Food and Nutrition Curriculum for all the primary years should be the ultimate goal.

Findings from my study with Year 3 children can assist in the formulation of appropriate content for a Food and Nutrition Curriculum and offer guidelines on the pedagogical approach. Maltese children have certain food-health misperceptions which need to be addressed, as they could potentially lead to children choosing foods which are less healthy, or seeking to consume foods in the belief that they are healthy. Knowledge on the food-health link is within the cognitive grasps of young children, but too much emphasis on nutrient content is unadvisable. Correcting children's misconceptions on nutrient content of foods is necessary, as long as the language used is within the children's level of understanding. However, limiting messages on nutrient-health links to only a few key nutrients and associations seems warranted.

My study also helped to uncover features in food which appeal or do not appeal to children. The features mentioned by the children in a negative light can be seen as serving two purposes from the nutrition education perspective. For those foods which are considered unhealthy, educators can pick up on the negative consequences mentioned by children to further justify why these foods are not recommended. In contrast, for those foods considered as healthy, knowing which features of the foods are acting as barriers to consumption by children can serve to illuminate recommendations for parents and caregivers on how to serve these foods in a more palatable manner. Similarly, being aware of the positive

outcomes of healthy food intake which are salient to children should provide educators with additional messages for their food-related activities.

Table 92 lists a few examples of nutrition messages which need to be transmitted to Maltese primary schoolchildren based on the study findings. Any messages would ideally be reinforced throughout the year via additional instruction and related activities. Some local school administrators are already organising 'special' days or weeks with food and health-related themes. Some also regularly send their students to attend the Healthy Breakfast Seminars at the Home Economics Seminar Centre. But any one-off events need to be followed up in the classroom, throughout the year and with parents and caregivers.

TABLE 92
Examples of Messages Which Need to Be Transmitted To Maltese Children

Milk is beneficial for physical growth, as well as for bone and dental health. <i>(Mention of the term 'calcium' is appropriate as it is commonly printed on food packaging and therefore familiar to many children.)</i>
Healthy meals can include both raw and cooked ingredients; meat need not be a standard component of meals. <i>(This may help dismantle any 'norms' which children may have already assimilated, but which could act as barriers to a more varied diet.)</i>
Breakfast should be consumed daily. It should consist of at least one cereal (preferably wholegrain), one milk and one fruit item (American Dietetic Association, 2003). <i>(Based on their reported preferences, a good proportion of Maltese children seem to be willing to include a milk or fruit item in their breakfast; so this positive attitude should be exploited).</i>
It is easy to prepare your own school packed lunch based on a healthy bread snack, fruit and water. <i>(Emphasis could be placed on fresh, local, traditional, healthy ingredients, such as hobz biz-zejt, using tomato as a spread, using the low-fat ricotta and gbejniet, including fresh vegetables.)</i>

The formal and informal curriculum of the school may also have an influence on cuisine orientations of foods consumed and preferred by children. Whether teachers make a specific effort to promote traditional Maltese foods will depend on whether this is an item in their 'School Development Plan', whether their school is participating in any EU-Comenius project promoting cultural transfer, as well as on their personal nutrition knowledge and motivations and their skills in cross-curricular integration.

Overall, the main goal for educators should be that of using strategies which attract primary schoolchildren to healthier foods and facilitate consumption of these foods. Involving children

in food preparation and food creativity tasks has emerged as a potential effective strategy. Not only does the experience of consuming a food prepared by oneself give added value to the component ingredients – which could be useful to increase children’s positive perception of healthy foods – but it also has the additional educational benefits of exposing children to a variety of scientific concepts, prompting questions which could lead to further learning, and offering training in manipulative, creative and safety skills. Food preparation activities should be organised in the school and also promoted amongst parents and caregivers to be carried out at home.

Projects such as that organised in the UK where Secondary school food specialist teachers partnered with local primary schools to train their teachers in food preparation and food safety skills could easily be implemented in Malta (UK Dept. for Education & Skills, 2003). Similarly, regulatory in-service courses on healthy food preparation with primary schoolchildren could be organised for practising primary school teachers. Some hours could also be devoted to hands-on food preparation during the B.Ed. (Hons) Primary course.

5.9.3.3 Nutrition Education For Mothers, Grandparents and Caregivers

Maltese parents had a fairly accurate perception of their children’s food preferences, yet there was a general over-rating of children’s fondness for pasta and milk and under-rating of children’s fondness for pizza, vegetables, fruit and water. This lack of sensitivity to their children’s preferences could result in parents not offering a broader range of foods to their children. It could also result in parents not offering certain healthier foods to their children, being under the impression that they were not liked, or not making any particular effort to maintain the appeal of a healthier food in the belief that this food was particularly liked by their children.

Thus, a key goal of parent nutrition education should be to help parents sensitise themselves to their children’s preferences and not to abide only by stereotypical images of ‘children’s foods’ when choosing foods for their children. At the same time, parents need to be made aware of their responsibility in exposing children to a variety of healthy food. Informing parents and other caregivers about the characteristics which attract children to foods could help in guiding them to present healthier foods with these attributes. Conversely, informing parents and caregivers which attributes make foods less appealing to children could guide them to avoid the presence of these attributes in healthier foods.

Maltese mothers are passing on valuable information to their children regarding the health and nutritional quality of different foods; but the nutrition knowledge being imparted is not always scientifically correct. This highlights the need for basic nutrition education for mothers and other caregivers so that any messages transmitted, whether directly or indirectly, are based on sound nutrition knowledge. In keeping with the National Minimum Curriculum (NMC) policy to extend schools into the community, schools could offer day or evening nutrition courses, targeting mothers and caregivers. Such courses could cover key food and health knowledge, based on current dietary guidelines, but with more of an applied focus. Emphasis could be placed on explaining mothers' and other caregivers' modelling role in promoting healthy eating amongst children and the benefits of a 'do-as-I-do' rather than a 'do-as-I-say' approach. The importance of maximising opportunities for introducing new healthy foods should also be highlighted. Courses could also provide or demonstrate recipes for quick, easy, healthy meals and snacks suitable for families and growing children.

Apart from these courses, parents could also be reached with basic nutrition information and guidelines on healthy food for children via school talks, parent-cum-children homework tasks, school newsletters and through the use of information communication technology. Parents could also be invited to join their children in the classroom when certain food and nutrition activities are planned, or they could also be sent age-appropriate healthy recipes on a regular basis to try out with their children at home.

There is also a clear need for nutrition education for Maltese grandparents, especially grandmothers. These relatives are often still acting as surrogate parents to young Maltese children and could be a valuable resource for educating them about food-health links, for facilitating healthy eating practices and for transmitting and showcasing healthy traditional foods and food rituals. Grandparents need to be made more aware of their responsibility in these roles, particularly in perpetuating traditional Maltese cuisine. Enhancing grandparents' nutrition knowledge and application of this knowledge is crucial. Talks or courses for grandparents could be organised by schools, local councils, NGOs and at Day Care Centres. Many, non-working grandparents (who would very likely be the ones providing child care) could also easily be reached via radio.

Table 93 outlines examples of key messages which need to be promoted among mothers, grandparents and caregivers.

TABLE 93
Examples of Messages Which Need to Be Promoted Among
Maltese Mothers, Grandparents And Caregivers

During childhood, protein and calcium needs are similar for both girls and boys.
Regularly providing children with salted foods can reverse an innate dislike for salt. Thus, parents and caregivers can control to some extent whether their children develop a 'taste' for salty foods or not.
When choosing fat-reducing strategies in meal planning, care should be taken to omit or reduce foods which are energy- rather than nutrient-dense.
Children's tastes are generally more malleable and open to novelty than those of adults.
Pizzas can be made with a variety of healthy toppings; vegetables and low-fat cheeses should be substituted for less healthy ingredients, such as sausages and cheddar cheese.
When making <i>hobz biz-zejt</i> the traditional recipe should be followed to include a selection of vegetables and butter beans. Mashing the ingredients could make the filling more cohesive, making the bread snack easier for the child to transport and consume.
Parents and caregivers should take advantage of pleasant social settings, such as parties and family outings, to present unfamiliar healthier foods to children.
Mothers need to recognise that through their own food behaviours and food provision they may reinforce young girls' awareness of the link between food intake and body weight, leading to a greater risk of these girls suffering from eating disorders in the short- and long-term.
Organising cookery sessions as a whole family activity, has various educational and social benefits.
Adequate planning of school packed lunches and morning schedules can help mothers avoid resorting to less healthy convenience foods on a regular basis.

5.9.4 Critiquing The Research Process

This research project followed a grounded approach and utilised a number of different methodologies and tools. In the following sections I shall offer a critique of the research process, focusing on the main components.

5.9.4.1 Value Of Using A Grounded Approach

This study was based on a grounded approach wherein ecological and sociological theory provided a framework for the research whilst allowing precise themes and researchable categories to emerge from the data. A grounded approach is especially helpful when exploring a phenomenon about which knowledge is scarce. It enables the researcher to avoid making assumptions about specific behaviours and/or the reasons behind them. Perhaps this is even more important where children and diet is concerned, given that

children's food choices and behaviours are extremely changeable. A grounded approach is very much in keeping with Douglas' (1984) recommendation for a bottom-up approach to food studies research. Additionally, Charmaz (1995) also successfully used a grounded approach when exploring health-related subjects with children.

Certain trends seemed to exist in Maltese children's eating habits which were supported by my preliminary investigation in Stage 1. These trends suggested that further research was warranted as the findings could ultimately influence nutrition education strategies. However, in order to obtain a realistic picture of children's general food intake it was necessary to gain specific information about the foods and beverages most commonly consumed across different meals and different settings from the children themselves. This task was carried out in Stage 2 of the research where a database was compiled of foods and beverages commonly consumed in 15 settings. Guided by the research questions which focused on actual food intake, as well as culture-cuisine orientations, sets of 6 foods and beverages for 10 settings were eventually established for use in Stage 3 of the research. The number of settings was reduced from 15 to 10, as it became evident from Stage 2 that some meals, such as Saturday Lunch or Tea-time Snack, were not a definite component of all Maltese children's weekly menus. Thus, following Teufel (1997) and based on the data from Stage 2, a culturally-sensitive research tool was developed for the large-scale survey in Stage 3 of the research. Certain children may, however, have consumed foods and beverages which were not listed amongst the 6 most commonly consumed foods based on the results from the majority of respondents in Stage 2. This is a limitation of the research tool used in Stage 3 and will be discussed further in Section 5.9.4.2. Nonetheless, only a few children eventually stated they felt restricted by the response options offered.

Stages 4 and 5 utilised qualitative methodology, involving focus group interviews with children and telephone interviews with parents. There was a certain structure to the interview guides which was necessary in order to ensure that the information obtained would help answer the research questions. At the same time, the majority of the questions were open-ended in nature. Quite a large number of topics were tackled in the children's interviews and to keep within an ethical maximum duration, each topic may not have been exhausted in every interview. On the other hand, the various activities conducted as part of the children's interviews encouraged rich descriptions by the participants, as was evident from their enthusiastic and sometimes lengthy discussions on a particular issue.

Progressive focusing took place across the 16 children's group interviews. Although there were a number of questions which were common to each interview, as the interviews progressed sometimes a particular theme was tackled from a different perspective, or children were asked further about a specific aspect. These modifications stemmed from the children's own responses in earlier focus group sessions, once again following a grounded approach. Admittedly, one drawback of this progressive focusing was that, due to the number of different topics being covered, the later interview sessions did increase somewhat in duration.

Overall, taking a grounded approach in this research project was an illuminating exercise. It helped to sensitise me to the need for being cautious regarding stereotypes surrounding children's food choices and behaviours, as well as related influences and determinants. The project was built on 5 different stages which led to quite a lengthy research process. Yet, having been immersed in the whole project from beginning to end gave me the opportunity to truly grasp the complexity of Maltese children's food choices, whilst being able to see where there were links, gaps and overlaps in the different ecological levels.

Based on my findings and consequent follow-up in the different stages of the research, I eventually developed a model in order to present the various factors which influence Maltese children's food intake and the key processes involved. My findings indicated that salient factors could be grouped into sub-sections (e.g. mother, family, school at the interpersonal level; physical and cultural factors at the community level; human-built and natural at the macro level). I was also able to identify four key processes which traversed the different ecological levels (modelling of food preferences and intake, verbal food-health messages, exposure to food and provision of food), together with a chronosystem which effected the factors both in a physical and cultural dimension. Thus, one can say that my work has also taken a grounded theory orientation. According to Strauss and Corbin (1990), grounded theory is inductively derived from the phenomena it represents. "It is discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon." (p23) Although grounded theory was not my goal at the outset of the study, my proposed model has elements of the criteria for a well-constructed grounded theory, namely 'fit' (does it fit the reality of the data), 'understandability' (is it comprehensible to the persons who were studied and those practising in the area), 'generality' (can you generalise to a variety of other similar contexts) and 'control' (analysis is systematically

derived from the data and the conditions to which it applies are clearly spelled out) (Strauss & Corbin, 1990).

5.9.4.2 General Limitations Of The Methods And Tools

To obtain the data required to answer the research questions, I chose a mixed-methodology design using surveys, focus group interviews and one-to-one telephone interviews.

Representativeness was sought in the method of sampling for the various surveys, in order to be able to generalise to the larger population. There were, however, certain limitations. The goal of Stage 2 of the research was to identify the most common foods consumed by Maltese children. Given the myriad family set-ups and lifestyles, one cannot guarantee that all the potential patterns of Maltese children's food intake and choices were covered. Thus, the database of foods and beverages which was generated may have lacked some items which were common among particular families or children, as indicated earlier. Similarly, in Stage 3, parents were asked to indicate which foods their children consumed most and which foods their children preferred most. This may have been a challenging task for some parents, given that children's food requests, food acceptance behaviours and food preferences may change frequently and differ according to season. Singling out two response options within each setting was not possible for some parents, so they ticked more than one 'Most Consumed' and 'Most Preferred' food. When this occurred a number of times within one survey sheet, the survey sheet was discarded. This could have led to some bias in the parents' results, due to the omission of food choices which were not within the 'normal' pattern.

In retrospect, therefore, validity of the Stage 3 results may have been enhanced by generating the database of commonly consumed foods over two survey sessions – one in Summer and one in Winter. Additionally, the 'Other' column could have been included in the research tool for both children and parents and responses listed analysed separately and cross-tabulated by gender, HLS, school type and region if numbers were large enough. This would have helped to further reveal any group trends which were different from the 'norm'.

The children's sample used in Stage 3 of the research represented nearly 50% of the schools having Year 3 classes. Stratified proportionate sampling was used to ensure representation from the various school types: state, church and independent; single-gender and mixed-gender; small and large schools; Maltese and Gozitan. In order to have an adequate number of cases in each specific school type a large sample was generated.

Perhaps, disproportionate sampling could have been used so that fewer Year 3 classes would have been surveyed in the most common school populations (e.g. large state schools). This would have reduced the sample size, without jeopardizing reliability; yet would have facilitated data inputting.

The parents' sample used in Stage 3 of the research was dependent on the children delivering the questionnaire to their parents and returning the completed questionnaire to their class teacher. This procedure proved efficient and the parents' response rate was very high (89%). Nevertheless, there may be a slight bias in the results in that the parent non-respondents may have had common characteristics that were different to the parents who responded. Two assumptions were made: all parents had a basic literacy level and the parents themselves completed the questionnaire. A basic reading level was essential to answer the questionnaire, although responses just involved ticking. Perhaps a general open-ended question could have been added as this would have clearly indicated if an adult had answered the questionnaires.

In Stage 4, the focus group interviews with children, sought to explore children's perceptions and attitudes in relation to various factors: appeal of specific food items, school food policies and TV food portrayal. In Stage 5, the parents' interviews also asked about school food policies and triggers for food requests. Some common question themes were included in order to assess the validity of responses and saliency of certain influences. This goal was achieved, nevertheless, the section on school food policies could have been omitted from the children's interviews and tackled only with parents, as ultimately the parent or caregiver provides the child's packed lunch which may/may not adhere to school food rules. The focus group interview section on creating a 'special' packed lunch could also have been curtailed or omitted, as the data obtained was similar to the data obtained from other questions asked previously on reasons for certain food preferences and perceptions of health value. By omitting the two above-mentioned sections, the children's focus group interviews would have been shorter and the data generated more focused and manageable with regard to analysis.

A wealth of data was generated, particularly from the qualitative research tools. However, in order to avoid superficiality in the discussion of the results, I eventually decided to focus my report on the influences on children's food intake and choices which had emerged as particularly salient from both the quantitative and qualitative findings. These included the

mother, grandparents, the school, culture and cuisine and TV food portrayal and messages. Other, albeit less salient influences which emerged were not discussed in the final report. This choice was necessary for the sake of a comprehensive treatment of the more salient influences. Nonetheless, the other factors also have a role to play in children's food intake; thus, they were still included in the proposed 'Socio-Ecological Culture-Cuisine Model'.

5.9.5 Implications And Suggestions For Further Research With Children

My findings suggest a number of methodological issues worth considering in any future research with young children. They also indicate areas where further research is necessary in order to substantiate this study's conclusions and propositions, as well as to provide a more accurate and detailed picture of the various influences on children's food intake.

5.9.5.1 Research Methodology

My study has further confirmed the usefulness of triangulation as a research methodology in order to obtain a comprehensive picture of a phenomenon under study and to improve validity and reliability of results. Clearly the main theme of the study should be central to any methodological choices, yet flexibility is necessary allowing for a shift in emphasis or focus as a result of the outcomes of each stage of the research. When using qualitative techniques, although depth of information is sought, clear boundaries for inquiry should be established. Guided by the research questions, the qualitative researcher needs to recognise when a theme requires further expansion or study, but also when a theme has been exhausted.

My study has shown the utility of making the data collection process as ethical and enjoyable as possible, especially where young children are involved. This can be achieved through clarity of instructions and careful wording of questions, as well as by making the research tools attractive, by making the completion of any forms fun, or by involving visuals such as pictures, photos and real food during data collection activities. Process evaluation of the research tools and data collection protocols helps to refine the procedure for the subsequent stages. Designing tools so that they are easily adapted for use by children and by their parents saves labour and time. Designing tools which are culturally-sensitive should also be a major goal, especially where children's food intake is concerned. Finally, designing a tool which is grounded in data purposefully collected in a previous stage ensures validity and offers response options applicable to the children's dietary habits. Due to the increase in

global availability of a growing selection of foods, there is a need for common global criteria for classification of these foods into groups in order to facilitate comparative studies.

Research protocols need to be planned so that the data collection process is of least burden to the school administration, class teacher and children themselves. Comments by some class teachers that the data collection process during my surveys was actually a learning activity for the children and that they would recommend making copies of some of the visuals used as resources for primary school teachers were compliments in themselves.

My findings have confirmed previous research that economic wealth and education are both indicators of SES. However, they can work independently and synergistically in determining consumption. Therefore, in any sociological study looking at SES differences in dietary habits, analyses first using both indicators alone and then in combination is recommended.

5.9.5.2 Areas Warranting Further Research

Table 94 outlines a number of areas where further research is recommended based on the outcomes of my study. These focus on influences on children's food choice and dietary habits, school food policies and nutrition education and are mainly based on concepts from sociological and ecological theory. Some research ideas are exploratory in nature; others have a more applied orientation.

5.9.5 Conclusion

This research study has served to identify the myriad factors which influence Maltese children's food perceptions, beliefs, preferences and intake and has helped to establish those factors which are most salient. It has offered an insight into the various paths of influence and has also revealed how sociological theory and ecological-systems theory can best explain many of Maltese children's current food consumption practices.

Based on the outcomes of the study, a 'Socio-Ecological Culture-Cuisine Model' is being proposed, which aims to integrate the multitude of influences on children's food intake in a systematic manner, without detracting from the complexity of the phenomenon. The model offers a framework for further exploration of different aspects of Maltese children's food choices and behaviours. At the same time, the model can be adapted for use with other child populations experiencing similar food ecologies. The model can also be used to identify potential points and types of nutrition interventions in order to promote and facilitate improved dietary habits amongst primary schoolchildren.

TABLE 94a
Suggestions For Further Research

Influences on Food Choice And Intake
Exploring the predictive value for consumption of children's perception of the healthfulness of different groups of foods, as well as influences on the predictive value
Exploring the impact of colour and texture on children's consumption of different food groups
Evaluating the use of colour and texture in attracting children to healthier, unprocessed food
Exploring children's perceptions of milk in different formats and how this affects consumption
Confirming the existence of a time-specific and/or location-specific milk consumption behaviour amongst children
Exploring strategies for increasing milk consumption amongst children
Identifying the extent and quality of children's involvement in food preparation at home and relationships with food preferences, food intake, food and nutrition knowledge, food choice autonomy
Identifying and developing developmentally-appropriate food preparation activities for children to promote healthier food consumption
Exploring children's and food provider's choice and valuation of foods using scales based on purity, freshness, genuineness and novelty
Identifying parental perceptions of their children's food preferences and the impact of these perceptions on food provision
Exploring the relationship between mothers' health motivations when choosing food for their children and the nutritional profile of the children's diet
Exploring the relationship between mothers' nutrition knowledge and the nutritional profile of their children's diet
Exploring the prevalence of food hierarchies (e.g. animal vs. plant; raw vs. cooked) when mothers and caregivers from different family groups are choosing foods for children and identifying any relationship between these hierarchies and nutritional profile of children's diet
Exploring mothers' and caregivers' adherence to social norms (re staple foods and children's foods) in comparison with health and nutrition goals when providing meals for children
Identifying the relationship between grandparents' nutrition knowledge and the nutritional profile of the diet of grandchildren in their regular care
Identifying the relationship between grandparents' acculturation to a Westernised diet and the cuisine orientation of the diet of grandchildren in their regular care
Conducting content analysis of the food and nutrition messages, food images and food modelling in children's programmes
Identifying TV food advertising-related purchase requests by children and fulfilment of such requests by parents, differentiated by age, gender, school type, exposure to formal media education, region
Dietary Habits
Establishing an objective measure of what children, mothers and caregivers perceive as small/large portions of different foods
Exploring regional and school type differences in extent of food acculturation (Westernisation or retention of traditional dietary habits) and relationship with the nutritional profile of children's diets
Identifying dining out practices of Maltese vs. Gozitan and state school vs. non-state school children (and their families) and the relationship with the nutritional profile and the cuisine profile of these children's diets

TABLE 94b
Suggestions For Further Research (Cont.)

School Food And Nutrition Policy
Piloting different strategies for dialogue with all stakeholders to overcome barriers to compliance with school food rules
Piloting of different mid-morning lunch break and playtime schedules (e.g. playtime before or after food consumption) or alternative strategies (e.g. specific milk breaks) in order to assess impact on contents and consumption of school packed lunch
Piloting of different mid-morning lunch break and playtime schedules (e.g. playtime before or after food consumption) or alternative strategies (e.g. specific milk breaks) in order to assess impact on school milk consumption
Piloting and evaluating partnerships between local secondary and primary schools to train primary school teachers in basic food preparation with a focus on healthy eating for children and food safety
Piloting and evaluating incentive schemes to promote consumption of vegetables and fruit in school packed lunches
Nutrition Education
Developing, piloting and evaluating nutrition education materials for children, teachers and parents focusing on fruits, vegetables, milk, snacks and healthy traditional Maltese foods
Piloting school-based nutrition courses for parents, grandparents and caregivers
Piloting ICT-based nutrition education for parents and caregivers
Developing, piloting, delivering and evaluating PSAs on healthy eating targeting children, mothers and caregivers
Developing, piloting, delivering and evaluating children's TV programmes incorporating food and nutrition messages, using cartoon characters and demonstrating healthy recipes

Overall, this study has shown how various systems function within the food choice process. This process needs to be studied in more depth, in order to provide effective nutrition education programmes which target the sets of priorities that children and their food providers consider when making food choice decisions. In the meantime, nutrition educators and health policy makers, together with nutritionists, chefs, food developers and food-loving enthusiasts should continue to explore, exploit and enjoy the potential of traditional Maltese food for health and pleasure alike.

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APPENDIX 1

APPENDIX 1.1

**MALTESE NATIONAL NUTRIENT GOALS
AND DIETARY GUIDELINES**

Maltese Nutrient Goals

Total fats:	30% of total energy intake
Saturated fats:	10% of total energy intake
P/S ratio:	not less than 0.5-1.0
Cholesterol:	<100mg per 4.18 MJ (1000 Kcal)
Complex carbohydrates:	>45% of total energy intake
Sugars:	<10% of total energy intake
Dietary fibre:	>30g per day
Salt:	<5-8g per day
Proteins:	12-15% of total energy
Fluoride:	0.7-1.3mg/l
(in water supplies or the equivalent from other methods of fluoride intake, application, etc.)	
Iodine:	Not considered a problem
Alcohol:	Not more than 2 units per day

Maltese Dietary Guidelines

To achieve the above nutrient goals the Maltese people are advised *“to eat less meat and have fish and poultry in preference to beef; substitute high fat dairy products with low fat alternatives; and eat fewer eggs, more fresh fruit and vegetables and whole grain cereal products”*.

(Source: Food and Nutrition Policy for Malta, Department of Health, 1990, p.9)

APPENDIX 1.2

**THE *CINDI* DIETARY GUIDE
'12 STEPS TO HEALTHY EATING'
(WHO, 2000)**

CINDI Dietary Guide

12 steps to healthy eating

1. Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.
2. Eat bread, grains, pasta, rice or potatoes several times per day.
3. Eat a variety of vegetables and fruits, preferably fresh and local, several times per day (at least 400 g per day).
4. Maintain body weight between the recommended limits (a BMI of 20–25[1]) by taking moderate levels of physical activity, preferably daily.
5. Control fat intake (not more than 30% of daily energy) and replace most saturated fats with unsaturated vegetable oils or soft margarines.
6. Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.
7. Use milk and dairy products (kefir, sour milk, yoghurt and cheese) that are low in both fat and salt.
8. Select foods that are low in sugar, and eat refined sugar sparingly, limiting the frequency of sugary drinks and sweets.
9. Choose a low-salt diet. Total salt intake should not be more than one teaspoon (6 g) per day, including the salt in bread and processed, cured and preserved foods. (Salt iodization should be universal where iodine deficiency is endemic.)
10. If alcohol is consumed, limit intake to no more than 2 drinks (each containing 10 g of alcohol) per day.
11. Prepare food in a safe and hygienic way. Steam, bake, boil or microwave to help reduce the amount of added fat.
12. Promote exclusive breastfeeding and the introduction of safe and adequate complementary foods from the age of about 6 months, but not before 4 months, while breastfeeding continues during the first years of life.[2]

[1] BMI (body mass index) is derived from a person's weight in kg, divided by height in m². The recommended levels are adapted from the global WHO recommendation of 18.5–24.9 as a normal BMI (Obesity: preventing and managing the global epidemic: report of a WHO Consultation on Obesity, Geneva, 3–5 June 1997. Geneva, World Health Organization, 1998, p. 9 (document WHO/NUT/NCD/98.1)).

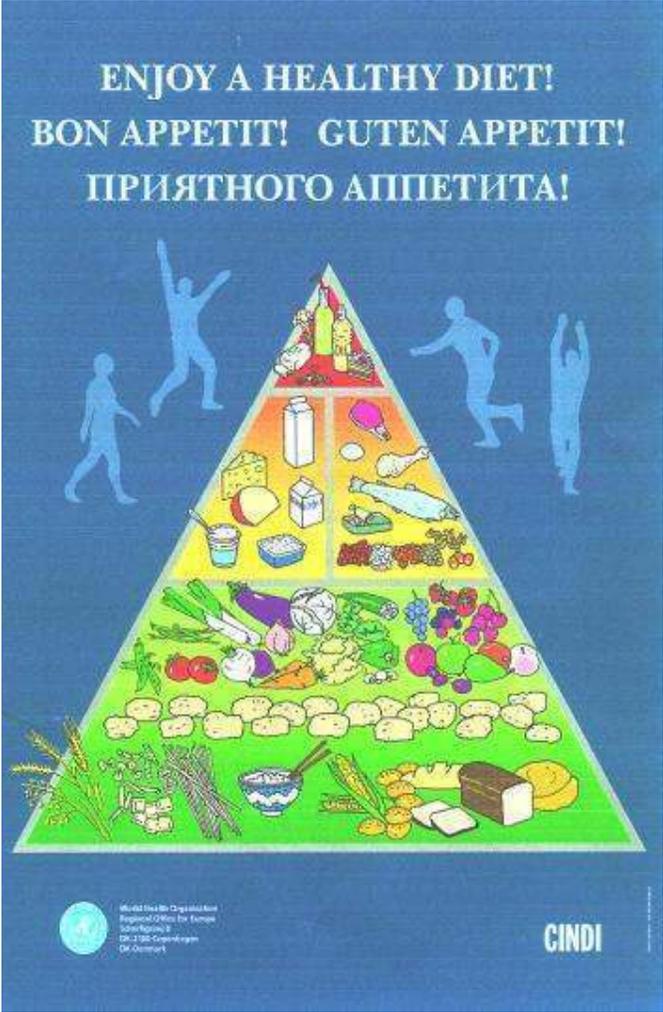
[2] Michaelsen, K.F. et al. Feeding and nutrition of infants and young children: guidelines for the WHO European Region, with emphasis on former Soviet countries. Copenhagen, WHO Regional Office for Europe, 2000 (WHO Regional Publications, European Series, No. 87).

Source: http://www.who.dk/nutrition/20030321_1

APPENDIX 1.3

**THE *CINDI* FOOD PYRAMID
(WHO, 2000)**

CINDI Food Pyramid



Source: http://www.who.dk/nutrition/20030404_2

APPENDIX 2

APPENDIX 2.1

**RESULTS OF ONLINE LITERATURE SEARCH FOR
USE OF ECOLOGICAL MODELS
IN FOOD CHOICE RESEARCH WITH CHILDREN**

Database	Search Terms	Results	Main theme
Web of Science	Ecological model Children Health	33	<ul style="list-style-type: none"> • Various
	Ecological model Children Food	1	<ul style="list-style-type: none"> • Intervention on complementary feeding of infants among adolescent mothers (USA) (Black, Siegel, Abel & Bentley, 2001)
	Ecological model Children Diet	2	<ul style="list-style-type: none"> • Model developed to examine the interrelated influence of the job, child care and family settings on child nutrition (Canada) (Campbell & Sanjur, 1992) • Model developed to evaluate the potential effectiveness of a proposed health behavior/education intervention for <i>konzo</i>, a paralytic disease of Zaire from toxic cassava (Zaire) (Boivin, 1997)
	Social-ecological model Children	8	<ul style="list-style-type: none"> • Various
	Social-ecological model Children Health	2	<ul style="list-style-type: none"> • Risk-resistance adaptation model for caregivers and their children with sickle cell syndromes (USA) (Brown, Lambert, Devine et al, 2000) • The youth physical activity promotion model: A conceptual bridge between theory and practice (USA) (Welk, 2000)
MEDLINE CINAHL EMBASE	Social-ecological model Children	9	<ul style="list-style-type: none"> • Various: Mainly related to care of chronically ill children and their families

APPENDIX 2.2

**CRITERIA FOR
A HEALTH PROMOTING SCHOOL
(WHO, 2003)**



World Health Organization

What is a health promoting school?

A health promoting school is one that constantly strengthens its capacity as a healthy setting for living, learning and working.

A health promoting school:

- Fosters health and learning with all the measures at its disposal.
- Engages health and education officials, teachers, teachers' unions, students, parents, health providers and community leaders in efforts to make the school a healthy place.
- Strives to provide a healthy environment, school health education, and school health services along with school/community projects and outreach, health promotion programmes for staff, nutrition and food safety programmes, opportunities for physical education and recreation, and programmes for counselling, social support and mental health promotion.
- Implements policies and practices that respect an individual's well being and dignity, provide multiple opportunities for success, and acknowledge good efforts and intentions as well as personal achievements.
- Strives to improve the health of school personnel, families and community members as well as pupils; and works with community leaders to help them understand how the community contributes to, or undermines, health and education.

Health promoting schools focus on:

- Caring for oneself and others
- Making healthy decisions and taking control over life's circumstances
- Creating conditions that are conducive to health (through policies, services, physical / social conditions)
- Building capacities for peace, shelter, education, food, income, a stable ecosystem, equity, social justice, sustainable development.
- Preventing leading causes of death, disease and disability: tobacco use, HIV/AIDS/STDs, sedentary lifestyle, drugs and alcohol, violence and injuries, unhealthy nutrition.
- Influencing health-related behaviours: knowledge, beliefs, skills, attitudes, values, support.

Source: http://www.who.int/school_youth_health/gshi/hps/en/print.html. Accessed 3/6/04

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APPENDIX 3

APPENDIX 3.1

**PRELIMINARY SURVEY
SAMPLE DEMOGRAPHICS**

**Preliminary Survey Sample Demographics Separated By
Gender, Year Group, School Type And Region**

School Type/ Region	Gender		Year Group				Sub- Total
	Girls (n=86) %	Boys (n=86) %	Year 1 (n=4) %	Year 2 (n=21) %	Year 3 (n=86) %	Year 4 (n=61) %	(N=172) %
State Central urban Low/mid SES	12.8	15.7	2.3	0.0	13.4	12.8	28.5
State South rural Low/mid SES	15.7	11.0	0.0	0.0	14.5	12.2	26.7
State North sub- urban Low/mid SES	11.6	11.6	0.0	12.2	11.0	0.0	23.3
Independent Trans island Upper SES	9.9	11.6	0.0	0.0	11.0	10.5	21.5
Total	50.0	50.0	2.3	12.2	50.0	35.5	100.0

APPENDIX 3.2

PRELIMINARY SURVEY

RESEARCH TOOLS

ENGLISH AND MALTESE VERSIONS

SHEET 1: FOOD COMBINATIONS

English and Maltese versions

(Original font Comic Sans MS point size 11; reduced here to point size 9)

DIFFERENT FOODS

- | | |
|---|-----|
| 1. Maltese bread + butter | () |
| Maltese bread + tomato | () |
| Wholemeal bread + margarine | () |
| <hr/> | |
| 1. Spaghetti + stewed meat sauce | () |
| Spaghetti + tomato sauce | () |
| <i>Lasagna</i> | () |
| <hr/> | |
| 2. Fried chicken drumstick | () |
| Grilled chicken breast | () |
| Grilled chicken burger | () |
| <hr/> | |
| 3. Chips | () |
| <i>Patata l-forn</i> - baked potato slices | () |
| Jacket potato | () |
| <hr/> | |
| 4. Pizza + sausage + egg + ham + tomato + Cheddar | () |
| Pizza + tomatoes + tuna + olives + capers + onion | () |
| Pizza + mushroom + mozzarella | () |
| <hr/> | |
| 5. <i>Pastizzi</i> - Maltese ricotta cheesecakes | () |
| <i>Qassata</i> - Maltese pastry filled with ricotta | () |
| Wholemeal roll with ricotta cheese | () |
| <hr/> | |
| 6. Cheese-spread | () |
| Ricotta | () |
| <i>'Philadelphia Light'</i> | () |
| <hr/> | |

- | | |
|---|-----|
| 7. Crackers | () |
| <i>Galletti</i> - Maltese crackers | () |
| ' <i>Branettes</i> ' | () |
| <hr/> | |
| 8. <i>Imqaret</i> - Fried date pastries | () |
| <i>Pudina tal-hobz</i> - Bread pudding | () |
| Fruit and nut cake | () |
| <hr/> | |
| 9. Chocolate biscuits | () |
| <i>Krustin</i> - Maltese teatime sweet | () |
| Wholemeal ' <i>Digestive</i> ' biscuit | () |
| <hr/> | |
| 10. Cream cake/pastry | () |
| <i>Qaghqa</i> - Maltese yeast sweet ring | () |
| ' <i>Kinder Cereali</i> ' | () |
| <hr/> | |
| 11. <i>Cicri bil-gelu</i> - Roasted chick peas with icing | () |
| <i>Cicri</i> - Roasted chick peas | () |
| Popcorn | () |
| <hr/> | |
| 12. Crisps | () |
| <i>Qastan</i> - Roasted chestnuts | () |
| Mini Breakfast cereal pack | () |
| <hr/> | |
| 13. Milk with essence | () |
| Fresh milk | () |
| Skimmed milk | () |

IKEL DIFFERENTI

- | | |
|--|-----|
| 1. Hobz tal-Malti mdellek bil-butir | () |
| Hobz tal-Malti mdellek bit-tadam | () |
| 'Wholemeal bread' (hobz kannella) bil-margarina | () |
| <hr/> | |
| 2. Spagetti biz-zalza tas-stuffat | () |
| Spaghetti biz-zalza tat-tadam | () |
| <i>Lasagna</i> | () |
| <hr/> | |
| 3. Koxxa tat-tigiega moqlija (drumstick) | () |
| Sidra tat-tigiega (breast) mixwija | () |
| 'Chicken burger' mixwija | () |
| <hr/> | |
| 4. 'Chips' | () |
| Patata l-forn | () |
| 'Jacket potato' (patata bil-qoxra fil-forn) | () |
| <hr/> | |
| 5. Pizza + zalzett + bajd iebes + perzut + tadam + Cheddar | () |
| Pizza + tadam + tonn taz-zejt + zebbug + kappar + basal | () |
| Pizza + 'mushrooms' + mozzarella | () |
| <hr/> | |
| 6. Pastizzi | () |
| Qassata | () |
| Bezzun 'wholemeal' (Kannella) bl-irkotta | () |
| <hr/> | |
| 7. Cheese-spread ('La Vache Qui Rit) | () |
| Irkotta | () |
| <i>'Philadelphia Light'</i> | () |
| <hr/> | |

- | | |
|---|-----|
| 8. 'Crackers' | () |
| <i>Galletti</i> | () |
| <i>'Branettes'</i> | () |
| <hr/> | |
| 9. Imqaret | () |
| Pudina tal-hobz | () |
| Kejk tal-frott u l-lewz | () |
| <hr/> | |
| 10. Gallettini tac-cikkulata | () |
| Krustini/biskuttini | () |
| Gallettini ' <i>Wholemeal Digestive</i> ' | () |
| <hr/> | |
| 11. Pasta bil-krema | () |
| Qaghqa tal-hmira (ratba) | () |
| <i>'Kinder Cereali'</i> | () |
| <hr/> | |
| 12. Cicri bil-gelu | () |
| Cicri | () |
| 'Popcorn' | () |
| <hr/> | |
| 13. 'Crisps' | () |
| <i>Qastan</i> | () |
| 'Mini Breakfast cereal pack' | () |
| <hr/> | |
| 14. Halib kiesah bl-essenza (ez. Banana) | () |
| Halib frisk (tal-kartuna) | () |
| Halib 'Skimmed' (tal-kartuna safra) | () |
| <hr/> | |

SHEET 2: DISHES COMBINATIONS

English and Maltese versions

(Original font Comic Sans MS point size 11; reduced here to point size 9)

DIFFERENT DISHES

1

Hobz biz-zejt - crusty bread, tuna fish, tomato, onion
olives, capers, butter beans, parsley ()

Wholemeal Sandwich (Brown bread)
cheese, ham, tomato, lettuce, margarine ()

Bread Roll
smoked ham, tomato, green pepper, onion, olive oil ()

2

Minestra - Thick vegetable soup ()

Tomato soup ()

Aljotta - Fish soup with rice ()

3

Lampuki - Fish with green pepper tomato sauce ()

Grilled fish fillet with lettuce and tomato salad ()

Swordfish with caper and tomato sauce ()

4

Fried steak ()

Fried sausage and bacon ()

Fried meat in batter ()

5

Baked macaroni ()

Rice Salad/Cold Rice with tomato, hard-boiled egg,
chopped ham and mayonnaise ()

Tortellini Carbonaro with white sauce, bacon, mushroom ()

6

Fruit sponge flan with tinned fruit and cream (*Nestle cream*) ()

Apple pie ()

Icecream with nuts ()

PLATTI DIFFERENTI

1

Hobz biz-zejt - tonn taz-zejt, tadam,
basal, zebbug, kapar, fazola, tursin ()

Sandwich bil-hobz kannella (Wholemeal)
gobon, perzut, tadam, hass, margerina ()

Bezzun
perzut tal-koxxa, tadam, bzar ahdar, basal, zejт taz-zebbuga ()

2

Minestra ()

Soppa tat-tadam ()

Aljotta (soppa tal-hut bir-ross) ()

3

Lampuki biz-zalza tal-bzar ahdar ()

Bicca huta bajda mixwija b'salad tal-hass u t-tadam ()

Pixxispad biz-zalza tat-tadam u kappar ()

4

Laham moqli ()

Zalzett u bejken moqli ()

Laham moqli bil-panura ()

5

Mqarun il-forn ()

Rice Salad/Cold Rice bit-tadam, bajd iebes, pezut
imqatta' u 'mayonnaise' ()

Tortellini Carbonaro bil-'white sauce', bejken, 'mushroom' ()

6

Sponge flan bil-frott u l-krema tal-bott (*Nestle cream*) ()

Apple pie ()

Gelat bil-lewz ()

SHEET 3: MEALS COMBINATIONS

English and Maltese versions

(Original font Comic Sans MS point size 11; reduced here to point size 9)

DIFFERENT MEALS

1

BREAKFAST

Tea with Maltese traditional sweets
biskuttell, krustin, qaghqa, 'number 8s' ()

Juice and cereal with milk ()

Milk and 'Kinder Cereal' ()

2

SUNDAY LUNCH

Rabbit stew ()

Roast Cube roll with potatoes, carrots, peas and gravy ()

Bragjoli - Stuffed rolled meat ()

3

SATURDAY EVENING OUTING

Spaghetti with tomato and meat sauce ()

McDonald's/Burger King/KFC ()

Pizza ()

4

OUTING TO VALLETTA

Pastizzi - Maltese ricotta cheesecakes ()

McDonald's/Burger King ()

Pizza ()

Imqaret - Fried date pastries ()

Milkshake ()

Cream bun/pastry ()

5

TEA TIME

Tea with Maltese traditional sweets

biskuttell, krustin, qaghqa, 'number 8s'

()

Tea and biscuits or cake

()

Tea and 'Kinder Delice'

()

6

SNACK

Maltese 'galletta' (cracker) with 'gbejna' (goat cheese)

()

Crackers with butter

()

Bread with 'Nutella' chocolate spread

()

7

AT THE SEASIDE

*Hobz biz-zejt - crusty bread, tuna fish, tomato, onion
olives, capers, butter beans, parsley*

()

Bun with ham, cheese, lettuce, tomato and margarine

()

Risotto - rice, tuna fish, tomato, capers, olives, onion

()

IKLIET DIFFERENTI

1

'BREAKFAST'

Te u biskutell, krustin, qaghqa, 'number 8s' ()

'Juice' u cerejali bil-halib ()

Halib u 'Kinder Cereali' ()

2

L-IKLA TAL-HADD

Stuffat tal-fenek ()

'Cube roll roast' bil-patata, karrotti, pizelli u 'gravy' ()

Bragjoli ()

3

IL-HARGA TAS-SIBT FILGHAXIJA

Spagetti biz-zalza tat-tadam u l-laham ()

McDonald's/Burger King/KFC ()

Pizza ()

4

HARGA SAL-BELT

Pastizzi ()

McDonald's/Burger King ()

Pizza ()

Imqaret ()

'Milkshake' ()

Pasta bil-krema ()

5

HIN IT-TE

Te bil-biskutell, krustin, qaghqa jew 'number 8' ()

Te u gallettina jew bicca kejk ()

Te u 'Kinder Delice' ()

6

SNACK

Galletta bil-gbejna ()

'Crackers' bil-butir ()

Hobz bin-'Nutella' ()

7

HDEJN IL-BAHAR

Hobza biz-zejt ()

Panina bil-perzut, gobon, hass, tadam, margerina ()

Risotto - ross, tonn taz-zejt, tadam, kappar, zebbug, basal ()

APPENDIX 3.3

PRELIMINARY SURVEY

REPORT ON FINDINGS

1.0 Introduction

This report presents an overview of the preliminary findings on children's food, dishes and meals preferences in different settings, with a focus on links with different cuisines and health value. Children's food likes and dislikes will also be highlighted. A rudimentary interpretation of findings is also conducted.

1.1 Patterns In Choice Of Foods

One hundred and sixty four children completed the Food sets list (Sheet 1). Tables 1 and 2 show that the *Maltese Unhealthy/Maltese Healthy* combination dominated in seven out of fourteen Food sets. Indeed, from Table 2 one can see that this combination was chosen most frequently by more than half of the children, with the three top chosen combinations being: Maltese bread and butter/Maltese bread and tomato; Chips/*Patata l-forn* (baked meat and potato slices); and *Pastizzi* (ricotta-filled flaky pastries)/*Qassatat* (ricotta-filled shortcrust pastries). In the other seven sets the *Maltese Unhealthy/Non-Maltese Healthy* combination dominated. The *Maltese Healthy/Non-Maltese Healthy* combination was not predominant in any of the sets. These results seemingly suggest that the Maltese orientation was a salient factor in relation to children's food preferences, whereas the health value was not.

The *Maltese Unhealthy/Maltese Healthy* combination was selected primarily for carbohydrate-based foods and dairy products (e.g. Breads, pastries, savoury biscuits, pizzas, potatoes, cheese and milk). The former are generally basic staples in the children's diet, whereas an interesting point about the latter is that the foods listed as *Maltese Healthy* may have actually been foods which not all children are exposed to so frequently. In fact, traditional, healthy Maltese sweets and tea-time foods are widely available in Malta, but maybe younger parents are not offering them to their children. This lack of familiarity with some Maltese foods did seem to emerge during the data-gathering sessions, whereas familiarity with foreign foods was evident, particularly when children would mention specific television advertisements and television stations where these foods were promoted.

In general, the staple and traditional core foods were very popular with the Maltese children. One could propose that the *Maltese Unhealthy* option was chosen due to taste, whereas the *Maltese Healthy* option was chosen because of familiarity due to accessibility and frequency of exposure. In fact, as stated earlier, within the *Maltese Unhealthy/Maltese Healthy* combinations the former was chosen much more frequently as an option in itself.

The *Maltese Unhealthy/Non-Maltese Healthy* combination was opted for with regard to the composite dishes (e.g. pasta with meat sauce; fried chicken drumstick and grilled chicken burger), tea-time food (e.g. biscuits, cakes) and snacks (e.g. popcorn, chickpeas, crisps). Possible explanations were that their popularity arose primarily from a general fondness for pasta, chicken and sweets, as a result of the novelty aspect (e.g. Grilled chicken burger only recently having appeared in fast food outlets), or due to the association of the food with a pleasurable environment (e.g. *Imqaret* [date-filled pastries] usually consumed during a visit to Valletta or Marsaxlokk Sunday market, and popcorn usually bought at the cinema). It was interesting to note that the most frequently chosen combination in this category was that of Crisps and Mini Breakfast Cereal Packs. The former, are undoubtedly one of the most popular snack foods with children; yet the attraction of the latter could be based again upon the novelty of the idea (consuming breakfast cereals as a snack) and the fun aspect of eating from the box using your hands. One must point out, however, that although the children were shown a box of *Corn Pops* (low fat/sugar cereal) during the data-gathering activity, their choice may have been based on other varieties of cereals.

TABLE 1
Modes For Each Of The Fourteen Food Sets (N=172)

Foods	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 9	Set 10	Set 11	Set 12	Set 13	Set 14
Mode	1	2	2	1	1	1	1	1	1	2	2	2	2	1

Note:

- 1 = Maltese Unhealthy + Maltese Healthy
- 2 = Maltese Unhealthy + Non-Maltese Healthy
- 3= Maltese Healthy + Non-Maltese Healthy

TABLE 2
Percentage Of Total Sample Population Choosing The Three Possible Combinations In Each Of The Fourteen Food Sets (N=172)

Foods	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 9	Set 10	Set 11	Set 12	Set 13	Set 14
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
MUH+MH^a	76.10	24.00	21.90	70.90	44.60	77.10	55.00	55.00	38.70	34.10	14.60	10.60	19.70	56.80
MUH+NMH^b	19.40	47.40	56.30	24.10	38.50	18.80	28.60	28.80	38.70	57.30	56.30	62.10	68.80	27.10
MH+NMH^c	4.50	28.60	21.90	5.10	16.90	4.20	16.40	16.30	22.70	8.50	29.10	27.30	11.50	16.10

Note:

- A Maltese Unhealthy + Maltese Healthy
- B Maltese Unhealthy + Non-Maltese Healthy
- C Maltese Healthy + Non-Maltese Healthy

General conversation and reactions during the data-gathering sessions also seemed to indicate that children residing in central and rural areas were more familiar with the traditional Maltese dishes and foods. At the same time, in the rural school the children were cognisant with the healthier options (e.g. wholemeal bread, bran crackers, skimmed milk). The children explained how these foods were promoted in the locality as “diet foods” targeted primarily at mothers and the elderly.

1.1.2 Group differences in food preferences

As revealed in Table 3, there was a significant difference in choice between girls and boys for one particular food set: Chips, *Patata l-Forn* (baked meat and potato slices), Jacket Potato ($p = 0.0404$), with the girls favouring the combinations having a Maltese component. Table 4 shows that significant differences also emerged between Year groups and between Schools for a number of food sets. Food combination differences were strong between Birkirkara and San Anton schools [*Imqaret* (fried date pastries), *Pudina tal-Hobz* (bread pudding), Fruit and Nut cake] where the children from San Anton school seemed very keen on the Maltese component-containing combinations. As for Ghaxaq and St. Paul’s Bay schools, sharp differences emerged for two combinations [Cream cake/pastry, *Qaghqa* (Maltese sweet yeast ring), *‘Kinder Cereali’* (chocolate coated cereal bar); *Cicri bil-gelu* (roasted chickpeas with icing), *Cicri* (roasted chickpeas), Popcorn: $p = 0.004$] with Ghaxaq school selecting more the combinations having a Maltese component in the former set and St. Paul’s Bay selecting the combinations having *Health* as a common factor in the latter set.

1.1.2.1 Gender differences

The results did not reveal very marked differences in choice of food combinations based on gender. The only two food sets where girls and boys did not match in their top choice were Pizzas and Cakes/sweets. One does wonder, however, whether Maltese six-nine year old girls are already aware of the fat/health, weight/health and body image issues opting for a more vegetable-based pizza and forfeiting the fried *Imqaret*. The reason for the sharp gender difference in choice of potato-related foods is unclear. Boys seemed more willing than girls to consume jacket potatoes. Perhaps they were more familiar with it through participation in Scouts Groups camping events.

1.1.2.2 Age differences

Age did not seem to have a strong influence on the food combination choices of the children, although there were significant differences in the results in four instances. For example, none of the Year 3 children (7 year olds) chose the *Maltese Healthy/Non-Maltese Healthy* combination for potato-related products. It seems that Chips were a must in their Foods Combination choice, perhaps due to the fact that they may consume it frequently especially if they have more money in hand to buy their own snacks now and again.

Also many more older children (Years 3 and 4) chose the *Maltese Healthy/Maltese Unhealthy* combination (*Pastizzi* [ricotta-filled flaky pastries]/*Qassatat* [ricotta-filled shortcrust pastries]) for Snack foods. The reason could be more or less the same as above, with older children having more autonomy and freedom in their snack food choices.

A possible reason for more younger children (Year 2) choosing the *Cicri bil-gelu* (roasted chick peas with icing)/Popcorn snack combination could be because the former are similar to sweets and the latter will still be considered a novel food amongst many young Maltese children generally offered to them only when they start going to the cinema.

TABLE 3a
Group Differences in Choice of Food Sets (N=172)

Foods	Gender		Year Group				State Urban %	State Rural %	School State Sub-urban %	Indep. Trans %
	Girls %	Boys %	Year 1 %	Year 2 %	Year 3 %	Year 4 %				
Set 1										
MUH+MH	76.00	76.30	0.00	85.70	71.30	79.60	79.10	85.00	75.00	62.50
MUH+NMH	18.70	20.00	0.00	14.30	21.30	18.50	16.30	10.00	20.00	34.40
MH+NMH	5.30	3.80	0.00	0.00	7.50	1.90	4.70	5.00	5.00	3.10
Set 2										
MUH+MH	28.20	19.70	0.00	23.80	26.90	20.00	22.70	25.70	20.00	28.60
MUH+NMH	43.60	51.30	0.00	42.90	51.30	43.60	72.70	34.30	35.00	42.90
MH+NMH	28.20	28.90	0.00	33.30	21.80	36.40	4.50	40.00	45.00	28.60
Set 3										
MUH+MH	25.30	18.40	0.00	19.00	17.50	30.00	20.90	29.40	15.00	23.50
MUH+NMH	52.00	60.50	0.00	71.40	57.50	48.00	58.10	47.10	65.00	52.90
MH+NMH	22.70	21.10	0.00	9.50	25.00	22.00	20.90	23.50	20.00	23.50
Set 4										
MUH+MH	79.50	62.50 ^a	0.00	85.70	70.90	65.50	64.30	80.50	77.50	60.00
MUH+NMH	15.40	32.50	0.00	9.50	29.10	22.40	21.40	17.10	20.00	40.00
MH+NMH	5.10	5.00	0.00	4.80	0.00	12.10	14.30	2.40	2.50	0.00
Set 5										
MUH+MH	48.60	40.50	0.00	61.90	35.60	50.00	53.50	50.00	50.00	17.20
MUH+NMH	29.70	47.30	0.00	28.60	41.10	38.90	32.60	27.80	35.00	65.50
MH+NMH	21.60	12.20	0.00	9.50	23.30	11.10	14.00	22.20	15.00	17.20
Set 6										
MUH+MH	72.50	81.30	0.00	57.10	81.30	79.20	81.00	87.50	67.50	73.30
MUH+NMH	20.30	17.30	0.00	38.10	17.30	12.50	11.90	12.50	27.50	23.30
MH+NMH	7.20	1.30	0.00	4.80	1.30	8.30	7.10	0.00	5.00	3.30
Set 7										
MUH+MH	58.80	51.40	0.00	60.00	57.50	48.90	67.40	53.10	53.80	38.50
MUH+NMH	26.50	30.60	0.00	15.00	28.80	34.00	23.30	37.50	20.50	38.50
MH+NMH	14.70	18.10	0.00	25.00	13.70	17.00	9.30	9.40	25.60	23.10

Note:

MUH + MH = Maltese Unhealthy + Maltese Healthy

MUH + NMH = Maltese Unhealthy + Non-Maltese Healthy

MH + NMH = Maltese Healthy + Non-Maltese Healthy

a p=0.0404

TABLE 3b
Group Differences in Choice of Food Sets (N=172) (continued)

Foods	Gender		Year Group				School			Indep. Trans %
	Girls %	Boys %	Year 1 %	Year 2 %	Year 3 %	Year 4 %	State Urban %	State Rural %	State Sub-urban %	
Set 8										
MUH+MH	52.50	57.50	0.00	71.40	53.80	50.80	54.50	47.50	70.00	47.20
MUH+NMH	30.00	27.50	0.00	14.30	28.80	33.90	34.10	35.00	17.50	27.80
MH+NMH	17.50	15.00	0.00	14.30	17.50	15.30	11.40	17.50	12.50	25.00
Set 9										
MUH+MH	30.70	46.70	0.00	50.00	44.00	27.30	19.00	38.50	46.20	56.70
MUH+NMH	40.00	37.30	0.00	30.00	30.70	52.70	57.10	41.00	20.50	33.30
MH+NMH	29.30	16.00	0.00	20.00	25.30	20.00	23.80	20.50	33.30	10.00
Set 10										
MUH+MH	35.40	32.90	0.00	23.80	32.50	40.00	35.70	51.10	17.50	29.70
MUH+NMH	58.50	56.10	0.00	66.70	60.20	50.00	52.40	44.40	70.00	64.90
MH+NMH	6.10	11.00	0.00	9.50	7.20	10.00	11.90	4.40	12.50	5.40
Set 11										
MUH+MH	11.30	17.90	0.00	4.80	19.00	12.10	11.90	25.00	7.50	12.50
MUH+NMH	55.00	57.70	0.00	47.60	63.30	50.00	54.80	65.90	50.00	53.10
MH+NMH	33.80	24.40	0.00	47.60	17.70	37.90	33.30	9.10	42.50	34.40
Set 12										
MUH+MH	8.90	12.20	0.00	4.80	13.30	8.80	15.60	16.30	5.00	3.00
MUH+NMH	67.10	57.30	0.00	90.50	62.70	50.90	55.60	53.50	70.00	72.70
MH+NMH	24.10	30.50	0.00	4.80	24.10	40.40	28.90	30.20	25.00	24.20
Set 13										
MUH+MH	16.30	23.40	0.00	9.50	23.10	19.00	16.30	22.00	12.50	30.30
MUH+NMH	71.30	66.20	0.00	90.50	64.10	67.20	69.80	61.00	82.50	60.60
MH+NMH	12.50	10.40	0.00	0.00	12.80	13.80	14.00	17.10	5.00	9.10
Set 14										
MUH+MH	60.50	53.20	0.00	61.10	58.20	53.40	55.80	48.80	59.50	64.70
MUH+NMH	25.00	29.10	0.00	33.30	25.30	27.60	27.90	22.00	32.40	26.50
MH+NMH	14.50	17.70	0.00	5.60	16.50	19.00	16.30	29.30	8.10	8.80

Note:

MUH + MH = Maltese Unhealthy + Maltese Healthy

MUH + NMH = Maltese Unhealthy + Non-Maltese Healthy

MH + NMH = Maltese Healthy + Non-Maltese Healthy

TABLE 4
Significant Between-Groups Differences In Food Combination Choices Based on Year Group and School (p < 0.05)

Food Sets	Year Group	School
Spaghetti plus stewed meat sauce; Spaghetti plus tomato sauce; Lasagna		p = 0.0006
Chips; <i>Patata l-Forn</i> (baked potato slices); Jacket Potato	p = 0.0101	p = 0.0115
Pizza with sausage, egg, ham, tomato, Cheddar topping; Pizza with tomato, Tuna, olives, capers and onion; Pizza with mushrooms and Mozzarella		p = 0.0282
<i>Pastizzi</i> (Maltese ricotta cheesecakes); <i>Qassata</i> (Maltese pastry filled with ricotta); Wholemeal roll with ricotta cheese	p = 0.0401	
<i>Imqaret</i> (fried date pastries); <i>Pudina tal-Hobz</i> (bread pudding); Fruit and Nut Cake		p = 0.0046
Chocolate biscuits; <i>Krustin</i> (Maltese teatime sweet); Wholemeal <i>Digestive</i>		p = 0.0454
Cream cake/pastry; <i>Qaghqa</i> (Maltese sweet yeast ring); <i>Kinder Cereali</i> (chocolate coated cereal bar)	p = 0.0205	p = 0.0193
<i>Cicri bil-gelu</i> (roasted chickpeas with icing); <i>Cicri</i> (roasted chickpeas); Popcorn	p = 0.0110	

1.1.2.3 School differences

The fact that the independent school children seemed to favour the combinations containing Maltese foods could be due to a number of reasons. Perhaps they did not get to consume these foods so often and considered them as treat foods available when visiting older relatives or eaten only on special occasions or particular outings. On the other hand, they could have been very familiar with the foods perhaps spending a lot of time with older relatives who had time to prepare such foods as opposed to the children's parents who very likely both had full-time jobs to be able to afford the school fees.

1.1.2.4 Regional differences

Frequency of exposure to foods could also be the reason for children from a somewhat rural village choosing the options having a Maltese component. It is likely that families in this village would serve typically Maltese foods. In contrast, children from the tourist resort suburb may have opted more for the combinations having a healthy component since many of them had foreign or British mothers (as indicated by their teacher) who may have imported certain healthy eating ideas when they came to settle down in Malta.

1.2 Patterns In Choice Of Dishes

Thirty children completed the Dishes sets list (Sheet 2). As can be seen from the modes and percentages in Tables 5 and 6 respectively, the most popular combination was the *Maltese Dish/Italian Dish*, although the *Maltese Dish/Westernised Dish* combination was nearly just as popular. Once again, the options having a Maltese component emerged as being favourites.

The *Maltese Dish/Italian Dish* combination dominated in three of the sets which contained primarily bread, pasta and vegetable-based items. *The Maltese Dish/Western Dish* combination was most popular for meat and fish, whereas the *Western Dish/Italian Dish* was only opted for in the one set depicting desserts (Apple pie and Ice-cream with nuts).

Yet again, the popularity of local and Italian-oriented carbohydrate-based foods emerged, although fried steak and fried sausage and bacon, dishes often associated with Western diets, was the most popular combination choice. It was interesting to note that Maltese children were amenable to a variety of flavours, perhaps because they were regularly offered many of the Maltese dishes listed, or because they frequently consumed or were exposed to advertisements and programmes portraying Italian-type foods. One could also state, however, that fried meat is a staple dish in many Maltese households, as explained earlier, a legacy perhaps of British colonisation. Regarding the foreign dishes combination of ice-cream and apple pie, the former is a permanent daily feature in many Maltese children's diets for several months of the year, whereas the latter are often bought by mothers as a 'healthier' teatime snack for their children.

TABLE 5
Modes For Each Of The Six Dishes Sets (n=30)

Dishes	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6
Mode	2	2	1	1	2	3

Note:

1 = Maltese Dish + Westernised Dish

2 = Maltese Dish + Italian Dish

3 = Westernised Dish + Italian Dish

TABLE 6
Percentage Of Total Sample Population Choosing The Three Possible Combinations
In Each Of The Six Dishes Sets (n=30)

Dishes	Set 1 %	Set 2 %	Set 3 %	Set 4 %	Set 5 %	Set 6 %
DM+DW^a	33.30	32.00	50.00	86.70	10.00	33.30
DM+ DI^b	63.00	48.00	39.30	10.00	66.70	26.70
DW+DI^c	3.70	20.00	10.70	3.30	23.30	40.00

a Maltese Dish + Westernised Dish; b Maltese Dish + Italian Dish; c Westernised Dish + Italian Dish

Anecdotal information obtained from teachers and Heads of schools during the data-gathering sessions revealed that pasta dishes, specifically *Tortellini*, were a favourite amongst children.

1.2.1 Group differences

From Table 7 it is clear that the Fried Steak/Fried Sausage and Bacon combination was a very popular one irrespective of gender, year group or school. Significant differences between groups emerged in only one Dishes set (Fruit sponge flan with tinned fruit and cream (*Nestle Cream*), Apple pie, Ice-cream with nuts; $p = 0.0309$). For example, there seemed to be a clear difference between Ghaxaq and St. Paul's Bay schools, with the former opting for the combination of dishes having a Maltese component and the latter decidedly in favour of the foreign dishes.

The fact that the St. Paul's Bay tourist resort area schoolchildren unanimously chose the Apple pie and Ice-cream with nuts dishes combination, could be a result of the children living in an area continually being exposed to foreign cuisine.

1.3 Patterns In Choice Of Meals

Twenty children participated in the meals choice activity (Sheet 3). In contrast to the overall results from the other lists' analysis, Tables 8 and 9 show that the foreign combination (specifically the *Westernised Meals/Italian Meals*) emerged as the most popular being chosen by over half the sample in five out of the eight Meal sets (Breakfast, Snack, Tea Time, Saturday Evening Outing and Outing to Valletta). Even when one looks at the results of the separate meals list analysis in Table 10, where 12 children indicated just one choice out of the three alternative meals, it is clear that the Italian Meal was the favourite, being selected most frequently in four out of eight instances (Snack, Tea Time, Sunday Lunch and Outing to Valletta [sweet]) and being on par with the Westernised Meal in another situation (Outing to Valletta [savoury meal])

These results seemed to indicate that the Maltese traditional meals lost out in many of the non-home based meal settings. Certainly the Italian foods were predominant, although when it came to *McDonald's/Burger King* and Pizza they were equally popular as a Valletta outing snack. Indeed, one can say that for many children, a visit to the capital city is synonymous with a sit-down meal at one of the fast food chains. When time is short, a take-out slice of pizza is substituted. The fact that children would normally get a gift with their meal when eating at one of the burger-type fast food outlets very likely also came to bear on the children's preferences. One exception to this general trend in foreign meal preference, was the popularity of the traditional Maltese seaside snack *hobz biz-zeit* (crusty bread spread with tomato puree or tomato and with a tuna, capers, olives and olive oil filling) which is locally considered as the definitive meal for the beach.

TABLE 7
Group Differences in Choice of Dishes Sets (n=30)

Dishes	Gender		Year Group				School				Sigf.
	Girls %	Boys %	Year 1 %	Year 2 %	Year 3 %	Year 4 %	State Urban %	State Rural %	State Sub- urban %	Indep. Trans %	
Set 1											
<i>DM+DW</i>	15.40	50.00	25.00	0.00	37.50	33.30	27.30	60.00	0.00	50.00	
<i>DM+DI</i>	76.90	50.00	75.00	100.00	56.30	66.70	72.70	40.00	100.00	33.30	
<i>DW+DI</i>	7.70	0.00	0.00	0.00	6.30	0.00	0.00	0.00	0.00	16.70	
Set 2											
<i>DM+DW</i>	38.50	25.00	0.00	0.00	50.00	22.20	18.20	20.00	75.00	40.00	
<i>DM+DI</i>	53.80	41.70	75.00	0.00	41.70	44.40	63.60	40.00	0.00	60.00	
<i>DW+DI</i>	7.70	33.30	25.00	0.00	8.30	33.30	18.20	40.00	25.00	0.00	
Set 3											
<i>DM+DW</i>	42.90	57.10	75.00	0.00	35.70	60.00	50.00	80.00	0.00	57.10	
<i>DM+DI</i>	42.90	35.70	0.00	0.00	57.10	30.00	25.00	20.00	100.00	42.90	
<i>DW+DI</i>	14.30	7.10	25.00	0.00	7.10	10.00	25.00	0.00	0.00	0.00	
Set 4											
<i>DM+DW</i>	86.70	86.70	75.00	0.00	93.30	81.80	75.00	100.00	100.00	85.70	
<i>DM+DI</i>	13.30	6.70	25.00	0.00	6.70	9.10	25.00	0.00	0.00	0.00	
<i>DW+DI</i>	0.00	6.70	0.00	0.00	0.00	9.10	0.00	0.00	0.00	14.30	
Set 5											
<i>DM+DW</i>	20.00	0.00	0.00	0.00	6.30	20.00	8.30	14.30	0.00	14.30	
<i>DM+DI</i>	66.70	66.70	100.00	0.00	68.80	50.00	50.00	71.40	100.00	71.40	
<i>DW+DI</i>	13.30	33.30	0.00	0.00	25.00	30.00	41.70	14.30	0.00	14.30	
Set 6											
<i>DM+DW</i>	31.30	35.70	0.00	0.00	20.00	63.60	16.70	62.50	0.00	50.00	p=0.0309
<i>DM+DI</i>	18.80	35.70	50.00	0.00	26.70	18.20	33.30	37.50	0.00	16.70	
<i>DW+DI</i>	50.00	28.60	50.00	0.00	53.30	18.20	50.00	0.00	100.00	33.30	

Note: DM + DW = Dish Maltese + Dish Western; DM + DI = Maltese Dish + Italian Dish; DW + DI = Westernised Dish + Italian Dish

TABLE 8
Modes For Each Of The Eight Meals Sets (n=20)

Meals	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set=7	Set=8
Mode	3	2	3	3	1	3	3	1

Note:
 1 = Maltese Meal + Westernised Meal
 2 = Maltese Meal + Italian Meal
 3 = Westernised Meal + Italian Meal

TABLE 9
Percentage Of Total Sample Population Choosing The Three Possible Combinations In Each Of The Eight Meals Sets (n=20)

Meals	Set 1 %	Set 2 %	Set 3 %	Set 4 %	Set 5 %	Set 6 %	Set=7 %	Set=8 %
MM+MW^a	5.90	38.90	25.00	10.50	45.00	16.70	5.60	40.00
MM+MI^b	41.20	50.00	25.00	36.80	30.00	22.20	27.80	33.30
MW+MI^c	52.90	11.10	50.00	52.60	25.00	61.10	66.70	26.70

Note:
 a Maltese Meal + Westernised Meal
 b Maltese Meal + Italian Meal
 c Westernised Meal + Italian Meal

TABLE 10
Percentage Of Total Sample Choosing Each Meal As Their Favourite From The Three Options (n=12)

Meals	Meal 1 %	Meal 2 %	Meal 3 %	Meal 4 %	Meal 5 %	Meal 6 %	Meal=7 %	Meal=8 %
Maltese	41.70	27.30	25.00	6.70	8.30	25.00	8.30	66.70
Westernised	25.00	9.10	41.70	41.70	41.70	33.30	8.30	0.00
Italian	33.30	63.60	33.30	41.70	50.00	41.70	83.30	33.30

1.3.1 Group differences

Tables 11 and 12 show the children's choices for meal combinations and separate meals according to year group, gender and school.

1.3.1.1 Age differences

Significant differences in the choices made by different year groups emerged for two meals Sets: Breakfast (Tea with Maltese traditional sweets, Juice and cereal with milk, Milk and '*Kinder Cereali*' [chocolate-coated cereal bar], $p = 0.0070$); and Sunday Lunch (Rabbit Stew, Roast Cube Roll with potatoes, carrots, peas and gravy, *Bragjoli* [stuffed rolled meat]; $p = 0.0174$). Year 4 children were unanimous in their choice of the foreign options as Breakfast meals, whereas Year 1 children favoured the Maltese or Westernised options for Sunday Lunch.

The fact that all the Year 4 children chose the *Western Meal/Italian Meal* combination for breakfast is perhaps again indicative of the strong influence of television advertising for breakfast cereals and for the Italian cereal bars promoted as a healthy breakfast on-the-go. In contrast, all the Year 1 children opted for the *Maltese Meal/Western Meal* combination for Sunday Lunch. The national dish, Rabbit Stew, is generally well-liked and both this meat and beef are usually lean and easy to eat. On the other hand, although the Italian-style *Bragjoli* are frequently served on Maltese tables, the fact that there are often 'unknown' ingredients in the stuffing and that the rolls sometimes fall apart when being speared on the fork, might make them a bothersome food to eat for younger children.

When children were asked to specify favourite meals, significant differences were seen between Year 3 and Year 4 children's choices for the following two Meal Sets: Breakfast (Tea with Maltese traditional sweets, Juice and cereal with milk, Milk and *Kinder Cereali* [chocolate-coated cereal bar], $p = 0.0150$); and At the Seaside - *Hobz biz-zejt* [crusty bread, tuna fish, tomato, onion, olives, capers, butter beans, parsley], Bun with ham, cheese, lettuce, tomato and margarine, Risotto [rice, tuna fish, tomato, capers, olives, onion], $p = 0.0304$). These results confirm that the Year 4 children were much more inclined towards the Westernised selection as a Breakfast Meal as opposed to the Year 1 and Year 3 children who seemed to favour the Maltese or Italian option. In contrast, the older year group favoured the Italian Meal as a seaside snack, whereas the Year 3 children maintained their preference for the traditional Maltese alternative.

The desire to look grown-up or a genuine liking for the complex flavour could account for the majority of Year 4 children selecting the *Italian* Risotto as their favourite Seaside Snack.

1.3.1.2 Gender differences

Although not statistically significant, of note is that all the girls chose the Italian option (Bread with *Nutella* chocolate spread) as a Snack and nobody chose the Westernised option (Bun with ham, cheese, lettuce, tomato and margarine) as a Seaside Meal.

1.4 Perceptions Of Healthy And Unhealthy Food And Drink Choices

As can be seen from Table 13, the foods and drinks considered most *Healthy* by the 163 children in the sample were milk, water and fruit in that order. These three items predominated, with milk being the most frequently chosen (25% of sample). Interestingly, however, milk was not listed as a *Healthy* food by any of the Year 1 children. Overall, fruits and vegetables were in the top ranks. There seemed to be no pronounced gender differences in choices, except perhaps, that boys listed fruits and vegetables more frequently than girls, whereas more girls chose water as a *Healthy* drink.

TABLE 11
Group Differences In Choice Of Meal Sets (n=20)

Meals	Gender		Year Group				School			
	Girls %	Boys %	Year 1 %	Year 2 %	3 %	Year 4 %	State Urban %	State Rural %	State Sub- urban %	Indep. Trans. %
Set 1										
<i>MM+MW</i>	0.00	12.50	0.00	0.00	14.30	0.00	0.00	0.00	0.00	20.00
<i>MM+MI</i>	44.40	37.50	25.00	0.00	85.70	0.00	41.70	0.00	0.00	40.00
<i>MW+MI</i>	55.60	50.00	75.00	0.00	0.00	100.00 ^a	58.30	0.00	0.00	40.00
Set 2										
<i>MM+MW</i>	44.40	33.30	100.00	0.00	25.00	16.70	41.70	0.00	0.00	33.30
<i>MM+MI</i>	44.40	55.60	0.00	0.00	75.00	50.00	50.00	0.00	0.00	50.00
<i>MW+MI</i>	11.10	11.10	0.00	0.00	0.00	33.30 ^b	8.30	0.00	0.00	16.70
Set 3										
<i>MM+MW</i>	30.00	20.00	25.00	0.00	25.00	25.00	33.30	0.00	0.00	12.50
<i>MM+MI</i>	10.00	40.00	25.00	0.00	37.50	12.50	25.00	0.00	0.00	25.00
<i>MW+MI</i>	60.00	40.00	50.00	0.00	37.50	62.50	41.70	0.00	0.00	62.50
Set 4										
<i>MM+MW</i>	22.20	0.00	0.00	0.00	12.50	14.30	8.30	0.00	0.00	14.30
<i>MM+MI</i>	33.30	40.00	75.00	0.00	37.50	14.30	50.00	0.00	0.00	14.30
<i>MW+MI</i>	44.40	60.00	25.00	0.00	50.00	71.40	41.70	0.00	0.00	71.40
Set 5										
<i>MM+MW</i>	40.00	50.00	50.00	0.00	37.50	50.00	50.00	0.00	0.00	37.50
<i>MM+MI</i>	40.00	20.00	25.00	0.00	25.00	37.50	25.00	0.00	0.00	37.50
<i>MW+MI</i>	20.00	30.00	25.00	0.00	37.50	12.50	25.00	0.00	0.00	25.00
Set 6										
<i>MM+MW</i>	22.20	11.10	50.00	0.00	12.50	0.00	25.00	0.00	0.00	0.00
<i>MM+MI</i>	22.20	22.20	25.00	0.00	25.00	16.70	25.00	0.00	0.00	16.70
<i>MW+MI</i>	55.60	66.70	25.00	0.00	62.50	83.30	50.00	0.00	0.00	83.30
Set 7										
<i>MM+MW</i>	11.1	0.00	0.00	0.00	14.30	0.00	8.30	0.00	0.00	0.00
<i>MM+MI</i>	11.1	44.40	25.00	0.00	28.60	28.60	25.00	0.00	0.00	33.30
<i>MW+MI</i>	77.8	55.60	75.00	0.00	57.10	71.40	66.70	0.00	0.00	66.70
Set 8										
<i>MM+MW</i>	25	57.10	50.00	0.00	16.70	60.00	45.50	0.00	0.00	25.00
<i>MM+MI</i>	50	14.30	0.00	0.00	66.70	20.00	27.30	0.00	0.00	50.00
<i>MW+MI</i>	25	28.60	50.00	0.00	16.70	20.00	27.30	0.00	0.00	25.00

Note:

MM + MW = Meal Maltese + Meal Western

MM + MI = Meal Maltese + Meal Italian

MW + MI = Meal Western + Meal Italian

a p value = 0.0070

b p value = 0.0174

TABLE 12
Group Differences In Choice Of Specific Meal (n=12)

Meals	Gender		Year Group				School			Indep. Trans %
	Girls %	Boys %	Year 1 %	Year 2 %	Year 3 %	Year 4 %	State Urban %	State Rural %	State Sub-urban %	
Meal 1										
<i>MM</i>	66.70	16.70	0.00	0.00	50.00	25.00 ^a	0.00	25.00	75.00	0.00
<i>MW</i>	16.70	33.30	0.00	0.00	0.00	75.00	0.00	37.50	0.00	0.00
<i>MI</i>	16.70	50.00	0.00	0.00	50.00	0.00	0.00	37.50	25.00	0.00
Meal 2										
<i>MM</i>	20.00	33.30	0.00	0.00	37.50	0.00	0.00	28.60	25.00	0.00
<i>MW</i>	20.00	0.00	0.00	0.00	12.50	0.00	0.00	14.30	0.00	0.00
<i>MI</i>	60.00	66.70	0.00	0.00	50.00	100.00	0.00	57.10	75.00	0.00
Meal 3										
<i>MM</i>	33.30	16.70	0.00	0.00	25.00	25.00	0.00	25.00	25.00	0.00
<i>MW</i>	50.00	33.30	0.00	0.00	25.00	75.00	0.00	37.50	50.00	0.00
<i>MI</i>	16.70	50.00	0.00	0.00	50.00	0.00	0.00	37.50	25.00	0.00
Meal 4										
<i>MM</i>	0.00	33.30	0.00	0.00	12.50	25.00	0.00	12.50	25.00	0.00
<i>MW</i>	50.00	33.30	0.00	0.00	25.00	75.00	0.00	50.00	25.00	0.00
<i>MI</i>	50.00	33.30	0.00	0.00	62.50	0.00	0.00	37.50	50.00	0.00
Meal 5										
<i>MM</i>	0.00	16.70	0.00	0.00	12.50	0.00	0.00	0.00	25.00	0.00
<i>MW</i>	50.00	33.30	0.00	0.00	25.00	75.00	0.00	37.50	50.00	0.00
<i>MI</i>	50.00	50.00	0.00	0.00	62.50	25.00	0.00	62.50	25.00	0.00
Meal 6										
<i>MM</i>	16.70	33.30	0.00	0.00	37.50	0.00	0.00	25.00	25.00	0.00
<i>MW</i>	50.00	16.70	0.00	0.00	37.50	25.00	0.00	12.50	75.00	0.00
<i>MI</i>	33.30	50.00	0.00	0.00	25.00	75.00	0.00	62.50	0.00	0.00
Meal 7										
<i>MM</i>	0.00	16.70	0.00	0.00	12.50	0.00	0.00	0.00	25.00	0.00
<i>MW</i>	0.00	16.70	0.00	0.00	0.00	25.00 ^b	0.00	12.50	0.00	0.00
<i>MI</i>	100.00	66.70	0.00	0.00	87.50	75.00	0.00	87.50	75.00	0.00
Meal 8										
<i>MM</i>	83.30	50.00	0.00	0.00	87.50	25.00	0.00	62.50	75.00	0.00
<i>MW</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>MI</i>	16.70	50.00	0.00	0.00	12.50	75.00	0.00	37.50	25.00	0.00

Note:

MM = Maltese Meal

MW = Westernised Meal

MI = Italian Meal

a p = 0.0150

b p = 0.0304

TABLE 13
Frequencies Of Foods And Drinks Listed As Healthy In The Total Sample

Foods/Drinks	Year 1 n=20		Year 2 N=21		Year 3 n=75		Year 4 n=47		Total n=163 ^a
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Milk			5	4	11	12	6	3	41
Water	2	2			3	9	5	4	25
Fruit	1	3		2	9	5		4	24
Apple	3	1		1	1	2		2	10
Vegetables			1		5	1	1		8
Spaghetti			2	2	3				7
Meat	2	1			1		2		6
Fish					3	1		1	5
Bread			1		1	2			4
Egg	1	2			1				4
Carrots				2			1		3
Orange					1		1	1	3
Banana					1	1			2
<i>Branettes</i>								2	2
Cauliflower					1	1			2
Couscous/Bean Soup						1			2
Pear					1		1		2
Skimmed Milk								2	2
Yoghurt					2				2
Biscuits					1				1
Breakfast Cereals						1			1
Broth								1	1
Chips					1				1
Duck								1	1
Fried Chicken					1				1
Health Bar								1	1
<i>Imqaret</i> (Fried Date Pastries)				1					1
Lasagna					1				1
Maltese Bread							1		1
Maltese Bread/Butter					1				1
Orange Juice								1	1
Pasta						1			1
Popcorn						1			1
Ravioli							1		1
Rice						1			1
Tomato					1				1

a Not all children answered this question, plus some responses were illegible or unidentifiable.

Table 14 outlines the foods and drinks listed as *Unhealthy* with sweets clearly being seen as the most *Unhealthy*, chosen by 37% of the children. Noteworthy is the fact that alcoholic drinks and soft drinks were amongst those most frequently chosen as *Unhealthy*: Specifically, beer, soft drinks, coca cola, alcohol and wine emerged amongst the top ten *Unhealthy* foods and drinks. A few children even perceived tobacco (3 children) and drugs (2 children) as *Unhealthy* food items.

In general, the results obtained concerning children's perception of *Healthy* and *Unhealthy* foods did not offer many surprises. Maltese children are frequently exposed to messages about the health value of milk, fruits and vegetables both at home and school, despite food and nutrition education not being a formal subject in the local primary school curriculum. (Fenech, 2001) The positive message about water was also becoming more prevalent amongst children, perhaps due to the fact that some schools were prohibiting soft drinks and squashes in children's packed lunches and encouraging them to bring small bottles of water instead. (Attard, 2001)

The minimal health value of sweets is another message children are conversant with, although of course there is much competition in portraying a different image from television advertising. The impact of television could also be the reason why so many of the children listed alcoholic drinks as *Unhealthy* foods. In the 18 months prior to the survey, there had been a strong television PSA campaign by the local agency against substance abuse where a cartoon character has been used to warn of the ill-effects of consuming too much alcohol. Children were very familiar with this character and it seemed that the general message associating alcohol with possible harm had been internalised.

1.5 Food Likes And Dislikes

From Tables 15 and 16 one can see that there were no extreme results concerning *Most Liked* or *Most Disliked* foods or drinks. Pizza, pasta, cola and milk were the top four items in the *Liked* category: A familiar list for researchers on children's food preferences. (Engell, Bordi, Borja, Lambert & Rolls, 1998) These items could be considered as staples in most Maltese children's diets, also keeping in mind the fact that children were offered a glass of milk free daily in state schools. Overall, the top ten *Liked* foods represented various food groups with meat-based and snack items predominating slightly.

Interestingly, coca cola and soft drinks were ranked first in both the *Liked* and *Disliked* lists respectively. Specifically, soft drinks, alcohol, *Kinnie* (a local bitter soft drink), wine and beer were ranked amongst the top ten *Disliked* items. This was quite a surprising result, though as explained earlier the sample involved in this activity was small and therefore could not be considered representative. Moreover, manual sorting indicated that some of the children who listed these items in the *Disliked* group had also listed them in the *Unhealthy* group. Thus this could partially explain the result.

There seemed to be no striking group differences in choices, though more boys than girls listed *Coca Cola* as their favourite drink.

TABLE 14
Frequencies Of Foods And Drinks Listed As Unhealthy In The Total Sample

Foods/Drinks	Year 1 n=20		Year 2 n=21		Year 3 n=75		Year 4 n=47		Total n=163 ^a
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Sweets	2	5	2	3	23	23	5	3	66
Crisps				1	4	1	2	2	10
Beer ^b			5	5					10
Softdrinks				2	1	2	1	3	9
Sugar	5	3							8
<i>Coca Cola</i>					1	1	2	2	6
Chocolate			1		1	3			5
Alcohol ^b			1		1	1		1	4
Popcorn						2	2		4
Wine						2		1	3
Flavoured Milk								2	2
Black Pepper	1								1
Bread Pudding								1	1
Cakes								1	1
Cheese					1				1
Chips								1	1
Chocolate Biscuits					1				1
Hamburgers					1				1
Ice-Cream					1				1
Juices							1		1
<i>Kinder Cereal</i>						1		1	1
Lard								1	1
Meat								1	1
Milk							1		1
Minced Meat							1		1
Pig's Head							1		1
Pizza					1				1
<i>Prinjolata</i> (Nut Cake)					1				1
<i>Ribena</i>					1				1
Salt						1			1
Sausage					1				1
Sugar								1	1
Vegetables							1		1
White Flour						1			1
Smoking					2	1			3
Drugs ^c						2			2

a Not all children answered this question, plus some responses were illegible or unidentifiable.

b Mentioned by St. Paul's Bay children who live in a tourist resort area

c Mentioned by Ghaxaq girls who live in a rural area

TABLE 15
Frequencies Of Liked Foods And Drinks

Foods/Drinks	Year 3		Year 4		Total n=65 ^a
	Boys n=22	Girls n=22	Boys n=9	Girls n=12	
<i>Coca Cola</i>			4	1	5
Milk		2		2	4
Lasagna	1	1		1	3
Meat	2			1	3
Pizza		1		2	3
Apple		2			2
Burger	1		1		2
Chicken		2			2
Chips		1	1		2
Fruit			2		2
<i>Imqaret</i> (Fried Date Pastries)	1			1	2
Rabbit	1	1			2
Bacon Soup		1			1
Chickpeas With Icing		1			1
Crisps	1				1
Fried Pasta		1			1
Gateau	1				1
Jelly	1				1
<i>Kinnie</i> (Bitter Softdrink)				1	1
Mashed Potatoes		1			1
<i>Minestra</i> (Thick Vegetable Soup)		1			1
Olives	1				1
Oranges		1			1
Pasta <i>Carbonaro</i>	1				1
<i>Patata L-Forn</i> (Baked Meat+Potatoes)	1				1
Pie		1			1
Potatoes		1			1
Roasted Chestnuts			1		1
Sausages	1				1
Softdrink	1				1
Spaghetti				1	1
Sweets				1	1
Tomatoes		1			1
Tortellini			1		1
Veal			1		1
Water			1		1

a Not all children answered this question, plus some responses were illegible.

TABLE 16
Frequencies Of Disliked Foods And Drinks

Foods/Drinks	Year 3		Year 4		Total n=65 ^a
	Boys n=22	Girls n=22	Boys n=9	Girls n=12	
Softdrinks		1	2	1	4
Sweets		1	2		3
Vegetables	2	1			3
Alcohol	1			1	2
Bread Pudding				2	2
<i>Kinnie</i> (Local Bitter Softdrink)	1	1			2
Roasted Chestnuts	1	1			2
Wine		2			2
Beer		1			1
Brown Bread	1				1
Butter		1			1
Capers				1	1
Carrots	1				1
Coca Cola		1			1
Couscous/Bean Soup	1				1
Egg	1				1
<i>Fanta</i>				1	1
Fish		1			1
Lamb				1	1
Lettuce	1				1
Mashed Vegetables		1			1
<i>Minestra</i> (Thick Vegetable Soup)			1		1
Oils				1	1
Orange Squash	1				1
Peas	1				1
Potato		1			1
Roast Meat		1			1
Soup				1	1
Spinach		1			1
Drugs ^b		1			1

a Not all children answered this question, plus some responses were illegible.

b Mentioned by Ghaxaq girl who lives in a rural area

APPENDIX 3.4

DATABASE COMPILATION SURVEY

RESEARCH TOOLS

ENGLISH AND MALTESE VERSIONS

APPENDIX 3.5

**DATABASE COMPILATION SURVEY
PROTOCOL FOR DATA COLLECTION IN CLASS**

GROUND RULES ESTABLISHED

- Emphasising that spelling was not important
- Asking the children to work on their own - pretending it was a “secret”
- Asking the children to write their “secret” in full
- Asking the children to work through the sheets together as a class, but allowing them to colour in the pictures while they waited for their friends to catch up.
- Explaining to the children that if they did not consume 3 different meals, snacks or drinks in a particular setting this was OK.
- Explaining that it was OK as well if they did not consume any food or drinks in a specific setting. (In such case, the children were asked to write *Nothing*)
- Asking the children to write down *Don't Know* if they couldn't remember what they ate or drank.
- Asking the children to write down *Do not go out* if they did not eat out, go for a Sunday drive etc.
- Urging the teacher present to prompt the children for details, but not to make loaded comments or lead them in any way.

APPENDIX 3.6

DATABASE COMPILATION

CHILDREN'S FOCUS GROUP INTERVIEW GUIDE

FOCUS GROUP INTERVIEW

INTERVIEW GUIDE

1. What exactly comes to mind when somebody says he had bread with tomato puree (*hobz bil-kunserva*)?

When do you eat *hobz bi-kunserva*?

2. It seems that a lot of children like chicken and they eat it in different ways. Do you like chicken? How do you like to eat it? (Drumsticks, leg (*koxxa*) stuffed (*mimlija*))

Why are chicken nuggets so popular?

3. What foods come to mind when somebody says he had a fry-up (*qali*)?

4. Children in Gozo said they often eat Rabbit? Do you sometimes eat Rabbit? When? Where?

5. Some children said that sometimes they eat meat alone. Do you think this is true? How do you eat meat?

6. Many children said they eat the same thing each day in the evening? What do you eat for supper?

Other children said they really don't eat much in the evening because they eat a big meal when they come from school? What about you?

7. Pasta is certainly very popular with children. Some children said they eat *Tortellini* when they come home from school. Others said they eat *Tarja*. Do you ever have these foods?

Do you have different pastas on different days?

What is your favourite pasta when you eat out?

Two boys said they eat Ravioli with tomato ketchup? Do you think this is true? Another boy said he eats it with 'Bovril'. What do you think?

8. Fish fingers are a popular evening meal. How else would you eat fish? When do you eat it most? (e.g. Fish Burger, fresh fish, fish and chips)

What about Octopus?

9. Many children eat Breakfast cereals before they come to school. Some children said they like to dunk (*ibillu*) 'fingers' and 'number 8s'. Do you ever have these foods - even not for breakfast?

Do you ever eat Breakfast cereals at other times of the day?

10. Bread is another popular food. Do you prefer Maltese bread, white sliced bread, rolls (*bezzun*) or buns (*panini*)? When would you eat the different types of bread? What fillings do you like in/with each one?

Bread Type	Filling
<i>Hobz tal-Malti</i>	
<i>Slajs</i>	
<i>Bezzun</i>	
<i>Panina</i>	

Do you ever have bread with jam?

Do you ever have bread with 'Marmite'?

Do you ever have bread with Peanut Butter?

A popular spread for bread is 'Nutella'. Do you like it? When would you normally have bread with 'Nutella'?

Another popular spread is 'La Vache Qui Rit'. Do you like it? When would you normally have bread with 'Nutella'?

Some children said they have bread with mayonnaise. Do you do this sometimes? When?

11. What would you eat if you went to a Picnic on Sunday?

What would you eat if you just went out into the countryside Sunday afternoon?

12. Do you sometimes go to eat at Nanna's Sunday lunch ? What do you eat when you go there?

Do you eat a big meal when you eat at home Sunday lunch?

13. Yoghurt is being eaten more and more by children. Do you eat yoghurt? When?

14. None of the children I spoke to me that they buy *Mqaret* when they go to Valletta. Do you ever buy them? What would you buy to eat at Valletta?

15. When you eat at McDonalds or Burger King what would be your first and second choices?

Would you say you go to McDonalds/Burger King mostly when you go to Valletta or on other occasions as well?

16. One girl said she buys popcorn near the beach? Have you ever done this? What would you buy at the beach?

What about Peanuts (*Karawett*)? When/where would you eat them?

17. Many children mentioned *orange* as a drink they often consume: What would you be referring to if you said it? Do you think they meant orange juice, squash or orange drink?

Some children said they sometimes drink wine: Do you? When? Where?

Do you ever drink Ice tea? Where? When?

What about 'Ovaltine' or 'Horlicks'?

What about 'Nesquik' with milk?

18. These are some of the foods which children from Gozo like eating. Do you ever eat them? Where and when?

Food	Frequency	When	Where
<i>kosksu fil-ful</i> (semolina pasta balls with broad beans)			
<i>balbuljata bil-Corned beef</i> (Corned beef, tomatoes, onions, egg hash)			
<i>torta tal-lampuki jew tal-pastarda</i> (fish or cauliflower pie)			
<i>timpana</i>			
<i>froga</i> (similar to omelette)			
<i>helwa</i> (Turkish Halva)			
<i>qaghaq tal-ghasel</i> (treacle and honey pastry ring)			

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APPENDIX 3.7

DATABASE COMPILATION SURVEY

REPORT ON FINDINGS

1.0 Introduction

The following is an overview of the results emerging from the database compilation survey, as well as a brief discussion of these results. The main purpose of the different analyses was to ensure that the foods chosen for response options in subsequent stages of the research would truly reflect Maltese children's eating habits, whilst serving to obtain data to meet the different research questions.

1.1 Top Six Foods And/Or Drinks Consumed In The Different Settings

The top six specific foods, drinks or food/drink combinations consumed in the different settings are shown in Table 1. As expected, breakfast cereals were consumed most frequently for Breakfast, the most popular types being *Cornflakes* (9.3%), *Coco Pops* (4.6%) and *Frosties* (3.4%). Surprisingly, however, limiting the first meal of the day to either tea or milk was also common (6.8% and 6.2%, respectively). The high frequency of cereals consumption could have been due to a number of factors, such as heavy television advertising on the various television channels, or the convenience factor especially where both parents were working. The beverage-only breakfasts could have resulted from the fact that some children had to leave for school very early in the morning (e.g. 7.00 a.m.), or that most of the parents knew that by 10.00 am their children would be eating a hearty packed lunch anyway.

For conventionally 'larger' or more substantial meals (i.e. Weekday Supper, Saturday or Sunday Lunch) chicken (unspecified), pizza (unspecified, or plain tomato and cheese) and pasta (unspecified, or with tomato sauce or a sauce) predominated. Meat (unspecified), fish (unspecified) and rabbit (unspecified) were also amongst the top six for these meals, although some specific meat meals stood out, such as meat and chips (2.1%) and meat and fried egg (1.5%) for Saturday Lunch and *patata l-forn* (baked meat and potatoes: 2.2%) and meat and mashed potatoes (1.6%) for Sunday Lunch. Less heavy foods such as soups, broth, *hobz biz-zeit* and *pastizzi* (Maltese ricotta cheese/peacakes) were also commonly consumed, especially for Saturday Lunch. Indeed, Saturday Lunch seemed to be a 'fry-up' occasion for some children, whilst for others it is more of a snack-type setting.

It is interesting to note that the children consumed a variety of meats, including different red and white meats. Table 2 gives a more detailed breakdown of meats consumed in a selection of different settings. These figures were generated by adding the percentage frequencies of similar foods (e.g. hamburger in a bun, hamburger and chips, hamburger, chips and *Coke*) in the Meat/Burgers/Sausages, Rabbit/Chicken/Other Poultry and Meal groups to obtain one aggregated figure per type or category of food (e.g. burgers). Looking at these figures for consumption of meats one sees that the red meat category predominated in all settings listed in Table 2. Nonetheless, chicken dishes were also particularly common for Sunday Lunch, whilst fish dishes were common for Weekday Supper and Saturday Lunch. This pattern of meats consumption could perhaps be indicative of a cultural food status issue (e.g. fish being less appropriate for Sunday Lunch), or a result of food availability (e.g. fresh fish vendors being accessible primarily during the week).

Table 3 is similar to Table 2 and was generated to show types of pastas and rice consumed in a selection of different settings. The aggregated percentages show that the pasta category certainly took precedence over the rice category, although the latter was the most commonly consumed for Weekday Supper. Spaghetti dishes stood out as the meal for Saturday Lunch and macaroni dishes for Sunday Lunch. Rice and spaghetti dishes are fairly easy and quick to prepare, hence perhaps their frequency of consumption for Weekday Supper and

TABLE 1a
Six Most Frequently Consumed Foods And/Or Drinks In Different Settings By Rank Order Showing Culture-Cuisine Orientation

Rank Order	1 st %	2 nd %	3 rd %	4 th %	5 th %	6 th %
Consumption Setting	Food/Drink					
Breakfast (n=324)	9.3 <i>Cornflakes</i> with milk (W)	6.8 tea with milk (W)	6.2 Milk	4.6 <i>Coco Pops</i> with milk (W)	3.7 toast with butter (W)	3.4 <i>Frosties</i> with milk (W)
After School (n=342)	2.9 Water	2.6 pasta with tomato and garlic sauce (I)	2.3 bread and butter (W)	2.0 <i>Cornflakes</i> with milk (W) OR Milk	1.8 bread with tomato puree and chocolate/sweets (M) OR pizza (I) OR pasta with a sauce (I) OR broth (M) OR biscuits and tea/coffee (W) OR <i>Nothing</i>	1.5 ham and butter sandwich/roll (W) OR tortellini (I) OR chocolate OR chocolate milk/milkshake (W) OR tea with milk (W)
Tea-Time Or When Hungry (n=277)	7.9 tea with milk (W)	5.1 biscuits & tea/coffee (W)	4.0 Fruit	3.6 Banana	2.9 milk	2.5 toast with butter (W) OR Apple OR biscuits (W) OR coffee with milk (I)
Weekday Supper (n=403)	4.2 pizza (I)	4.0 pasta with tomato and garlic sauce (I)	3.7 Pasta with a sauce (I)	3.2 Fish	3.0 <i>minestra</i> (vegetable soup) (M)	2.7 Meat OR rabbit (M)

TABLE 1b
Six Most Frequently Consumed Foods And/Or Drinks In Different Settings By Rank Order Showing Culture-Cuisine Orientation (continued)

Rank Order	1 st %	2 nd %	3 rd %	4 th %	5 th %	6 th %
Consumption Setting	Food/Drink					
Saturday Lunch (n=332)	3.0 Chicken	2.7 Pizza (I)	2.4 meat OR fish	2.1 meat and chips (W)	1.8 pasta with a sauce (I) OR spaghetti with tomato puree sauce (I)	1.5 Bread with tomato puree, olives and oil (M) OR <i>pastizzi</i> (M) (ricotta cheese/peacakes) OR Pizza with tomato sauce, mozzarella & olives (M) OR pasta with tomato and garlic sauce (I) OR broth (M) OR Fried egg and bread (W) OR meat and fried egg (W) OR rabbit (M)
Sunday Lunch (n=315)	3.8 Chicken	3.5 <i>mqarrun</i> baked macaroni (M)	2.5 Pasta with a sauce (I)	2.2 pasta with tomato and garlic sauce (I) OR meat OR <i>patata l-forn</i> (M) (baked meat and potatoes)	1.9 baked rice (M) OR lasagna (I) OR fish	1.6 salad (W) OR broth (M) OR meat and mashed potatoes (W)

TABLE 1c
Six Most Frequently Consumed Foods And/Or Drinks In Different Settings By Rank Order Showing Culture-Cuisine Orientation (continued)

Rank Order	1st	2nd	3rd	4th	5th	6th
	%	%	%	%	%	%
Consumption Setting	Food/Drink					
School Packed Lunch (n=246)	5.3 ham and butter sandwich/roll (W)	3.7 bread and butter (W) OR bread with tomato puree, tuna and oil (M) OR bread & biscuits/cakes/sweets/chocolates/crips/packet snacks & juice/milk/water/orange squash OR bread with tomato puree, olives and oil & 7-Up/Coke/Kia-Oral Kinnie/orange squash/water (M) OR sandwiches with Nutella & fruit/Bauli/sweets & Ribena/water/orange squash (I)	3.3 bread with tomato puree, olives & oil (M) OR bread w tomato puree, tuna and oil & packet snack/sponge/chocolate/sweets & juice/peach juice/water/lemon / orange squash (M) OR ham sandwich/roll & 7-Up/Coke/Sprite/Kinnie/ orange or peach juice/orange squash/water/milk fresh-squeezed orange (W)	2.8 Bread roll with butter & Orange or peach juice/ Coffee/tea/milk/water OR cheese sandwich & Coke/Sprite/lemonade/ Coolee/lemon squash/ milk/tea/water (W) OR Nothing	2.4 bread with tomato puree or butter & an apple/orange/banana & chocolate & water (M/W) OR bread with tomato puree, tuna and oil & Sprite/ orange juice/iced tea/ water (M)	2.0 cheese sandwich/roll (W) OR Bread with butter & Coke/ orange squash/juice/ coffee/tea/milk/water OR ham sandwich & fruit & Coke/Sprite/ orange squash/water (W)
Eating Out (n=293)	5.5 pizza (I)	4.8 hamburger with chips & 7-Up/Coke/Fanta/ Milkshake (W)	4.4 chips (W) OR pizza & Coke/Pepsi/Sprite/ Kinnie/iced tea/ water/ orange juice/milk (I)	4.1 pizza with tomato sauce, mozzarella and olives (I)	3.8 hamburger and chips (W)	2.4 pizza Margerita (I) OR pasta with a sauce (I)

TABLE 1d
Six Most Frequently Consumed Foods And/Or Drinks In Different Settings By Rank Order Showing Culture-Cuisine Orientation (continued)

Rank Order	1st	2nd	3rd	4th	5th	6th
	%	%	%	%	%	%
Consumption Setting	Food/Drink					
Sunday Drive (n=268)	6.0 packet snacks (W)	4.9 <i>Nothing</i>	4.5 <i>Coke (W)</i>	3.7 <i>pastizzi (M)</i> (ricotta cheese/peacake)	3.4 sandwiches or rolls OR sweets	3.0 bread with tomato puree & chocolate/sweets (M)
Valletta Outing (n=267)	5.6 <i>Nothing</i>	4.9 <i>pastizzi (M)</i> (ricotta cheese/peacakes)	4.5 <i>Coke (W)</i>	3.4 Pizza (I)	3.0 <i>ricotta pastizzi</i> (ricotta cheesecakes) (M) OR pea <i>pastizzi</i> (peacakes) (M) OR chips (W) OR hamburger in bun (W)	2.6 hamburger & chips (W) OR sweets OR hamburger with chips & <i>7-Up/Coke/Fanta/</i> milkshake (W)
Seaside Outing (n=335)	20.3 ice-cream	5.7 sandwiches or rolls	5.4 bread with tomato puree, olives & oil (M)	3.9 <i>Coke (W)</i>	3.3 packet snacks (W)	3.0 fruit
Party (n=397)	14.9 Cake	9.6 sweets	7.8 cream & jam cakes (W)	7.1 <i>Coke (W)</i>	6.3 pizza (I)	4.5 <i>pastizzi (M)</i> (ricotta cheese/peacake)

TABLE 1e
Six Most Frequently Consumed Foods And/Or Drinks In Different Settings By Rank Order Showing Culture-Cuisine Orientation (continued)

Rank Order	1st	2nd	3rd	4th	5th	6th
	%	%	%	%	%	%
Consumption Setting	Food/Drink					
Drink with Meal (n=333)	29.1 <i>Coke</i>	14.7 Water	10.8 <i>7-Up</i>	7.8 orange squash	5.7 <i>Kinnie</i>	4.8 Sprite
Drink with Snack (n=275)	25.1 Water	14.5 <i>Coke</i>	10.5 Milk	8.0 <i>7-Up</i>	5.5 orange squash	5.1 Orange juice
Drink when Thirsty (n=276)	31.5 Water	15.9 <i>Coke</i>	8.3 Milk	6.9 <i>7-Up</i>	4.7 Sprite	4.3 orange squash

M = Maltese traditional
I = Italian
W = Western

TABLE 2
Consumption Of Red And White Meats In A Selection Of Consumption Settings

Consumption Setting	Red Meats				White Meats						
	Meat	Burgers	Sausages	Red Meat Total	Rabbit	Chicken	Chicken Nuggets	Chicken Total	Fish	Fish Fingers	Fish Total
	%	%	%	%	%	%	%	%	%	%	%
After School (n=342)	4.2	1.8	1.8	7.8	0.9	1.5	0.6	2.1	3.3	0.6	3.9
Weekday Supper (n=403)	9.6	3.5	3.1	16.2	2.7	4.3	0.7	5.0	6.3	0.7	7.0
Saturday Lunch (n=332)	9.9	1.8	2.4	14.1	3.0	4.8	0.3	5.1	5.7	1.2	6.9
Sunday Lunch (n=315)	13.6	2.6	1.2	17.4	4.0	7.6	0.0	7.6	3.7	0.9	4.6
Eating Out (n=293)	4.1	12.1	1.2	17.4	1.6	3.7	1.7	5.4	2.2	0.6	2.8
Valletta Outing (n=267)	0.8	8.6	1.5	10.9	0.0	0.7	2.6	3.3	0.0	1.8	1.8

TABLE 3
Consumption Of Different Pastas And Rice In A Selection Of Consumption Settings

Consumption Setting	Spaghetti	Ravioli	Tortellini	Macaroni	Lasagna	Other Pasta	Total Pasta	Rice
	%	%	%	%	%	%	%	%
After School (n=342)	2.4	0.6	1.5	0.6	0.6	8.6	14.3	2.1
Weekday Supper (n=403)	2.8	2.1	1.6	0.7	0.5	8.6	16.3	3.2
Saturday Lunch (n=332)	4.0	0.3	1.8	1.2	0.9	6.9	15.1	1.5
Sunday Lunch (n=315)	2.8	2.6	1.5	3.5	1.9	5.6	17.9	3.1
Eating Out (n=293)	3.4	0.3	2.6	0.3	0.0	4.7	11.3	0.9
Valletta Outing (n=267)	0.0	0.0	0.4	0.0	0.0	1.9	2.3	0.0

Saturday Lunch when parents would either be returning from work or busy catching up with chores. On the other hand, it seemed that the tradition of serving *mqarrun* (baked macaroni) on Sunday was still being maintained.

Referring back to Table 1, results for After School show that the children consumed a wide variety of food and drink items in this setting. Specific pasta dishes and breads with different fillings emerged in the top six; yet drinking just a beverage (e.g. milk, tea, chocolate milk/milkshake) was also common, with water emerging in first place (2.9%). Table 3 shows that the spaghetti category and rice category were more or less equally consumed in this setting. However, as a specific dish, pasta with tomato and garlic sauce was the most commonly consumed (see Table 1). These results seem to indicate that the After School setting translated as another mealtime for some children, whilst for others it was merely an opportunity to have a drink, or perhaps consume a light snack or sweet treat, such as bread and butter, tea with biscuits and chocolate.

When Eating Out, pizza (unspecified) emerged as the top-consumed food (5.5%), although hamburger meal combinations were also frequent. (See Table 1) The latter were also commonly consumed during Valletta Outings although, in this case, *pastizzi* (unspecified) were the foodstuff mentioned most (4.6%). Table 4 gives more details on these patterns showing aggregated percentages for the consumption of international fast food chain meals, pizza and *pastizzi*. The pizza category was clearly the most commonly consumed when Eating Out (pizza=27.7%; fast food=3.9%; *pastizzi*=1%), but it only obtained third place (8.0%) after *pastizzi* (12.4%) and fast food (9.5%) for Valletta Outing. At the time of the study, Pizza Houses had been around for much longer than the more international fast food chains and this could have accounted for the high frequency of pizza consumption. Adults may also have considered pizzas to be more of a 'meal' than hamburger and chips: in the sense that they generally took longer to consume and perhaps offered more value for money. Valletta, the capital city, was not a place where families would go to for a Saturday evening outing and indeed many of the Pizza houses were not found there. Generally, children would go to Valletta on a Friday evening or Saturday morning, so the snack-type hamburger meal, or the *pastizzi* which were available in all cafes, were an easier and more readily available choice for families.

School Packed Lunch was the only setting where nearly all the children included a drink with the foods mentioned. Indeed, many of the top six school packed lunches had multiple 'courses', including in addition to bread, one or more of some kind of sweets, confectioneries, packet snacks and a drink. Fruit was not frequently mentioned as part of these packed lunches, although fruit juice was a common component.

The most common bread items in the top six were variations of ham sandwiches or rolls and *hobz biz-zeit*. Plain ham and butter sandwiches/rolls were ranked first (5.3%), yet *hobz biz-zeit* with different accompaniments was also very common. Table 5 shows the aggregated frequency percentages for different categories of bread with various spreads or fillings as consumed for School Packed Lunch (as well as other settings). Interestingly, as a category, *hobz biz-zeit* turned out to be the most frequently consumed type of sandwich (21.6%), followed by ham (17.8%), butter or margarine only (9.3%) and cheese (8.8%). Most of these results were more or less predictable, although perhaps the number of children who still consumed *hobz biz-zeit* at school was somewhat surprising. This bread is rather messy to transport and eat and more time-consuming to prepare than, for example, a plain cheese or ham sandwich. Perhaps an affinity for the taste on the part of the children, and the role of technology in the form of grease-proof packaging and portable moistened napkins, outweigh any negative factors. Moreover, many parents probably consider *hobz biz-zeit* a nutritious

TABLE 4
Consumption Of Fast Food, Pizza & *Pastizzi* In A Selection Of Consumption Settings

Consumption Setting	Burger Meals	Fast Chicken Meals	Food Fish Meals	Fast-Food Total	Pizza	<i>Pastizzi</i>
	%	%	%	%	%	%
After School (n=342)	0.0	0.0	0.0	0.0	4.8	0.3
Tea-Time Or Hungry (n=277)	0.0	0.0	0.0	0.0	1.6	0.0
Weekday Supper (n=403)	0.2	0.2	0.0	0.4	8.5	1.2
Saturday Lunch (n=332)	2.7	0.6	0.0	3.3	8.1	2.1
Sunday Lunch (n=315)	0.9	0.6	0.0	1.5	6.7	0.9
School Packed Lunch (n=246)	0.0	0.0	0.0	0.0	0.4	0.0
Eating Out (n=293)	3.0	0.6	0.3	3.9	27.7	1.0
Sunday Drive (n=268)	0.8	0.8	0.0	1.6	2.7	5.6
Valletta Outing (n=267)	8.0	1.5	0.0	9.5	8.0	12.4
Seaside Outing (n=335)	0.0	0.0	0.0	0.0	1.8	0.6

TABLE 5
Consumption Of Bread With Different Spreads Or Fillings In A Selection Of Consumption Settings

Consumption Setting	<i>Hobz Biz-Zejt</i>	Butter/ Margarine Only	Ham	Other Processed Meats	Cold Cuts/ Meats	Cheese	Egg	Tuna Seafood	Savoury Spread/ Filling	Sweet Spread/ Filling	Unspecified Spread/ Filling
	%	%	%	%	%	%	%	%	%	%	%
After School (n=342)	3.3	4.1	2.1	0.3	0.0	1.8	0.0	0.3	0.6	0.6	0.6
Tea-Time Or When Hungry (n=277)	1.5	1.9	0.4	0.4	1.5	1.6	0.0	0.0	1.2	1.1	0.0
School Lunch (n=246)	21.6	9.3	17.8	3.6	2.0	8.8	0.8	0.4	7.6	5.3	5.7
Sunday Drive (n=268)	4.5	2.6	1.5	0.4	1.9	2.3	0.4	0.0	2.7	0.8	3.8
Seaside Outing (n=335)	9.9	3.0	3.0	0.6	0.3	1.2	0.0	1.2	3.9	0.6	5.7

sandwich as, apart from the requisite bread, olive oil and tomato or tomato puree, it often also contains one or more of olives, capers, butter beans, onions, pickled carrots and marrow and tuna fish.

Within the snack-type meal settings (Tea-time or When Hungry, Sunday Drive, Seaside Outing, Party), breads with different fillings or spreads, *pastizzi*, packet snacks, fruit (unspecified), banana and different beverages made up most of the top six foods. At Tea-time or When Hungry, tea and biscuits with tea predominated (7.1% and 5.1% respectively), as did ice-cream for the Seaside Outing (20.3%) and cake and cream or jam cakes for the Party setting (14.9% and 7.8%, respectively). Table 15 confirms the *pastizzi* category as one of the most commonly consumed Sunday Drive snacks (5.6%) although, overall, packet snacks emerged in first place (6.0%). Table 5 affirms that, in keeping with tradition, as a category *hobz biz-zeit* emerged as *the* Seaside sandwich (9.9%), also being the most popular sandwich for Sunday Drives (4.5%). In general, these results did not reveal any very surprising trends. The only exceptions of course being the frequency of consumption of *pastizzi* and *hobz biz-zeit*, two traditional Maltese snack food which still seemed to be very popular even with the younger generation.

A final look at Table 1 shows that within the three different drink consumption settings, *Coke* and water emerged as the top two in each setting. Soft drinks predominated as the drink to have with meals, whereas drinks consumed with a Snack or When Thirsty were varied. In the latter two settings, milk was the third most consumed drink. Orange squash was amongst the top six drinks for all three settings, and the most commonly consumed soft drinks apart from *Coke* were *7-Up*, *Sprite* and *Kinnie* (Maltese orange bitter drink). Orange juice only made the 6th placing as a drink with Snacks.

The frequency of consumption of *Coke* was quite overwhelming, although the popularity of water helped to balance any negative reaction from a nutritive point of view. At this young age it seems that milk is still an acceptable thirst-quencher, though not as a drink with meals as commonly practised in some Western countries. Orange squash is a cheap beverage which the children seem to enjoy in any drink setting. During the survey sessions, some children commented that this was a drink they could prepare themselves, on their own, indicative perhaps of their growing need for independence. Orange squash is also available with added Vitamin C which could explain why parents often offer it to their children.

The major instances where the children wrote *Nothing* in the consumption setting were After School, School Packed Lunch, Sunday Drive and Valletta Outing. In the latter case *Nothing* was ranked first, but perhaps this result was invalid due to the fact that children from Gozo often explained that they would eat something either before going to Malta (Valletta), or in transit on the ferry or bus. In the other instances, the aggregated percentages in Tables 2-5 perhaps reflected a more realistic picture where *Nothing* would not predominate as strongly. Nonetheless, two possible reasons behind the children's responses could also be either that the children had consumed a fairly large meal or snack just a little earlier (e.g. in relation to After School and Sunday Drive), or that they would be consuming some food and/or drink in a short while on returning home (e.g. in relation to Sunday Drive, Valletta Outing). A few children wrote *Nothing* as their response for School Packed Lunch. This was somewhat worrying since it could have been indicative of parental neglect or low family income.

1.3 Culture-Cuisine Orientation Of The Top Six Foods And/Or Drinks Consumed In The Different Settings

If one had to study the results in Table 1 from a culture-cuisine perspective some interesting patterns are evident. These patterns have been represented in a simplified manner in Table 6 where categorisation of foods and drinks was based on the following criteria: *Traditional Maltese* foods/drinks were those which would normally be found listed in Maltese recipe books or known to be a local product; *Westernised* foods/drinks were those which would be considered a legacy of the British colonisation and/or dishes depicted on British, American and Australian television programmes; *Italian* foods/drinks were those which one would normally associate with Italian cuisine and/or which were frequently portrayed on the various Italian television stations received locally. With some food and drink items the culture-cuisine orientation was not exclusive to any of these three categories having more or less an international quality (e.g. fruit, cake, ice-cream, sweets).

TABLE 6
Culture-Cuisine Orientations Of The Groups Of Top Six Foods And/Or Drinks Consumed In The Different Settings

Consumption Setting	Traditional Maltese	Italian	Westernised
Breakfast			XX ^a
After School		X ^b	X
Tea-time or When Hungry			XX
Weekday Supper	X	X	
Saturday Lunch		X	X
Sunday Lunch	X	X	
School Packed Lunch	X		X
Eating Out		X	X
Sunday Drive	X		X
Valletta Outing	X		X
Seaside Outing	X		X
Party	X	X	X
Drink with Meal			XX
Drink with Snack			XX
Drink when Thirsty			XX

a XX = Very strong orientation

b X = Strong orientation

Top foods and drinks consumed in the Breakfast and Tea-time or When Hungry settings were generally Westernised. For the meal setting After School top foods consumed were mainly Italian and Westernised, whereas for Weekday Supper and Sunday Lunch they were mainly Italian and Maltese. Saturday Lunch and Party responses portrayed a variety of foods representing Traditional Maltese, Italian and Westernised dishes.

The Italian and Westernised dishes predominated for Eating Out, due particularly to the different pizzas and burger-type meals. Food/drinks consumed during Valletta Outings was also dominated by the Westernised burger-type meals, although overall, the Maltese *pastizzi* were the most commonly consumed food in this setting. Seaside Outing and Sunday Drive foods and drinks depicted mainly Maltese and Westernised orientations, though there was a slightly greater Maltese component for the Sunday Drive. School Packed Lunches were split between Maltese and Westernised, with the Italian orientation being represented primarily by *Nutella*-spread sandwiches.

In general, the drink settings were dominated by Westernised items, mainly soft drinks. The Maltese soft drink *Kinnie* appeared only once in the top six, emerging fifth as a drink with meals.

These results seemed to indicate that Maltese traditional foods and drinks were frequently consumed in a number of consumption settings, though not the home-based snack-type or light meals where Italian and Westernised foods were more common. Westernised foods did not feature strongly in other home-based meals, such as Weekday Supper and Sunday Lunch, in contrast to their omnipresence in the out-of-home meals and drink settings. In fact, Maltese traditional foods appeared to have more of a 'treat' value being mainly consumed for Sunday Lunch and during Valletta, Sunday Drive and Seaside outings.

1.3 Top Food Groups And Group-Specific Foods/Drinks Consumed In Different Settings

To further confirm which foods and/or drinks predominated in the different settings, Table 7 was created to show the top food groups (% frequency < 6%) within each food consumption setting and the top specific foods/drinks within these groups (% frequency <1%). In this particular exercise the four meat groups Meat, Chicken and Other Poultry, Rabbit and Fish were pooled together as one group. Thus, Table 7 provides a more comprehensive picture for each setting, specifying percentage contribution from the different food groups and the different foods and drinks most commonly consumed within each of these food groups.

For Breakfast the two food groups Cereals and Breads made up more than half of the food consumed (34.5% and 23.2% respectively). As indicated earlier, the top three cereals were *Cornflakes*, *Coco Pops* and *Frosties*. The top two bread items were bread and butter and toast with butter. Results seemed to suggest that for many of the children breakfast was a one course meal, though bread roll with butter and various beverages did emerge in third place for the Bread group.

In the After School meal setting the Pasta, Breads and Meat/Poultry/Rabbit/Fish groups contributed more or less equally (16.0%, 15.7%, 15.4% respectively). However, for Weekday Supper, Saturday Lunch and Sunday Lunch the Meat/Poultry/Rabbit/Fish group far outweighed the other two (% difference < 15%). It seemed that After School was not associated with any particular food group, whereas the other three settings were very biased towards the inclusion of some type of meat. The top three meat dishes in each of these settings were not specified, with the exception of Saturday and Sunday Lunch where meat and chips and *patata l-forn* emerged in third place in both settings respectively.

The Meat/Poultry/Rabbit/Fish group also dominated for Eating Out and Valletta Outing (35.5% and 26.0% respectively). In this case, hamburger-type meals made the top three placings in each setting. For the Valletta Outing some children even identified the specific fast food chain (e.g. *Burger King*, *McDonalds*). Chicken nuggets also emerged in third place for Valletta Outing. These results seemed to confirm earlier perceptions by the researcher that for some children an outing to Valletta was automatically associated with a visit to one of the fast foods chains.

TABLE 7a
Top Food Groups And Top Within-Group Foods And/Or Drinks Consumed In Different Settings

Consumption Setting	Food Groups	Rank ^A	% ^B	Group-Specific Rank Of Foods And/Or Drinks Consumed In Different Settings ^C		
				1 ST	2 ND	3 RD
Breakfast (n=324)	Cereals	1	34.5	Cornflakes with milk	Coco Pops with milk	Frosties with milk
	Beverages	2	28.4	tea with milk	Milk	Ovaltine with milk bread roll with butter & coffee/tea/milk/ orange juice/peach juice/water
	Breads	3	23.2	toast with butter	Bread and butter	
After School (n=342)	Pasta	1	16.0	pasta with tomato and garlic sauce	pasta with a sauce	Tortellini ham and butter sandwich/roll
	Breads	2	15.7	bread and butter	Bread with tomato puree, olives, oil	
	Meat/Poultry/Rabbit/Fish	3	15.4	Meat	Fish	chocolate milk or milkshake OR tea <i>minestra</i> (vegetable soup) OR broth & 7- <i>Up</i> /softdrink/orange squash/tea/water
	Beverages	4	12.3	Water	Milk	
	Soups	5	9.3	Broth	noodles in <i>Bovril</i>	
	Sweet Pastries/Cakes/Biscuits	6	7.0	biscuits and tea/coffee		
	Cereals	7	6.1	Cornflakes with milk		
	Beverages	1	31.1	tea with milk	Milk	coffee with milk
	Fruit	2	15.6	Fruit	banana	Apple
	Sweet Pastries/Cakes/Biscuits	3	13.7	biscuits and tea/coffee	biscuits	chocolate biscuits
	Breads	4	13.0	toast with butter	Bread and butter OR <i>Nutella</i> sandwich	

TABLE 7b
Top Food Groups And Top Within-Group Foods And/Or Drinks Consumed In Different Settings (continued)

Consumption Setting	Food Groups	Rank ^A	% ^B	Group-Specific Rank Of Foods And/Or Drinks Consumed In Different Settings ^C		
				1 ST	2 ND	3 RD
Weekday Supper (n=403)	Meat/Poultry/Rabbit/Fish	1	35.7	Fish pasta with tomato and garlic sauce	Rabbit	Meat spaghetti with tomato puree sauce
	Pasta	2	20.6		pasta with a sauce	
	Soups	3	10.7	<i>minestra</i> (vegetable soup)	Soup	Broth
	Breads	4	9.2	ham and butter sandwich/roll	Bread and butter	hot dog in bun
	Pizza	5	9.0	Pizza	Pizza with tomato sauce, mozzarella , olives	
Saturday Lunch (n=332)	Meat/Poultry/Rabbit/Fish	1	35.5	Chicken	meat OR fish	meat and chips
	Pasta	2	15.7	spaghetti with tomato puree sauce	pasta with a sauce	pasta with tomato and garlic sauce
	Bread	3	10.8	bread with tomato puree, olives, oil	Bread and butter	
	Pizza	4	8.1	Pizza	Pizza with tomato sauce, mozzarella, olives	
	Soups	5	7.2	Broth	Soup	
Sunday Lunch (n=315)	Meat/Poultry/Rabbit/Fish	1	40.9	Chicken	Rabbit	Meat OR <i>patata l-forn</i> (baked meat & potatoes)
	Pasta	2	21.3	<i>mqarrun</i> (baked macaroni)	pasta with a sauce	pasta with tomato and garlic sauce
	Soups	3	9.2	Broth	chicken broth	
	Pizza	4	6.7	pizza OR pizza with olives and capers	Pizza Margerita OR pizza with tuna and cheese	

TABLE 7c
Top Food Groups And Top Within-Group Foods And/Or Drinks Consumed In Different Settings (continued)

Consumption Setting	Food Groups	Rank ^A	% ^B	Group-Specific Rank Of Foods And/Or Drinks Consumed In Different Settings ^C		
				1 ST	2 ND	3 RD
School Packed Lunch (n=246)	Breads	1	83.7	ham and butter sandwich/roll	Bread and butter OR bread with tomato puree, tuna, oil OR bread & cakes/biscuits/chocolates/ sweets/packet snacks/crisps & milk/juice/orange squash/water OR bread with tomato puree, olives, oil & 7-Up/Coke/Kia-Ora/Kinnie/water/ orange squash OR sandwiches with <i>Nutella</i> & fruit/Bauli/ sweets & orange squash/ <i>Ribena</i> /water	bread with tomato puree, olives, oil OR bread with tomato puree, tuna, oil & chocolate/sweets/packet snacks/ sponge & juice/peach juice/lemon or orange squash/water OR ham sandwich or roll & 7-Up/Coke/ Sprite/Kinnie/orange juice/peach juice/ freshly-squeezed orange/orange squash/milk/water
	Sweets	2	6.1			
Eating Out (n=293)	Meat/Poultry/Rabbit/Fish	1	35.5	hamburger with chips & 7-Up/Coke/ <i>Fanta</i> /milkshake	hamburger and chips	hamburger in a bun
	Pizza	2	30.0	Pizza	Pizza & Coke/Pepsi/Sprite/Kinnie/ orange juice/milk/iced tea/water	pizza with tomato sauce, mozzarella, olives
	Vegetables/Potatoes/Salad	3	12.0	Chips	Salad	chips with ketchup
	Pasta	4	8.5	Pasta with a sauce OR pasta or tortellini with tomato and garlic sauce & 7-Up/Coke/ Kinnie/ <i>Fanta</i> / <i>Ribena</i> /water		

TABLE 7d
Top Food Groups And Top Within-Group Foods And/Or Drinks Consumed In Different Settings (continued)

Consumption Setting	Food Groups	Rank ^A	% ^B	Group-Specific Rank Of Foods And/Or Drinks Consumed In Different Settings ^C		
				1 ST	2 ND	3 RD
Sunday Drive (n=268)	Breads	1	20.9	sandwiches or rolls	Bread with tomato puree, olives, oil	bread with tomato or butter OR cheese sandwich or roll
	Beverages	2	16.0	<i>Coke</i>	Water	tea with milk
	Sweets	3	14.2	packet snacks	sweets	Chocolate
	Savoury Snacks and Pastries	4	9.3	<i>pastizzi</i> (ricotta cheese/peacakes)	ricotta <i>pastizzi</i> (ricotta cheesecakes)	Pie
	Meat/Poultry/Rabbit/Fish	5	8.7	hamburger in a bun		
	Fruit	6	6.7	Fruit	Apple/banana/orange	
Valletta Outing (n=267)	Meat/Poultry/Rabbit/Fish	1	26.0	hamburger in bun	hamburger and chips OR hamburger with chips & 7-Up/ <i>Coke</i> / <i>Fanta</i> /milkshake	chicken nuggets and chips OR chicken nuggets, sauce and chips OR Burger King OR McDonalds OR McDonalds Burger and Chips
	Savoury Snacks and Pastries	2	15.0	<i>pastizzi</i> (ricotta cheese/peacakes)	ricotta <i>pastizzi</i> (ricotta cheesecakes) OR pea <i>pastizzi</i> (peacakes)	<i>pastizzi</i> (ricotta cheesecakes) & 7-Up/ juice/Safari juice/orange squash
	Sweets	3	12.0	Sweets	packet snacks OR packetsnacks, popcorn or mini-cereal OR packet snacks & 7-Up/ <i>Coke</i> /juice/milk/tea/water	chewing gum OR chocolate OR crisps chocolate or sweets & <i>Coke</i> /juice/ orange squash/water
	Beverages	4	11.6	<i>Coke</i>	7-Up OR juice OR water	
	Pizza	5	7.8	Pizza	Pizza with tomato sauce,mozzarella,olives	pizza & <i>Coke</i> /Pepsi/Sprite/ <i>Kinnie</i> /iced tea/orange juice/milk/water
	Breads	6	7.1	sandwiches or rolls		

TABLE 7e
Top Food Groups And Top Within-Group Foods And/Or Drinks Consumed In Different Settings (continued)

Consumption Setting	Food Groups	Rank ^A	% ^B	Group-Specific Rank Of Foods And/Or Drinks Consumed In Different Settings ^C		
				1 ST	2 ND	3 RD
Seaside Outing (n=335)	Breads	1	29.6	sandwiches or rolls	Bread with tomato puree, olives, oil	bread with tomato puree, tuna, oil
	Dairy Desserts/ Ice-cream	2	25.3	ice-cream	ice-cream & 7- <i>Up/Coke/softdrink/juice/</i> milk/water	chocolate ice-cream
	Beverages	3	11.3	<i>Coke</i>	Water	
	Sweets	4	8.1	packet snacks	Crisps	Sweets
	Fruit	5	6.9	Fruit	Water melon	
Party (n=397)	Sweet Pastries/Cakes/Biscuits	1	28.0	Cake	Cream and jam cakes	cream cakes
	Sweets	2	16.4	Sweets	lollipops	packet snacks
	Beverages	3	16.0	<i>Coke</i>	orange squash	<i>Fanta</i>
	Savoury Snacks and Pastries	4	10.3	<i>pastizzi</i> (ricotta cheese/peacakes)	sausage roll	ricotta <i>pastizzi</i> (ricotta cheesecakes)
	Pizza	5	8.5	Pizza	Pizza with tomato sauce, mozzarella, olives	
	Breads	6	6.8	sandwiches or rolls	ham and butter sandwich/roll	

TABLE 7f
Top Food Groups And Top Within-Group Foods And/Or Drinks Consumed In Different Settings (continued)

Consumption Setting	Food Groups	Rank ^A	% ^B	Group-Specific Rank Of Drinks Consumed In Different Settings ^C		
				1 ST	2 ND	3 RD
Drink With Meal (n=333)	Soft drinks	1	57.3	<i>Coke</i>	<i>7-Up</i>	<i>Kinnie</i>
	Water	2	15.0	Water		
	Squashes	3	9.6			
	Juices	4	6.3	Juice	orange juice	
Drink With Snack (n=275)	Soft drinks	1	37.2	<i>Coke</i>	<i>7-Up</i>	Sprite
	Water	2	25.5	Water		
	Milk and milk drinks	3	12.3	Milk		
	Juices	4	11.4	orange juice	Peach juice	
	Squashes	5	8.1	orange squash	<i>Ribena</i>	
Drink When Thirsty (n=276)	Soft drinks	1	38.7	<i>Coke</i>	<i>7-Up</i>	Sprite
	Water	2	31.5	Water		
	Milk and milk drinks	3	11.0	Milk		
	Juices	4	7.7	orange juice	Juice	peach juice
	Squashes	5	6.5	orange squash		

A = Limited to groups with a % frequency within the food/drink consumption setting < 6%

B= % frequency as a food group within the food/drink consumption setting

C= Limited to foods, drinks and food and drink combinations with a % frequency< 1% within the food/drink consumption setting

As a food group, Pizza appeared in several of the food consumption settings representing between 6.7% to 9.0% of responses for Weekday Supper, Saturday Lunch, Sunday Lunch, Valletta Outing and Party and shooting up to 30.0% for Eating Out. Once again these results confirmed that this food was *the* food for a family (probably evening) outing. As a specific dish, the type mentioned most often in the top three across these consumption settings was pizza with tomato sauce, mozzarella and olives. Pizza Margerita (tomato sauce and mozzarella without olives) obtained second place for Sunday Lunch, which perhaps indicated that quite a few children went out for lunch on Sundays.

Soups as a food group were commonly consumed in the home-based meal settings accounting for between 7.2% and 10.7% of responses for After School, Weekday Supper, Saturday Lunch and Sunday Lunch. The specific soups mentioned most in the top three for these settings included broth (unspecified), chicken broth, *minestra* (vegetable soup) and noodles in *Bovril*. Broth is a staple in many Maltese households, considered to have high nutritive value. It is sometimes served alone as part of a light meal, or as the first course in a more elaborate meal. *Minestra* is a more hearty soup and it could be that some parents saw this dish as a way of ensuring that their children consumed a certain amount of vegetables regularly.

Fruit emerged as the top food group consumed for Tea-time or When Hungry, accounting for 15.6% of consumption. It ranked 5th and 6th for Seaside Outing and Sunday Drive (6.9% and 6.7% respectively). The most commonly consumed fruits were banana, apple and orange, with water melon standing out as the seaside fruit. This trend for having a fruit as a snack was perhaps unexpected. In fact, the Sweet Pastries/Cakes/Biscuits group ranked second as contributor to the Tea-time or When Hungry setting with varieties of biscuits being mentioned as the top three foods. These results seemed to suggest that the affinity for sweet-tasting foods and convenience were amongst the strongest influencing factors in these three settings, as fruit and biscuits have both these qualities. It was perhaps not surprising, however, that watermelon was commonly mentioned in the Seaside setting when one considers its high water content, sweet flavour, fun manner of eating and attractive pink colouring.

The Sweet group represented between 8.1% and 16.4% of food consumed during Sunday Drives, Valletta Outings, Seaside Outings and Parties, with major contributors being packet snacks, crisps, sweets, lollipops and chocolate. Packet snacks emerged in first place for Sunday Drive and Seaside Outing, sweets for Valletta Outing and Parties. Lollipops seemed to be a frequently consumed food at Parties. None of these results were really surprising. One possible reason for lollipops being commonly mentioned as a party food could once again be one of convenience as these sweets are prone to melt or become very sticky when consumed outside or carried around in hot weather.

Overall, it emerged that certain foods and drinks were pervasive in Maltese children's diets, emerging amongst the top six in several of the consumption settings. These included pasta of some kind (listed in 5 out of 12 potential settings), pizza (listed in 6 out of 12 settings) and *hobz biz-zejt* (listed in 5 out of 12 settings). Plain cheese and tomato pizza, Pizza Margherita and pasta with tomato and garlic sauce, were the most commonly consumed specific pizzas and pasta dish. Such results were somewhat predictable and served to highlight that certain food consumption patterns amongst Maltese children could be seen as fairly international. In research conducted with American Indian school children (Gittelsohn et al, 2000), pizza, hamburgers, apples, milk and oranges were the top five foods in a freelisting exercise by nine- to eleven-year-olds. The top twenty most frequently mentioned foods also included spaghetti, chicken, ice-cream, banana and soft drinks. These items were also commonly

listed by Maltese children. In contrast, while in the U.S. research very few children listed traditional American-Indian foods, in Malta a number of traditional items, such as *hobz biz-zejt*, *pastizzi* and *Kinnie* were often identified. In another US study, a 40-item Food Frequency checklist was developed based on children's responses in a survey. (Smith et al, 2001) Comparing this list to the commonly consumed foods by Maltese children one finds a number of similarities, such as beef (e.g. steaks, roasts), hamburgers, hot dogs, fried chicken, chicken nuggets, chicken burgers, spaghetti or other pasta with meat and tomato sauce, lasagna, pizza, chips and milk (white or chocolate).

1.4 Top Three Favourite Foods Consumed In Different Settings

The children were also asked to select their favourite food and/or drink from the ones they had listed for each setting. Percentage frequencies were then computed for these favourites as seen in Table 8.

When one compares the results for the top favourite to the top consumed foods/drinks the first ranked is identical for each setting with two exceptions: School Packed Lunch and Valletta Outing. In the former, the topmost favourite lunch was sandwiches with *Nutella* (chocolate spread) plus fruits, mini-cakes or sweets and *Ribena*, orange squash or water. The top consumed school packed lunch was more frugal: ham and butter sandwich or roll. In fact, the top three favourite packed lunches were all hearty meals consisting of bread, sweets and confectioneries and a drink. For Valletta Outing the top favourite food was *pastizzi*, whereas with regard to consumption, *Nothing* emerged in first place.

Some other noteworthy observations concerning top favourite and top consumed foods include the fact that whilst rabbit emerged as sixth most consumed food for Weekday Supper, it emerged second as favourite food for this setting. Similarly, for Sunday Lunch, the traditional Maltese dishes baked rice, *patata l-forn* and rabbit achieved higher placings as favourites than their placing as actually consumed dishes. Likewise for Sunday Drive, *pastizzi* and *hobz biz-zejt* emerged higher as favourites than as actually consumed. And within the Party setting, pizza emerged much higher in the placings as favourite food than its ranking as consumed food, even surpassing cream and jam cakes, sweets and *Coke*.

Another observation is that, based on their favourites, children would have preferred school packed lunches be more substantial - a three course meal one could say - and to include a sweets-type component. Regarding the former, one possibility could have been that the children were not consuming enough food for breakfast and therefore getting very hungry by mid-morning. Regarding the latter, perhaps this was linked to the fact that more schools were establishing rules as to what children were allowed to bring in their packed lunches, with sweets, chocolates and soft drinks often being forbidden.

In synthesis, these results were indicative of certain trends in children's preferences with regard to foods consumed in different settings. It seemed that there was a fondness for traditional Maltese foods which could have been the result of their not being offered that frequently to some of the children, thus raising them to the status of 'treat foods'. The reason could also have been due to something much more basic, such as that the children liked their taste or, for some savoury foods, the manner in which they are eaten (e.g. using ones hands to pick the meat off the rabbit bones). The latter two reasons could also explain why children chose pizza as their second most favourite food for parties, preferring it over sweet foods.

TABLE 8a
Top Three Favourite Foods/Drinks From Those Most Frequently Consumed
Compared To Top Consumed Food

Rank Order Consumption Setting	Top Three Favourite Foods And/Or Drinks			Top Consumed Food And/Or Drink %
	1 st %	2 nd %	3 rd %	
Breakfast (n=159)	12.6 Cornflakes with milk	5.7 Coco Pops with milk	5.0 tea with milk	9.3 (n=324) Cornflakes with milk
After School (n=157)	3.2 Water	2.5 Cornflakes with milk OR pasta with tomato and garlic sauce OR tortellini with white sauce OR biscuits & tea/coffee	1.9 pasta with a sauce OR broth OR Soup OR banana OR toast & tea/coffee/honey/milk	2.9 (n=342) Water
Tea-Time When Hungry (n=148)	7.4 tea with milk	6.1 biscuits & tea/coffee	4.7 fruit	7.9 (n=277) tea with milk
Weekday Supper (n=161)	5.6 Pizza	5.0 Rabbit	4.3 pasta with meat sauce	4.2 (n=403) pizza

TABLE 8b
Top Three Favourite Foods/Drinks From Those Most Frequently Consumed
Compared To Top Consumed Food (continued)

Rank Order Consumption Setting	Top Three Favourite Foods And/Or Drinks			Top Consumed Food And/Or Drink %
	1 st %	2 nd %	3 rd %	
Saturday Lunch (n=159)	3.1 chicken	2.5 Pizza OR pasta with a sauce OR meat and chips	1.9 bread with tomato puree, olives and oil OR <i>pastizzi</i> (ricotta cheese/peacakes) OR hamburger and chips OR Meat OR sausages, chips and egg OR Rabbit OR Fish OR octopus stew OR McDonalds Big Mac	3.0 (n=332) chicken
Sunday Lunch (n=152)	3.9 chicken	3.3 <i>mqarrun</i> (baked macaroni) OR baked rice OR <i>patata l-forn</i> (baked meat & potatoes) OR Rabbit	2.6 pizza with olives and capers OR pasta with tomato and garlic sauce OR meat and chips OR meat and potatoes	3.8 (n=315) chicken

TABLE 8c
Top Three Favourite Foods/Drinks From Those Most Frequently Consumed
Compared To Top Consumed Food (continued)

Rank Order Consumption Setting	Top Three Favourite Foods And/Or Drinks			Top Consumed Food And/Or Drink %
	1 st %	2 nd %	3 rd %	
School	5.6	5.0	4.3	5.3 (n=246)
Packed Lunch (n=161)	sandwiches with <i>Nutella</i> & fruit/Bauli/sweets & <i>Ribena</i> /water/ Orange squash	bread with tomato puree, Tuna and oil & packet snacks/ sponge/chocolate/sweets & juice/peach juice/ lemon or orange squash/ Water	Bread & biscuits/cakes/sweets/ chocolates/crisps/ packet snacks & juice/milk/water/ orange squash OR ham roll & cake/chocolate/ sweets/ <i>Nutella</i> & <i>Coke</i> /lemonade/ juice/water	ham and butter sandwich/roll
Eating Out (n=150)	7.3 Pizza & <i>Coke</i> /Pepsi/Sprite/ <i>Kinnie</i> /iced tea/water/ orange juice/milk	4.7 Pizza	4.0 pizza Margerita OR pizza with tomato sauce, mozzarella and olives OR hamburger with chips & <i>7-Up</i> / <i>Coke</i> / <i>Fanta</i> / Milkshake	5.5 (n=293) pizza
Sunday Drive (n=126)	5.6 packet snacks	4.8 <i>Pastizzi</i> (ricotta cheese/peacakes)	4.0 bread with tomato puree, olives and oil	6.0 (n=268) packet snacks

TABLE 8d
Top Three Favourite Foods/Drinks From Those Most Frequently Consumed
Compared To Top Consumed Food (continued)

Rank Order Consumption Setting	Top Three Favourite Foods And/Or Drinks			Top Consumed Food And/Or Drink %
	1 st %	2 nd %	3 rd %	
Valletta Outing (n=147)	6.1 <i>pastizzi</i> (ricotta cheese/peacake)	4.1 Hamburger with chips & 7-Up/Coke/Fanta/ Milkshake	3.4 <i>ricotta pastizzi</i> (ricotta cheesecake) OR hamburger with chips OR Sweets OR <i>Nothing</i>	5.6 (n=267) <i>Nothing</i>
Seaside Outing (n=149)	29.5 ice-cream	4.7 sandwiches or rolls	3.4 Coke OR ice-cream & 7-Up/Coke/softdrink/ juice/milk/water	20.3 (n= 335) ice-cream
Party (n=153)	19.6 Cake	9.8 Pizza	7.8 cream and jam cakes	14.9 (n=397) cake
Drink With Meal (n=154)	33.1 Coke	14.3 Water	9.7 7-Up	29.1 (n=333) Coke
Drink With Snack (n=152)	22.4 water	16.4 Coke	13.2 Milk	25.1 (n=275) water
Drink When Thirsty (n=156)	34.6 water	16.7 Coke	8.3 Milk	31.5 (n=276) water

1.5 Insights On Food And Drink Consumption From The Focus Group Interview

The focus group interview confirmed several of the practices emerging from the quantitative survey, provided additional detail for certain responses and suggested new issues requiring further investigation.

For example, chicken was confirmed as a very popular meat being eaten frequently for Sunday lunch. Children preferred eating the chicken legs with “round” (boiled or roasted) potatoes or mashed potatoes. Chicken nuggets were also confirmed as a frequently and enthusiastically consumed food, being described by one boy as “looking like fish fingers”. Though sometimes eaten at home they were more often eaten at either *McDonalds* or *Burger King*. One girl described how her mother prepared chicken to look like chicken nuggets by “dipping chicken legs in flour breadcrumbs and *Paxo*” before baking in the oven. The result was described as “deliciously crunchy!”

Meat was mentioned as a food sometimes eaten for Weekday Supper. It was rarely eaten alone, but generally accompanied by potatoes and either carrots, tomatoes or lettuce. Rabbit, on the other hand, was frequently eaten by these children hailing from a rural village. Consumed either during the week or for Sunday lunch, the children described it as either being prepared in a pot and served with a tomato sauce and potatoes, or being served with a garlic and wine gravy or sometimes baked. One boy also mentioned pigeon as a common item on his family’s weekly menu. But he seemed to be the exception.

In keeping with the survey results, pasta emerged as a very popular food item also with this group of children. Spaghetti with tomato sauce or with minced meat and peas sauce, ravioli alone or with tomato sauce and “*bebbux*” (snail-shaped pasta) filled with ricotta were described by the children as frequently consumed dishes, especially during the week. Tortellini was a particularly popular After School or Weekday Supper dish served with white sauce, in broth, or on their own. Lasagna with white sauce was both a weekday and Sunday dish, however, *ross il-forn* (baked rice) and *mqarrun* (baked macaroni) were mainly consumed on Sundays. In concurrence with a number of survey respondents, two of the focus group children stated that they sometimes ate ravioli with ketchup and grated cheese. *Timpana* (baked macaroni with a pastry crust) was sometimes consumed during Valletta Outings.

A question about content of After School meals produced names of various dishes similar to the survey responses. Apart from pasta dishes, specific responses were egg and baked beans, scrambled egg and baked beans, hot-dog in bun and chips, broth and *minestra* (vegetable soup). *Froga* (Maltese-style omelette) was also mentioned by a few of these children who could also list the main ingredients. Breakfast cereals with milk were further confirmed as a common After School food. Children named the brands sometimes by name or sometimes even according to the design on their packaging: for example, *tax-xadina* [the one with the monkey], *taz-zunzan* [the one with the bee], *tas-serduq* [the one with the cockerel]). One girl commented that she did not always eat something when she went home from school, thus echoing a number of the survey respondents.

Hobz biz-zeit was a common item on the menu of this group of children, being eaten at school, when out in the fields, at the seaside, as a snack and as the Sunday evening meal. One boy even described it as “dessert” after eating a heavy meal, for example on Sunday. These children preferred the bread spread with tomatoes rather than tomato puree: a reason forwarded by one girl being that “tomatoes contain vitamins so they are better”. The most common fillings were described as olives, capers and tuna fish, although the majority of this group preferred it without tuna.

A male child stated that his favourite filling on bread was “crushed peanuts” referring to peanut butter. The rest of the group were not that enthusiastic, perhaps reflecting a facet of neophobia in their reaction. On the other hand, all the children agreed that they enjoyed having bread with *Nutella* as a snack at home. Some even just ate *Nutella* on its own. A popular dairy food was chocolate or vanilla yoghurt, often eaten for Breakfast or After School.

Tea was generally consumed with biscuits which the children described by name: *Morning Coffee* (plain semi-sweet) and cookies. Traditional tea-accompanying sweets such as *Number 8s* and *fingers* were rarely consumed, and then only at their grandparents.

Indeed, half of this group of children ate at their grandparents’ house on Sundays and three of them ate there everyday. When children from the Sunday group were asked whether there were any foods they ate only at their grandparents, one girl responded chicken broth and *ross il-forn* (baked rice). Another girl described how the whole extended family ate at her grandmother’s on Sunday. The grandmother prepared a number of dishes including spaghetti, macaroni and roast capon with potatoes, so that everybody could eat whatever they liked.

Wine was consumed everyday by two of the boys in the group. It was generally taken by itself or mixed with *Kinnie*. The other children said they consumed wine occasionally, but especially when eating at their grandparents’.

Some of the food practices mentioned, or issues implied during the interview which were not that evident from the survey results can be seen in Table 9. Such ‘new’ insights confirmed the literature that focus groups were very useful for obtaining more precise details and for uncovering certain behaviours not disclosed by the quantitative instrument. These insights were noted for further exploration in later stages of the research.

TABLE 9
Specific Insights Emerging From The Focus Group Interview

- Popularity of ricotta-stuffed pasta shells
- Popularity of yoghurts at different times of the day
- The variety of egg dishes consumed including scrambled eggs and *froga* (Maltese-style omelette)
- *Timpana* (baked macaroni with pastry crust) as a Valletta Outing food
- Opportunities for children to drink wine
- The importance for children of attractive food and food presentation
- Parental adoption of food preparation techniques to simulate those of foods eaten outside the home
- The role of grandparents in perpetuating traditional food consumption practices
- The children’s precise knowledge of brand names of specific foods
- The influence of food packaging in helping children distinguish between foods in the same category.

It was unfortunate that the focus group interview had to be curtailed as the children were very forthcoming with details of their food consumption patterns. A number of queries which had emerged after a preliminary study of the survey results were not pursued and there was no time for delving deeper into the reasons for some of their responses. Lessons learnt by myself in my role as researcher were that a limited number of topics should be chosen for the interview in order to allow time for elaboration and tangential exploration if necessary. This would also prevent a sense of disappointment on my part that the objectives had not been reached. In addition, working with a smaller group of children may have been more productive: during the focus group interview management of the group to ensure fair participation and control disruptions proved to be quite challenging. Nonetheless, this brief experience served to prove that using focus groups with Maltese children could work and that they did provide much 'rich description' to complement quantitative data.

1.6 Less Commonly Consumed Foods And Drinks

Table 10 was generated as a follow-up to insights emerging from the focus group interview, as well as to highlight foods and drinks with different culture-cuisine orientations which were not commonly consumed by the children. The choice of these foods and drinks was entirely subjective, based on the criteria that prior to this stage of the research, I had perceived them as fairly common foods and drinks in children's diets, or on the contrary, that they were totally new or surprising to me.

For example, some of the food items mentioned by the focus group interviewees, such as ricotta-stuffed *bebbux* (pasta shells), *timpana* (baked macaroni with pastry crust), tortellini in broth, baked pigeon with potatoes and wine were mentioned by survey respondents but only a few. These items were mainly traditional Maltese foods and the fact that they were mentioned by children from a rural area could have been indicative of regional influence. This is in contrast to the study conducted with African-Indian children where the researchers actually commented on the fact that there was no suggestion of geographic variability in the list of top 20 consumed foods. (Gittelsohn et al, 2000)

Other Maltese traditional food, which were generally available and popular, but were not mentioned as frequently consumed by the surveyed children included: *ftira* (unleavened bread) with tomato puree, tuna and oil; *galletti* (Maltese crackers) and cheese; *bragjoli* (beef olives); *stuffat* (meat, potatoes and pea stew), *mqaret* (date-filled pastries) and *qaghaq* (sweet dough ring). It could be that these foods were no longer being offered to Maltese children, or that the children did not know their name. I therefore decided that later on in the research process qualitative methodology would be used to establish whether in fact such foods were common components of Maltese children's diets.

A number of food items mentioned by the survey respondents and by the interviewees were actually unfamiliar to me, or were perhaps indicative of emerging eating practices. The former primarily included Baked Rice Pie, Cauliflower Pie and Savoury Pumpkin Pie. After some investigation, I discovered that the Baked Rice Pie (a rice and pumpkin mixture enclosed in a pastry case) seemed to be consumed exclusively in Gozo. In fact, none of the Maltese children mentioned this dish. The other two pies were generally familiar to older generations of Maltese people.

TABLE 10a
Culture-Cuisine Orientation And Frequency Counts Per Consumption Setting Of Less Commonly Consumed Items

Food	Culture-Cuisine	Frequency Counts														
		BRK n=324	ASC n=342	T&H N=277	WKS n=403	STL N=332	SUL n=315	SCL n=246	ETO n=293	SUD n=268	VLO N=267	SSO n=335	PRT n=397	DML n=333	DSK n=275	DTH n=276
Bread with sundried tomatoes	Maltese			1												
Sandwich with goat-milk cheeselets	Maltese							1								
<i>Ftira</i> (unleavened bread) with tomato puree, tuna and oil	Maltese							2			1	1				
<i>Mortadella</i> sandwich	Italian							1								
<i>Pepperami</i> sandwich	Italian							1								
Bread with <i>Philadelphia</i> cheese	Western			1												
Marmite sandwich	Western							1								
Jam sandwich	Western		1		2					1		2				
Bread with mayonnaise	Western						1									
<i>Galletti</i> (Maltese crackers) & cheese	Maltese			2						1						
Crackers with pizza/tomato paste	Italian							2		1						
Crackers with butter	Western	1						3								
Pizza Mediterranean	Maltese								1							
Pizza Special/ <i>Veduta</i>	Maltese					1			4	1						
Pizza <i>Capriciosa</i>	Italian				1				2							
Pizza with olives, tuna & anchovies	Italian		1			1								1		
Pizza Hut pizza	Western								2		1					
Pizza Hut Farmhouse pizza ©	Western								1							

TABLE 10b
Culture-Cuisine Orientation And Frequency Counts Per Consumption Setting Of Less Commonly Consumed Items (continued)

Food	Culture-Cuisine	Frequency Counts														
		BRK n=324	ASC n=342	T&H n=277	WKS n=403	STL n=332	SUL n=315	SCL n=246	ETO n=293	SUD n=268	VLO N=267	SSO n=335	PRT n=397	DML n=333	DSK n=275	DTH n=276
Baked rice pie	Maltese		1		1	1			1				1			
Ricotta-stuffed gnocchi (pasta shells)	Maltese					1										
Spaghetti with rabbit stew	Maltese							2								
<i>Timpana</i> (baked macaroni with crust)	Maltese							1					1			
<i>Canneloni</i>	Italian				1											
Pasta <i>Carbonara</i>	Italian		1		2	1			1							
Seafood risotto	Italian								1							
Spaghetti with meatballs	Western					2										
Curried rice	Western							1								
Noodles in gravy	Western					1										
<i>Kusksu</i> (couscous & broadbean soup)	Maltese					3										
Broth with tortellini	Italian							1								
<i>Bovril</i>	Western		1		1											
<i>Balbuljata</i> (tomato, onion, egg hash)	Maltese				1				1							
<i>Bragioli</i> (beef olives)	Maltese							1								
<i>Stuffat</i> (meat, potato & peas stew)	Maltese					1										
Baked pigeon with potatoes	Maltese							1								
Spare ribs with sauce	Western														2	
Chinese food	Western				1			2							2	

TABLE 10c
Culture-Cuisine Orientation And Frequency Counts Per Consumption Setting Of Less Commonly Consumed Items (continued)

Food	Culture-Cuisine	Frequency Counts														
		BRK n=324	ASC n=342	T&H n=277	WKS n=403	STL n=332	SUL n=315	SCL n=246	ETO n=293	SUD n=268	VLO N=267	SSO n=335	PRT n=397	DML n=333	DSK n=275	DTH n=276
<i>Lampuki</i> (fish) pie	Maltese				1	1	1									
Octopus stew	Maltese				1	3			1							
Fish and chips	Western				3	3	1		1							
Almond biscuits	Maltese														1	
<i>Biskuttelli</i> (Maltese tea biscuits)	Maltese							1							1	
<i>Qaghaq tal-Ghasel</i> (honey pastry ring)	Maltese										1					
<i>Mqaret</i> (date-filled pastries)	Maltese										1					
<i>Qaghaq</i> (sweet dough ring)	Maltese			1												
Cheesecake	Western				1	1	1								1	
Doghnuts	Western		1		2						2					
Raisin bread	Western			1												
Coloured icing-covered chickpeas	Maltese											1				
<i>Kinder Sorpresa</i> (chocolate egg + gift)	Italian		1					2			1					
<i>Nutella</i> (chocolate spread)	Italian											1				
Popcorn	Western				1		1			1	2	1	1			
Wine with 7-Up/Sprite	Maltese														4	
black coffee	Italian			1												
<i>Gatorade/Isostar</i> energy drinks	Western														2	2

Some of the seemingly 'emerging' foods and drinks included *Marmite* sandwich, bread with *Philadelphia* cheese, bread with mayonnaise, crackers with pizza/tomato paste, spaghetti with meatballs, spare ribs with sauce, Chinese food, cheesecake, doughnuts, raisin bread, popcorn and *Gatorade* and *Isostar* energy drinks. All of these had a Western culture-cuisine orientation with the exception of the crackers with pizza/tomato paste which had more of an Italian connotation. Bread with *Philadelphia* cheese was a heavily advertised snack on Italian TV stations and this may have had some influence on its popularity.

APPENDIX 3.8

FOOD CONSUMPTION SURVEY

RESEARCH TOOLS

CHILDREN'S AND PARENTS' QUESTIONNAIRES

CHILDREN'S QUESTIONNAIRE

English and Maltese versions

(Reduced to 90% of original)

PARENTS' QUESTIONNAIRE

English and Maltese versions

(Original font Arial point size 11; reduced here to point size 9)

APPENDIX 3.9

CHILDREN'S FOCUS GROUPS

INTERVIEW GUIDE

(Original version: This was amended as the interviews progressed)

FOCUS GROUP INTERVIEWS WITH CHILDREN

Proposed Questions and Tasks 5/6/01

HEALTH VALUE

Show three lunch boxes:

Lunch box A White roll with salami, cereal bar, orange squash

Lunch box B White sandwich with *nutella*, crisps, fruit drink

Lunch box C Wholemeal sandwich with ham, lettuce and tomato, banana, water

- Which one of these lunch boxes is the healthier?
- Why?

HEALTH VALUE/MOTIVATIONAL FACTORS (1)

1. FRUIT

- Which is your favourite fruit?
- Does everyone agree?
- Why? Why not?

- Tell me about your favourite way of having fruit?

- Would you like to have more fruit?
- Why?

- Where would you like to have more fruit?
- Why?

- Are there any fruit you won't eat?
- Why?

HEALTH VALUE/MOTIVATIONAL FACTORS (2)

2. VEGETABLES

- Which is your favourite vegetable?
- Does everyone agree?
- Why? Why not?

- Tell me about your favourite way of eating vegetables?

- Would you like to have more vegetables?
- Why?

- Where would you like to have more vegetables?
- Why?

- Are there any vegetables you won't eat?
- Why?

HEALTH VALUE/AVAILABILITY IN SCHOOLS

MILK vs. OTHER DRINKS

Think back to this morning's/yesterday's lunch break...

- What did you drink with your food?
 - Why did you have this drink?

 - Tell me about your favourite way to drink milk
 - Do you always drink it this way?
 - Why? Why not?

 - Would you drink more milk if you could have it your favourite way?

 - What do you think about having free milk in schools?
- [Additional question for Non-State schools:*
- Would you drink more milk if it was offered to you at school?

 - Where would you normally want to drink milk?
 - Why?

 - Is there any situation when you would never drink milk?
 - When would you only drink non-milk beverages?

 - Tell me how else you sometimes have milk? (e.g. with cereals)

FOOD RESTRICTIONS IN SCHOOLS

Schools with restrictions

- How do you feel about not being allowed to bring sugary foods and packet snacks to school?
- How do you think others feel?
- Why?

Schools with no restrictions

- If you could not bring sugary foods or packet snacks to school, how would you feel about it?
- Could you bear this?

TRADITIONAL FOODS/ MEDIA INFLUENCE (1)

- Imagine you are hungry and you feel like a snack....
- I'm going to show you three photos of different foods and I want you to tell me about which one you would choose to eat.
Show pictures of:
hobz biz-zeit (bread with tomato, olive oil, tuna, butter beans, etc.)
bread with *nutella*
hot dog
- Would you always choose this food?
- Why? Why not?
- Where would you be if you were to choose this food?
- Is there any situation when you would never choose this food?
- Why?
- Have you ever seen this food on TV?

TRADITIONAL FOODS/ MEDIA INFLUENCE (2)

- Again imagine you are hungry and you feel like a snack...
- I'm going to show you a new set of photos of foods and I want you to tell me about which one food you would choose to eat
Show pictures of:
qaghaq/biskutelli (Maltese traditional teatime sweets)
Kinder Delice (sponge)
cookies
- Would you always choose this food?
- Why? Why not?
- Where would you be if you were to choose this food?
- Is there any situation when you would never choose this food?
- Why?
- Have you ever seen this food on TV?

PRESTIGE FOODS/PEER INFLUENCE (1)

Imagine you are at home and you get hungry and you could choose whatever you wanted....

- What would you choose?
- Why?

Now imagine your friend was with you.

- Would you choose the same?
- Why? Why not?

- What if you brought that food to school, what would your friends say?

PRESTIGE FOODS/PEER INFLUENCE (2)

Show 2 lunch boxes:

Lunch Box A Bread roll with sliced cheese, packet snacks, apple, fruit juice

Lunch Box B White sandwich with *Philadelphia* cheese and tomato, little container with fruit salad, popcorn, *Breakers* fruit drink

- Imagine it is the beginning of the school year and you have made a new friend in class. Your teacher has asked you to prepare a lunch box as a gift for your new friend. Which one of these lunch boxes would you like to be your gift for your new friend?
- Why?

- If you were allowed to change one thing in this box to make it better, what would you change?
- Why?

APPENDIX 3.10

**PARENTS' CONSENT FORM
ENGLISH AND MALTESE VERSIONS**

Dear Parent or Guardian,

I have recently interviewed your son/daughter at school as part of my on-going research on Maltese and Gozitan children's eating habits. I would now like to ask some follow-up questions on the same topic and was hoping you would allow me to conduct a brief telephone interview with you later on this month. Ideally I would be able to speak to the person who is the main food provider of your child.

If you agree to being interviewed, could you please fill in and sign the slip below and return it with your child to the school Principal by Friday 22nd June, 2001.

Also please indicate the most convenient day (e.g. Monday, Tuesday etc.) and time (e.g. after 5.00 p.m., mornings only etc.) for you to be interviewed for about 10 minutes.

Please rest assured that all information you provide will remain confidential and that neither you nor your child will be identified in any way in the final research report.

Should you have any questions about this interview, please feel free to contact me on Tel: [REDACTED]

I thank you in advance,

Suzanne Piscopo
University Lecturer

----- ✂ ----- CUT HERE ----- ✂ -----

C O N S E N T F O R M

Yes I agree to participate in a brief telephone interview about children's eating habits.

My child's school is: _____.

The best day/s for calling me is/are: _____.

The best time for calling me is: _____ or _____.

NAME: _____ TEL: _____

SIGNATURE: _____ DATE: _____

**PLEASE RETURN THIS FORM TO THE SCHOOL PRINCIPAL
BEFORE JUNE 22ND. THANK YOU.**

APPENDIX 3.11

**PARENTS' TELEPHONE INTERVIEWS
INTERVIEW GUIDE
ENGLISH AND MALTESE VERSIONS**

PARENTS' INTERVIEW GUIDE

Objectives:

To uncover motivational factors for choice of children's food
To uncover opinions on school food policy and potential compliance
To uncover frequency, influences and compliance with food requests.

Motivational factors

1. Think of 4 foods which you gave your child to eat yesterday.
2. Can you tell me why you chose each one?
3. Are there other things you sometimes consider when choosing what food to give to your children?

School policies

4. How do you feel about schools having rules on what foods children bring to school in their packed lunches?
5. If you were asked to suggest two rules which would they be?
6. Why?
7. How easy would it be for most parents (you?) to comply with any food rules?
8. Is there anything which could help?

Food requests

9. Can you think of any food which you recently bought for your child because they specifically asked you to buy it?
10. Why do you think they made the request?
11. Is there anything else which you think might trigger them to make food requests?

APPENDIX 4

APPENDIX 4.1

**INFORMATION OBTAINED FROM THE
DIFFERENT STAGES OF THE RESEARCH**

Information Obtained From the Different Stages of the Research

VARIABLE	QUANTITATIVE SURVEY	CHILDREN'S FOCUS GROUPS	PARENTS' INTERVIEWS
Children's Food Preferences	Favourite foods Favourite drinks	Features of foods which make them attractive/unattractive: Fruit Vegetables Milk Snacks Preferred time of consumption of different foods Preferred seasonal consumption of different foods	Motivation when choosing food for children
Children's Food Intake	Variety of foods eaten within different meal settings	Time of consumption of different foods	Family staple foods and dishes Time-specific food provision
	Children profiles: Pasta eaters Pizza eaters Vegetables & fruit eaters Meat eaters Milk/fresh milk products consumers Consumers of low nutrient dense foods Traditional food eaters	Food serving style: Breads and cereals Fruits Vegetables Chicken Milk Snacks	Motivation when choosing food for children Strategies for increasing likelihood of intake of healthier foods Strategies for decreasing likelihood of intake of less healthy foods
		Food rituals	
	Maltese vs. Italian vs. Western cuisine orientation Mediterranean vs. Western cuisine orientation		
	Location of consumption of different meals	Location of consumption of different meals Location of consumption of different food	Location-specific food provision
	Seasonal food consumption	Seasonal food consumption	
Children's Food Requests		New foods New methods of food preparation	New foods Brand-specific foods New methods of food preparation

Information Obtained From the Different Stages of the Research (continued)

VARIABLE	QUANTITATIVE SURVEY	CHILDREN'S FOCUS GROUPS	PARENTS' INTERVIEWS
Mother's Influence		Food availability Food promotion/restrictions Source of information	Food promotion/restrictions Food preparation knowledge Versatility in food provision Convenience factors
Father's Influence		Food availability	Mother's perception of father as role model Mothers' consideration of father's preferences in family food provision
Grandparents Influence	Location of consumption of foods	Exposure to foods Food availability Source of information	
Sibling/Cousin Influence		Exposure to foods Source of information	Exposure to foods Imitation
Peer Influence		Choosing special snacks	Link with recent food requests
School Food Policies		Agreement Disagreement Perceived reasons for rules Compliance issues	Agreement Disagreement Recommended rules Suggestions for facilitation of compliance
School Milk		Reasons for consumption Reasons for non-consumption Recommendations	Consumption barriers Recommendations
TV Influence		Exposure to foods Source of information Food images	Link with recent food requests Source of information Food images
Children As Food Preparers		Uncooked foods Cooked foods Experimentation	
Thriftiness In Food Behaviours		Child-implemented Observed	Mothers' motivations when choosing food for children

Information Obtained From the Different Stages of the Research (continued)

VARIABLE	QUANTITATIVE SURVEY	CHILDREN'S FOCUS GROUPS	PARENTS' INTERVIEWS
Children's Perception Of Health		Functions Maintenance Role of food	
Children's perception Of Healthy Food		Healthy foods Unhealthy foods	Healthy foods Unhealthy foods
Children's Knowledge Of Food-Health Link		Beneficial consequences Detrimental consequences	Beneficial consequences Detrimental consequences
Children's Perception Of Non-Nutritional Consequences Of Food Intake		Beneficial consequences Detrimental consequences	
Children's Knowledge Of Food Science & Technology		Macro level Micro level	
Children's Food Associations: Physical Symbolical		Food to food Food to nation Food to groups of people Food to event Food to personal experience	
Children's Perceptions Of 'Special' Packed Lunch		Reasons for choice	

APPENDIX 4.2
FOOD PERCEIVED BY CHILDREN AS HEALTHY

Foods Perceived As Healthy

Food Group	Food	Reasons/Qualification	Accuracy of Reason
Breads and Cereals	Bread (4) ^a	With only a little bit of butter (1) ^b	✓
	Brown bread (10)	Healthier than white bread (2)	✓
		Contains husk (1)	✓
		Not processed (1)	✓
		Does not have a lot of yeast like white bread (1)	✗
	Diet bread (1)	<i>It's good if you want to diet.</i> ^c (1)	✓
	Bread crust (2)	Contains fibre (1)	✗
		Strengthens teeth	✗
Cereal (1)	Better than a cereal bar because it does not contain chocolate (1)	✓	
Cornflakes (1)	Does not contain sugar (1)	✗	
<i>Weetabix</i> (1)	Does not contain sugar (1)	✓	
Vegetables	Vegetables – general (3)		
	Carrots (3)		
	Cauliflower, raw (1)	The nutrients are retained (1)	✓
	Lettuce (10)	Because it's a vegetable (2)	✓
	Olives (2)		
	Spinach (1)		
	Tomatoes (10)	Because it's a vegetable (1)	✓
		Because it's a fruit (1)	✓
Fruit	Fruit – general (2)		
	Apples (4)		
	Banana (14)	Because it's a fruit (7)	✓
	Melons (1)		
	Oranges (2)		
	Orange juice, fresh (2)		
	Juice, packet (2)	Does not have added sugar (1)	✓
	Orange juice, packet (8)	Because it contains oranges (3)	✓
		It contains Vitamin C (1)	✓
It does not have oil or chocolate added to it (1)		✓	
	It is healthier than orange squash (1)	✓	
	It is not as healthy as fresh orange juice (1)	✓	
Pears (2)			
Milk and Dairy Products	Milk - general (1)		
	Milk, plain (1)	Healthier than flavoured milk (1)	✓
	Skimmed milk (2)	Diet milk; <i>To lose weight.</i> (1)	✓
	Yoghurt (1)	Contains milk (1)	✓
	Cheese (1)	Made from milk (1)	✓

a The number in brackets indicates the number of focus groups where this food was mentioned

b The number in brackets indicates the number of focus groups where this reason was mentioned

c Phrases in italics are quotes

✓ = correct ✗ = incorrect □

Foods Perceived As Healthy (continued)

Food Group	Food	Reasons/Qualification	Accuracy of Reason
Meats and Alternatives	Chicken (1) ^a	Healthier than pork (1) ^b	✓
	Fish (3)	Healthier than pork (1)	✓
	Tuna (1)		
	Octopus (1)		
	Hot-dog (3)	Made from meat (1) Good for health (1)	✓ ✗
	Ham (3)	Healthier than salami (1)	✓
	Salami (8)	<i>A little is OK</i> ^c (1) <i>It's good and bad</i> (1) <i>It makes us grow</i> (1) <i>It's a meat and some players eat it to be stronger and have more power</i> (1) Does not contain sugar (1)	✓ ✓ ^d ✓ ^d ✓ ^d ✓
	Baked beans (1)		
	Soya milk (1)		
	Nuts (1)		
	Rice balls (1)		
Sugars, Fats and Oils	Chocolate (3)	Contains milk (1)	✓
	<i>Kinder</i> , chocolate-coated sponge (1)	Contains milk (1)	✓
	Cookies (3)	<i>A little bit healthy</i> (1) Contain milk (1)	✓ ✓
	Cereal bar (1)	Contains a little milk (1)	✓
	<i>Frosties</i> bar (1)	Contains milk (1) Stuck together with honey (1)	✓ ✗
	<i>Rice Krispies</i> bar (1)	Contains cereals (1)	✓
	Honey (1)		
	Crisps (1)	Partially good because they are potatoes (1)	✓
	Low fat crisps (1)		
	Olive oil (2)	Healthier than sunflower oil (1) <i>A little is OK</i> (1)	✓ ✓
Other Foods	Diet food (1)	<i>You don't get so fat. You eat good food</i> (1)	
	Unprocessed food (1)	<i>Does not come from a factory</i> (1)	✓
	Salt (1)	<i>A little is good</i> (1)	✓
	Sesame seeds (1)	They are natural (1)	✓
Beverages	Orange squash (2)	Contains real oranges (1)	✗
	Water (13)	Does not contain sugar (1) Does not contain colouring (1) Does not contain fizz (1)	✓ ✓ ✓
	Wine (1)	<i>A little is OK</i> (1)	✓

a The number in brackets indicates the number of focus groups where this food was mentioned

b The number in brackets indicates the number of focus groups where this reason was mentioned

c Phrases in italics are quotes

d Precise judgement not possible

✓ = correct ✗ = incorrect □

APPENDIX 4.3

FOOD PERCEIVED BY CHILDREN AS NOT-SO-HEALTHY

Foods Perceived As Not-So-Healthy

Food Group	Food	Reasons/Qualification	Accuracy of Reason
Breads and Cereals	Bread (1) ^a	Fattening (1) ^b	✗
	White bread (1)	<i>Does not contain seeds like brown bread</i> ^c (1)	✓
	Breadcrumbs (1)	Not good for health (1)	✗
	Flour (1)	Not good for muscles (1)	✗
	<i>Frosties</i> cereal (1)	Contains sugar (1)	✓
Potatoes	Chips (1)	Fried potatoes	✓
Vegetables	Olives (1)		
	Black olives (1)	Bad for strength (1)	_ ^d
Fruit	Orange juice, packet (4)	Contains sugar (4)	✓
Meats and Alternatives	Meat (2)	Contains fat (1)	✓
		Red meat contains more fat than chicken (1)	✓
	Hamburgers (1)	Contain oil	✓
	Hot-dog sausage (2)	Contains fat (1)	✓
		Not healthy like bread (1)	✓
	Ham (2)	Contains fat (1)	✓
		Made from pork which isn't healthy (1)	_ ^d
		Fattening (1)	✓
Mortadella (1)	Contains fat	✓	
Salami (8)	Contains fat (4)	✓	
	Contains salt (2)	✓	
Eggs (1)	<i>Eating a lot is not good</i>	✓	

- a The number in brackets indicates the number of focus groups where this food was mentioned
b The number in brackets indicates the number of focus groups where this reason was mentioned
c Phrases in italics are quotes
d Precise judgement not possible
✓ = correct ✗ = incorrect □

Foods Perceived As Not-So-Healthy (continued)

Food Group	Food	Reasons/Qualification	Accuracy of Reason
Sugars, Fats and Oils	Sugar (2) ^a	<i>A little is good</i> ^b (1) ^c	✓
	Sweets (4)	Fattening (1) Increases blood sugar (1) Increases blood pressure (1)	✓ ✓ ✗
	Chocolate (3)	Contains sugar (2) Contains fat (1) It's a sweet (1)	✓ ✓ ✓
	<i>Nutella</i> (12)	Contains chocolate (7) Leads to tooth decay (4) Contains sugar (3) Fattening (2) It's a sweet (2)	✓ ✓ ✓ ✓ ✓
	Cereal bar (4)	Contains chocolate (3) Contains sugar (1) Leads to tooth decay (1)	✓ ✓ ✓
	<i>Frosties</i> cereal bar (3)	Contains sugar (1) Contains more sugar than cereal (1)	✓ ✓
	<i>Rice Krispies</i> bar (1)	Contains chocolate and sugar	✓
	Fat (3)	Fattening (2)	✓
	Oil (9)	Fattening (3) Narrows veins (2) Leads to heart problems (2) It's a fat (1) It's high in fat (1) Has a bad taste (1)	✓ _d ✓ ✓ ✓ _d
	Butter (2)	Fattening	✓
	Crisps (12)	Contain sugar (6) Contain salt (4) Contain oil (2) Contain vinegar (1) Fried in oil (1) Fattening (1) <i>You have black teeth</i> (1) <i>Teeth fall out</i> (1) It's sweets (1)	✗ ✓ ✓ ✗ ✓ ✗ ✓ ✗ ✗ ✗
	Packet snacks (3)	Contain sugar (3) Contain salt (1) Contain oil (1) <i>Cannot eat them all at once</i> (1)	✗ ✓ ✓ ✓
	Popcorn (2)	Contains salt (2) Leads to heart problems (1)	✓ ✓
Other Foods	<i>Bought food</i> (1)		_d
	<i>Heavy food</i> (1)		_d
	Maltese <i>hobza</i> (1)	Contains oil	✓
	Salt (4)	<i>A lot turns into poison</i> (1) Salt pans are dirty (1)	✓ ✓

a The number in brackets indicates the number of focus groups where this food was mentioned

b Phrases in italics are quotes

c The number in brackets indicates the number of focus groups where this reason was mentioned

d Precise judgement not possible

✓ = correct ✗ = incorrect □

Foods Perceived As Not-So-Healthy (continued)

Food Group	Food	Reasons/Qualification	Accuracy of Reason
Beverages	<i>Ribena</i> (1) ^a		
	Nectar (2)	Contains sugar (2) ^b	✓
	Orange squash (6)	Contains sugar (4) It's sweet (1)	✓ - ^c
	Peach squash (1)	Leads to tooth decay (1) It's sweet(1)	✓ ✓
	<i>Breakers</i> (2)	Contains sugar (1)	✓
	<i>Coke and Sprite</i> (1)	<i>Contains acid and gas</i> ^d (1)	✓

- a The number in brackets indicates the number of focus groups where this food was mentioned
b The number in brackets indicates the number of focus groups where this reason was mentioned
c Precise judgement not possible
d Phrases in italics are quotes
✓ = correct ✗ = incorrect □

APPENDIX 4.4

**FOODS AND BEVERAGES CONSUMED AND PREFERRED
IN TEN DIFFERENT SETTINGS**

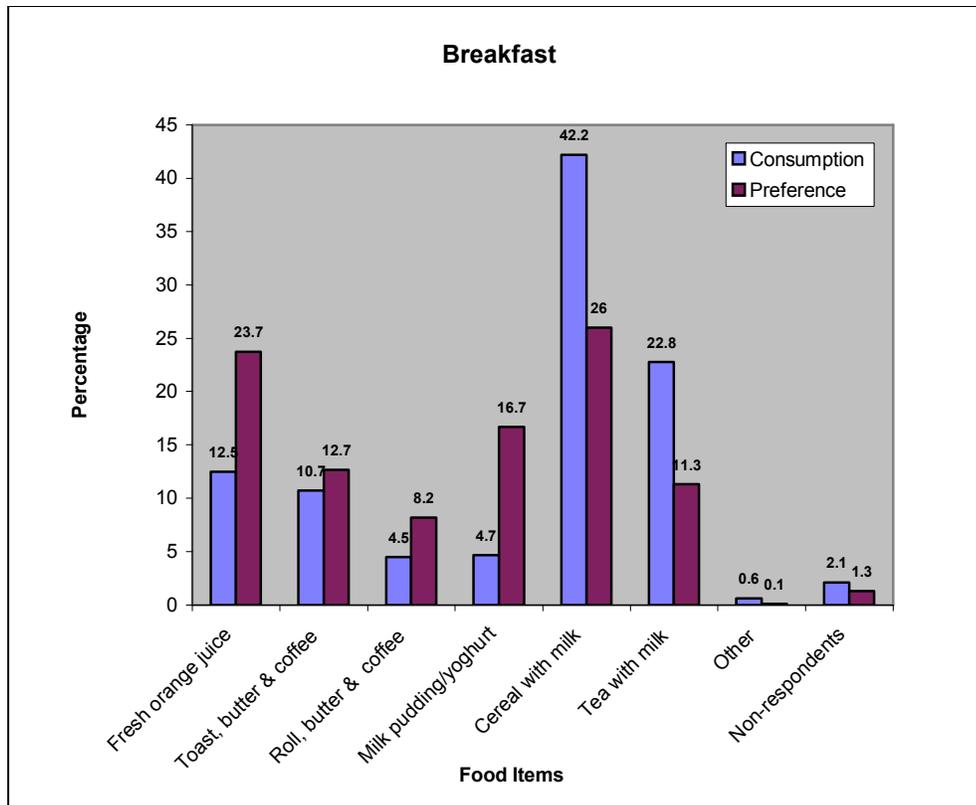


Figure 1. Items most consumed and preferred for breakfast

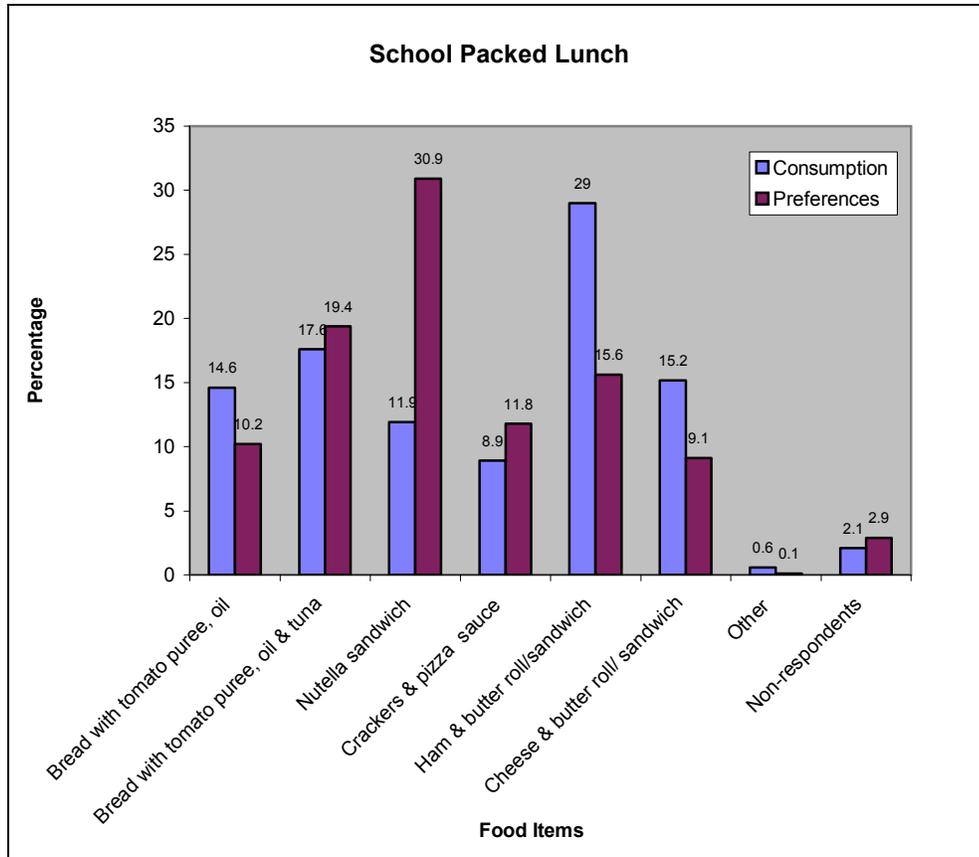


Figure 2. Items most consumed and preferred for the school packed lunch

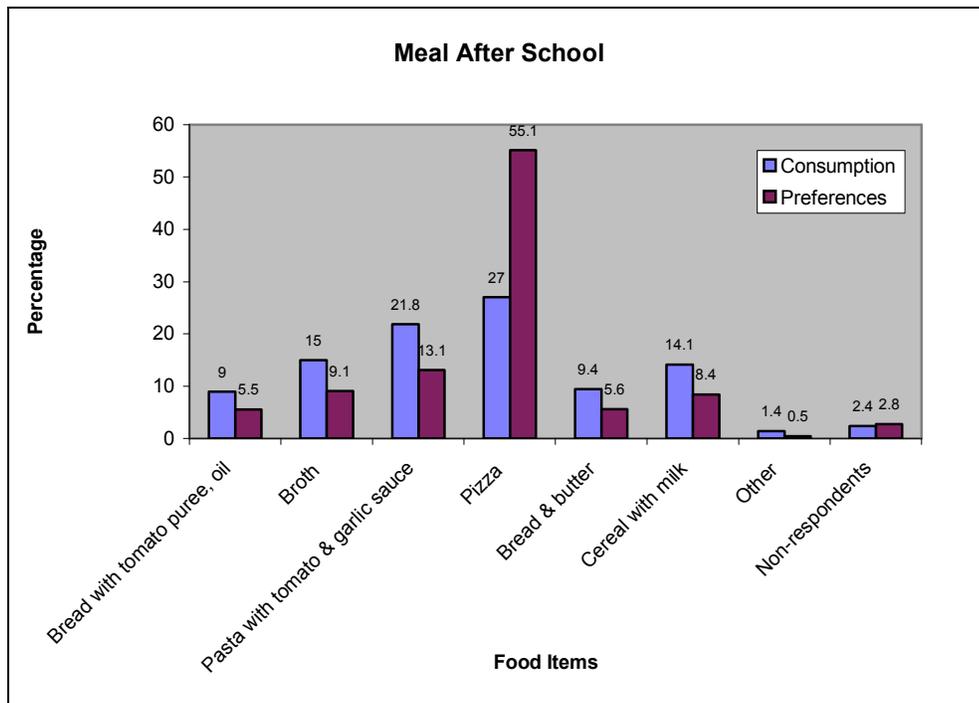


Figure 3. Items most consumed and preferred as a meal after school

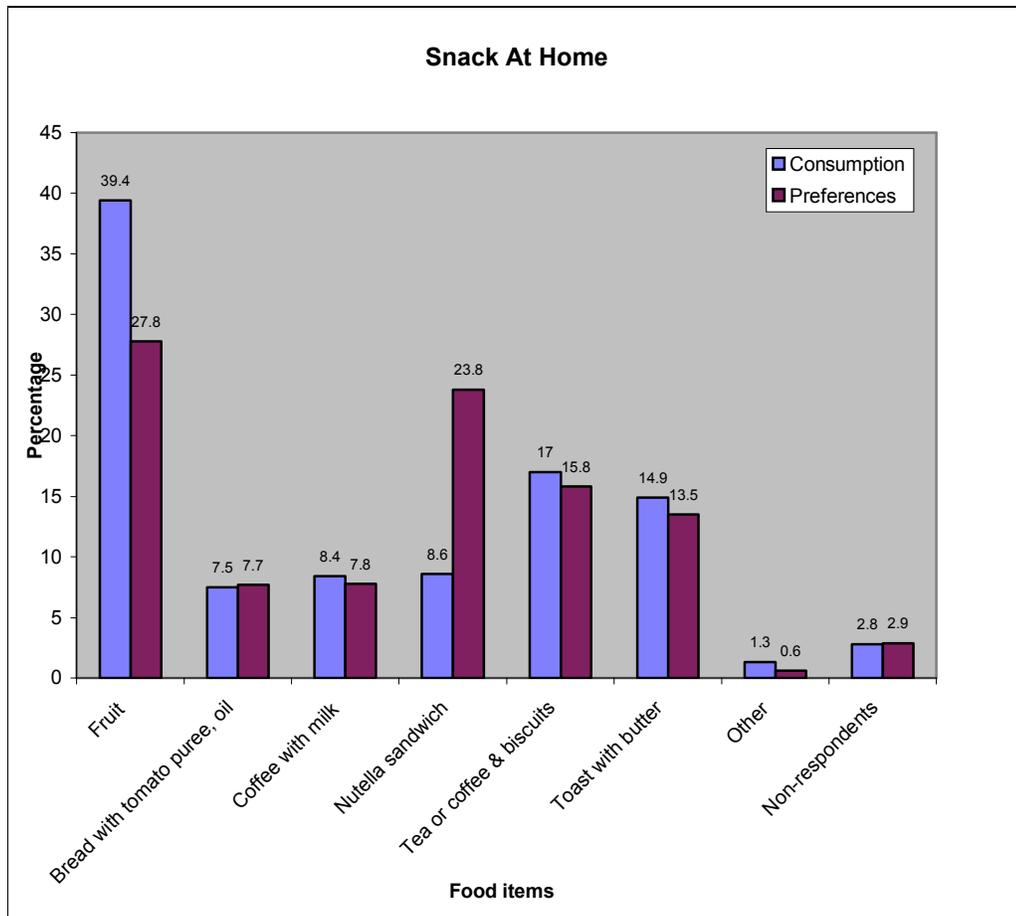


Figure 4. Items most consumed and preferred as a snack at home

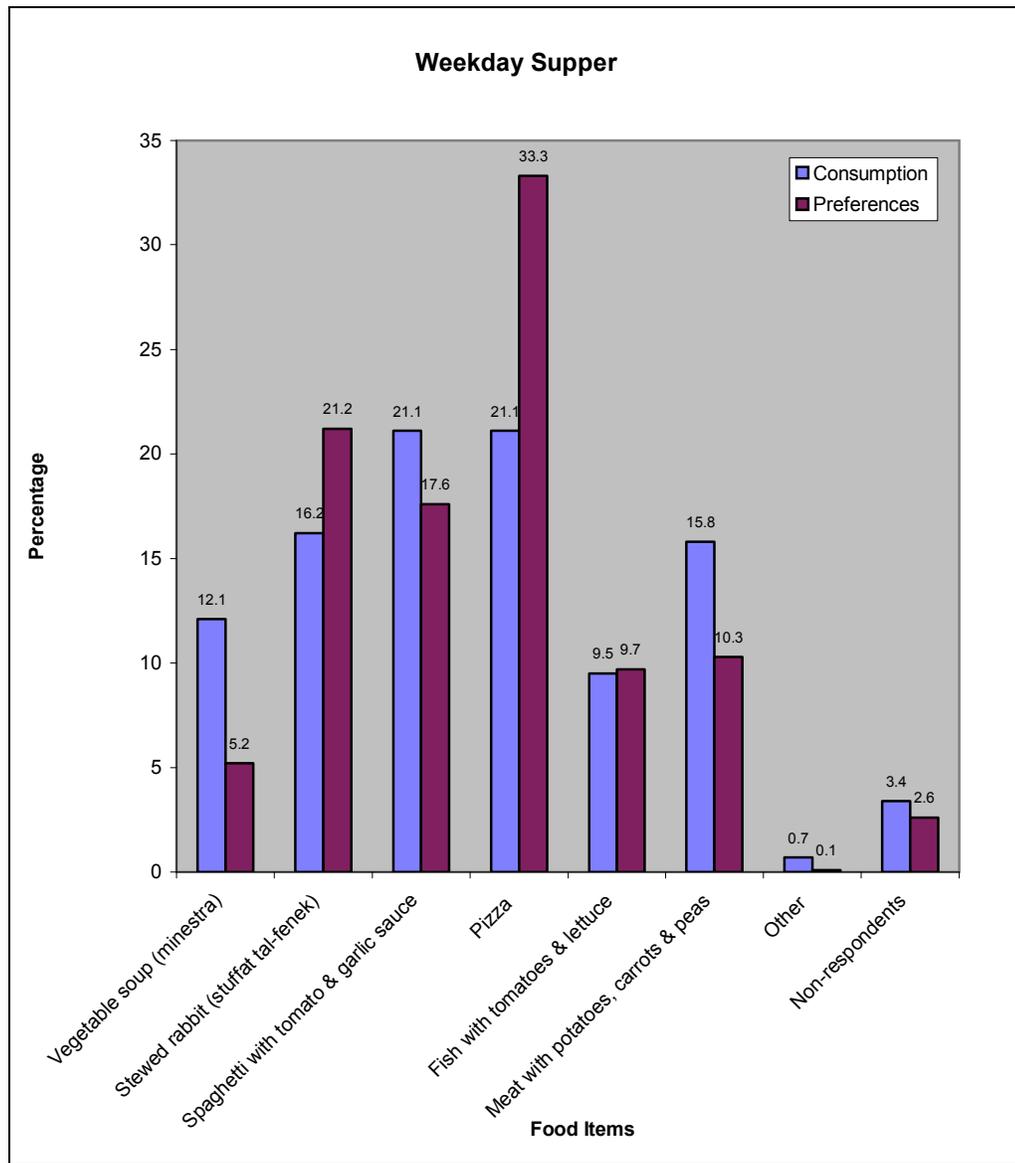


Figure 5. Items most consumed and preferred for weekday supper

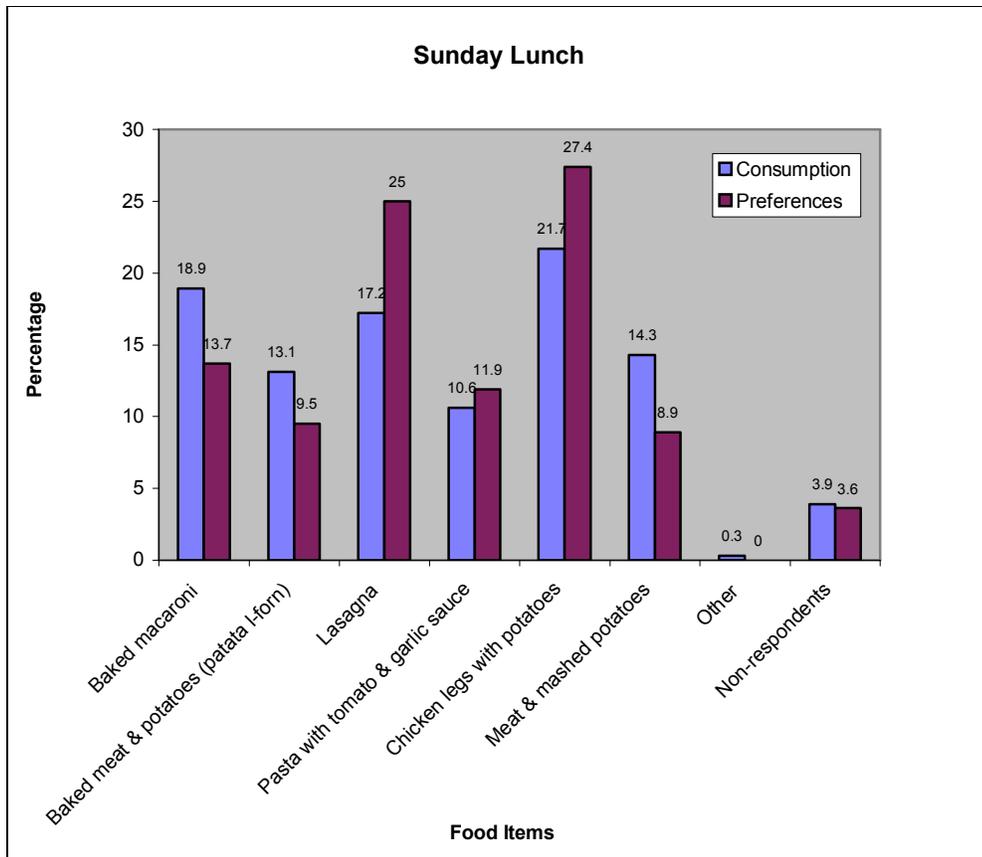


Figure 6. Items most consumed and preferred for Sunday lunch

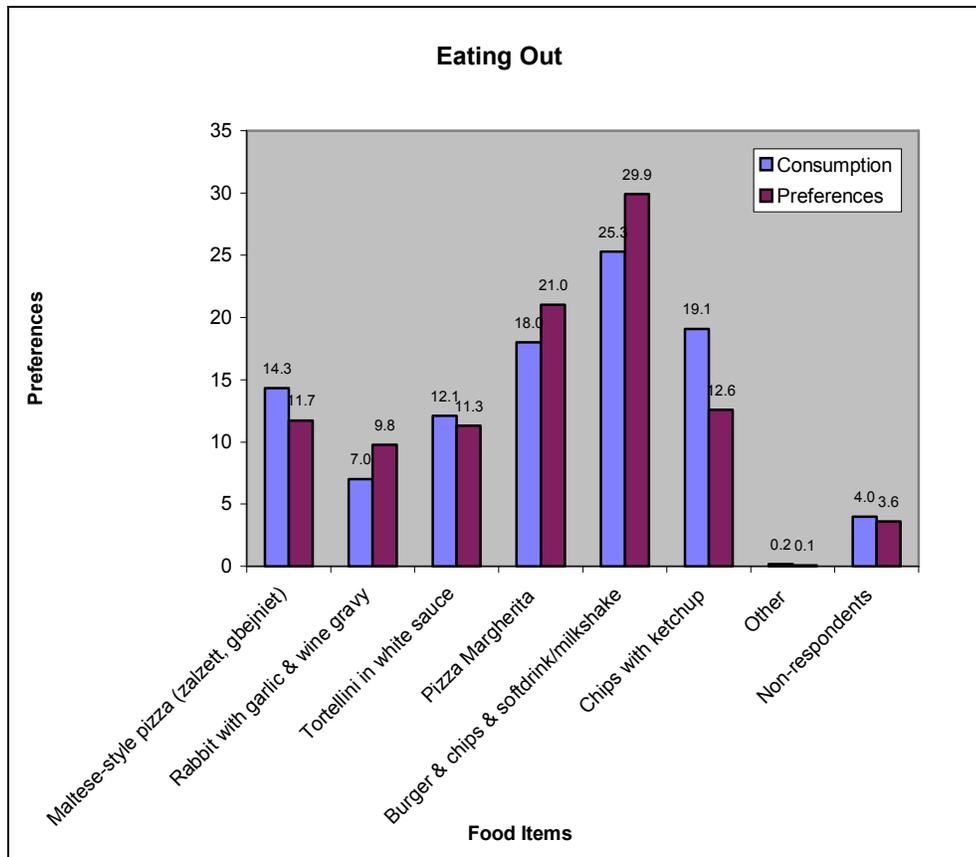


Figure 7. Items most consumed and preferred when eating out

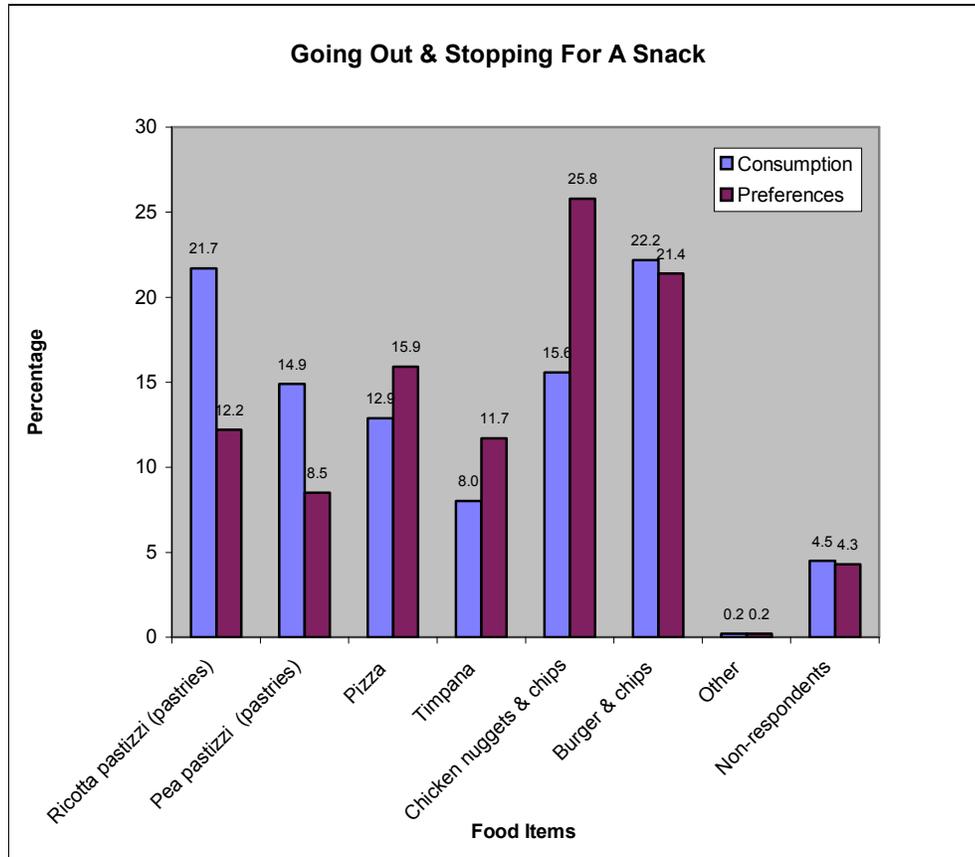


Figure 8. Items most consumed and preferred when going out and stopping for a snack

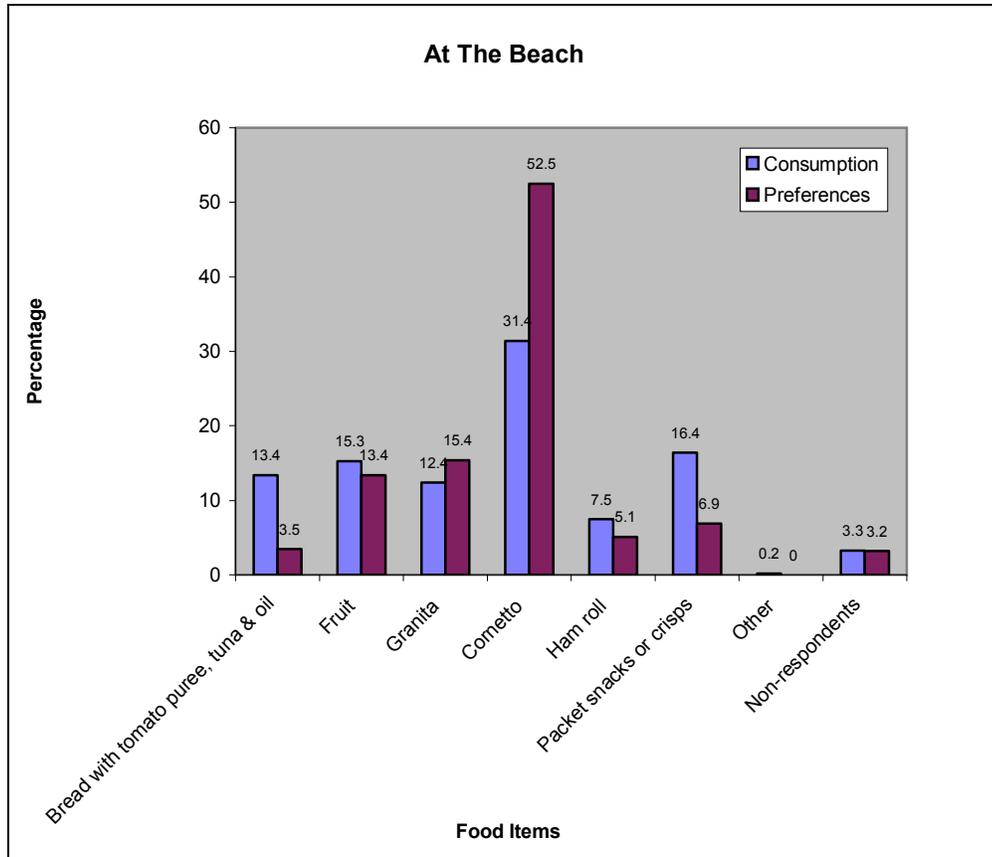


Figure 9. Items most consumed and preferred at the beach

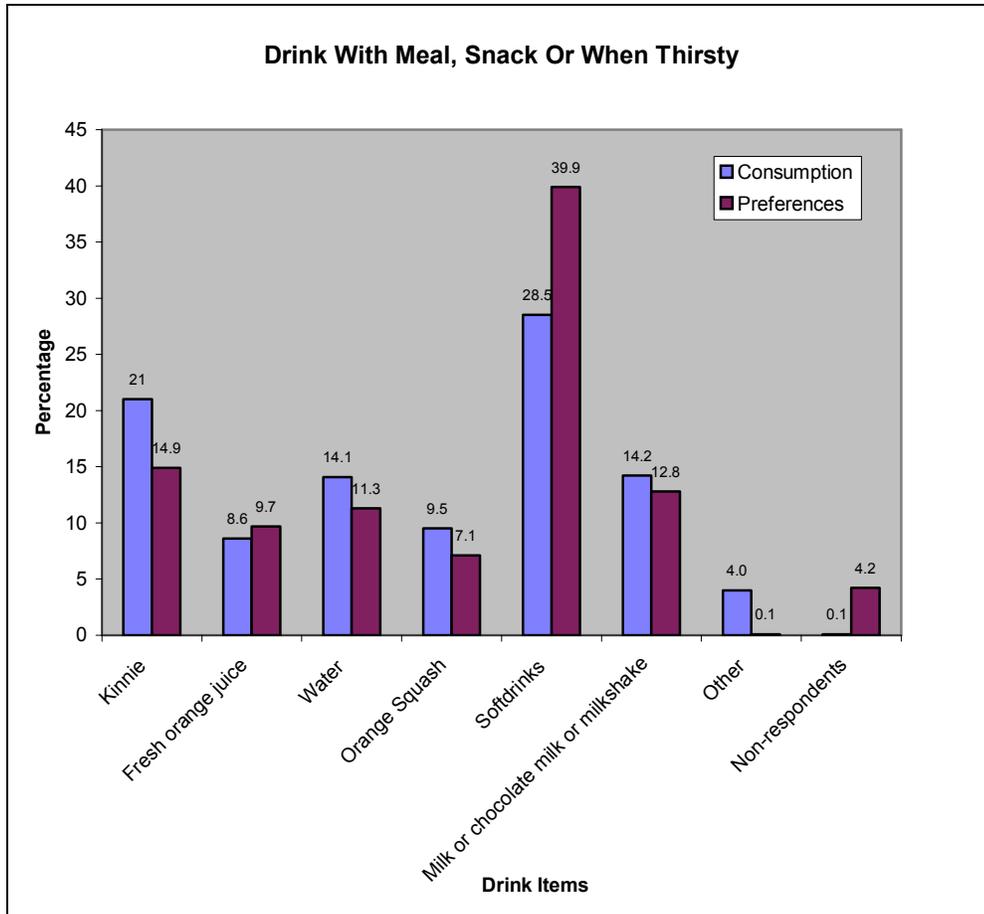


Figure 10. Beverages most consumed and preferred with a meal, snack or when thirsty

APPENDIX 4.5

**GROUP DIFFERENCES IN FOODS CONSUMED AND PREFERRED
IN TEN DIFFERENT SETTINGS**

(BASED ON THOSE CHILD AND PARENT CASES FOR WHICH
NONE OF THE DATA FOR THE TEN CONSUMPTION SETTINGS WAS MISSING)

Group Differences: Girls Versus Boys

Setting	Gender		χ^2	df	p-value
	Girls % (n=459)	Boys % (n=421)			
Breakfast, Preferred			11.055	5	0.050
Fresh orange juice	26.6	21.9			
Toast, butter & coffee	11.1	13.1			
Roll, butter & coffee	10.7	6.7			
Milk pudding or yoghurt	18.1	16.6			
Cereal with milk	23.3	28.7			
Tea with milk	10.2	13.1			
After-School Meal, Consumed			19.422	5	0.002
Bread with tomato puree, oil	9.2	10.0			
Broth	18.3	12.4			
Pasta with tomato & garlic sauce	26.4	19.0			
Pizza	23.1	33.5			
Bread & butter	9.4	10.9			
Cereal with milk	13.7	14.3			
Snack at Home, Preferred			9.681	5	0.085
Fruit	32.9	24.7			
Bread with tomato puree, oil	7.6	8.8			
Coffee with milk	6.3	9.0			
<i>Nutella</i> sandwich	24.2	23.3			
Tea or coffee & biscuits	16.1	18.3			
Toast with butter	12.9	15.9			
Eating Out, Consumed			10.317	5	0.067
Maltese-style pizza (<i>zalzett, gbejniet</i>)	14.6	16.4			
Rabbit with garlic & wine gravy	8.5	6.7			
Tortellini in white sauce	15.5	9.7			
Pizza <i>Margherita</i>	18.5	18.8			
Burger & chips & softdrink/milkshake	22.9	29.0			
Chips with ketchup	20.0	19.5			
Eating Out, Preferred			9.620	5	0.087
Maltese-style pizza (<i>zalzett, gbejniet</i>)	9.8	15.4			
Rabbit with garlic & wine gravy	9.6	9.5			
Tortellini in white sauce	13.9	10.0			
Pizza <i>Margherita</i>	23.7	20.7			
Burger & chips & softdrink/milkshake	30.1	31.8			
Chips with ketchup	12.9	12.6			

Group Differences: Girls Versus Boys (continued)

Setting	Gender		χ^2	df	p-value
	Girls % (n=459)	Boys % (n=421)			
Going Out & Stopping For A Snack, Consumed			10.263	5	0.068
Ricotta <i>pastizzi</i> (pastries)	13.1	13.1			
Pea <i>pastizzi</i> (pastries)	10.0	8.6			
Pizza	13.3	19.2			
<i>Timpana</i>	10.9	12.8			
Chicken nuggets & chips	30.7	23.5			
Burger and chips	22.0	22.8			
Drink With Meal, Snack or When Thirsty, Consumed			18.953	5	0.002
<i>Kinnie</i>	23.3	21.6			
Fresh orange juice	9.2	8.8			
Water	18.7	9.5			
Orange squash	8.9	11.4			
Soft-drinks	27.0	31.6			
Milk, chocolate milk or milkshake	12.9	17.1			
Drink With Meal, Snack or When Thirsty, Preferred			15.450	5	0.009
<i>Kinnie</i>	16.3	13.8			
Fresh orange juice	10.7	8.6			
Water	15.0	9.0			
Orange squash	6.3	8.3			
Soft-drinks	40.7	43.7			
Milk, chocolate milk or milkshake	10.9	16.6			

**Group Differences: Children From Households With
Average Versus High Levels Of Schooling**

Setting	Household Level Of Schooling		χ^2	df	p-value
	Average % (n=789)	High % (n=91)			
After-School Meal, Consumed			13.170	5	0.022
Bread with tomato puree, oil	9.8	9.3			
Broth	15.5	14.4			
Pasta with tomato & garlic sauce	19.5	27.9			
Pizza	29.1	24.5			
Bread & butter	9.0	12.4			
Cereal with milk	17.0	11.5			
Eating Out, Preferred			14.656	5	0.012
Maltese-style pizza (<i>zalzett, gbejniet</i>)	15.0	12.4			
Rabbit with garlic & wine gravy	9.8	9.0			
Tortellini in white sauce	11.0	12.1			
Pizza <i>Margherita</i>	17.5	28.5			
Burger & chips & softdrink/milkshake	33.1	25.9			
Chips with ketchup	13.5	12.1			

Group Differences: State Versus Church Versus Independent School Children

Setting	School			χ^2	df	p-value
	State % (n=527)	Church % (n=218)	Independ. % (n=135)			
Breakfast, Consumed						
Fresh orange juice	15.9	7.3	12.6	56.504	10	0.000
Toast, butter & coffee	13.1	10.1	4.4			
Roll, butter & coffee	4.4	6.0	4.4			
Milk pudding or yoghurt	5.7	3.7	3.7			
Cereal with milk	38.1	43.1	66.7			
Tea with milk	22.8	29.8	8.1			
Breakfast, Preferred				17.181	10	0.070
Fresh orange juice	26.0	21.1	23.0			
Toast, butter & coffee	13.5	9.2	11.1			
Roll, butter & coffee	6.6	14.2	8.1			
Milk pudding or yoghurt	17.5	18.8	14.8			
Cereal with milk	24.5	26.1	31.1			
Tea with milk	12.0	10.6	11.9			
School Packed Lunch, Preferred				30.664	10	0.001
Bread with tomato puree, oil	9.7	10.1	14.8			
Bread with tomato puree, oil & tuna	17.6	25.7	20.0			
<i>Nutella</i> sandwich	30.9	33.0	37.8			
Crackers & pizza sauce	15.7	4.6	8.1			
Ham & butter roll/sandwich	15.6	17.9	12.6			
Cheese & butter roll/sandwich	10.4	8.7	6.7			
After-School Meal, Consumed				24.107	10	0.007
Bread with tomato puree, oil	8.3	10.6	12.6			
Broth	15.9	17.0	11.1			
Pasta with tomato & garlic sauce	19.0	26.6	31.9			
Pizza	31.1	22.0	25.9			
Bread & butter	10.2	9.2	11.1			
Cereal with milk	15.4	14.7	7.4			
Sunday Lunch, Consumed				21.312	10	0.019
Baked macaroni	18.0	26.1	14.8			
Baked meat & potatoes (<i>patata l-forn</i>)	14.4	14.2	7.4			
Lasagna	17.5	17.9	21.5			
Pasta with tomato & garlic sauce	11.4	6.0	14.1			
Chicken legs with potatoes	22.0	21.1	28.1			
Meat & mashed potatoes	16.7	14.7	14.1			

**Group Differences: State Versus Church Versus Independent School Children
(continued)**

Setting	School			χ^2	df	p-value
	State % (n=527)	Church % (n=218)	Independ. % (n=135)			
Eating Out, Consumed				25.332	10	0.005
Maltese-style pizza (<i>zalzett,gbejniet</i>)	16.3	14.7	13.3			
Rabbit with garlic & wine gravy	7.8	8.7	5.2			
Tortellini in white sauce	14.8	8.3	11.9			
Pizza <i>Margherita</i>	15.2	19.3	31.1			
Burger & chips & softdrink/milkshake	25.8	26.6	24.4			
Chips with ketchup	20.1	22.5	14.1			
Eating Out, Preferred				19.874	10	0.030
Maltese-style pizza (<i>zalzett,gbejniet</i>)	13.9	11.5	8.9			
Rabbit with garlic & wine gravy	8.9	10.1	11.1			
Tortellini in white sauce	11.8	10.1	16.3			
Pizza <i>Margherita</i>	18.8	25.7	30.4			
Burger & chips & softdrink/milkshake	32.6	29.4	26.7			
Chips with ketchup	14.0	13.3	6.7			
At the Beach, Preferred				17.217	10	0.070
Bread with tomato puree, tuna & oil	2.3	6.0	3.7			
Fruit	13.9	16.5	9.6			
Granita	15.2	16.5	17.0			
Cornetto	54.6	49.1	62.2			
Ham roll	5.9	4.1	4.4			
Packet snacks or crisps	8.2	7.8	3.0			
Drink With Meal, Snack or When Thirsty, Consumed				18.331	10	0.050
<i>Kinnie</i>	24.7	20.2	17.8			
Fresh orange juice	10.8	7.8	3.7			
Water	11.8	16.1	21.5			
Orange squash	9.5	11.5	10.4			
Soft-drinks	28.8	29.8	29.6			
Milk, chocolate milk or milkshake	14.4	14.7	17.0			

Group Differences: Maltese Versus Gozitan Children

Setting	Region		x ²	df	p-value
	Malta % (n=789)	Gozo % (n=91)			
Breakfast, Consumed			20.289	5	0.001
Fresh orange juice	14.4	3.3			
Toast, butter & coffee	10.0	19.8			
Roll, butter & coffee	4.8	4.4			
Milk pudding or yoghurt	5.3	1.1			
Cereal with milk	44.0	41.8			
Tea with milk	21.4	29.7			
Snack at Home, Preferred			9.327	5	0.097
Fruit	27.9	38.5			
Bread with tomato puree, oil	8.9	2.2			
Coffee with milk	7.7	6.6			
<i>Nutella</i> sandwich	24.1	20.9			
Tea or coffee & biscuits	17.5	14.3			
Toast with butter	13.9	17.6			
Sunday Lunch, Consumed			10.023	5	0.075
Baked macaroni	20.5	11.0			
Baked meat & potatoes (<i>patata l-forn</i>)	13.4	12.1			
Lasagna	18.3	17.6			
Pasta with tomato & garlic sauce	10.0	14.3			
Chicken legs with potatoes	22.9	20.9			
Meat & mashed potatoes	14.8	24.2			
Sunday Lunch, Preferred			12.981	5	0.024
Baked macaroni	14.8	13.2			
Baked meat & potatoes (<i>patata l-forn</i>)	9.8	11.0			
Lasagna	25.1	39.6			
Pasta with tomato & garlic sauce	12.2	14.3			
Chicken legs with potatoes	28.5	15.4			
Meat & mashed potatoes	9.6	6.6			
Eating Out, Consumed			12.77	5	0.026
Maltese-style pizza (<i>zalzett, gbejniet</i>)	16.2	8.8			
Rabbit with garlic & wine gravy	8.0	4.4			
Tortellini in white sauce	13.2	8.8			
Pizza <i>Margherita</i>	19.0	15.4			
Burger & chips & softdrink/milkshake	24.8	34.1			
Chips with ketchup	18.8	28.6			
At the Beach, Consumed			12.212	5	0.032
Bread with tomato puree, tuna & oil	14.3	12.1			
Fruit	16.7	9.9			
Granita	12.8	11.0			
<i>Cornetto</i>	32.6	28.6			
Ham roll	6.6	14.3			
Packet snacks or crisps	17.0	24.2			

**Group Differences: Children From Families Who
Have Access To Or Do Not Have Access To Cable TV**

Setting	Access To Cable TV		χ^2	df	p-value
	Yes % (n=442)	No % (n=312)			
Weekday Supper, Consumed			10.015	5	0.075
Vegetable soup (<i>minestra</i>)	12.2	12.8			
Stewed rabbit (<i>stuffat tal-fenek</i>)	13.1	20.8			
Spaghetti with tomato & garlic sauce	25.1	19.2			
Pizza	22.4	20.5			
Fish with tomatoes & lettuce	10.0	9.0			
Meat with potatoes, carrots & peas	17.2	17.6			
Weekday Supper, Preferred			10.908	5	0.053
Vegetable soup (<i>minestra</i>)	5.7	4.5			
Stewed rabbit (<i>stuffat tal-fenek</i>)	19.0	26.3			
Spaghetti with tomato & garlic sauce	17.2	20.8			
Pizza	36.4	30.4			
Fish with tomatoes & lettuce	9.7	9.9			
Meat with potatoes, carrots & peas	12.0	8.0			
Sunday Lunch, Consumed			16.379	5	0.006
Baked macaroni	20.1	19.6			
Baked meat & potatoes (<i>patata l-forn</i>)	9.3	19.2			
Lasagna	18.3	15.1			
Pasta with tomato & garlic sauce	11.3	9.9			
Chicken legs with potatoes	24.9	20.8			
Meat & mashed potatoes	16.1	15.4			
Going Out & Stopping For A Snack, Consumed			11.007	5	0.051
Ricotta <i>pastizzi</i> (pastries)	24.2	23.4			
Pea <i>pastizzi</i> (pastries)	13.3	20.2			
Pizza	14.0	13.1			
<i>Timpana</i>	9.5	5.1			
Chicken nuggets & chips	17.6	15.1			
Burger & chips	21.3	23.1			

APPENDIX 4.6

**GROUP DIFFERENCES IN FOODS CONSUMED AND PREFERRED
IN TEN DIFFERENT SETTINGS**

(BASED ON THOSE CHILD CASES FOR WHICH
DATA WAS AVAILABLE FOR THE SPECIFIC VARIABLE BEING TESTED)

Group Differences: Girls Versus Boys

Setting	Gender		χ^2	Df	p-value
	Girls % (n=540)	Boys % (n=533)			
Breakfast, Preferred			15.192	5	0.010
Fresh orange juice	26.5	21.6			
Toast, butter & coffee	12.0	13.7			
Roll, butter & coffee	10.2	6.4			
Milk pudding or yoghurt	18.1	15.8			
Cereal with milk	23.0	29.8			
Tea with milk	10.2	12.8			
After-School Meal, Consumed	(n=534)	(n=513)	21.394	5	0.001
Bread with tomato puree, oil	9.4	9.4			
Broth	18.4	12.7			
Pasta with tomato & garlic sauce	25.8	19.3			
Pizza	22.8	33.5			
Bread & butter	9.2	10.3			
Cereal with milk	14.4	14.8			
Weekday Supper, Preferred	(n=531)	(n=528)	9.449	5	0.092
Vegetable soup (<i>minestra</i>)	4.5	6.3			
Stewed rabbit (<i>stuffat tal-fenek</i>)	23.9	19.7			
Spaghetti with tomato & garlic sauce	20.3	15.9			
Pizza	31.5	36.9			
Fish with tomatoes & lettuce	10.0	9.8			
Meat with potatoes, carrots & peas	9.8	11.4			
Sunday Lunch, Consumed	(n=525)	(n=518)	10.757	5	0.056
Baked macaroni	22.5	17.0			
Baked meat & potatoes (<i>patata l-forn</i>)	15.0	12.4			
Lasagna	15.8	20.1			
Pasta with tomato & garlic sauce	11.6	10.4			
Chicken legs with potatoes	20.4	24.9			
Meat & mashed potatoes	14.7	15.3			
Eating Out, Consumed	(n=530)	(n=513)	17.285	5	0.004
Maltese-style pizza (<i>zalzett, gbejniet</i>)	14.2	15.8			
Rabbit with garlic & wine gravy	8.9	5.7			
Tortellini in white sauce	15.5	9.7			
Pizza <i>Margherita</i>	18.7	18.9			
Burger & chips & softdrink/milkshake	22.5	30.4			
Chips with ketchup	20.4	19.5			

Group Differences: Girls Versus Boys (continued)

Setting	Gender		χ^2	df	p-value
	Girls %	Boys %			
Eating Out, Preferred	(n=526)	(n=522)	11.686	5	0.039
Maltese-style pizza (<i>zalzett, gbejniet</i>)	10.3	14.0			
Rabbit with garlic & wine gravy	11.0	9.4			
Tortellini in white sauce	14.4	9.0			
Pizza <i>Margherita</i>	22.4	21.3			
Burger & chips & softdrink/milkshake	29.5	32.6			
Chips with ketchup	12.4	13.8			
Drink With Meal, Snack or When Thirsty, Consumed	(n=526)	(n=517)	12.990	5	0.023
<i>Kinnie</i>	22.4	21.5			
Fresh orange juice	8.9	9.1			
Water	18.3	11.0			
Orange squash	8.7	11.0			
Soft-drinks	28.3	31.1			
Milk, chocolate milk or milkshake	13.3	16.2			
Drink With Meal, Snack or When Thirsty, Preferred	(n=526)	(n=515)	10.915	5	0.053
<i>Kinnie</i>	17.3	13.8			
Fresh orange juice	10.8	9.5			
Water	13.7	9.9			
Orange squash	6.5	8.3			
Soft-drinks	40.5	42.9			
Milk, chocolate milk or milkshake	11.2	15.5			

**Group Differences: Children From Households With
Average Versus High Levels Of Schooling**

Setting	Household Level Of Schooling		χ^2	df	p-value
	Average %	High %			
Breakfast, Consumed	(n=478)	(n=427)	11.768	5	0.038
Fresh orange juice	13.8	11.0			
Toast, butter & coffee	11.7	10.8			
Roll, butter & coffee	5.4	3.3			
Milk pudding or yoghurt	5.0	3.0			
Cereal with milk	38.9	48.9			
Tea with milk	25.1	23.0			
After-School Meal, Consumed	(n=478)	(n=417)	12.814	5	0.025
Bread with tomato puree, oil	10.3	8.4			
Broth	16.1	14.6			
Pasta with tomato & garlic sauce	19.2	28.1			
Pizza	27.6	25.7			
Bread & butter	9.4	10.8			
Cereal with milk	17.4	12.5			
Weekday Supper, Consumed	(n=476)	(n=414)	11.148	5	0.049
Vegetable soup (<i>minestra</i>)	11.1	14.0			
Stewed rabbit (<i>stuffat tal-fenek</i>)	19.7	13.5			
Spaghetti with tomato & garlic sauce	21.0	23.7			
Pizza	22.9	20.3			
Fish with tomatoes & lettuce	10.5	9.2			
Meat with potatoes, carrots & peas	14.7	19.3			
Weekday Supper, Preferred	(n=481)	(n=425)	14.296	5	0.014
Vegetable soup (<i>minestra</i>)	6.4	4.0			
Stewed rabbit (<i>stuffat tal-fenek</i>)	25.6	18.1			
Spaghetti with tomato & garlic sauce	16.2	20.7			
Pizza	32.4	36.7			
Fish with tomatoes & lettuce	10.6	8.9			
Meat with potatoes, carrots & peas	8.7	11.5			
Eating Out, Preferred	(n=478)	(n=419)	16.337	5	0.006
Maltese-style pizza (<i>zalzett, gbejniet</i>)	14.0	11.7			
Rabbit with garlic & wine gravy	10.3	9.8			
Tortellini in white sauce	11.3	11.7			
Pizza <i>Margherita</i>	16.7	27.4			
Burger & chips & softdrink/milkshake	33.3	27.2			
Chips with ketchup	14.4	12.2			

Group Differences: State Versus Church Versus Independent School Children

Setting	School			x ²	Df	p-value
	State %	Church %	Independent %			
Breakfast, Consumed	(n=642)	(n=266)	(n=151)	70.795	10	0.000
Fresh orange juice	15.9	6.4	11.3			
Toast, butter & coffee	13.1	9.8	4.0			
Roll, butter & coffee	4.4	5.6	4.0			
Milk pudding or yoghurt	5.8	3.4	3.3			
Cereal with milk	37.4	44.0	67.5			
Tea with milk	23.5	30.8	9.9			
School Packed Lunch, Consumed	(n=636)	(n=270)	(n=152)	18.206	10	0.052
Bread with tomato puree, oil	15.3	17.8	9.2			
Bread with tomato puree, oil & tuna	18.9	18.9	13.8			
<i>Nutella</i> sandwich	12.4	8.5	17.8			
Crackers & pizza sauce	9.4	7.0	11.8			
Ham & butter roll/sandwich	28.0	33.0	32.2			
Cheese & butter roll/sandwich	16.0	14.8	15.1			
School Packed Lunch, Preferred	(n=636)	(n=265)	(n=154)	26.515	10	0.003
Bread with tomato puree, oil	10.1	10.2	13.0			
Bread with tomato puree, oil & tuna	18.1	24.2	20.8			
<i>Nutella</i> sandwich	30.2	32.5	37.7			
Crackers & pizza sauce	15.4	6.0	9.1			
Ham & butter roll/sandwich	15.7	18.9	13.0			
Cheese & butter roll/sandwich	10.5	8.3	6.5			
After-School Meal, Consumed	(n=636)	(n=259)	(n=152)	27.896	10	0.002
Bread with tomato puree, oil	8.3	10.8	11.2			
Broth	15.9	17.4	11.2			
Pasta with tomato & garlic sauce	18.6	27.0	32.2			
Pizza	31.1	22.0	25.7			
Bread & butter	10.2	8.1	10.5			
Cereal with milk	15.9	14.7	9.2			
Weekday Supper, Consumed	(n=628)	(n=263)	(n=152)	17.541	10	0.063
Vegetable soup (minestra)	12.4	13.3	12.5			
Stewed rabbit (stuffat tal-fenek)	17.8	14.8	16.4			
Spaghetti with tomato & garlic sauce	20.1	22.4	29.6			
Pizza	23.1	22.4	17.1			
Fish with tomatoes & lettuce	11.5	9.5	3.9			
Meat with potatoes, carrots & peas	15.1	17.5	20.4			

**Group Differences: State Versus Church Versus Independent School Children
(continued)**

Setting	School			x ²	df	p-value
	State % (n=640)	Church % (n=264)	Independent % (n=155)			
Weekday Supper, Preferred				17.037	10	0.074
Vegetable soup (<i>minestra</i>)	6.7	2.3	5.2			
Stewed rabbit (<i>stuffat tal-fenek</i>)	23.8	19.3	18.1			
Spaghetti with tomato & garlic sauce	17.2	18.9	20.6			
Pizza	30.9	39.0	39.4			
Fish with tomatoes & lettuce	10.5	9.8	7.7			
Meat with potatoes, carrots & peas	10.9	10.6	9.0			
Sunday Lunch, Consumed				20.870	10	0.022
Baked macaroni	19.5	23.7	14.2			
Baked meat & potatoes (<i>patata l-form</i>)	14.1	16.0	8.4			
Lasagna	17.9	16.7	20.0			
Pasta with tomato & garlic sauce	11.7	6.6	15.5			
Chicken legs with potatoes	21.2	22.2	29.0			
Meat & mashed potatoes	15.5	14.8	12.9			
Eating Out, Consumed				36.107	10	0.000
Maltese-style pizza (<i>zalzett, gbejniet</i>)	16.1	13.6	12.4			
Rabbit with garlic & wine gravy	7.8	7.6	4.6			
Tortellini in white sauce	14.9	8.3	11.1			
Pizza <i>Margherita</i>	14.9	20.1	32.7			
Burger & chips & softdrink/milkshake	26.5	26.5	25.5			
Chips with ketchup	19.8	23.9	13.7			
Eating Out, Preferred				26.507	10	0.003
Maltese-style pizza (<i>zalzett, gbejniet</i>)	13.2	11.2	9.1			
Rabbit with garlic & wine gravy	9.7	11.6	9.7			
Tortellini in white sauce	11.5	10.1	15.6			
Pizza <i>Margherita</i>	18.2	24.3	32.5			
Burger & chips & softdrink/milkshake	33.7	27.7	26.0			
Chips with ketchup	13.7	15.0	7.1			
Drink With Meal, Snack or When Thirsty, Consumed				23.191	10	0.010
<i>Kinnie</i>	25.1	18.0	16.2			
Fresh orange juice	10.8	7.1	5.2			
Water	12.4	15.7	22.1			
Orange squash	9.2	11.2	10.4			
Soft-drinks	28.6	32.2	29.9			
Milk, chocolate milk or milkshake	14.0	15.7	16.2			

Group Differences: Maltese Versus Gozitan Children

Setting	Region		x ²	df	p-value
	Malta % (n=954)	Gozo % (n=105)			
Breakfast, Consumed			15.730	5	0.008
Fresh orange juice	13.6	5.7			
Toast, butter & coffee	10.2	18.1			
Roll, butter & coffee	4.7	3.8			
Milk pudding or yoghurt	5.2	1.0			
Cereal with milk	43.5	41.9			
Tea with milk	22.7	29.5			
School Packed Lunch, Consumed			9.346	5	0.096
Bread with tomato puree, oil	15.2	13.5			
Bread with tomato puree, oil & tuna	18.4	15.4			
<i>Nutella</i> sandwich	13.0	4.8			
Crackers & pizza sauce	8.8	12.5			
Ham & butter roll/sandwich	29.5	33.7			
Cheese & butter roll/sandwich	15.1	20.2			
Snack at Home, Preferred			14.057	5	0.015
Fruit	27.5	40.0			
Bread with tomato puree, oil	8.7	1.9			
Coffee with milk	8.4	5.7			
<i>Nutella</i> sandwich	25.1	21.0			
Tea or coffee & biscuits	16.7	13.3			
Toast with butter	13.6	18.1			
Sunday Lunch, Consumed			9.507	5	0.090
Baked macaroni	20.4	13.7			
Baked meat & potatoes (<i>patata l-forn</i>)	14.0	10.8			
Lasagna	17.7	19.6			
Pasta with tomato & garlic sauce	10.6	14.7			
Chicken legs with potatoes	23.1	18.6			
Meat & mashed potatoes	14.1	22.5			
Sunday Lunch, Preferred			17.496	5	0.004
Baked macaroni	14.3	13.7			
Baked meat & potatoes (<i>patata l-forn</i>)	9.6	11.8			
Lasagna	24.4	40.2			
Pasta with tomato & garlic sauce	12.4	12.7			
Chicken legs with potatoes	29.9	14.7			
Meat & mashed potatoes	9.5	6.9			
Eating Out, Consumed			12.799	5	0.025
Maltese-style pizza (<i>zalzett, gbejniet</i>)	15.6	8.8			
Rabbit with garlic & wine gravy	7.4	5.9			
Tortellini in white sauce	13.1	8.8			
Pizza <i>Margherita</i>	19.3	13.7			
Burger & chips & softdrink/milkshake	25.5	34.3			
Chips with ketchup	19.0	28.4			
At the Beach, Consumed			10.231	5	0.069
Bread with tomato puree, tuna & oil	14.0	12.6			
Fruit	16.6	9.7			
Granita	13.1	10.7			
<i>Cornetto</i>	32.7	31.1			
Ham roll	7.2	13.6			
Packet snacks or crisps	16.4	22.3			

**Group Differences: Children From Families Who
Have Access To or Do Not Have Access To Cable TV**

Setting	Access To Cable TV		χ^2	Df	p-value
	Yes %	No %			
Weekday Supper, Consumed	(n=509)	(n=377)	11.298	5	0.046
Vegetable soup (<i>minestra</i>)	11.2	13.8			
Stewed rabbit (<i>stuffat tal-fenek</i>)	13.9	21.0			
Spaghetti with tomato & garlic sauce	24.4	19.1			
Pizza	22.4	20.4			
Fish with tomatoes & lettuce	10.8	9.0			
Meat with potatoes, carrots & peas	17.3	16.7			
Weekday Supper, Preferred	(n=517)	(n=383)	15.808	5	0.007
Vegetable soup (<i>minestra</i>)	5.4	4.7			
Stewed rabbit (<i>stuffat tal-fenek</i>)	18.6	26.6			
Spaghetti with tomato & garlic sauce	16.8	20.6			
Pizza	37.5	30.5			
Fish with tomatoes & lettuce	9.7	9.9			
Meat with potatoes, carrots & peas	12.0	7.6			
Sunday Lunch, Consumed	(n=515)	(n=374)	18.455	5	0.002
Baked macaroni	20.8	19.0			
Baked meat & potatoes (<i>patata l-forn</i>)	9.9	19.8			
Lasagna	17.5	15.2			
Pasta with tomato & garlic sauce	12.4	9.9			
Chicken legs with potatoes	24.7	21.1			
Meat & mashed potatoes	14.8	15.0			
Going Out & Stopping For A Snack, Consumed	(n=511)	(n=375)	10.174	5	0.070
Ricotta <i>pastizzi</i> (pastries)	23.7	22.4			
Pea <i>pastizzi</i> (pastries)	13.1	19.7			
Pizza	13.3	13.3			
<i>Timpana</i>	9.8	6.1			
Chicken nuggets & chips	17.8	15.7			
Burger & chips	22.3	22.7			

APPENDIX 4.7

FREQUENCIES OF SPECIFIC DIETARY PATTERNS

COMPARING CHILDREN

BY GENDER, HOUSEHOLD LEVEL OF SCHOOLING, SCHOOL TYPE, REGION AND

CABLE TV ACCESS

(COMPARATIVE CHART SHOWING THREE CALCULATIONS)

Frequencies Of Different Dietary Patterns

Specific Dietary Practices	Calculation 1		Calculation 2				Calculation 3							
	All Variables		Gender, School Type, Region		HLS		Cable TV Access		Gender, School Type, Region		HLS		Cable TV Access	
	(n=902)		(N=1088)		(n=927)		(n=921)		(n=var.) ^a		(n=var.)		(n=var.)	
Potentially Healthy	n	%	N	%	n	%	n	%	n	%	n	%	n	%
Consumption of at least 3 vegetables and fruits daily	59	6.5	254	23.4	217	23.4	218	23.7	219	22.3	190	22.3	191	22.6
Consumption of milk and/or fresh milk products at least twice daily on weekdays	25	2.8	31	2.9	28	3.0	27	2.9	88	8.9	74	8.7	73	8.6
Consumption of traditional Maltese food for school packed lunch and at least one other meal on weekdays	65	7.2	78	7.2	66	7.1	65	7.1	170	16.9	147	17.0	146	17.0
Potentially Not-So-Healthy	n	%	N	%	n	%	n	%	n	%	n	%	n	%
Consumption of pizza for the after-school meal and evening meal on weekdays	62	6.9	106	9.7	81	8.7	81	8.8	86	8.5	65	7.5	65	7.5
Consumption of low-nutrient, high-fat foods at school and at home on weekdays	51	5.7	102	9.4	96	10.4	95	10.3	102	10.1	96	11.0	95	11.0

^a 'n' varies according to the different variables tested

APPENDIX 4.8

**ODDS RATIOS COMPARING CHILDREN
BY GENDER, HOUSEHOLD LEVEL OF SCHOOLING, SCHOOL TYPE, REGION AND
CABLE TV ACCESS**

(BASED ON THOSE CHILD AND PARENT CASES FOR WHICH
NONE OF THE DATA FOR THE TEN CONSUMPTION SETTINGS WAS MISSING)

**Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access
(n=902)**

Specific Dietary Practices	Gender				Household Level of Schooling				School Type			
	Girls	Boys	OR	CI	High HLS	Average HLS	OR	CI	State School	Non-State School	OR	CI
	n=469	n=433			n=431	n=471			n=518	n=384		
At least three vegetables and fruits daily	38 8.1%	21 4.8%	1.75	0.5454 - 5.6032	28 6.5%	31 6.6%	0.98	0.3209 - 3.0164	36 6.9%	23 6.0%	1.16	0.3747 - 3.5979
Milk and/or fresh milk products at least twice daily on weekdays	11 2.3%	14 3.2%	0.71	0.1278 - 3.9668	10 2.3%	15 3.2%	0.71	0.1278 - 3.9668	16 3.1%	9 2.3%	1.36	0.2412 - 7.6558
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	34 7.2%	31 7.2%	1.00	0.3422 - 2.9222	26 6.0%	39 8.3%	0.71	0.2373- 2.0953	36 6.9%	29 7.6%	0.90	0.3091 - 2.6273
Pizza for after-school meal and supper on weekdays	27 5.8%	35 8.1%	0.70	0.2316 - 2.1075	25 5.8%	37 7.9%	0.72	0.2367 - 2.1771	37 7.1%	25 6.5%	1.10	0.3652 - 3.3096
Low-nutrient high-fat foods at school and at home on weekdays	27 5.8%	24 5.5%	1.06	0.3183 - 3.5156	22 5.1%	29 6.2%	0.81	0.2434 - 2.7154	29 5.6%	22 5.7%	0.98	0.2954 - 3.2603

**Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access
(continued) (n=902)**

Specific Dietary Practices	Region				Cable TV Access			
	Malta (n=817)	Gozo (n=85)	OR	CI	Cable TV (n=521)	No Cable TV (n=381)	OR	CI
At least three vegetables and fruits daily	53 6.5%	6 7.1%	0.91	0.3022 - 2.7382	32 6.1%	27 7.1%	0.85	0.2775 - 2.6036
Milk and/or fresh milk products at least twice daily on weekdays	23 2.8%	2 2.4%	1.17	0.2042 - 6.7204	15 2.9%	10 2.6%	1.12	0.2049 - 6.1085
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	60 7.3%	5 5.9%	1.26	0.4089 - 3.8584	35 6.7%	30 7.9%	0.84	0.2875 - 2.4381
Pizza for after-school meal and supper on weekdays	57 7.0%	5 5.9%	1.20	0.3870 - 3.7248	38 7.3%	24 6.3%	1.17	0.3884 - 3.5320
Low-nutrient high-fat foods at school and at home on weekdays	46 5.6%	5 5.9%	0.95	0.2875 - 3.1132	24 4.6%	27 7.1%	0.63	0.1886 - 2.1102

APPENDIX 4.9

**ODDS RATIOS COMPARING CHILDREN
BY GENDER, HOUSEHOLD LEVEL OF SCHOOLING, SCHOOL TYPE, REGION AND
CABLE TV ACCESS**

(BASED ON TOTAL SAMPLE WITH
MISSING VALUES REPLACED BY MODE FOR GENDER)

Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access

Specific Dietary Practices	Gender				Household Level of Schooling				School Type			
	Girls (n=546)	Boys (n=542)	OR	CI	Average HLS (n=492)	High HLS (n=435)	OR	CI	State School (n=659)	Non- State School (n=429)	OR	CI
At least three vegetables and fruits daily	133 24.4%	121 22.3%	1.1246	0.5837- 2.1666	111 22.6%	106 24.4%	0.9047	0.4704- 1.7401	159 24.1%	95 22.2%	1.4128	0.5765- 2.1479
Milk and/or fresh milk products at least twice daily on weekdays	14 2.6%	17 3.1%	1.1985	0.2251- 6.3799	18 3.7%	10 2.3%	1.6321	0.3073- 8.667	21 3.2%	10 2.3%	1.4042	0.2521- 7.8221
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	39 7.1%	39 7.2%	0.985	0.3359- 2.8884	40 8.1%	26 6.0%	1.3808	0.4623- 4.124	46 7.0%	32 7.5%	0.9283	0.3186- 2.705
Pizza for after-school meal and supper on weekdays	35 6.4%	71 13.1%	0.4536	0.1687- 1.2199	46 9.4%	35 8.1%	1.1771	0.4403- 3.1471	67 10.2%	39 9.1%	1.1346	0.4432- 2.9049
Low-nutrient high-fat foods at school and at home on weekdays	53 9.7%	49 9.0%	1.0861	0.4189- 2.8159	53 10.8%	43 9.9%	1.1019	0.4432- 2.7395	61 9.3%	41 9.6%	0.9655	0.3743- 2.4907

**Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access
(continued)**

Specific Dietary Practices	Region				Cable TV Access			
	Malta (n=983)	Gozo (n=105)	OR	CI	Cable TV (n=530)	No Cable TV (n=391)	OR	CI
At least three vegetables and fruits daily	228 23.2%	26 24.8%	0.916	0.4785- 1.7534	127 24.0%	91 23.3%	1.0395	0.5414- 1.9959
Milk and/or fresh milk products at least twice daily on weekdays	29 3.0%	2 1.9%	1.5969	0.2539- 10.043	16 3.0%	11 2.8%	1.0736	0.2056- 5.6057
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	73 7.4%	5 4.8%	1.585	0.4852- 5.1777	35 6.6%	30 7.7%	0.847	0.288- 2.4911
Pizza for after-school meal and supper on weekdays	96 9.8%	10 9.5%	1.035	0.4048- 2.6465	46 8.7%	35 9.0%	0.9635	0.363- 2.5571
Low-nutrient high-fat foods at school and at home on weekdays	91 9.3%	11 10.5%	0.874	0.345- 2.2144	48 9.1%	47 12.0%	0.7341	0.2955- 1.8238

APPENDIX 4.10

**ODDS RATIOS COMPARING CHILDREN
BY GENDER, HOUSEHOLD LEVEL OF SCHOOLING, SCHOOL TYPE, REGION AND
CABLE TV ACCESS**

(BASED ON THOSE CHILD CASES FOR WHICH
DATA WAS AVAILABLE FOR THE SPECIFIC VARIABLE BEING TESTED)

Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access

Specific Dietary Practices	Gender				Household Level of Schooling				School Type			
	Girls	Boys	OR	CI	Average HLS	High HLS	OR	CI	State School	Non-State School	OR	CI
	n=var. n=var.	n=var. n=var.			n=var. n=var.	n=var. n=var.			n=var. n=var.	n=var. n=var.		
At least three vegetables and fruits daily	(n=502) 113 22.5%	(n=482) 106 22.0%	1.0293	0.5286- 2.0044	(n=453) 99 21.9%	(n=398) 91 22.9%	0.9441	0.4855- 1.8357	(n=588) 138 23.5%	(396) 81 20.5%	1.1913	0.6094- 2.329
Milk and/or fresh milk products at least twice daily on weekdays	(n=509) 45 8.8%	(n=485) 43 8.9%	0.9877	0.3722- 2.621	(n=456) 42 9.2%	(n=399) 33 8.3%	1.1194	0.4192- 2.989	(n=597) 46 7.7%	(n=397) 42 10.6%	0.7036	0.266- 1.8609
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	(n=516) 90 17.4%	(n=488) 80 16.4%	1.0738	0.5124- 2.2504	(n=463) 89 19.2%	(n=400) 58 14.5%	1.4012	0.6641- 2.9564	(n=605) 109 18.0%	(n=399) 61 15.3%	1.2152	0.5762- 2.5626
Pizza for after-school meal and supper on weekdays	(n=521) 35 6.7%	(n=496) 51 10.3%	0.6254	0.2266- 1.7258	(n=467) 39 8.4%	(n=403) 26 6.5%	1.3191	0.4553- 3.8214	(n=616) 56 9.1%	(n=401) 30 7.5%	1.2347	0.4501- 3.3867
Low-nutrient high-fat foods at school and at home on weekdays	(n=521) 53 10.2%	(n=492) 49 10.0%	1.0223	0.4074- 2.565	(n=465) 53 11.4%	(n=407) 43 10.6%	1.0852	0.4472- 2.6331	(n=612) 61 10.0%	(n=401) 41 10.2%	0.9782	0.3899- 2.4544

**Odds Ratios Comparing Children By Gender, Household Level Of Schooling, School Type, Region And Cable TV Access
(continued)**

Specific Dietary Practices	Region				Cable TV Access			
	Malta	Gozo	OR	CI	Cable TV	No Cable TV	OR	CI
	n=var. n=var.	n=var. n=var.			N=var. n=var.	N=var. n=var.		
At least three vegetables and fruits daily	(n=887) 197 22.2%	(n=97) 22 22.7%	0.9717	0.5- 1.8882	(n=492) 110 22.4%	(n=355) 81 22.8%	0.9774	0.5038- 1.8963
Milk and/or fresh milk products at least twice daily on weekdays	(n=896) 78 8.7%	(n=98) 10 10.2%	0.8389	0.3243- 2.1698	(n=493) 48 9.7%	(n=357) 25 7.0%	1.4271	0.5176- 3.9349
Traditional Maltese foods for school packed lunch and at least one other meal on weekdays	(n=905) 158 17.5%	(n=99) 12 12.1%	1.5409	0.6979- 3.402	(n=495) 75 15.2%	(n=364) 71 19.5%	0.74	0.3542- 1.5459
Pizza for after-school meal and supper on weekdays	(n=918) 77 8.4%	(n=99) 9 9.0%	0.9272	0.3466- 2.4805	(n=498) 40 8.0%	(n=368) 25 6.8%	1.1918	0.412- 3.4473
Low-nutrient high-fat foods at school and at home on weekdays	(n=912) 91 10.0%	(n=101) 11 10.9%	0.9083	0.3668- 2.2494	(n=503) 48 9.5%	(n=363) 47 13.0%	0.7025	0.2894- 1.7053

APPENDIX 4.11

**RATIONALE FOR SCHOOL RULES:
CHILDREN'S AND PARENTS' PERCEPTIONS**

Rationales For School Rules As Perceived By Children And Parents

HEALTH CONCERNS	PARENTS	CHILDREN
To Promote Health	For children to be healthy	For children to be healthy (1)
		To help children avoid becoming ill (1)
To Promote Healthy Eating	To instill healthy eating habits	
	So children eat something substantial and of good nutritional quality whilst at school	
	So children consume a healthy school lunch	
	To encourage consumption of school milk	
	To avoid unhealthy foods and drinks	
	To avoid high sugar foods and drinks	Because of the high sugar content of some foods (1)
		Because of the salt content of some foods (2): packet snacks
	To lesson risk for tooth decay	To protect their teeth and avoid tooth decay (5): chewing gum, chocolates, lollipops, sweets
	To accommodate children with food allergies	
	To avoid destroying the children's appetite for the rest of the day	
	To avoid large portions being consumed	Because they might be eating too much (1)
To Avoid Unhygienic Situations	To prevent children, books, school bags etc. from getting dirty	To avoid dirtying copybooks (2): chewing gum, lollipops
		To avoid potentially messy situations (1): creamy birthday cakes
		To avoid spillages and sticky floors (3): <i>Breakers</i> , soft drinks
		To avoid crumbs on the floor attracting mosquitoes and ants (1): wafer
		To avoid overflowing dustbin (1)
		To avoid drinking from cans with dirty lids (1)
To reduce safety hazards		Because they might choke (4): chewing gum, <i>Halls</i> lozenges, lollipop
		Because something might be swallowed inadvertently (1): chewing gum
		Because some projectile might harm their eye (1): whilst opening beverage can
		Because they might cut their hand (1): whilst opening beverage can

Rationales For School Rules As Perceived By Children And Parents (continued)

TO MAXIMISE ON EDUCATIONAL VALUE OF SOCIAL AND PHYSICAL ENVIRONMENT	PARENTS	CHILDREN
	To maximize on children's trust and reverence of their class teacher	So the teacher reinforces what s/he teaches during lessons (1)
	To avoid mis-match with rules which parents are trying to follow with their children at home	
	To maximise on positive peer modelling of healthy foods	
	To minimise opportunities for negative peer modelling of less healthy foods	
DISCIPLINED AND ETHICAL SCHOOL ETHOS	PARENTS	CHILDREN
To maintain discipline and harmony	To generate an atmosphere of order and discipline in the school	
To avoid excessive behaviours	To avoid children showing off through excessive food purchase or intake	
	To limit large quantities or packets of specific foods being brought to school	
	To limit spending on food items bought at school	
To avoid exploitation, discrimination & stress	To reduce competition and pressure amongst children to buy from the school tuck shop	
	To avoid child feeling inferior if they do not consume a particular brand of 'trendy' snack food or drink	
	To avoid putting undue pressure on parents who refuse or cannot afford to give money to their children to buy from tuck shops	
To regulate parents regularly providing less healthy food	As a check on parents who only include processed and packet items in their child's school lunch	