Malaysian Teachers' and Students' Perceptions of Students' Multiple Intelligence Profiles in Malaysian Secondary Schools

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ABSTRACT

This research study aimed to investigate the teachers' and students' perceptions of students' learning profiles in classrooms in Malaysian Secondary Schools. The study adopted Howard Gardner's Multiple Intelligence (MI) theory as a base. The teachers' perceptions and expectations of their students' learning profiles were compared to the students' perception of their own learning profiles in two research study phases. The first phase took place before teachers and students were informed about students' MI profiles while the second phase investigated what happened to these perceptions after the information has been supplied.

The rationale of the study was prompted by the need to look at ways in which preconceived ideas about the students' learning profiles may affect students' learning in the Malaysian classroom context. Past research has informed us that teachers' perceptions and beliefs are likely to have significant implications for students' perceptions, learning approaches and outcomes (Marton & Booth, 1997; Prosser & Trigwell, 1999; Meighan & Harber, 2007).

This research study is mainly qualitative and used these methods of data collection: semi-structured interviews, quiz-questionnaire (QQ), and observation. The study was carried out in two suburban secondary schools in Kajang, Selangor, with 142 student participants for the QQ and a total of 36 teachers and students for the interview, group discussions and observations.

The findings show that there are several factors that help or obstruct the students' and teachers' metacognition to understand the students' MI profiles. Teachers tend to essentialise and assign labels within the students as factors. The issue of ethnic labelling which characterises the Malaysian context was highlighted by both teachers and students as a factor with significant influence on the students' learning. Importantly, teachers and students acknowledge MI as an essential catalyst for meaningful learning. Nonetheless, this study provides evidence that teachers showed a degree of unwillingness to use the information on students' learning profiles in students' learning.

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CHAPTER ONE

INTRODUCTION

1.1 Overview

As a start to begin the research process, I will first begin by explaining my rationale for my research design. This chapter begins with an introduction of how the research idea and the research problem developed through time. Using Multiple Intelligence (MI) theory as a base, my initial research plan was to investigate the value of teacher's perceptions on students' learning 'experiences'. The research idea is in accordance with the Malaysian Education Ministry plan to improve the teaching and learning experiences in secondary schools. The chapter describes the flow of how the idea started from personal experience and was strengthened by my reading.

1.1.1 Personal experience as the beginning of an idea

My interesting observation throughout the years of being in a single sex secondary school in Malaysia is that some teachers tend to label certain groups of students with certain forms of intelligence. As I also had the privilege later to go to a mixed secondary school, the same scenario could be observed. It has been perceived that the Chinese will 'always' be excellent in calculation and business subjects, Indians in language and medical subjects while the Malays will 'excel' in Arts and subjects with memorisation techniques like History. Society plays a significant part in this generalisation or 'labelling' perception.

Back then, as a student, I too, tended to believe such perceptions, after several indirect confirmations from my peers and after observing trends in their actions. For instance, as students, we tended to compare examination marks and for Mathematics, it would not surprise us if our Chinese friends were the top scorers. Later, when I was teaching in a secondary

school, my colleagues also verbally suggested the same thoughts. It would seem that this scenario is quite common in schools all around Malaysia. Now, could this 'labelling' perception be the result of bias or is it just based on a simple generalisation that has been going on for years and years? What I am proposing here is to present original research on how certain perceptions by the teachers (on certain alleged characteristics of students) may impact on students' learning experience. This is because according to Meighan and Harber (2007), teacher's expectation of the students will influence students' behaviours in the classrooms.

To trace the history of when this 'labelling' circumstance started, I feel that a complete historical study might offer an explanation. However, I did not conduct historical research. I am more fascinated with whether the teacher's early 'labelling' has somehow channelled the student's learning process and has brought an impact on the student's intelligence profile in the learning process. Generally, every teacher knows that each student is different. Talking about individuality, I am intrigued by Howard Gardner's (1983) Multiple Intelligence theory which ultimately supports that every learner has his/her own innate ability or 'intelligence' profile, and this idea seems relevant to the teaching and learning process in Malaysia. The other rationale for adapting Gardner's theory is because the Malaysian Education Ministry is really inspired by the idea that each individual's capabilities should be explored in order to produce an 'all-rounder' generation (achieving academic success and also equipped with life skills) and educational researchers in Malaysia are encouraged to investigate possibilities to make teaching and learning more meaningful.

As elaboration to this argument, Gardner strongly believes that every learner has the capability to be intelligent in their own way - with the introduction of the seven intelligence profiles as will be explained later - if the learner is guided and given the right opportunities. Then again, if a teacher already has a pre-set mind on a particular student's 'intelligence', subsequently, the teacher might not be able to guide the student to find his or her 'rightful'

intelligence profile. For example, according to the early labels, a Chinese student who is supposedly good in calculation will fall into the Logical-Mathematical intelligence profile with certain characteristics and learning styles. Nonetheless, this might not always be the case. Perhaps, the Chinese student might excel more in other types of intelligence or might even have a combination of intelligence profiles.

In the next section, I will present how the research problem applies to the Malaysian classroom context.

1.2 Context and Problem

The Malaysian education system has a language arts-mathematics based curriculum and the narrowly designed methods used to measure progress are traditional tests with multiple choice questions, filling in the blanks etc. What about Malaysian high school leavers who are not able to demonstrate their abilities in traditionally rote ways? These students may believe that they are not clever or not 'successful' and are also burdened with finding the most suitable job according to the results of the national major exam for secondary studies – SPM (Sijil Pelajaran Malaysia) - and perhaps, not even aware of real potential lying within themselves. One way of dealing with this is by understanding the students' individuality in the classroom.

The Education Ministry Department has proposed the Education Development Master Plan (PIPP) 2006-2010[1] to improve the teaching and learning experiences in secondary schools. The Ministry is quite inspired by the idea that each individual's capabilities should be explored in order to produce an 'all-rounder' generation. This has resulted in educational researchers in Malaysia being encouraged to investigate possibilities to make teaching and

[1] For more information: Education Development Master Plan (PIPP) 2006 – 2010. [online] www.moe.gov.my/tayang.php?laman=pipp&unit=kementerian&bhs=my

learning more meaningful. In addition, the theory of Multiple Intelligence by Howard Gardner (1983) was introduced through teachers' resource books (Pusat Perkembangan Kurikulum, 2001; Mahyuddin and Elias, 2003; Sang, 2009). Further discussions with friends and colleagues also brought some debates on the practicability of adapting MI in the Malaysian classrooms. While the theory seems to be a favourite among teachers and educators, the theory has been criticised as Chapter Two explores.

Currently, no published work is available with regards to the Malaysian education system with reference to Multiple Intelligence theory from teachers' and students' perspectives. This study is expected to add to current studies on the significance of teachers' perceptions. Upon the completion of this research study, the findings will be shared with the Ministry of Education in Malaysia and with permission from the Ministry; the research study will be presented in conferences and published in journals.

1.3 Aims of the study

This study aims to examine the nature of teachers' perceptions towards students' learning experience in the classroom in relation to ethnicity issue in Malaysia. Based on this aim, I have planned the study around these purposes:

- ✓ to investigate secondary Malaysian students Multiple Intelligence profile;
- ✓ to find out teachers' and students' perceptions of students' Multiple Intelligence profile;
- ✓ to find out how teachers' early perception might be affected by further knowledge of students' MI profiles
- ✓ to find out what teachers say as to how they arrive at their early perception, and
- ✓ to investigate to what extents teachers' perceptions might affect the students' learning experience in reference to the students' ethnic background.

In Chapter 3, I will further elaborate these purposes. A number of researchers have carried out numerous research studies on the importance of teachers' perceptions in the learning process and pointed out that such perceptions will affect students' meaningful learning (Durham & Ryan, 1992; Wilson & Cameron, 1994; Ryan, Makarova & Ryan, 1997; Prosser & Trigwell, 1999; Meighan & Harber, 2007). While this study did not directly address the affects of teachers' perceptions, this research base suggests that pre-conceived notions will influence classroom life. In addition, this study is contemplating investigation of teachers' perception in the Malaysian culture.

There is a huge amount of literature on the importance of teachers' perceptions in the classroom and Multiple Intelligence theory (MI theory) which will be briefly mentioned in the next section.

1.3.1 Importance of Teachers' Perceptions

Studies about teachers' and students' perceptions in the classroom have linked teachers' perceptions and approaches with students' perceptions, learning approaches and outcomes (Marton & Booth, 1997; Biggs, 1999; Prosser & Trigwell, 1999; Meighan & Harber, 2007). For a thorough discussion, Chapter Two will investigate and explain more on this topic.

Moreover, Prosser & Trigwell (1999) provide support with empirical studies on the relationship between the teacher and the student. They believe that how a teacher teaches inside the class is closely affected by the teacher's perceptions of learning and teaching and approach to teaching. The teaching approach of the teacher, in response to some factors, will

influence the learning approach of the students. In simpler words, students will react to the manner and actions of the teacher in the classroom.

It can be true to say that forming impressions and categorizing people are useful occurrences in everyday life but inaccurate perceptions may result in "hindering" a person's capability (Meighan & Harber, 2007: 159). It is believed, for example, that certain teachers with positive perceptions of students' learning style will have a positive impact on the students learning and vice versa (Durham & Ryan, 1992).

Following from the literature on teacher perceptions, I have also looked into the significance of Multiple Intelligence theory to help construct the design of my study.

1.3.2 Discovering Multiple Intelligence's significance in learning

With reference to this thesis, my initial plan for research could be seen as filling the literature gap to elaborate on intelligence profiles within Malaysian classrooms. Moreover, Howard Gardner strongly proposed more research studies to be carried out especially in gathering ethnographic data and cross-cultural information to see intelligence in action and in context (Gardner, 1999), thus adding the Malaysian data could provide Asian cultural perspectives. A thorough literature review on Multiple Intelligence will be covered in Chapter Three.

The MI theory has a number of significant implications for education. Probably one of the most widely discussed is that MI suggests that there are a number of shortcomings when education is restricted as in schools. The heavily exam-oriented style in secondary schools favours students who excel in linguistic intelligence while at the same time, does not challenge students to pursue problems using other intelligences (Walters, 1992). As a result,

students fail to transfer the problem solving skills outside of schools. It is believed that while a majority of schools are focusing on structured, linguistic solutions to problems, there would be less flexibility in student's way of thinking, which is quite a fitting observation in Malaysia.

Critics argue that valid evidence for the specifics of Gardner's theory is too limited, and there is no published work showing that its practical applications have been effective (Sternberg, 1991; Waterhouse, 2006). In response to the original concern that MI theory has no or little empirical evidence to validate it, Gardner states that "all claims are perpetually 'at risk' in the light of new findings" (Gardner, 1999: 86) which then supports that the theory is still being developed. Sternberg (1991) states that there were no validating studies for multiple intelligences, and in 2004 Gardner asserted that he would be "delighted were such evidence to accrue" (p. 214), and he admitted that "MI theory has few enthusiasts among psychometricians or others of a traditional psychological background" because they require "psychometric or experimental evidence that allows one to prove the existence of the several intelligences" (2004: 214)."

Another major criticism of MI theory is that it is inaccurate to say that someone may display one intelligence but not another. This simply means that there is no possible way of knowing one intelligence profile is not connected to another intelligence profile. In the case of all major IQ testing like the Wechsler Adult[2] or Child Intelligence Scale and Stanford-Binet IQ Test[3], results had shown all ability or intelligence has some influence over another. In simpler words, it will be quite impossible to group students into fixed intelligence profiles. Contrastingly, Shearer (2004) believes that learners need to be real-world problem solvers

[2] http://www.healthatoz.com/healthatoz/Atoz/common/standard/transform.jsp?requestURI=/healthatoz/Atoz/ency/wechsler_intelligence_test.jsp. Accessed 5th Feb 2009.

[3] http://www.healthatoz.com/healthatoz/Atoz/common/standard/transform.jsp?requestURI=/healthatoz/Atoz/ency/stanford-binet_intelligence_scales.jsp. Accessed 5th Feb 2009

who understand how to access and manipulate all kinds of information in incredibly flexible ways in order to be productive. Thus, students with two or more sets of intelligence profiles will presumably be more successful later.

This brief introductory review and my personal experience in Malaysian high schools have helped me to form my research questions, presented in the next section.

1.4 Research Questions

At an early stage of the research process, the research questions have created a boundary in my epistemological position as a researcher. However, as a result of the pilot study, the research questions were revised as will be further explained in Chapter 3.

1. What are teachers' and students' pre-existing perceptions of students' learning profiles?
2. How do teachers' expectations and perceptions of students' learning profiles compare to the students'?
3. How does information about students' MI profiles affect students' perceptions and their learning in the classroom?
4. To what extent can teachers' and students' perceptions of students' learning profiles be linked to students' ethnic backgrounds?

1.5 Thesis Organisation

Overall, the thesis is chronologically organised to record the process of the research. The abstract is presented at the beginning of this thesis. To best describe the whole story of

my research thoroughly, there may be some overlapping sections. The paragraphs below represent the chapters in this thesis.

As can be seen in this first chapter, it presents the overall purpose of the study, introducing the reader to the outline, the rationale of the proposed study and the thesis structure. This chapter also briefly describes the essential literature which gives meaning to this study.

Chapter Two presents a critical review of the past and current literature on the principles of the theory of Multiple Intelligence (MI). This chapter also explores the concerns, issues and application of MI in learning contexts. Importantly, the concept of MI is explored; a rationale for its promotion in the Malaysian teaching and learning classroom and later the significance to the study will be discussed in this chapter. It also gives an overview of the background of the Malaysian classroom teaching and learning practice.

Chapter Three provides a presentation of the philosophical position that underlies the approach of this study and a discussion on the choice, design and application of research tools. This chapter also presents the chronological steps of designing and adapting the methods and methodology.

The presentation and analysis of the data will be described in Chapter Four. The analysis is presented in two sections, one for the students and another for the teachers. A discussion of the findings of this study will be linked to the themes within the literature reviews. This chapter will look at all the similarities and differences between the literature and the outcomes of this research.

The conclusion and recommendations that emerge from the study will be presented in the final chapter to evaluate the study's limitations and identify potential future development of a PhD thesis. Personal reflection of the researcher will also be offered in relevance to the research study.

The complete list of references will be presented at the end of the thesis while in the Appendices section, we find:

a) The graphical presentation which include all the tables, figures and diagrams relevant to this study
b) The presentations of the data collection tools
c) Other supporting documents that describe the process of this study

CHAPTER TWO

INITIAL EXPLORATION AND PERSPECTIVES ON MULTIPLE INTELLIGENCE THEORY

2.1 Introduction

This chapter introduces and explores a concept which serves as one of the foundations of this study - the Multiple Intelligence (MI) theory. It is divided into sections which begin by providing a background to the theory and subsequently charting a critical journey of its weaknesses. I consider this chapter to be very important as it creates my rationale for why and how I used Multiple Intelligence as a foundation for my study. The first section introduces the theory and how Howard Gardner, its founder, defines intelligence, and explains how the theory fits into the definition. This leads to the next section where the basic principles of MI theory are explained and evidence supporting Gardner's basic principles are presented. Next, I will initiate a discussion on the many views of the supporters and those who oppose, particularly on the definition of 'intelligence' and its implications for teaching and learning. In addition, I will also refer to other studies that have used MI as a framework to show how it has been applied in different studies. I will also offer my rationale which will reflect a framework that is based on some research problems and my own research aims.

As I deduce through my own and others' experiences as students and teachers in Malaysian secondary schools, individual learning profiles are very important in creating, developing and realising a more meaningful learning experience. Thus, I believe in the MI premise of asking "How am I smart?" in contrast to the traditional question of "How smart am I?".

2.2 Howard Gardner and Multiple Intelligence (MI) Theory

The theory of Multiple Intelligence (MI) was first introduced by Howard Gardner in his book *Frames of Mind: The Theory of Multiple Intelligences* (1983). The theory aims to explain the complex nature of intelligence. Gardner has proposed seven profiles (Gardner, 1983 and 1993) namely: verbal/linguistic, mathematical/logical, spatial, kinesthetic, musical, interpersonal, intrapersonal, and another two MI profiles later – naturalistic and existential. These profiles help to describe the individual learners with certain characteristics. Since the start of the theory, MI has been considered as a useful approach in developing curriculum and exploring individualized teaching and learning, and school curricula have been developed around the theory (Kagan & Kagan, 1998; Hoerr, 2000). The theory seems to get the attention of not just teachers and educational institutions but also a group of researchers, some of whom are skeptical about the application of the theory (as will be discussed in Section 2.4).

Originally, Gardner explained intelligence by offering his insights through the MI theory. He developed the MI list as a theoretical model about the psychology of the mind. He explained different beliefs how people see intelligence, specifically with how one group believes that intelligence is made up of a certain amount of innate abilities and knowledge inside the mind; in simpler words, a general intelligence (*g*) that people are born with. The opposing group like the famous French psychologist, Alfred Binet, however, believe that intelligence is a combination of many factors such as adapting to the environment (Weinberg, 1989). Gardner, who supports a practical way to address individual differences, falls into the latter group. In what seems to be an agreement with Binet's idea, Howard Gardner defines intelligence as "the ability or set of abilities to solve problems, or to fashion products, that are valued in one or more cultural or community settings" (Walters & Gardner, 1988: 166). He explains that the seven intelligences work together in an integrated whole, yet each is identifiable and capable of enhancement. As relevant as intelligence is to culture, it is also an

organized set of activities characterised by "a system of symbols and a set of operations" (Gardner, 1999: 82). This can be exemplified with reference to a dance performance. According to Gardner, dance resides in a domain very much influenced by culture and each particular dance needs the coordination of the body (bodily kinesthetic intelligence) and an understanding rhythm and beats (musical intelligence) (Gardner, 1993). Similarly, this is how intelligence functions within the human psyche.

Despite criticism that MI theory is not compatible with genetic or environmental accounts of the nature of intelligence, Gardner asserts that MI theory is most concerned with the "interaction" between genetics and the environment in understanding intelligence. He believes that MI theory is about the intellectual and cognitive aspects of the human mind. Gardner further asserts that MI theory is not a theory of personality, morality or motivation (1995, 1999).

It is essential to the theory that 'intelligence' is defined carefully. Thus, I see the need to dedicate Section 2.4 to a critical discussion on the topic. Gardner's initial work on redefining intelligence was that he could accurately pinpoint parts of the brain as these correlated to the seven described intelligences. Gardner identified locations of each intelligence within the human brain by using findings from research in neurophysiology (refer to further elaboration in Table 2.1). Part of his contention for considering the redefinition of intelligence was strengthened by the fact that he noted that humans could actually lose an ability or intelligence through disease or injury.

Through his collection of evidence from studies of gifted individuals, 'normal' children, experts in different fields, people in different cultures, cognitive and psychological studies, Gardner offers eight criteria for distinctive forms of intelligence:

1. the potential of isolation by brain damage

- This criterion explains that even if the brain is damaged in one part, another would still be in use. For example, in the area of language faculty (linguistic intelligence), though there may generally be "essential similarity in oral, aural, written, and sign", specific candidates nevertheless "will point to a separate linguistic intelligence" (Gardner, 1999: 36).

2. its place in evolutionary history

- Despite all the gaps in evolution, we can still trace the 'evidence' of a particular intelligence. Gardner adds recently that the emerging field of evolutionary psychology is engaging in "reverse engineering to understand the possible evolutionary of the mind" which is associated with one part of the brain (Gardner, 1999: 36).

3. the presence of core operations

- There is a "core" or set of operations for each intelligence. He uses linguistic intelligence as an example which is "in conjunction with phonemic discriminations, command of syntax, sensitivity to the pragmatic uses of language, and acquisition of word meanings" (Gardner, 1999, 36-37).

4. susceptibility to encoding

- The human brain tends to process different kinds of symbol systems effectively, to understand certain meanings through societal and personal symbol systems with the relevant intelligence.

5. a distinct developmental progression

- 'Intelligences' have their own developmental process. For example, he explains "the clinician in American culture and the shaman in a tribal culture, both, are using their interpersonal intelligences but in different ways and for somewhat different ends" (Gardner, 1999: 38-39).

6. the existence of prodigies and other exceptional people

- It is possible to observe the nature of a particular intelligence in great contrast to other average or impaired abilities. He provides the example of "autistic children who are outstanding at numerical calculation, musical performance or drawing but marked impairments in communication, language and sensitivity to others" (Gardner, 1999: 38-39).

7. support from experimental psychology

- To indicate to what extent two operations are related or different, in order to deduce different intelligences. Gardner's example is such that "most of us have no trouble walking or finding our way around while conversing but we often find it difficult to converse while solving crossword puzzles" (Gardner, 1999: 40).

8. support from psychometric findings

- Based on psychometric evidence, the findings show that all intelligences have a correlation in scores. Conversely, he gives the example "studies of spatial and linguistic intelligence have yielded persuasive evidence that these two faculties have weak correlation" (Gardner, 1999: 41). He adds that psychologists have broadened their definitions of intelligence and increased tools for measuring intelligence which show psychometric evidence in favour of Multiple Intelligence.

(All eight criteria are adapted from Gardner, 1999: 36 – 41)

These criteria offered by Gardner help strengthen the basis for the theory and provide a framework for understanding the theory. Gardner also reminds readers that these intelligences are not 'physical verifiable entities' but are scientific constructs that have potential for helping us understand differing abilities and skills. It shows that Gardner has attempted to introduce a theory with background research to support it and he is partially satisfied with the evidence. However, as we will see later, not all of his critics are satisfied with Gardner's explanation.

Before going on with the critical discussion, it is best to look at the basic principle of the intelligence profiles.

2.3 The Principles of Multiple Intelligence Theory

According to the theory, all human beings possess the seven intelligences to varying degrees. Gardner is proposing that each learner is intelligent in his or her own way, using the seven ways of discriminating between intelligences. Each person has an individual intelligence profile, where different people use the set of abilities, talents or mental skills in different ways. Gardner asserts this as the learner's "biopsychological potential" (Gardner, 1993: 36). In *Frames of Mind*, he also puts forth the importance of culture which will influence how intelligence is expressed. This supports that different opportunities in different cultures help to shape the individual learner. The theme of culture is also very important in my study and will be further explained in section 2.7.

Gardner carefully defines the theory by providing explanations of the seven 'intelligence' profiles, as mentioned earlier, and occupations associated with them. They are:

2.3.1 Verbal Linguistics Intelligence

This intelligence explains the ability to use words and language skills of reading, writing, listening and speaking. A person with this intelligence has highly developed auditory skills. In learning, this person enjoys debating, writing poetry, and playing word games and perhaps, someone who likes to tell a story to get a point across.

E.g. : poet, journalist, writer

2.3.2 Logical Mathematical Intelligence

Suitable in scientific thinking, this intelligence explains the ability to use inductive and deductive reasoning and thinking. Individuals with highly developed logical-mathematical thinking have the tendency to explore patterns and their relationships besides conducting experiments for own understanding. These individuals also like to estimate or predict, ask questions and enjoy well-ordered tasks. In learning, they are those who use numbers and are able to recognize abstract patterns in their studies.

E.g. : mathematician, scientist, accountant

2.3.3 Musical Rhythmic Intelligence

Musical Rhythmic Intelligence refers to the ability to recognize tonal patterns and sounds. They are people who have high sensitivity to rhythm, pitch, beats and stress patterns in a melody; someone who thinks about and with music. Students may express that they listen to music while studying or reading.

E.g. : singers, composers, conductors

2.3.4 Visual Spatial Intelligence

Visual Spatial Intelligence is based on the ability to visualize objects and spatial dimensions. Individuals with this intelligence have the wisdom to create internal images and pictures in their minds and tend to like designing things. In the classroom, these individuals might enjoy learning by watching videos, drawing and doodling, navigating and understanding graphical presentations.

E.g. : painter, sculptor, architect

2.3.5 Bodily Kinesthetic Intelligence

This intelligence originates from the body movement; the ability to control physical motion and wisdom of using movements appropriately. People in this profile have good coordination, balance and motor skills. In terms of the learning activity, they are students who prefer hands-on learning and physical activities as their study style.

E.g. : carpenter, mechanic, dancer, surgeon

2.3.6 Interpersonal Intelligence

Interpersonal Intelligence is the capacity for person-to-person communications and relationships. Individuals who are highly developed in this intelligence have many friends and enjoy engaging in social activities. They generally have a genuine empathy for the feelings of others and may be good leaders. These individuals' learning style is through participating and sharing in a team cooperative environment.

E.g. : salesperson, counselors, consultant, politician

2.3.7 Intrapersonal Intelligence

The seventh intelligence is related to the wisdom of internal, inner state(s) of being; a person who is in touch with his or her own feelings and believes in solitude. A highly developed intrapersonal individual has a creative and reflective mind who responds to strong opinions and controversial issues diligently. In the classroom, these individuals are those who learn by undertaking independent study projects and self-reflection.

E.g. : psychologist, writers

2.3.8 Other Intelligences

Throughout his years of discussing MI theory, Gardner, in response to the 21st century, further proposed two more intelligences (Gardner, 1999). However the two intelligences are still under consideration for further discussions4 (Waterhouse, 2006).

i Naturalist

This intelligence involves the ability to be in touch with nature and the outdoors. It is endowed in individuals who reflect a tendency to sense natural patterns and who are good with finding relationships between living organisms. These individuals learn by studying natural phenomenon and how things work.

E.g. : people who have interest in nature like biologist, veterinarian, environmentalist

ii Existential

The existential intelligence is perhaps one of the most discussed because of the abstract nature. It covers the ability to contemplate, to pose and ponder on the questions about life, death and ultimate realities. These 'existentialists' like to ask philosophical questions relating to the world. It is believed that in learning, they are individuals who like to use communication tools to ask questions and get involved in debates. Some of the popular communication tools include email, chat, and teleconferencing sessions like posting video on the internet.

E.g. : people who have interest in discovering and understanding the real world vs scientific world, like philosophers, cosmologists and theologians

[4] www.aera.net/sigs/sigsites.htm Discussion on Multiple Intelligences SIG

Thomas Armstrong (2000) summarised four points to define important ideas of Gardner's Multiple Intelligences theory. Firstly, as already discussed, each person posesses the seven intelligence profiles to a certain degree. Some may have a higher display of a particular intelligence profile than others. Simply put, as individuals, we have at our disposal some highly developed intelligence together with some weak ones too. As a result, our personal intelligence profile will depict what is dominant through the way we learn (actions and behaviour). Secondly, there are people who have been able to develop their intelligence profiles to a certain level for example through combinations of school experiences and family background. For example, if a teacher encourages and guides the student well enough, he/she will be able to develop certain intelligences. The third point explains that intelligences are co-dependent in a complex way. For example, in a dance, there will be a combination of bodily-kinesthetic, musical rhythmic and spatial intelligence. The final point elaborates that in one intelligence, a person might perform in a different way under a certain intelligent profile. For example, a show of high inteligence in musical rythmic profiling of an individual might not mean that she or he will be able to sing well but it may mean that she/he is able to compose songs well.

When we talk about intelligence, experts such as psychologists will also be interested to know how representations of the mind can be depicted scientifically. So, how closely related are the intelligences to cerebral structures? The earlier discussion explained that Gardner's defense for the rationale of MI existence is that each intelligence has close association with particular parts of the brain. Therefore, to further illustrate this, Gardner came up with the following table to explain the connection of the intelligences with certain parts of the brain (Gardner, 1993, 1999).

Table 2.1: Cerebral systems associated with each of the MI

Intelligence	Brain Systems
Verbal-linguistic	Left hemisphere, temporal and frontal lobes
Logical-mathematics	Left parietal lobes and adjacent temporal and occipital association areas, Left hemisphere for verbal naming, Right hemisphere for spatial organization, Frontal system for planning and goal setting.
Visual-spatial	Right hemisphere, parietal, Posterior, Occipital lobe
Body-kinesthetic	Cerebral motor strip, Thalamus, Basal Ganglia, Cerebellum
Musical-rhythmic	Right anterior temporal Frontal lobes
Intra & Interpersonal	Frontal lobes as integrating station between internal and external states/people
Naturalist	Left parietal lobe (discriminating living/nonliving things)
Existential	Hypothesized specific regions in the right temporal lobe

(adapted from Shearer, 2004:12)

This table thus situates the nine intelligences in different parts of the brain. This also suggests that MI profiles have a basis in biology. Table 2.1 also helps people to visualize which part of the brain their dominant intelligence(s) can be associated with.

Although Gardner and his supporters have successfully provided evidence supporting the MI theory by introducing criteria and evidence from neurology making the theory plausible to many, there have nevertheless been numerous criticisms on the use of Multiple Intelligence. For instance, despite the many studies conducted on MI, the majority of research prefers to focus more on the use of the MI questionnaire to discover the distribution of the intelligence profiles among different students rather than the application of the MI concepts in the classroom context. The next section covers the many discussions and interpretations of both supporters and critics of Gardner's theory.

2.4 The Promotion of MI in the Malaysian context

I believe that it is important at this stage to look at how MI has made its way into the Malaysian educational context. Through the readings and exploration of MI, I perceive a sound rationale for initiating a research project on issues pertaining to the theory. In addition, given my experience as a teacher and previously a student in Malaysia, I am able to understand the cultural and classroom context which underlies the problem. Based on collected viewpoints and my own personal beliefs, I am of the opinion that such contexts will assist me in creating a framework for my research study. My experiences will be elaborated via the following:

1) In the Introduction chapter, I described briefly how the education system in Malaysia supports exam-oriented learning. This results in students who are not successful in exams mostly believing that they are not intelligent enough and

feeling left out by the education system. It also leads to the perception that there is pressure from the culture and society to be successful in exams and tests.

2) Through discussions and interviews with teachers, I gathered that some teachers have preconceived ideas of students based on their ethnic backgrounds which subsequently influence their teaching and the students' learning in the classrooms. Having these perceptions might also lead to labelling the students which then, might be a barrier in understanding students' learning profiles and learning needs.
3) The new Education Policy (*PIPP) 2006-2010,* aimed at achieving quality education for all, also includes looking at ways to maximise differentiations in students' capabilities[5]. As a subtext of this general education policy, Malaysian teachers are expected to consider the application of the MI theory in the classroom with the publications of complete MI teachers' resource books (Pusat Perkembangan Kurikulum, 2001; Mahyuddin and Elias, 2003). In fact, the significance of MI is also stressed in teachers' promotion examination resource books (Sang, 2009).
4) The Malaysian Education Ministry has continuously stressed on research to seek ways in which Malaysian students can be developed into not only all-rounders, but who good problem-solvers.
5) In promoting the application of MI, the Ministry of Education shows great support in the use of MI in Project Based Learning to enhance teaching and learning in Malaysian universities (Ministry of Education Malaysia, 2006; Kumar et. al., 2009).

[5] A copy of the main chapters of the PIPP is attached in **Appendix 1**,

Policy makers in Malaysia have encouraged the application of MI theory for Malaysian teachers in their classroom teaching (Pusat Perkembangan Kurikulum, 2001). Although the reason why Multiple Intelligence is specifically considered by the Ministry is not mentioned, evidence of proposed MI activities in several teaching resource books have suggested its importance (Pusat Perkembangan Kurikulum, 2001; Mahyuddin and Elias, 2003; and Sang, 2009). Based on the publication dates of these books, it can be deduced that MI theory was introduced during the Education Development Master Plan (PIPP) of 2006 – 2010. From this, it can be understood that one of the *PIPP's* main aim is to find ways to produce successful 'problem solvers'. The MI theory certainly supports this aim. Through this approach, it is hoped that educators, teachers, and policy makers will come to the realization that students react and perform differently in the classroom because they possess different intelligent profiles and not because they are less smart than those who are more successful in the education system.

Gardner himself strongly believes that MI theory is not an "educational prescription" and that "such labelling can impede efforts to provide the best educational interventions for success" (Gardner, 1999: 91). The realization that all learners are different and that there is a need to find ways for Malaysian students to look at all opportunities to develop their intelligence profiles raises these questions:

- Since individual students are smart differently, what can be done to help them?
- Since teachers are the closest to these students, what additional strategies can help them cope with these variations of learning profiles?

MI is seen not as the only solution to the problem, but as a suggested additional tool to help teachers understand students better and perhaps, help students to understand their own learning too.

Thus for us to see the wider perspective on how MI is viewed by other researchers, critics and supporters, I present the following chapters.

2.5 The Many Views of the MI Theory

2.5.1 The term 'intelligence'

As mentioned earlier, the term 'intelligence' surfaces contradictory definitions. In fact, this has led to the creation of two camps. One group (theoretical psychologists) believes that 'intelligence' is one 'entity' while another group (e.g. educators and teachers) argue that 'intelligence' is made up of many 'entities' or an ".. array of human mental abilities or faculties" (Gardner, 1983: 7). A discussion of definitions in the area of academic disciplines will invariably involve the words "lumping" and "splitting" . This is especially pertinent in the field of science (Weinberg, 1989; Lazare, Nicholls and Shallhorn, 1998). "Lumping" means to find meaning in a particular pattern or group while "Splitting" means there are many ways to explain and find meanings. In educational psychology, the Splitters are the educators who try to understand by looking at the many abilities and focuses on differences. Lumpers believe in a unified concept which focus on similarities, (Lazare et al., 1998: 12) for example, the famous Gestalt psychology or psychologists like Alfred Binet and David Wechsler.

Gardner, who claims himself to be in the "Splitters" group, asserts that we should be looking at the ways/abilities/pluralities that make a person intelligent and not to single out if a person is intelligent or not based on a single criterion. He argues against the administration of intelligence tests (like the Wechsler scales and Stamford-Binet standardised tests which measures a general capacity termed as IQ). This is because the results of these tests only describe a person's IQ based on a quantitative description. To Gardner, such results will be insufficient in providing us with an understanding of individual intelligences.

Gardner asserts that current psychometric approaches for measuring intelligence are thus not an adequate method to measure intelligence. Referring to his argument against the Wechsler's and Stanford-Binet's IQ tests, he states

> *Predictive validity of traditional intelligence tests may be psychometrically sound, but its usefulness beyond predicting school performance is questionable…*
>
> *Instruments for measuring intelligence should be 'intelligence-fair'*
>
> (Gardner, 1993: 176)

Although intelligence tests seem to measure one's IQ, many psychologists who are Splitters also believe that environment, creativity and skills in being analytical and in solving problems should be added to our understanding of intelligence (Sternberg, 2003). In Sternberg's *Beyond IQ: A Triarchic Theory of Intelligence* (1985), the author had earlier proposed a 'triarchic theory of intelligence' which explains that intelligence in problem solving activities uses these approaches 'analytical, practical and creative' (Sternberg, 1999: 438). Despite having reservations due to what he perceived as Gardner's lack of evidence for the definition of the theory, Sternberg agrees that there is no one way of defining intelligence. According to Sternberg (2002), learners with high analytic ability tend to perform better through lectures and objective tests. Creative learners, in comparison, have a different way of looking at assignments which might not agree with the lectures given by their teachers. Learners with high creative intelligence seem to have better success outside the classroom and have good social skills (Sulaiman & Sulaiman, 2010).

Is MI a valid representation of the human general intelligence (*g*) then? Shearer (2004: 4) further elaborates the definition of 'intelligence' with these three points:

1) Intelligence is the ability to solve problems

2) It's not limited to just the capacity for rapid, logical problem-solving and convergent thinking
3) It not only happens "in our head" but also includes the materials and the values of any particular context or culture

Shearer suggested that the above reasons are enough to explain that MI could not be compared with '*g*' because it is impossible to make a comparison when in each intelligence, there are

> "clusters of skill sets, for example, for linguistic intelligence, there are reading, writing, and speaking. (This skill set) forms domains (prose, poetry, rhetoric) that get expressed and recognized in cultural fields (contemporary writing, presidential debates etc)" (2004: 4)

The illustration above shows the cultural fields (presidential debates) of a Western culture for instance. He further suggests a need to understand how specific intelligence functions in different cultures. This adds a link to the influence of culture, which is an important element in this research study.

It is mentioned that MI seems to be a favoured choice with teachers in the classroom application basically because the theory makes sense in understanding the students' differences. The next section looks at the MI theory application in the teaching and learning environment.

2.5.2 MI in teaching and learning

Howard Gardner's Multiple Intelligence theory has stirred some educators to take a fresh look at our assumptions about students and learning. Many educators and teachers are also in favour of the theory just because it seems intuitively true in that it is a theory that helps to describe the learner's individuality and makes teaching positively different for students

(Armstrong, 2000). But the question still remains whether this theory has enough scientific evidence and whether there are studies that will be able to support the effectiveness of MI application in schools. In order to support these arguments using empirical evidence, I feel there should ideally be a longitudinal study which will then be able to make a complete comparison and contrast of the effectiveness of MI application in schools. This can be achieved by carrying out case studies in schools that adopt the MI theory in the curriculum which is then followed up using some sort of evaluation or assessments of the students and teachers that will be able to show the 'success' of MI in application.

With this brief portrayal of initiative responses (from educators and teachers), Gardner strongly advocated research to be carried out especially in gathering ethnographic data and cross-cultural information to see intelligence in action and in context (Gardner, 1999). While it seems that critics tend to debate on the theoretical aspects of the theory (Waterhouse, 2006), very few have focused on the fact that the practicality in teaching and learning based on the initiative demands a paradigm shift in education (Kagan & Kagan, 1998). It seems that teachers around the world are thinking of better ways for teaching and learning and for some, their approaches to improvement might be based on Gardner's Multiple Intelligence theory (Hoerr, 2000). Gardner himself (1993) simply suggests that educational methods in the classroom should have the flexibility to cater to individual students' learning preferences. It requires addressing individual differences and providing a range of activities and experiences to facilitate learning. In supporting this, Kagan and Kagan (1998) add that if the students are made aware of their own unique intelligence profiles, they might be able to make the transition from difficult learning situations to creating opportunities through their owns strengths.

The practical implications of the MI theory have attained supporters among teachers and educators (Armstrong, 2000; Klein, 1997; Walters, 1992; Shearer, 2004). In this respect,

probably one of the best arguments known is that MI overcomes shortcomings of educational approaches which are syllabus-restricted such as those existing in Malaysian schools today. The context-laden, exam-oriented style in schools favors students who excel in linguistic or logical intelligence while at the same time, does not challenge students to pursue problems using other intelligences (Walters, 1992). As a result, students fail to transfer their problem solving skills outside of schools. It is believed that as schools mainly focus on structured, linguistic solutions to problems, the flexibility in students' ways of thinking has become limited. In addition, students who are more successful in school because of their advantage of linguistic intelligence might mistakenly perceive themselves as excellent problem-solvers.

As mentioned earlier, proponents believe that knowledge of MI will help them understand learners better. According to Haggarty (1995), MI theory helps "to understand and categorise human cognitive abilities, and combination of abilities, heightening awareness (which) makes learning possible for individual students" (p. 49). Although analysis and application of Multiple Intelligence can yield many advantages, there will also be those who criticize. Klein (1997) for example argues that the MI theory will result in fixed profilings of students' learning abilities. If this happens, knowledge of MI will actually be a disadvantage as it opens up the possibility of attaching fixed labels on students. Thus, one group's self esteem will be raised while the other group is being discriminated against. This results in the latter group not believing that they too can succeed given the 'right' learning objectives.

The next section will look at how MI has been applied in different classroom contexts.

2.6 Application of MI in the Learning Contexts

During the past years, Gardner (1999) and colleagues from the Harvard Graduate School have been carrying out 'Project Zero'[6], a research endeavour which works on designing formats for performance-based assessments, education for understanding, and the use of multiple intelligences to achieve more personalized curricula, instructions, and assessments. In addition, there are also several supporters of MI applications in schools who suggest that in order for learning to be meaningful, classroom learning should be student-centered. From this perspective the application of MI in the classroom should therefore also be student-centered (Haggarty, 1995; Kagan & Kagan, 1998; Armstrong, 2000). The Multiple Intelligence Teaching Approach (MITA) Centre based in New York carries out collaborative research ideas on how to apply MI in the classroom.[7] There are many stories and experiences of teachers applying MI in classrooms as compiled by the School of Education in John Hopkins University[8]. For the most part, MI application success in schools is still an ongoing process. There is however, a complete teachers' resource book which suggests how MI can be adapted for use in the classroom. This comes in the form of teaching plans for example those provided by Kagan and Kagan (1998). Applying the MI theory in the classroom by understanding the students' individual learning profiles could help teachers make learning easier for the students. (Hoerr, 2000; Shearer, 2004; Armstrong, 2009;). For example, an English language teacher who has information on the MI profiles of students might plan for more personal attention/coaching to Visual-Spatial dominant students through the use of diagrams and drawings. Teachers could design and plan teaching activities to suit students' different intelligence profiles, especially for students who appear to show slow progress. Studies show that when teachers are better able to understand students' needs, learning

[6] http://www.pz.harvard.edu/Research/ResearchMI.htm
[7] http://www.mitaleadership.com/mita_education/ed_index.htm
[8] http://education.jhu.edu/newhorizons/strategies/topics/mi/

becomes easier for the students (Hayes and Allinson, 1993). An example of MI learning activities for language learning is presented in **Appendix 2**.

Other recent studies on MI include the creation of a wide database which will enable one to estimate intelligence profiles. This was created by Furnham and colleagues in the last decade to add to the cross-cultural studies of intelligence estimation (Furnham et al., 1999; Furnham, Hosoe, and Tang, 2001; and Furnham & Akande, 2004). In addition, studies have also provided literature to find out the distribution of MI (Currie, 2003; Kaur and Chhikara, 2008; Razmjoo, 2008). These studies, among others, have a similar pattern of using a questionnaire as a starting point to identify the students' intelligence profiles. The use of questionnaires has been reported (in the studies mentioned earlier) to be the best way to distinguish the participants' MI profiles at an early stage. Currie (2003) has provided a web link for readers to complete questionnaires online. In my opinion, if someone 'estimates', he or she will make judgements on what he/she think is right at the moment. This has similar implications to perceptions. Although this process serves only to explain self-perceptions and estimates, the subjects may still be surprised at the discovery of their own profiles and that of others. In addition, the studies suggest that the use of questionnaires is important for triangulating people's perceptions.

Research also shows that students learn best when their preferred learning style is supported with the teaching style of the teacher (Hayes and Allinson, 1993). Sulaiman and Sulaiman (2010) agree that teachers should put in mind individual differences in intelligence in their daily teaching plan. Teachers can then find the most suitable strategy to help the students to discover their potential in learning. It helps teachers expand their styles and approaches in the classroom. In being aware of students' 'weaknesses' in MI, teachers can focus their attention on helping the students improve themselves. For instance, certain learning activities have been shown to stimulate certain intelligences. As an example, reading

English newspapers everyday can develop the learner's Linguistic Intelligence (please refer to **Appendix 2** for more examples). This is therefore an important approach towards helping learners identify their own strengths and weaknesses, to help them in the choice of how to approach learning. Instruments are needed and MI quizzes/questionnaires can help. Knowing one's weakness could help oneself to further improve. The learners, their families, and the educational system will have to spend a considerable amount of time and effort in identifying the former's learning profiles (Razmjoo, 2008; Karamustafaoğlu (2010). However, with knowledge of the multiple intelligences inventory, the teacher can then suggest learning approaches according to the individual's profiles and also create activities that will promote the individual's less dominant type/s of intelligence. This is aligned to Gardner (1993) recommendations that educational methods be more flexible to cater to the different abilities of the students.

2.7 Initial concerns of MI in the study

As previously stated, the empirical evidence behind Gardner's claims has been questioned and concerns are raised. Gardner himself would be "delighted" (Gardner, 2004: 214) to have his claims validated in this way. In fact, Gardner admitted that "MI theory has few enthusiasts among psychometricians or others of a traditional psychological background" because they require "psychometric or experimental evidence that allows one to prove the existence of the several intelligences" (*ibid.* 2004: 214).

One critic, Waterhouse (2006) reported that in science, there may be less evidence to the theory of multiple intelligences than many educators seemed to believe. This conveys that evidence for the specifics of Gardner's theory is weak, and there is no firm research showing that its practical applications have been effective (Waterhouse, 2006). The danger is that it

leads to wasted time, to an emphasis on less important skills and to a false sense that learning has taken place when it has not.

Then there is always the question of the reliability of MI questionnaires as relevant indicators for the profiling of a learner's intelligence. The many examples of MI testing on the internet are largely based on personal questionnaires where any individual can find out which intelligences they possess. It is believed that there is a high tendency for a child to answer "yes" to a question "Do you like to sing and dance?" and for a working adult to answer "yes" to "Do you work best in a group of people?". According to the MI profile, the child would be in the musical and bodily-kinesthetic intelligence profile while the working adult possesses interpersonal intelligence. However, this generalisation could be half true as the nature of a child and a working adult are more or less geared towards the essence of the question and it is not because of a particular intelligence they have. Who is likely to respond that a child does not like dancing, playing, singing and an adult who works does not like working with people?

Despite the reliability concerns, the future research agenda for MI theory could add to understanding in the psychometrics field, as MI theory was devised as a "reaction" to psychometrics (Gardner, 1999: 40). Quoting Gardner's words: "the theory of multiple intelligences has helped break the psychometricians' century long's stranglehold on the subject of intelligence" (Gardner, 1999: 203).

Others, who oppose the application of MI in schools believe there are other questions raised which do not fully justify the theory as an acceptable practice for schools (Morgan, 1996; Waterhouse, 2006a). Some issues raised are concerned with the implications for multicultural education and bilingual learners, specifically whether ethnic origins or race could be linked to intellectual differentiations (Walters, 1992). The issue raised by Walters (1992) falls into the scope of my study which will look at individual learners in the Malaysian

cultural perspective, where certain intelligence profiles are associated with particular ethnic groups.

2.7.1 Significance of assessments?

Gardner believes that the purpose of assessment should be to gather information about the individuals' skills and potentials in a more natural learning environment (Gardner, 1993). In agreement with Gardner, Armstrong (2000) adds that MI theory supports the belief that students should be able to show their capabilities in a specific skill, subject, content area, or domain in variety of ways. On similar grounds with Armstrong, Gardner also believes that a better prediction of the learner's success in learning can be made if assessments fit more closely to the real working conditions. For example, in order to assess Spatial intelligence, an assessment would require the learner to find his/her way through an unfamiliar place or territory. Generally, tests and exams in schools are not different from any other tests which mostly measure the Linguistic and/or Logical Mathematical intelligence of learners/students.

Sternberg (1991) argues that quantifying performance on the sorts of assessments that Gardner proposes is difficult as objectivity is questionable and there would still be the problem of cultural bias. Amstrong (1994) proposes that MI theory provides a structure for linking instruction and many forms of assessment so students will be able to demonstrate their understanding in a less formal or standardised system. In any case, the proposal Gardner makes is seen to be contradictory to the application of traditional tests in the Malaysian education system. This is because the education system in Malaysia places great weight on examinations, like most other education systems in Asia such as those in China, India and Thailand. As a result, Malaysian students tend to rely on traditional rote learning as mentioned earlier. Since the National Education Policy (*PIPP)* suggests that differentiation in teaching is important for students' classroom learning (Chapter 3.19, *PIPP*: 34), assessments based on the MI profiling will be important. But, it would be quite impossible for teachers to

cater to all individual MI profile assessments given the time limitation and the syllabus to be covered in schools. In fact, traditional tests are likely to continue as a means of grading students collectively especially for major examinations in Malaysian schools.

Studies have suggested that such assessments can lead to a 'backwash effect', a term known in teaching and learning to denote the negative effects of testing (Messick, 1996). Biggs (1999) describes the impact that any grading method has on the student's learning approach as the 'backwash effect'. As reported by Tang (1991), the backwash effect is likely to have a negative impact on students' learning. The study conducted on Chinese students showed that time constraints means students will resort to memorising what they have learnt so as to be able to answer exams and tests. In my observation, students' opinions of examinations are usually negative. Exams create stress and they only study because of exams and not for the knowledge itself. More importantly, the 'backwash effect' can influence students' profiles in learning because of the need to learn to pass the exams. This 'backwash effect' is therefore a key component of my research.

Like Gardner, others have suggested that 'authentic assessment' can be a better form of testing as it explores how students can express how they learn in the classroom (Collins, 1992, Lazear, 1994, Cohen and Manion, 2007). Authentic assessment is a good way of focusing on students' ability and performance in completing certain tasks in an authentic environment.

2.8 How MI is interpreted in the study

In Malaysia, it is safe to say that teaching and learning in secondary schools is very much syllabus based. From personal discussions with teaching friends, I have found out that many students and teachers in Malaysian schools believe teaching and learning is basically exam-oriented. Teachers have too much content to handle and mainly focus on how to get the

students to be successful in their quizzes and examination. In his study of student teachers in Turkey, Karamustafaoğlu (2010) notes that student teachers have been educated by traditional teaching methods so that they are not successful in thinking about and examining the relationships among 'events'. In his study, he refers to Multiple Intelligence Profiles as a good way forward.

It is a generalization to say that the majority of teachers were fortunate to have successful experiences as students; they were able to master the requirements of a language arts-mathematics based curriculum and the narrowly designed methods used to measure progress, where the traditional tests are using multiple choice questions, filling in the blanks etc. Otherwise, the same teachers would be unlikely to qualify as teachers. But, what about those high school leavers who were not able to demonstrate their abilities in traditionally rote ways? How have we penalized these students who were not successful in their test results over the years? These students, who may end up believing that they are not clever or not 'successful' enough, are also burdened with difficulties in finding the most suitable job due to their inadequate results and may fail to realize their real potential.

Despite the observations of its critics, overall, I believe that Gardner's Multiple Intelligence theory transcends how we have traditionally looked at learning. The theory has come a long way having been in existence for the past 20 years. As Shearer (2004) adds, the citizens of the 21st century will not thrive by simply mastering literacy and computation; they will need to be real-world problem-solvers who understand how to access and manipulate all kinds of information in incredibly flexible ways in order to be productive. MI provides us with the tools to meet this challenge today (Shearer, 2004). This theory can guide learners to become problem solvers and to apply it in the real world.

A few published studies have been made available with reference to Multiple Intelligence theory in Malaysian contexts. Sulaiman and Sulaiman (2010) describe how to

enhance language teaching through individual differences using MI as a base while, Swami et. al (2006) elaborate on the estimation of general intelligence and MI among participants. The latter paper is an extension to the huge database of self estimation of MI in many countries carried out by Adrian Furnham and his research colleagues. Nonetheless, these two papers are limited in their understanding how MI is seen in Malaysian teaching and learning contexts. As Howard Gardner himself has strongly proposed, more investigations should be carried out especially in cross-cultural studies to see how intelligence profiling works in action and in specific contexts (Gardner, 1999).

Cultural differences are a recurring theme in many of these research studies. According to Furnham (2001), the reason why Asians tend to be modest in self-estimates is presumably because of the modesty in the culture. Similarly, Neto et al (2009: 525) highlight the cross-cultural differences that show how Asians display a notion of "humility" which explains how such individuals can be biased but in a "modest" way. Neto et al (2009: 520) also indicate that South East Asians generally have lower self-estimates than the studies on Europeans and North America. To support this point, Furnham & Chamorro-Premuzic (2005) conclude that cultural differences resulted in different findings for significant predictors between cultures. In their study, Furnham and Chamorro-Premuzic (2005) suggest that Argentineans have a more literary and emotional concept of general intelligence than some European countries (2005: 18). Additionally, Neto et al (2009: 526) also put forth that self-estimation in different cultures can affect "self-presentations" rather than an objective difference.

In 2008, Kaur and Chhikara conducted an investigation on intelligence and gender differences in India using their own "MI Assessment Tool". They had developed this set of measurements previously as part of an unpublished thesis (Kaur and Chhikara, 2006). The results of this study show that intelligence components are distributed quite evenly among

respondents, which is a contrast to other published studies (Sulaiman & Sulaiman, 2010). Nonetheless, an important point raised by Kaur and Chhikara is that stereotyping of gender roles is well established particularly in rural areas (2006: 10). This thus presents a case for me to conduct further research to investigate whether other forms of stereotyping exists in suburban areas.

Furthermore, Kaur and Chhikara (2008) stressed that at ages 12-14 years, it is important to identify strengths and capabilities as a start towards these youths building their career paths. Parents and teachers should take on the task of discovering strengths in the students'/ children's intelligence components so as to help these youths recognize their potential and thus maximize their performance in learning and becoming good problem solvers in real life situations (Kaur and Chhikara, 2008). Currie (2003) believes that teachers are well aware of students' individuality in the classroom and suggests MI as an initial step in understanding students' strengths and weaknesses.

As put forth by critics, though MI is not scientifically proven, it is still regarded highly as a tool in classroom learning. While it sounds scientific, as we have seen, it has no empirical evidence as a strategy for improving teaching and learning (Sternberg, 1991). Thus, researchers argue that instead of replacing any proven educational innovation with another, teachers can use MI as an additional tool to their teaching strategies (Kagan & Kagan, 1998).

The original basis of MI theory is that everyone has the innate ability to become intelligent in their own way, if guided, provides a theoretical basis for this study. In the context of teaching and learning in Malaysia, adapting MI theory in the local classroom should provide educators with an additional platform to understand students' learning styles. The proposed study will address Gardner's call for more research to be carried out across cultures to find better ways of explaining learning in general.

I believe that the many points raised in this chapter: how MI is defined and suggested as a probable framework to improve teaching and learning; how the theory relates with the current educational context in Malaysia; how 'perceptions' are expressed in teaching and learning; the stereotyping and backwash effect that seems 'visible' in the Malaysian classrooms; and the theme of culture which helps to further define the context of my study; have helped to structure the rationale of exploring MI in my study.

In addition the literature has helped focus on the meaning of MI theory in my study. Ultimately, I have shown via a discussion of studies conducted by researchers such as Neto et al (2009) and Furnham and Chamorro-Premuzic (2005) that participants there are generally inflexible in rating their intelligence. This has resulted in unjustified perceptions such as "I am smarter than my mother". My research, however, will not compare degrees of intelligence but instead will investigate the perceptions of MI among Malaysian secondary students and teachers in the classroom. I would like to highlight these individual differences while investigating these perceptions and their usefulness.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explores the epistemological perspectives and methods used in this research study. This chapter will also explain rationale of choosing a mixed method design (although focusing more on the qualitative methodology). Before moving forward, it is better to remind readers that this study originally aimed to explore teachers' perceptions of students' intelligence profiles in Malaysian classroom contexts and to investigate the change of teachers' and students' perceptions in two research study phases. The first phase was before teachers and students are informed about students' Multiple Intelligence (MI) profiles and the second phase investigates what happens after the information is presented to the same teachers. While, this study aimed to investigate the change of teachers' perceptions, it will be difficult to say for certain to what degree teachers' or students' action will relate to the change.

It is the researcher's belief that using qualitative research will help explore these perceptions, hence help to achieve the study aims. However, after a pilot study was carried out, the research question and research aim shifted somewhat to focus on the students' perceptions as well as the teachers'. This shift will be explained further in 3.8. As most of us know, 'perceptions' are difficult to measure but social science researchers believe in the importance of investigating people's behaviour and views in context and in any complexity (Robson, 2002).

As mentioned in Chapter 1, the original research purposes were further elaborated as below:

- ✓ to investigate teachers' early perceptions of students' Multiple Intelligence profiles;

- ✓ to investigate secondary Malaysian students' Multiple Intelligence profiles;
- ✓ to compare and contrast teachers' EARLY perceptions of students' Multiple Intelligence profiles with teachers' perceptions and teachers' classroom practices AFTER the information on students' Multiple Intelligence profiles
- ✓ to investigate similarities and differences of teachers' perceptions AFTER the given information on students' Multiple Intelligence profiles
- ✓ to compare and contrast teachers' perceptions with students' learning profiles in reference to the students' ethnic background.

This chapter will describe the process of to collecting, analysing and interpreting the data in order to investigate the purposes. As another note to the aim of the study, I would like to mention that I have eventual aims to expand the research into understanding the impact of changes in perception but was unable to explore this aspect at this stage, due to limitations of time and resources.

For this study, the 'proposition' has been explored and justified in Chapter 2. Since MI is seen as a 'gateway' of helping Malaysian teachers understands their students better, with these aims, I have formulated research questions which will be presented in the next section.

3.2 Research Questions

The (original) research questions were:

1. What are teachers' pre-existing perceptions of students' learning profiles?
2. How do teachers' expectations and perceptions of students' learning profiles compare to the students'?
3. How does information about students' MI profiles affect teachers' perceptions and their learning in the classroom?

4. To what extent can teachers' perceptions of students' learning profiles be linked to students' ethnic backgrounds?

However, as mentioned earlier in the introductory section, as a result of the pilot study, the first research question was revised as explained in the Pilot Study section (3.8). To make it simpler for readers, the new Research Questions are as below:

1. What are teachers' and students' pre-existing perceptions of students' learning profiles?
2. How do teachers' expectations and perceptions of students' learning profiles compare to the students'?
3. How does information about students' MI profiles affect students' perceptions and their learning in the classroom?
4. To what extent can teachers' and students' perceptions of students' learning profiles be linked to students' ethnic background?

3.3 My Epistemological Position

At the beginning of my research process, I started off as someone who was largely influenced by the behaviourist theories, like those of B. F Skinner, Ivan Pavlov and Edward L. Thorndike to name a few. Behaviourists believe that there is a scientific way of describing a problem using the most notable method, through observational experiments (Woolfolk, 2006). Thus, 'true' knowledge will be achieved from the results of such experiments. In short, my understanding was that in order to get empirical or 'true' knowledge, it should be experimented on and carefully tested. Such understanding was probably the result of my educational background.

In Malaysian schools, we were mostly spoon-fed by the teachers and we tended to believe that experiments and research studies will result in absolute knowledge. Positivism

also shares the same view, that the world is governed by laws and order. Supposing I were to carry out research following the same methods of data collection and reliable scientific methods, I would be aiming to explore, explain, predict and perhaps, generalise the phenomena of the research accordingly. Furthermore, according to Ernest (1994: 22), "what is central to the scientific research paradigm is the search for general laws predicting future educational outcomes".

As a teacher, however, my central aim is to understand students and their learning outcomes. Adopting a positivist perspective might not solve my research problem thoroughly. In order to understand the problem, I also have a skeptical view that the use of scientific measurement will help describe human activity or behaviour. Will the data help answer my research inquiry? My research is aimed at understanding teachers' and students' perceptions in the Malaysian classroom context. I must be able to consider factors relating to human activity like the classroom environment, stress of learning and teaching, expectations from family, society, school administration and others, apart from the most obvious factor: personal opinions/views of the teachers and students. Therefore, it would be more relevant to align with the Interpretative paradigm.

I will elaborate below on these contrasting research paradigms, and their relevance to my study.

3.4 Research Paradigms

3.4.1 Types of Research Paradigms

To begin with, what are paradigms? They are all the philosophical perspectives that influence a researcher to find answer(s) to his/her research inquiry (Bryman, 2001). According to Scott and Usher (1990: 15), the term 'paradigms' can be defined as

> *...frameworks that functions as maps or guides for scientific communities, determining important problems or issues for its members to address and*

defining acceptable theories or explanations, methods and techniques to solve problems.

A paradigm helps create a 'box' for philosophical thoughts in an area of inquiry in a research. A researcher will probably have a selection of paradigms that will guide his/her approach in the research process. In simpler words, paradigms influence researcher's analysis, thoughts, interpretations; generally all the knowledge before, during and after the research process. Bryman (2001) asserts that the importance of understanding the philosophical issues behind the choices and that my decisions of will affect my research inquiry.

From the definitions, I believe that understanding a suitable paradigm will help shape and draw my research ideas more clearly, besides shaping my perceptions. The paradigm I choose will be reflected in my research design, methodology, methods and overall, in the whole discussion and conclusion. Looking at it at a wider scale, just like a picture, the paradigm will be like the border line of a huge circle containing all my thoughts, which also influences how I see and understand the world. Nevertheless, Mackenzie and Knipe (2006) argue that in respect to research methodology, literature or research design, there is no basis for an exclusive paradigm of choice. To some extent, I also doubt that adapting only one research paradigm can fully capture the perspectives of my research study.

Linked to the question of philosophy, research debates on quantitative or qualitative methodology in social research studies have been around for many years and are still going on. The 'paradigm war' debate basically involves arguments between proponents of positivist or scientific research paradigms which tend to generate quantitative data and the interpretive or qualitative research paradigms (Guba and Lincoln, 1994; Oakley, 1999; Bryman, 2004; Johnson and Onwuegbuzie, 2004). Both of these will be discussed below.

Before going on further, it is also important to distinguish the definitions of ontology and epistemology to further exemplify the basic belief system around paradigms. Ontology means the study of being or existence with questions like "what is reality" and how to

determine the 'existence' of such entities (Cohen and Manion, 1997; Usher, 1996). Epistemology simply means understanding what we know; the study of what is 'knowledge' (Usher, 1996). It is important to understand how epistemology and ontology will influence my knowledge as a researcher. Below are three basic research paradigms in educational research which have started my thinking process in designing this research study.

Scientific Paradigm

This philosophy was first introduced by the famous sociologist, Auguste Comte around the 19th Century (Comte, 2009). It basically explains that the only knowledge comes from scientific knowledge with scientific measures. Positivism emphasizes factual over theoretical knowledge. Robson (2002: 20) adds that although it has different definitions, it generally views science as the basis for this paradigm.

Positivism is also known to have general emphasis on quantitative analysis but as some researchers have argued, qualitative data could also be included (Ernest, 1994). A further argument suggests the use of an improved paradigm, Post-Positivism as critics of positivism tend to challenge the notion of 'absolute' knowledge. Cresswell (2003) explains that post-positivism calls for additional investigations even after certain methods of data collection are completed, before carrying out any further tests. As further defined by Ernest (1994), the positivist paradigm is concerned with "objectivity, prediction, replicability, and scientific generalizations or laws describing the phenomena.." (p. 22).

As mentioned earlier, this paradigm has probably been applied most frequently in my educational journey up to now. As far as I can remember, experiments and results based on scientific methodology have always been portrayed to me, as conclusive knowledge.

Interpretive Paradigm

The Interpretive Paradigm - also known as Constructivism (Guba and Lincoln, 1989) can also be seen as a learning theory. The idea behind this paradigm is that researchers are more interested in participants' personal accounts as a source of data and believe that it is essential to understanding the contexts and meaning behind social practices (Usher, 1996). As further elaborated by Guba and Lincoln (1994), this paradigm explains the construction of the human mind through experiences dependent on an individual. Around the 1990's, this epistemological understanding was extended to include the principle that knowledge is "actively" constructed through exploring a subject and secondly, "the function of cognition is adaptive" (Ernest, 1994: 30).

Adopting this paradigm could help investigators exploring how and why teachers construct preconceived notions of students' abilities in the classroom.

Critical Theory Paradigm

In the Critical Theory paradigm, reality is formed through historical and social realities like politics, culture, ethnicity and many other factors (Guba and Lincoln, 1994: 105-108). Knowledge comes from the interaction between the researcher and research object especially when the latter agrees with the former's subjective or socially constructed epistemology. The methodology explains that knowledge is constructed through "dialogic methods" to "eliminate false consciousness" in order to find a common ground (Guba, 1990: 24). This paradigm is also widely known to have impact on Action Research – to bring change to better society (Ernest, 1994: 28). Although this paradigm has a certain aim to change something, sometimes it is not the case with other individuals or organizations involved in the research. Thus, the change desired by the researcher might not take place.

This paradigm could be appropriate to develop a critical understanding of education history in Malaysia to explain certain limitations like the 'taboo' subjects of race, politics and religion in schools. The issue on 'race' or ethnicity will be discussed in the discussion chapter of my thesis.

In summary, in social research studies, there has been ongoing debate concerning the benefits of quantitative and qualitative research methods. According to Bryman (2006), this clash is mainly at the 'technical level of research', which relates to the method of data collection. This ongoing debate or 'paradigm war' has resulted in the introduction of a new philosophy - pragmatism (Oakley, 1999; Bryman, 2006). This new trend in methodology of research supports the importance and the advances of combining quantitative and qualitative methods when suited to the purposes of a study.

Nevertheless, based on my research aims, I believe the Interpretive paradigm presents the most suitable way of answering my research questions. However, as mentioned, I will also refer to pragmatist philosophy where I will apply the quantitative method to help show the distribution of MI profiles of the students to the teachers. The data collection tools will be explained further in Section 3.7

3.4.2 Adopting the Interpretive Approach

What is interesting about this epistemological approach is that interpretive research acknowledges that knowledge is not always scientifically 'true' and is subject to what is interpreted and understood by the researcher in the current social context. This means, I am able to build my understanding on the participants' view based on how the information is accessed (for example, through interviews) and the environment of the research context (like observations in/outside classrooms). The interpretive epistemology puts forward the importance of interpreting and understanding all human actions in the research context

(Ernest, 1996). As a researcher of my proposed topic, I will need to seek, interpret and make sense of the students' and teachers' (my subjects') interactions.

Furthermore, as supported by Johnson and Onwuegbuzie (2004), the interpretive paradigm is helpful in describing complex phenomena. Since I am planning research that will also look at the influence of students' ethnicity on teachers' perception in the classroom, I will be able to describe complexities in detail from within the Interpretive paradigm.

One limitation of the Interpretive paradigm is that it will be quite improbable to generalise the findings to a different population (Johnson and Onwuegbuzie, 2004). I am positive however, that suggestions from the finding(s) of my research study can be adapted to other similar populations but should not be perceived as representative of a whole population. In contrast with the Positivist paradigm, I have to acknowledge and take into perspective my own position in the research, but to subsequently show that the results of my proposed research were not based on unacknowledged personal bias. Hence, it is important to use 'bracketing' (Hatch, 2002: 86) to separate my own interpretations from the actual viewpoints as spoken by students and teachers.

Evaluating the three paradigms, I believe that the Interpretive paradigm will help describe these perceptions with a fuller and thorough description as fits with my aims and questions. In my role as a researcher, I have thus provided explanations which support my arguments as to why I have chosen to adopt a certain paradigm, theory, shaping my methodology and methods.

The study was designed to be conducted in two study phases. The next section will explain the research design chronologically, according to the planning and the process of the pre-pilot, pilot and the main studies.

3.5 Research Design

The research aimed at investigating teachers' initial perceptions of students learning profiles in the Malaysian classroom context and the possible change(s) of teachers' and students' perceptions over two study phases. The First Phase was conducted before teachers and students were informed of the results of their students' MI profiles. The Second Phase investigated what happened after the information was provided to the same teachers.

According to the literature, teachers' perceptions of students learning abilities have significant impacts on students' understanding of their studies, achievement in schools, and can help build more positive student-teacher relationships so as to create more meaningful learning experiences in the classroom (Marton & Booth, 1997; Prosser & Trigwell, 1999; Meighan & Harber, 2007). In addition, teachers' and students' perceptions and beliefs of the factors that help or prevent understanding of students' learning profiles were explored. As mentioned earlier, I also investigated how teachers' and students' perceptions of students' learning profiles are 'characterised' in the three ethnic groups in Malaysia.

However, the original focus to investigate the teachers' perceptions has shifted more to students' perceptions following the result of the pilot studies which will be described in Section 3.8.4. According to the results of the pilot study, students were more concerned and were clearly more interested in the results of their MI profiles. At this point, I must stress that this study did not compare performance or finding out to what degree possible change(s) can be seen through actions or behaviour, but aimed at investigating teachers' and students' beliefs and views. As explained, this study will be mainly qualitative in nature, with some parts being quantitative, specifically a more scientifically based tool (quiz-questionnaire) to help profile each students and build the list of MI profiles in the data collection method. I have used these methods of data collection: semi-structured interviews, quiz-questionnaire,

observation and group discussions for the pilot studies and also the main data collection. A diagram of the research design is presented in **Appendix 3.**

The purpose of this research originated from the general assumption and analysis made by other studies on the significance of MI, and the high interest and 'direct nudge' by the government towards MI in teaching and learning in Malaysia. Secondly, these assumptions come from my experiences with the Malaysian education reality. My experiences of education reality suggested that the best way of gaining an in-depth and objective understanding of the situation was to collect in its most 'natural' form in the study.

3.6 Methods of Data Collection

In order to best summarise how the data collection tools will address the research questions, I have summarised it in Table 3.1. As mentioned earlier, this study has two phases, which is represented in the first column and the data collection tools used is in the second column. Table 3.2 represents the reference to the research questions mentioned in Section 3.2

Table 3.1: Application of Data Collection Tools

	Methods of Data Collection Details
FIRST PHASE	1) Interview1 Teachers about their early expectations, students' individual learning styles, teaching practices and Multiple Intelligence
	2) Observation in classroom to see Teachers' early expectation - looking at what Teachers think about individual students in the classroom context
	3) Discussion with Teachers after observation - to check observation notes

SECOND PHASE	4) Administration of the quiz-questionnaire (QQ) to students - to investigate students' MI distribution - students will know briefly about their profiles after the quiz.
	5) Analysing the quiz-questionnaire - preparing a brief report for teachers
	6) Interview2 Teachers about students' learning profiles -
	7) Observation to see Teachers' teaching practice after the new information - to compare with what T says earlier in Interview 2 with observation - to observe and write classroom interactions of individual students
POST INQUIRY	8) Group discussion (GD)to find out individual feeling and opinions about MI, the research study and the relation to ethnicity issue Teachers: - to investigate perceptions after Second Phase Students: - to investigate what they feel after Second Phase

Table 3.1 and 3.2 also described the flow of the data collection process from the beginning until the post study process, for both studies: the pilot study and the main data study.

Table 3.2: Methods of Data Collection in Reference to Research Question

	DATA COLLECTION	DETAILS	R. Questions ~ R. Objectives
1	Pre-intro	To get familiar with school and classes. To discuss about ethnicity distribution and get suggested names by school	

		management/class teacher	
2	Interview 1	To investigate early perceptions : General Q, teaching, ethnicity differences, MI, education system	RQ 1(and RQ 4) ~ to investigate teachers' early perceptions of students' Multiple Intelligence profiles; ~ to compare and contrast teachers' perceptions with students' learning profiles in reference to the students' ethnic background
3	Observation	To validate interview1	RQ 1 ~ to investigate teachers' early perceptions of students' Multiple Intelligence profiles
4	QQ	To investigate MI distribution To investigate what Ss like and dislike in the classroom learning	RQ1 and RQ 2 ~ to investigate students' understanding of their own learning profiles; ~ to compare and contrast teachers' EARLY perceptions of students' Multiple Intelligence profiles with teachers' perceptions and teachers' classroom practices AFTER the information on students' Multiple Intelligence profiles
5	Interview 2	To investigate T perceptions on Ss learning profiles based on MI report To share report on individual MI to Ts	RQ 2 ~ to compare and contrast teachers' EARLY perceptions of students' Multiple Intelligence profiles with teachers' perceptions and

			teachers' classroom practices AFTER the information on students' Multiple Intelligence profiles
6	Observation	To compare with what T says and observation To observe and write classroom interaction in class and Ss	RQ 2, 3, 4 ~ to compare and contrast teachers' EARLY perceptions of students' Multiple Intelligence profiles with teachers' perceptions and teachers' classroom practices AFTER the information on students' Multiple Intelligence profiles ~ to investigate similarities and differences of teachers' perceptions AFTER the given information on students' Multiple Intelligence profiles ~ to compare and contrast teachers' perceptions with students' learning profiles in reference to the students' ethnic background
7	GD	To investigate what Ts' and Ss' perceptions about the second phase, find any similarities, differences and comments. To validate all the above	RQ 3, 4 ~ to investigate similarities and differences of teachers' perceptions AFTER the given information on students' Multiple Intelligence profiles ~ to compare and contrast teachers' perceptions with students' learning profiles in

			reference to the students' ethnic background

The selection of these methods was based on their suitability for the research questions, and also on the literature regarding their strengths and limitations, which is discussed as follows.

3.6.1 Questionnaires: Strength and Limitations

According to Oppenheim (1992), a questionnaire is an objective means of collecting information about people's knowledge, beliefs, attitudes, and behaviour. It is a good way to collect standardised answers with fewer errors in a systematic way. In addition, a questionnaire is very useful to distribute to a large number of respondents in an economical way (Cohen and Manion, 1997; Robson, 2002). Using either a posted questionnaire or a face-to-face meeting to distribute the questionnaire, a considerable amount of data can be collected in a short period of time and less money would be spent due to distribution costs.

Nonetheless, the opportunities for probing or asking elaborate questions in a questionnaire are very limited in comparison to an interview (Cohen and Manion, 1997; Sapsford, 1999). A typical questionnaire consisting of closed ended questions enables the researcher to compile and organise data quickly, with the range of possible answers ~~is~~ actually set by the researcher. However, this simply means that the richness of the responses is lower than that of a face to face interview.

Since I am studying in the UK, I also considered postal questionnaires. Nonetheless, the disadvantage of administering a postal questionnaire is that the rate of response in the questionnaire is usually quite poor and the amount of feedback is disappointing (Cohen and Manion, 1997; Denscombe, 2005; Robson, 2002). Respondents might delay or ignore to complete a questionnaire because the researcher is physically not around to monitor or offer

any explanations to questions which might arise. Another disadvantage is that the questionnaire might get lost in the mail. Currently, there is also an increasing option for the use of internet questionnaires, where a researcher can post their questionnaire on the internet and receive participants' queries via newsgroups (Mann and Steward, 2000). This also seems like a good option to get a large sample in a reasonably cheap way. More importantly, if not prepared carefully, any questionnaire loses its reliability especially during the collection of results. Differences in results may be caused by differences in the personalities and backgrounds of participants. Therefore, many researchers find that it is crucial to have detailed preparation in designing the questionnaire inclusive of trials (Brannen, 1995; Patton, 2002; Robson, 2002). This will increase the reliability of the questionnaire. Thus, administering the quiz-questionnaire face to face in this study rather than at a distance, to collect the distribution of MI profiles among students seemed to fit my study aims.

3.6.2 Interview: Strength and Limitations

According to Robson (2002), questionnaires have limits in acquiring the factors influencing the choice of response to the questions, while an interview is more flexible so that it is possible to clarify the questions and differentiate the respondents. However, Cohen and Manion (1994) also add that interviewers may unconsciously emphasize responses which agree with researchers' expectations. I personally believe through interviews, a lot of essential information can be gathered according to what a researcher has planned for. In addition, the group discussion also helped to create a more comfortable environment for participants who are generally shy and quiet. The group discussion has shown to have similarities to the interview but one disadvantage is that there are certain individuals with extreme conversational skills; who either talked too much or too little. This study reported that group

discussion for a focus group was suitable in providing an encouraging place for individuals who are quite shy to speak out.

In addition, Mertens (1998; and Brannen, 1995) believes an interview will enable the researcher to probe and therefore gain more understanding on a particular situation. In an interview, a researcher is able to channel the answers towards the focus of the research. This also strengthens the validity of the data where there is "direct contact at the point of the interview" (Denscombe, 2005: 189) and the interviewer can check and reconfirm the data there and then. Although the data is based on what the interviewee said that they feel or do, it is still difficult to summarise their views. As in some cases, the interviewee might feel obliged to answer in a certain way because of personal reasons, security, job references and other reasons (Denscombe, 2005).

In an effort to create a comfortable interview experience, Yin (2003) proposes careful language planning of the interview questions to avoid any bias. Besides that, it is also crucial that the interview questions are not leading to a particular answer like '*Do you agree that…?'*(Robson, 2002: 245). It would seem best to carry out an *unstructured interview* where interviewees are free to develop an idea and use their own words (Denscombe, 2005). In this way, the interviewer can pursue a particular idea in greater detail and possibly find new insight. Nonetheless, *unstructured interviews* might take a long time, and not focus on the research questions or create parallel data, and so many researchers will choose *semi-structured interviews* (Cohen and Manion, 1997). A *semi-structured interview* is where there is still flexibility and opportunities for the interviewee to develop their ideas but the interviewer has a particular list of main issues in the organisation of the interview (Robson, 2002; Denscombe, 2005). In this study, I have used the semi-structured questions with the teachers in the interview sessions.

3.6.3 Observation

Observational method in social science is vital in understanding the subjects' situation and environment in their own world (Robson, 2002). By observing teachers and students in the classroom environment, a researcher is able to take down notes in an authentic situation. There are two main types of observation, participant – where the researcher takes part as a subject and non-participant – in the classroom, the researcher sits and observes as a relative stranger (Cohen and Manion, 1997). As I am not a member of a classroom group, for my research study, the non-participant observation is more appropriate in collecting direct data of the classroom environment. Robson (2002: 325-333) adds that the use of a "coding scheme" and "observational schedule" are helpful techniques in creating a better organised observation session.

The major disadvantage of this technique is that the researcher could have subjective interpretations and a respondent who is aware that he/she is being observed may change their usual behaviour pattern because they want to satisfy what they think the observer is looking for. However, the subjectivity can be controlled through "heightened sensitivity" (Robson, 2002: 314) and careful planning. Besides that, I used 'bracketing' (Hatch, 2002: 86) to keep my personal thoughts separated from the observational notes and used these notes to investigate possible solutions through the pilot study analysis. A reflective journal was also kept after each observation and will be explained more in Section 3.9.

3.7 The Data Collection Process and Evaluating the Methods

A table of the data collection process that illustrated the subjects involved and time duration is presented in **Appendix 14**.

3.7.1 Insights from the pilot study

As mentioned earlier, I carried out a pilot study to test the chosen methods of data collection. Piloting the research tools brought up limitations and uncovered several problems with the research instruments. The pilot study was carried out in a Malaysian secondary school in Kajang, Selangor, around October and November 2009. In the pilot study, a lot of thought had gone into the ethical considerations and the preparation of the tools.

Quiz-Questionnaire Design

Before initiating the pilot study, considerations will have to be made in order to find the most suitable questionnaire that has been used to determine MI profiles. Several examples of questionnaires were considered before choosing to adapt the questionnaire by the National Education Association of USA. I chose this questionnaire because it is easier to understand, permissible to be reproduced and presented in a self-assessment style. Nonetheless, several amendments had to be made to the original questionnaire (*see **Appendix 7**) especially on the instructions, style and organisation to suit the pilot sampling. Firstly, the original layout of the questionnaire was deemed to be too confusing for secondary students because the statements are arranged quite close to each other. Second, they might write out responses to the wrong statements as the blank space is placed too far to the left of the questionnaire. Besides that, the title and instructions are not too inviting for students to focus their attention on. And finally, the self-assessed 'Scoring sheet' could be confusing too. Left as it was, I foresaw that respondents would not be interested in filling in the original questionnaire. Therefore, some transformations were required so that invited students would be more relaxed especially when volunteering their responses. Many empirical studies have repeatedly shown that low response rates are often the result of participants being unable to read or follow a questionnaire (Sapsford, 1999). Consequently, I have reorganised the questionnaire with a new layout but

without changing the questionnaire items. I have also decided to refer to it as a quiz-questionnaire because of its quiz-like style. Researchers claim that the clarity of wordings, the design, and maximising cooperation with the respondents are important factors in designing a questionnaire (Cohen and Manion, 1997; Robson, 2002; Denscombe; 2005). Thus, the newly arranged quiz-questionnaire now consists of 35 Closed questions, 3 Multiple Choice questions and 3 Open Ended Questions. The title was changed into a creative font of '*Want To Know Where Your True Intelligence Lie?*' with a sub-title '*Try this simple questionnaire at one go…but, DON'T think too much about your answers or it might not work!*' The reason is to transform the quiz-questionnaire so as to be more appealing using user-friendly language for Malaysian teenagers aged between 13 – 17 years old. The statements are arranged in a table with a 1.5 spacing for better reading and comprehension. The Scoring Sheet is moved onto a new page to make it easier for those who would like to try the self assessment on their own. Besides that, three demographic questions and Open Ended questions on respondents' learning experience are included in the last page as they are more specific and based on opinion. These questions are important in order to get a more in depth response from the students' point of views on the focus of my research later. In addition, I have also inserted my contact details should the respondents feel the need to discuss their results further. Respondents might also like to contact me in their own comfortable time. The final draft of the quiz-questionnaire that was used in my pilot study can be found in **Appendix 8.** As for the perceived cultural issues in the questionnaire, the quiz-questionnaire was sent out via email for a pre-test and the result was very successful. Carrying out the pilot study have also addressed any language issue in designing my quiz-questionnaire.

In addition, as regards to Malaysian culture, several items in the questionnaire were initially pre-perceived as not relevant. Earlier at the process of planning for the pilot study, the quiz questionnaire went through a redesigning process. This process is referred to as the pre-

pilot process. Copies of the first design of the Quiz-Questionnaire (QQ) were sent out to five Malaysian students around the age of 15 to 20 years old via email. As expected, several items in the quiz-questionnaire were identified as 'confusing'. These items were sentences number *3, 10, 15, 16, 21* and *33*. Below is the summary of how the cultural background has shaped some of the respondents' answers:

Table 3.3: The QQ Design Process – First Design

First Design QQ Item	Cultural Reference
3. I can play (or used to play) a musical instrument	-students were taught to play some musical instruments in primary school.
10. I enjoy a good lecture, speech, or chats.	-students were not exposed to 'good' lecture. -there are 3 ideas, 'lecture' and 'speech' are uncommon in schools.
15. I like to work with puzzles and play games.	- 2 different ideas that do not correlate because play games is usually outside their house.
16. Learning to ride a bike (or skates) was easy.	- some can't remember - both option is not accessible option because not relevant in the family background - 2 ideas, can be either or, both
21 I enjoy building models and replicas (or sculpting).	- very few are exposed to any of the ideas. - 3 ideas, can be either or, or all three.
33 I stay "in touch" with my moods. I have no trouble identifying them.	- confusing statement because of "stay in touch" and "no trouble identifying" = seems to be quite invisible in culture

As a result, the six items in the questionnaire were investigated and reconstructed in order to be suitable to be administered in Malaysian secondary schools for the pilot study.

Table 3.4: The Changes of QQ Items for the Pilot Study

Pre- Pilot Study	**For Pilot Study**
3. I can play (or used to play) a musical instrument	**I can play (or used to learn to play) a musical instrument easily.**
10. I enjoy a good lecture, speech, or chats.	**I enjoy a good speech, or chats.**
15. I like to work with puzzles and play games.	**I like to work with puzzles or play games.**
16. Learning to ride a bike (or skate) was easy.	**Learning to ride a bike was easy as far as I can remember**
21 I enjoy building models and replicas (or sculpting).	**I enjoy building either models or replicas**
33 I stay "in touch" with my moods. I have no trouble identifying them.	**I usually know what mood I am in.**

The interview sessions with the teachers have shown that the teachers believed in the importance of Multiple Intelligence but they felt they have too much to cover in the syllabus to give attention to differentiation. Notably, however, both teachers still believe in helping students to achieve their full potential and making learning meaningful for students in the classroom. As a reference to the ethnicity issue, in the final discussion, teachers still believed that certain ethnicities were assumed to have talents in certain subjects; the Malays with

History, Chinese with Mathematics and the Indians with Languages. A selection of the interview and group discussion transcripts is also presented in the Appendices section (**Appendix 13**). The interview from the pilot study has shown that it is also important to contact the respondents in advance (Denscombe, 2005). I believe from the findings in the pilot study, the genuine concern of teachers' and students' perceptions needed to be investigated further in the main data collection later. I have learnt from the delay at the beginning that I should discuss the suitability of date and time for the interview by personally contacting the teachers earlier.

Interview and Group Discussion Design

One purpose of the interview is to get personal views from the teachers. However, I have also learned that each individual may act differently in different situations. A person who is quiet and shy might need some encouragement from friends to be able to express his/her views. Hence, the group discussion is believed to offer a more comfortable environment for some teachers and students to share their opinions. Basically, the design of the questions for the group discussion is quite similar to the design of the interview questions.

For this research study, I have chosen a *semi-structured interview* format where interview and group discussion questions were designed with the research purposes mentioned earlier. The open-ended question is considered to be an appropriate strategy to ask "key respondents about the facts of a matter as well as their opinions about the events" (Yin, 2003: 90). Particularly, this is an important strategy to explore and understand the opinions of teachers on Multiple Intelligence and students' learning profiles in greater depth.

Another crucial point is that the language used should not be confusing or leading towards any particular answers (Cohen and Manion, 1997; Robson, 2002; Patton, 2002). The interview questions were constructed to be straightforward and simple so as to be understood

by a second language speaker. In Malaysia, the second language for the majority is English and is also widely exercised from primary to tertiary education. Therefore, interview questions were constructed to be comprehensible for teachers and students. In order to test the understanding of the interview questions, a trial-discussion session was carried out between myself and my peers at the School of Education. Robson (2002) also confirms that sentences should be simple without the complication of having to answer two different ideas in one question.

With these points in mind, the interview questions (**Appendix 9**) were sequenced with an "introduction" followed by the "warm up", "main body of interview" and "closure" (Robson, 2002: 277). The "warm up" topics are mostly based on Malaysian social etiquette (the politeness culture in Malaysia) where generally, the society is genuinely interested about news of the people they know or come in contact with. For example, when a teacher asks 'How was your weekend?' to her students, she will be expecting to gets a lot of answers. Robson (2002) adds that this will be a good start to make the interviewer and interviewee feel at ease. The "main body" was divided into two "categories" (Brannen, 1995: 110) which are Multiple Intelligence (MI) and Learning Styles (LS). The MI and LS category are both covered by four questions but the LS category requires an additional probing question with reference to the ethnic backgrounds. Findings from initial Interview and group discussion sessions showed additionally that the teachers often put labels on pupils based on their behaviour and interactions in the class.

As mentioned, questions should be short and straightforward, but for issues of a sensitive and personal nature, short questions can be perceived as abrupt and threatening, and longer sentences are preferred (Sapsford, 1999). Therefore, the last question in the Classroom Practice category is constructed longer to avoid uneasiness with the options of "yes, I will answer" or "no, I will not answer", with respect to the sensitivity of the ethnicity idea. Besides

that, the question also starts with a probing phrase '*Has this thought entered your mind at some point*'. The probing phrase also acted as an extension of the previous question and aims to seek for clarifications (or even, confirmation) on the question of ethnicity which is one of the issues arising from my main research. Interviewees were also reminded about their rights to stop/withdraw from the session and the rights to choose not to answer or skip any questions they feel uncomfortable with, at the beginning of the interview sessions.

Thus, to test the data collection methods and to find out the practicability of the sampling in an urban school, I carried out a pilot study in October 2009. The sampling for the pilot study included two teachers and six students from a secondary school in Kajang, Selangor, Malaysia. In the pilot study, Phase One was carried out in two weeks and Phase Two in another two weeks. The group discussion was in the fifth week. The pilot process will be further described in Section 3.8.

3.7.1.1 Pilot Sampling

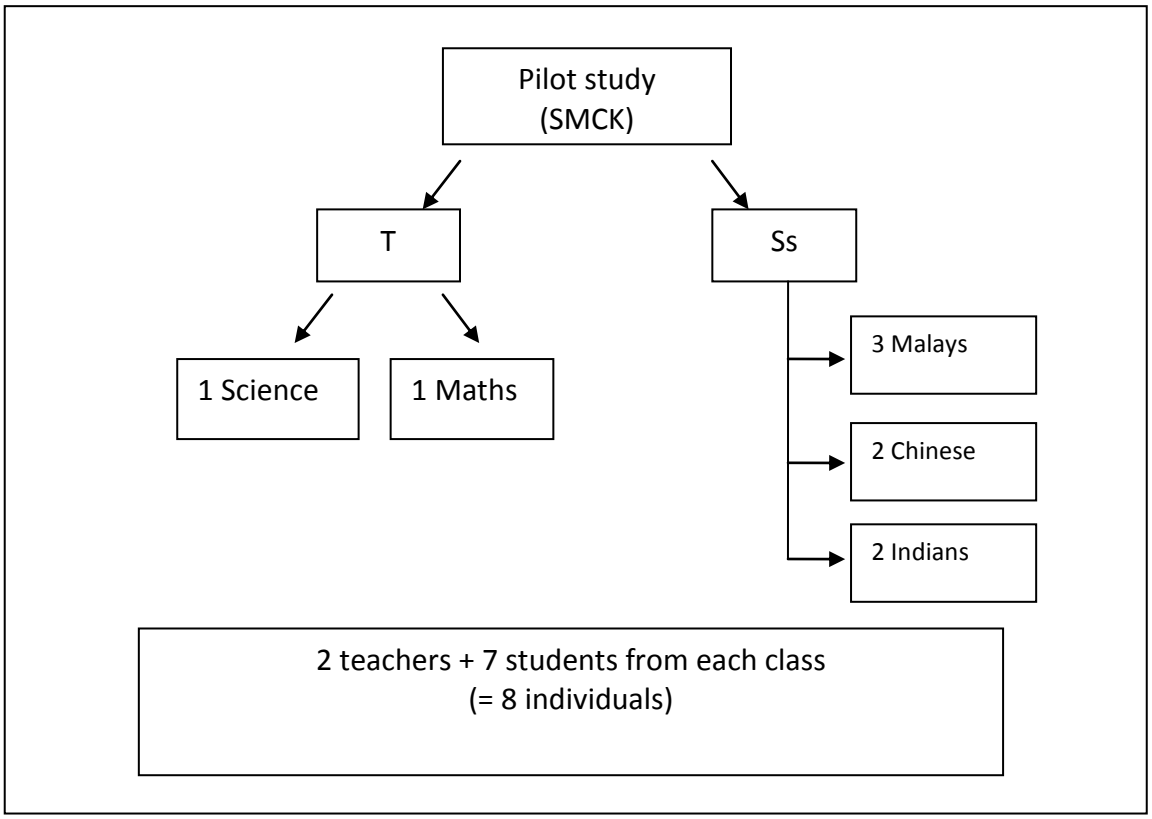
The sampling for the pilot study involved teachers, plus students from each of the main ethnic groups. As mentioned earlier, Phase One of the Pilot study was carried out in two weeks and Phase Two, in the following two weeks. The group discussion was in the fifth week. For the pilot study, I decided to opt for the 'convenience sampling' method. I also conducted it in my former school because of familiarity, sense of belonging being an alumni and the easy access due to the location of the school. As suggested by Cohen and Manion (1997: 88), "Convenience sampling means to select the nearest individual as respondents, where often, "pupils or student teachers serve as respondents". Moreover, due to the time limitation, I needed to find a school where the participants are more likely to be comfortable

with a researcher in the classroom situation. In summary, the mixed methods used in the pilot study were:

- three interview sessions for each teachers,
- a quiz-questionnaire for each students, with a total of 52 respondents (2 classes)
- observations of teachers and individual students in the classrooms and
- two group discussion sessions, one focus group for the teachers and another for the students

All participants (students and teachers) were given an information leaflet (**Appendix 6**) and were required to sign an Informed Consent Form (**Appendix 4** and **Appendix 5**) to show agreement to participate in the study. For the semi-structured interviews, two teachers (different subjects: Mathematics and Science) from the same class were selected as participants. I would say the rationale for this chosen sample was influenced by the school's management because of time limitations and class scheduling. For the observation and group discussion sessions, six students were purposively chosen based on the suggestions of early meetings with the school's administration and teachers –teachers tended to be the best resource persons who were knowledgeable to provide examples of certain students with certain learning styles and how the teachers had relate to student A, B, C as an example of her classroom situation. The six students were purposively chosen to represent the ethnic groups in the class. As for the quiz-questionnaire, all students from the selected classrooms: higher stream (Class A) and lower stream (Class B) were involved. These classes were normally identified by the school's management at the beginning of school term. Below is the graphical presentation summary.

Figure 3.1: Sampling For Observation and Group Discussion



It is quite impossible to observe everything in a classroom, therefore, an observation schedule (**Appendix 10**) was used to help focus on what is to be observed. In addition, I was able to take notes on spoken vocabulary that seemed useful in this study like students' answers to teachers' questions in class and teachers' reinforcement of students' learning activity. More importantly, observation notes on students' and teachers' behaviour is used to support and expand participants' answers in the interview sessions. Besides that, I prepared research journals in order to record occasional notes on the research process itself to keep my personal views separated from those of the observation notes.

3.7.1.2 Pilot Process

At the beginning, the pilot process seemed almost impossible to carry out. There were so many official forms and bureaucratic channels to go through that it took around one month and two weeks for the approval to be given. Although I am Malaysian, I have to go through a different department[9] (instead of just the Educational Planning and Research Division (EPRD), Ministry of Education, I have to go through the Economic Planning Unit (EPU), Prime Minister's Dept) because of government's latest requirement under the data protection act. The long delay in getting the approval from the Ministry resulted in some limitations like the school was already ready for the holidays, teaching and learning were back to basic revision for the final examination and observation on the class teaching was quite limited. The department was quite strict with the approval process as it is the only one to grant a research pass to researchers under international universities.

A representation diagram of the long approval process is attached in **Appendix 11**. Despite these limitations, the pilot study eventually went smoothly and the data collection tools worked well in getting the data needed. In addition, the approval sought from the Ministry was approved for a duration of three years for this study to be completed. Thus, I would not have to go through the long process for the main data collection later.

3.7.1.3 Evaluation of the data collection methods

In general, the pilot study helped bring a different light to the study. From the data gathered, I have found out that it is the students who are more interested in acquiring their learning profiles and the understanding of the concept of Multiple Intelligence rather than the teachers. The students believed that knowledge of their own learning profiles will be helpful

[9] Refer to **Appendix H**

in making them comfortable in learning the different subjects. They had strong beliefs that if they had known about their profile earlier, they would have had better learning experiences. More importantly, this finding is aligned with references made in the literature review chapter on Multiple Intelligence. This important finding has also re-shaped my research questions, as previously described.

Generally, the research study is still in two phases but the second phase will investigate more on the students' perceptions after the information of Multiple Intelligence, as captured in Research Question 4.

3.7.2 Main study Process

3.7.2.1 Selection of Sampling

For the main data collection, the participants involved were secondary school teachers and secondary school students (14yrs – 17 yrs old) from two urban schools. The teachers were selected from different subjects which are Science, Mathematics and English. These students were chosen mainly because they were taught in English as required by the new education policy, furthermore, is in line with the language in which this study will be presented. The schools chosen were from the same district in close proximity for ease of observation schedule planning. The rationale for choosing both schools from the urban area is to attempt to control for language barriers with the participants' English language skills. It is important to mention that the selection of schools was subject to the approval from the Ministry of Education's Department.

At the beginning of the field work, each participant was given a consent form to sign (**Appendix 4 and 5**) and was briefed about the research study. Participants had the opportunity to ask questions before the research study and were reminded of the right to

withdraw before the interviews, quiz-questionnaire and group discussion. Furthermore, an information leaflet (**Appendix 6**) was given at the beginning of the field work which addresses the ethical issues in participating in this research study.

For the semi-structured interviews, two different subject teachers from each class and one teacher of the same subject for two classes were selected as participants. For observation and group discussion, six students were chosen from the results of the teachers' interviews plus an additional selection for a better representation of the ethnic groups and the MI profiles. As for the quiz-questionnaire, all students from the selected classrooms: higher stream (Class A) and lower stream (Class B) were involved. These classes were identified by the school's management normally at the beginning of school term. It is important to note that the rationale for the chosen sample was based on the time and schedule of each teacher with consideration of each class timetable, to avoid overlapping of any scheduling. Below is the graphical presentation of the participants involved**.**

Figure 3.2: Design framework for interview

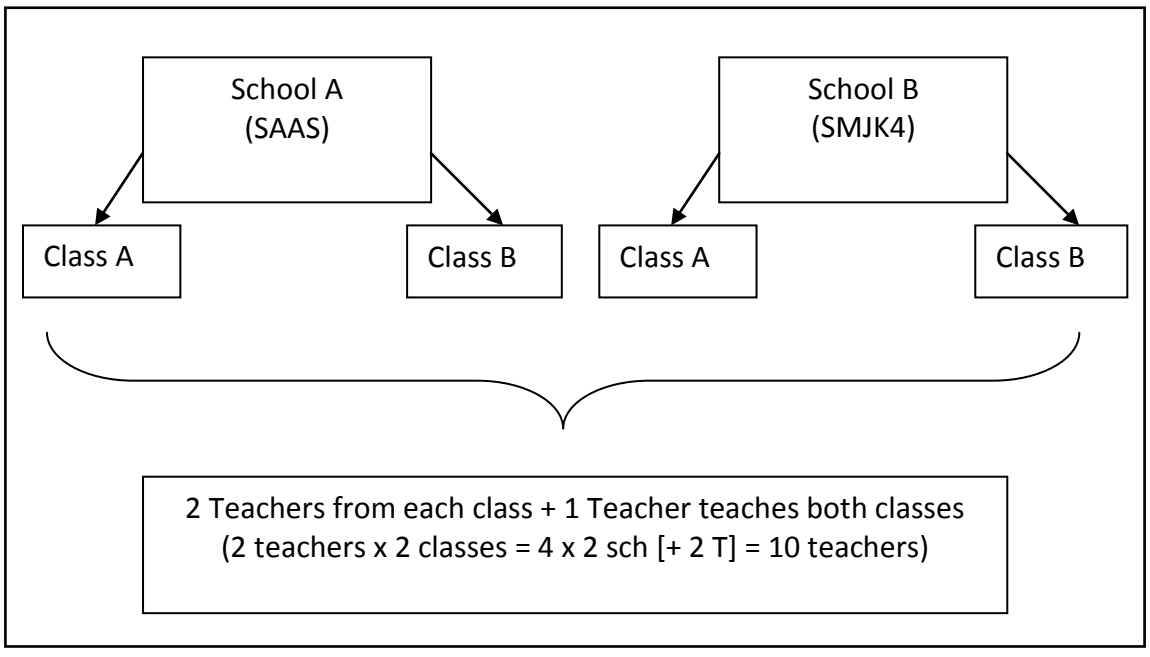
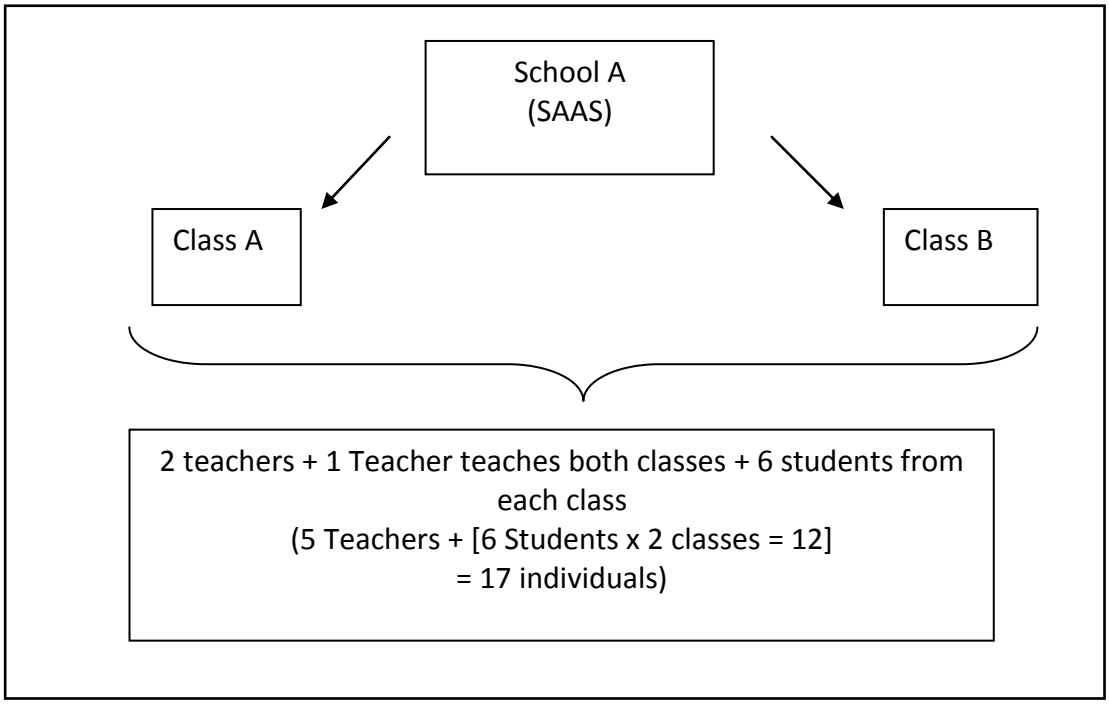
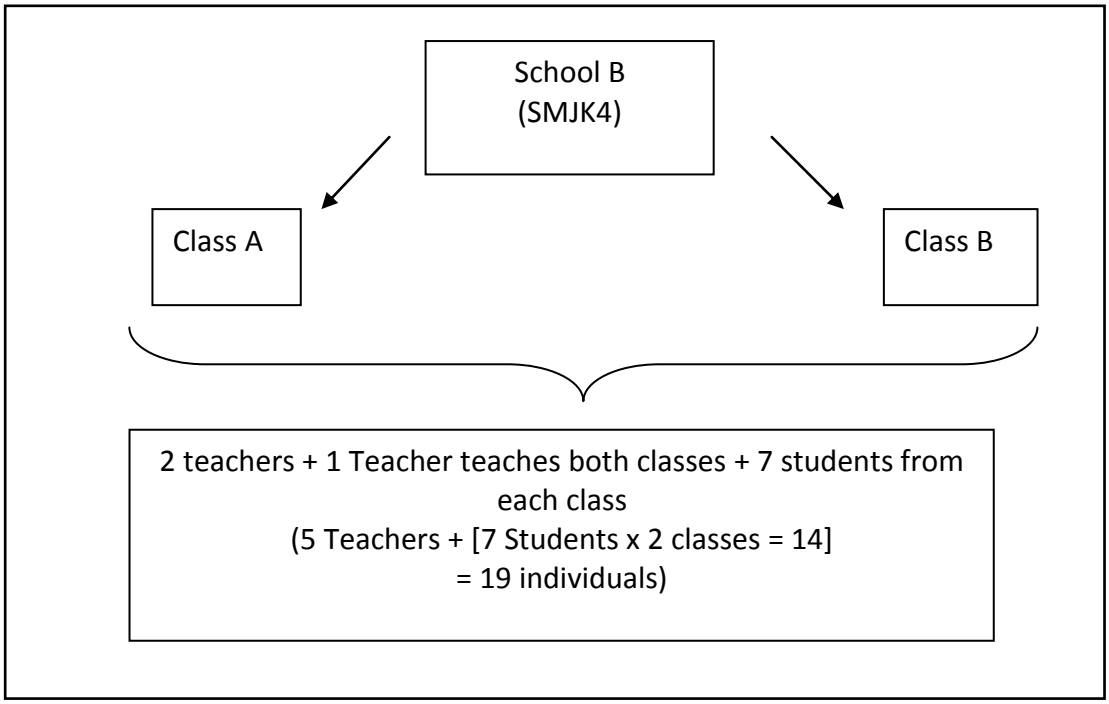


Figure 3.3: Design framework for observation and group discussion





As for individual student participants, students were randomly selected from the class name list by the Vice-Principal of each school to include the three main ethnicities: Malay, Chinese and Indian. Referring to the last Research Question, it is important to have equal

representation of the ethnicities. I believe that it is through observation that teachers' and students' behaviours and actions can be an additional part of my data. Therefore, an observation schedule was prepared to help focus on what is to be observed. The observation schedule looked at individual interactions, classroom attention, teachers' teaching style or approach to students, teachers' classroom work management and other examples of interactions between the teachers and the individual students'. I also took additional (apart from those in the observation schedule) notes on behaviour and spoken vocabulary like students' answers to teachers' question in class and teachers' reinforcement of students' learning activity. Importantly, observation notes on students' and teachers' behaviour has shown to be good support materials as expansion of participants' answers in the interview sessions. As initially agreed by all parties, the use of audio recordings was set up during interview sessions and the group discussion to compliment and verify the written notes.

3.7.2.2 Process

The study was carried out in the district capital of Hulu Langat - Kajang of the Selangor state in Malaysia. The rural/suburban district was selected purposively to accommodate the research purpose. Since the questionnaire is in English, the area is chosen from the general language capabilities of the young adolescent respondents, which are generally higher in such districts. From the district capital, I went to see to Education District Office to get the selection of school as the process of getting the approval to carry out a research involving schools in Malaysia has to involve the district office too. Several criteria were discussed with the District Education officer which are the schools must have an almost equal distribution of Chinese, Malays and Indians students, the school session[10] should prevent overlapping observation timetables, high performance in language tests results and a difference between

[10] Most secondary schools in Malaysia have two school sessions, morning and afternoon, where each session has three class levels. For example, the morning secondary school session might have Form 4, 5 and 6, while afternoon session has Form 1, 2 and 3.

the overall academic performance of the schools for a wider representation of students in the same district. From the discussion, the officer suggested four schools and two schools were purposively selected based on the location to accommodate the observation schedule.

In the two schools, classes were selected by the school's management according to the research objectives. Finally, the total subjects for the research study includes 5 teachers and 70 students (35 participants of Quiz-Questionnaire in each class and 6 students for individually from each class) in School A and 5 teachers and 62 students (approx 30 participants of QQ in each class and 7 individual students) in School B. The overall total of respondents is 142 people and the total of subjects for the observation is 36 people. The students range from 14 – 16 years old and for the individual discussions, I used purposive sampling to represent the three main ethnicities in Malaysia with the advice of the Vice-Principal of each school.

3.8 Data Analysis Procedures

The data collected from the interview sessions were recorded, analysed and transcribed. I went through a long process of listening to the recording of the interview and group discussion and transcribing the exact words of the participants. From then on, the data generated were used to triangulate with the notes from the observation. As for the QQ, the data were easily compiled as the design of the QQ allowed the results to be easily calculated by the participants and students were excited with their own results too. They managed to count and find their MI profiles and I only needed to recheck their results afterwards. The results of the Quiz-Questionnaire for the individual students are presented in tables for a clearer illustration (Chapter 4.2.1, Table 4.2 – Table 4.5). For the observation, I only observed and did not take part in the class activities. Notes were taken and later shared with the teachers and students to verify them. The notes I have written down during the observation

were validated in talks with the teachers and this channeled the teachers to be involved in the research in every stage. Validating and checking the observation notes is also known as the triangulation process.

Triangulation simply means the combination of several methods, methodologies, and theories (Brannon, 1995; Robson, 2002; Patton, 2002). By using questionnaire, interviews, observation and group discussion, I believe I am able to get a wider perspective on this research theme. Besides, the data collected is more reliable, too. Furthermore, triangulation certainly helps increase the validity of findings and helps "address different but complementary issues" (Robson; 2002: 371) to a research problem. I have also used a notebook to reflect the observation or 'reflective journal' which according to Boud (2001) can be used for learning and it is mainly a collection of 'raw material of experience' and the researcher is engaging with it in order to make sense of the what has occurred. Although not used extensively, the notebook is important to separate my own thoughts from the observation notes that I have taken. These notes are written down after each classroom observation.

The analysis of the transcribed events during the study involved thematic coding which consisted of meanings according to the utterances of the teachers and students in this study. After going through the transcriptions several times, important phrases and words were highlighted. These words were written down in A3 papers, and later, several themes and coding were found to capture the idea in the best way possible. A huge table with these themes, and different codings (title) and selection of the participants' answers were grouped together. Some ideas that were important in the interview and group discussion sessions were the language patterns, discourse between the participants and their peers, and interactions between the participants and myself outside of the class hours. It is also important to bring up that I have used a lot of graphical presentations in the Excel worksheet to help group the data together. The analysis of the data will be further described in Chapter 4.

3.9 Reliability and Validity

Reliability

The notion of reliability bears on the measures and instruments used in this research. Reliability means if the same measures and instruments are used in a different research with similar samples, the result will be quite similar (Robson, 2002: 551). Cohen *et al* (2007: 133) also explain that reliability is a necessary but insufficient condition for validity in research and it is a necessary precondition of validity. This means validity and reliability are quite related in research.

An important reliability issue in this research is during the interview sessions with the teachers, it would be almost impossible to take down every single thing at one time. Therefore, I believe with the help of audio recordings, I could focus on the teachers' expressions and body language more during the interview. Besides that, the careful pre-test and pilot study testing of the quiz-questionnaire have helped dealt with the cultural issues and strengthen the reliability of the instrument too. Certainly, careful planning of the pilot studies and carrying out the pilot study have helped to assure the reliability and validity of the data collection tools

Validity

Validity is related to research credibility. Importantly, my research tools were designed to measure the aims and research questions for a credible and valid research. To achieve this, careful planning should look at ways to ensure the validity of the research. I am planning to minimise validity issues in my research by carefully adhering to the criteria suggested by Cohen *et al* (2007: 133):

▪ Choosing an appropriate time scale

= the main data collection is planned to take place before the school holidays in Malaysia

▪ Selecting an appropriate methodology for answering the research questions.

= as mentioned earlier, the interpretive paradigm and qualitative research perspective seems the most appropriate methodology for this study

▪ Selecting appropriate methods for gathering the required data.

= based on the methodology, a mixed method of interviews, quiz-questionnaire, group discussion and observation are used in this research

▪ Using an appropriate sample.

= the sample includes teachers and the representation of students' main ethnicity groups

▪ Ensuring reliability.

= careful planning of the data collection tools.

▪ Minimizing the amount of bias as much as possible.

= through the pilot study, any problems and bias will be minimised for the main data collection

As mentioned by Cohen (2007) there are several types of validity. The one that I was particularly interested in this study is the notion of external validity. The problem with external validity happens if "we seek to generalize from what people say in a survey to what they actually do" (Robson, 2002: 231). Looking at the paradigm of this study, wide generalization seems unlikely. It is essential to note that this study aimed to seek what teachers' and students' say about learning profiles thus the study will report these perceptions exclusively. The results of this study are only considered applicable to this particular study, but I can hypothesise similar outcomes for other states in Malaysia because of the cultural similarities.

It will be difficult not to mention the question of the instruments that will be used in this research. My initial concern was with the quiz-questionnaire for the students. Although, the quiz-questionnaire by NEA has high validity, I have shown the need to reconstruct and add several items to it to answer my research question. It is very important to prepare the quiz-questionnaire carefully, or it might lose its reliability. As agreed by many researchers, it is crucial to have a great and detailed preparation in designing the questionnaire where there should be several trials (Brannen, 1995; Patton, 2002; Robson, 2002). Moreover, as a cross reference to Chapter 2 (Section 2.6), the use of questionnaire seemed to be the favourite method to find out the MI profiles of the students.

Although every criterion was adhered to in structuring a 'good' questionnaire, (Cohen and Manion, 1997: 95), I had also taken into consideration outside factors such as time, place, personal problems that will affect the students' answers. Hence, I had considered the importance of creating a suitable place where students and teachers feel more at ease to answer questions. In addition, I was also reminded that it was a difficult to measure perception and thoughts, so when we talk about perceptions, there is also a notion of personal bias. For instance, a teacher might have a personal preference of a particular student because of the student's personality or appearance and not because of the intelligence profile. Nonetheless, the study has shown no directed personal bias that might affected the collection of the data.

Particularly, through the views collected from Malaysian teachers, friends and students (in interviews and informal discussions) and with the adopted mixed methods of data collection, I believe that I carried out my study to be able to verify and address any error and bias (on my part as the researcher). Morse et al (2002: 18) propose the importance of such "verification strategies" to address any validity and reliability issues. In fact, I managed to

maintain an active interaction between the subjects, data collected, and my reflective journal throughout the whole study as my verification strategy.

3.10 Ethical Considerations

The participants in this research were secondary school students and secondary school teachers. My innermost concern in carrying out this research was that I would find ethnic 'labelling' in categorising students to their Multiple Intelligence group. Ethnicity is a sensitive topic everywhere, and in Malaysia it is particularly controversial. I realised the difficulty to be able to categorise students 'accurately' according to the intelligence profiles, but, the use of a reliable and valid questionnaire has helped to solve this limitation. I also looked at the difficulty to group them into ethnic groups, given different perceptions and the often hybrid nature of identity. In order to get the representation of students' ethnic groups, I went through several discussions with the schools' administrations. As mentioned, the administration kept students' background information and were very cooperative as required by the research pass obtained from the Ministry. This issue was also rectified by asking the students to describe their ethnicity through open ended question "If someone asks you to describe your ethnicity, what would be your answer?" in the quiz-questionnaire. Through students' narratives, I managed to use their own words to triangulate with the information from the administration offices of each school. In addition, during the interview and group discussion, participants were reminded of the confidentiality and anonymity of this study. Participants were also reminded of their right to withdraw if they felt uncomfortable during the introduction of the question on ethnicity.

At the beginning of the process of the data collection, I have acknowledged participants' voluntary help with the research and they were reminded of their rights to withdraw at any time. Teachers and parents were given an information leaflet (**Appendix 6**) that has help

explained about the research, confidentiality and right to withdraw. They were given the opportunity to ask questions before the research study. In addition to the information leaflet for the parents, I also included my contact details in order for them to contact me should they feel unhappy to allow their child to take part in the study. This acted as consent from the parents to allow their children to take part in the study as well. Moreover, before the quiz-questionnaire administration, students were briefly informed about the Multiple Intelligence importance in the study and a reminder of their voluntary consent. The consent forms included appropriate boxes indicating if they are willing to take part, be recorded audio or visually and whether the researcher is allowed to quote their words for written reports. These consent forms were collected, checked and kept in a locked locker.

As mentioned, the act of checking the notes taken from the interview sessions with teachers and students to verify them helped validate the notes I have written down during the observation and also channeled the teachers to be involved with the research at every stage.

The Education Ministry, school management, teachers, parents and students were well informed by the information leaflet, before the study took place. The leaflet was distributed to all parties to explain in writing the main objectives and main ideas of this research and to describe the general process of what will happen during and after the data collection and the pledge for utmost confidentiality. Furthermore, the guidelines from the British Educational Research Association (BERA) Revised Ethical Guidelines for Educational Research (2004) were closely adhered to, in order to maintain ethics of respect for the person, knowledge, democratic values, the quality of educational research and academic freedom.

For the anonymity of the participants, I used pseudonyms or labels according to the participants' status (e.g. Students as S1, S2 etc and Teachers as T1, T2) throughout the whole research and I gave each participant names for easier reference in presenting and discussing the data. All the data collection tools and notes, including the list of participants' names and

their labels were kept in a locked locker for safe keeping. All research documents will be kept for three years after the completion of the project.

As a summary, this chapter has looked at the fundamental issues and the processes surrounding the designing and conduct of this study. I am confident about the careful planning of this study. Although there were some minor problems with the data collection, I managed to collect a huge amount of data and believe that the methodology and methods that I have used were successful in answering the research questions of my study. Above all, from the results of the empirical data collection (May – Aug 2010), I believe the plans, evaluations and processes in this chapter have established important aspects that this study has for the individuals, the understanding and the quality of this study.

CHAPTER FOUR

ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter discusses and explains the findings of this research. The research aims to look at what and how perceptions of Malaysian secondary school teachers are different or similar to those of the students. Based on the findings, this chapter will attempt to discuss whether Multiple Intelligence theory can be seen as a catalyst in the Malaysian classroom environment.

In this chapter, the first part will be the presentation of the results and will be followed by the discussion of the findings which will be related to the research questions.

4.2 Presentation of Results

The data collected for this research includes interview sessions, administration of quiz-questionnaire (QQ) to the students, observation and group discussions (GD). These methods are planned according to the research questions as presented in Chapter 3. The analysis of the data is divided into two sections, the students and the teachers. Earlier in the Methodology chapter, I have mentioned the outcome of the pilot study which showed that the students have become the main focus of the research in comparison to the teachers. Research Questions were revised to include investigation on students' perceptions too.

Notes from the observation in School A indicated teachers seemed to interact less with individual students compared to School B. Students in School A were generally inquisitive or quite chatty. Some teachers ignored the weaker students' behavior and interacted very little with these students. Teachers who were strict also brought a cane to class and there were observations of some physical punishments like pinching, or giving a slap on the hand and lots of verbal reprimands.

In school B however, teachers generally showed more motivation and interaction in class. Teachers were generally more creative and classes were more lively with a variety of styles and teaching methods. There was also more individual tutoring from the teachers. Teachers in this school generally showed a balance of verbal encouragement and praise such as “good” “correct” and simple negative reprimands like “no” and examples of sarcasm.

From my observation too, it seemed that students showed preferences for certain individual teachers. In classes where the students were fond of the teacher, they showed more engagement but if students did not like the teacher they were less willing to participate. In both schools, students showed a great deal of interest in the work of the researcher in the school compound and engaged in several interactions outside the classrooms. I believe that the observation notes triangulate well with the interview data.

4.2.1 Data Analysis of the Students

The analysis of the data has shown several important points in reference to students’ learning preferences and experience in the Malaysian classroom. The pilot study analysis showed that the majority of the students answered the open-ended questions, apart from the small number of students who left some questions unanswered. However, for the present study, it seems that some students were giving answers that were not really answering the questions. Generally, looking at the responses of both studies, the present data analysis provided interestingly different findings.

To make clear, the first two sections (4.2.1.1 and 4.2.1.2) are derived from the open-ended questions of the QQ which are:

1) What are the activities you enjoy in the classroom?
2) What are the activities you enjoy less in the classroom?
3) In your opinion, how do you learn best? What activities make learning easier for you?

In addition, these questions in the QQ are actually reference to the first and second research questions, *What are teachers' and students' pre-existing perceptions of students' learning profiles?* and *How do teacher's expectations and perceptions of students' learning profiles compare to the students?* From the analysis, findings are represented in different sections, which are then followed by patterns of students' answers. The QQ report of individual students are presented in Excel worksheets as **Appendix 15, 16, 17 and 18**

As a brief summary, for School A, Class A, the majority of students (Kiruthy, Kartigam, Fadish, Mariam) are Musical Rhythmic and the fewest are Visual Spatial. In School A, Class B, the highest numbers of students (Mustam, Hemarathy, Reshanty) are Logical Mathematic and the least are for Interpersonal intelligence profile. For School B, Class A, the highest count is, again, Musical Rhythmic with 5 students (Lila, Kuan, Abiravi, Husna, Zulihasmi) and five students have the lowest count of Visual Spatial. Also, in the same school, Class B, five students (Zafi, Chua, Siti, Tam, Ragesh) have the highest score on Musical Rhythmic and the lowest count is on Bodily Kinesthetic. According to this data, it seems that majority of the students in this study present themselves as Musical Rhythmic attribute learners.

(For individual report, please refer to **Appendix 15, 16, 17 and 18**)

4.2.1.1 Students' level of understanding of their learning preferences

This section is a reflection of the third open-ended question in the Quiz-Questionnaire, "In your opinion, how do you learn best? What activities make learning easier for you? From the analysis of students' answers of the open-ended questions, I have found out several patterns from the students' answers. It showed that a total of 7 students (Kiruthy, Bavithram, Hazim, Reshanty, Jamizan, Mustam, Pravit) provide answers that reflected that they do not understand the question. Another 16 students seemed to give relevant answers, with 3 students

who might have over thought the answers. There is one student, however, who did not write any answers for the open-ended questions.

For the total of 7 students who did not answer the questions as expected, two students, Kiruthy and Bavithram gave repetitive answers that are almost like slogans. These students even wrote answers in a numbered list.

"1-dont study hard, study smart, 2- don't think it's impossible, 3- concentrate when teacher is teaching" (Bavithram)

"1-study smart, don't study hard, 2- don't think it's difficult, just think it's easy, 3-if impossible, think I'm possible" (Kiruthy)

Although the students have actually answered the question, it is important to note that these answers are quite similar and there seemed to be little evidence of reflection. This suggests that these words had been introduced to these students earlier perhaps, by teachers or even family members. For students to remember these presumably slogans, they must have been repeated to these students several times too. There are 5 other confusing examples of students' responses. Two students (Jamizan and Pravit) have probably misunderstood the question as a question about subject preferences. Jamizan simply listed all the subjects that he likes "BM (Malay Language), Geography, KHB (Living skills), Agama (Islamic Studies), Seni (Visual arts), PJK (Sports Education), Sivic" while Pravit adds a seemingly patriotic answer "I like BM because I like Malaysia".

In contrast, there are 18 students who gave clear answers to show their understanding of how and what makes them learn better. Two students believed in the importance of having the most suitable environment that caters to individual needs (Lila and Tam). Lila mentions that she "likes to quiet place and figure out things on my own" but Tam needs a "vacation…visit new place" for her to enjoy and make learning easier to understand. Another 8 students gave answers specific to individual learning styles, for example, having music

(Chong, Siti), reference to comic characters (Kuan), fun and games to help with memorisation (Husni, Siti, Jayi and Ragesh) and also the importance of IT and the computer as mentioned by Zafi. Jayi and Ragesh agreed on having "jokes and laughter" in the class to help make learning easier to understand. Ragesh adds that "I capture jokes easily" and Siti agrees that fun and games "make my brain grab faster the subject". Two students (Kartigam and Mariam) expressed the need to have friends around in study groups (Mariam) where Kartigam believes he can "concentrate more".

Another 6 students (including the 'over-analysed' answers) believed in their own effort to make learning easier with reference to "own effort" (Zulhasmi and Abiravi) "concentrate in class. Do revision, prepare timetable" (Chua). Zulhasmi gave a rather detailed insight of himself as a learner.

> "I'm a determined person. To get success, I need to learn on my own. As long as I get good mark, I'll do homework when I want. Only ask teacher if I can't understand so that I can concentrate on what I'm doing" (Zulhasmi)

Earlier on, I mentioned that there are 3 students who seemed to not only give sensible answers, they have also elaborated their answers to reflect on how learning can be enjoyable and the education system.

> "learning is not enjoyable at first. As we get used to reading, learning, it will build interest. People who yearn more knowledge, will want to learn more and makes learning easy" (Tomark)

> "When the info is logical and well organised. Good explanation. Use of diagrams. (I am glad to be able to express my preferences. Hope this Questionnaire will lead to improvement in our education system" (Alina)
> "based on theory and practical. exam once a year only. Reading and making notes boring.." (Abiravi)

In conclusion, a total of 18 out of 26 students have indicated that they believe it is very important for students to know themselves in understanding their own learning styles.

4.2.1.2 Factors that students believe have affected learning in the classroom

This section, reflects answers to the first and second open-ended questions in the QQ. "What are the activities you enjoy in the classroom?" and "What are the activities you enjoy less in the classroom?". Students gave answers extending from teachers' teaching styles to personal learning needs/styles. Since questions are open ended, students were encouraged to answer as much as they would like to. Students like Abiravi, Kuan, Zafi and Chong have provided more than one answer in many instances too.

There are 18 students who think working with others has affected their learning situations. An overall total of 6 students referred to teachers, 6 for personal preferences and 6 for subject preferences. Another 7 students believe the learning environment affected their learning experience. Five students think that they have no preferences.

The highest total of students mentioned that having discussions with friends helps with their learning. Six students (Bavithram, Kiruthy, Kartigam, Hazim, Niman, Chua) agree that by having group discussion, learning is easier. Kartigam mentioned "group work helps me understand. Playful study makes me understand", Chua adds "students get closer and know each other well" and Hazim extends his answer by saying "I love it (group work)". Additionally, one student, Zulihasmi, said that by "having religious discussion with friends, will get lots of ideas. Becomes open minded and critical thinking to choose which is the best for Islam". Nonetheless, 3 students do not like group discussions, for these reasons: "involves others, will get slower results" (Alina) and "members don't do their job, as a result, I have to do all" (Jayi). Another student who disagrees, Chong states that he "hates group discussion because students give wrong facts". Another 6 students (Mariam, Kuan, Abiravi, Zafi, Siti, Tam) mention they like role playing in the classroom because "it is interesting activity and make learning process easier" (Abiravi) while 5 students (Kiruthy, Kartigam, Husni, Ragesh) do not like role plays. Husni explains the reason she does not prefer role play because "I don't

like acting and don't know how. Everybody wouldn't enjoy my acting". Three students Bavithram, Kiruthy, Zafi) think doing presentations is not something they like to do, where Zafi elaborates that "he is scared to be laughed at".

Another 6 students who mention teachers as a factor in their learning are divided into two: positive referral and negative referral. Mustam "like nice and caring teacher" and Tomark said he likes to "listen to teacher in the class because I can learn something new". In contrast, 5 students (Reshanty, Tomark, Siti, Cong, Kuan) mention teachers in a negative reference, for example, Reshanty says "I don't like teachers talking too much about others", and Tomark mentions he does like "listening to teacher talking to herself. Learning should be mutual. If teacher can't communicate, it will be a boring class" and Chong adds when "teacher gives question blindly and students copy blindly" will not help his learning.

The 6 students who gave personal learning preferences are Jamizan who wants "drawing", Chong "paperworks (hand-outs)", Kuan "jokes and singing" and Alina likes answering questions in the class. Some students mention personal learning that they do not like for instance, "teasing (jokes among friends in the classroom)" (Niman), "doing homework" (Kuan), "rote memorisation" (Alina) and "give speech" (Tam).

For subject preferences, 6 students gave one word/phrase answer that refers to specific school subjects they like and do not like. Hemarathy likes "ICT class", Pravit likes "Moral Education" and Zafi likes "Physical Education" because he can "do anything and feel free". Two students (Mustam and Jamizan) do not like "BI" (English Language), History (Mariam) and Science (Mustam).

Seven students believe that the learning environment has affected their learning in the classroom. Five students (Fadish, Abiravi, Husni, Ragesh, Jayi) think fieldwork is helpful. Jayi mentions "I like to see new people, things outside" and Ragesh adds by going on fieldwork "meet people and can interact with them". Zulihasmi seems to disagree about

fieldwork where he says “there is no need of travelling. Rather stay home and surfing the internet to get the information”. Reshanty wants to “go the science lab to hold and see the apparatus, do experiments” which will help her learning.

The data also shows that there are 5 students who have no preferences. Lila believe she “enjoys all activities”, which also agrees with Abiravi and Fadish who have no activities that they feel less enjoyable in the classroom. However, 2 students feel that they are not sure about what activities are less enjoyable. Chua says “maybe, don’t have” while Hazim wrote “I don’t know”.

The next two sections are compiled from the combination of the students’ answers in the QQ and the group discussion.

4.2.1.3 Factors that help or prevent their understanding

4.2.1.3.1 Culture

The most recurrent theme of the data is culture. In total, 4 students believed how they learn are influenced by culture. Chong suggests that:

“it’s how they learn..in Chinese they are the different. There are different ways to learn. That’s why in their way to learn, they have got something, I think something very special..I mean not for them..I mean in two thousand and three thousand years ago....”it’s like...err they create the way..” (SchB-GDI3-Class A, pg. 16)

Chong also commented that the Malay learn better because of their uprooted memorisation technique in ‘agama’(Islamic Studies). To which Lila adds “yeah..they are into memorising because since they are..they are used to memorise Al-Quran..” while supported by Zulhasmi who argues that “Malay is good at memorising because practise on repetition..” (SchB-GDI3-Class A, pg. 17)

There is also the belief that the Chinese are very able at Mathematical subjects. Niman uses the phrase " pandai giler" (extremely clever) to capture that the Chinese are mathematic geniuses. (SchA-GDI3-Class B).

4.2.1.3.2 Family Background

There are 4 students (Siti, Fadish, Jamizal, Mustam) who mentioned that parents and siblings play a role in helping them to learn. As a response to the question "If it is not because of ethnicity that a certain student has certain learning style, are there other factors?",Siti elaborates "..when the father or the mother..they know about mathematics, more..and other subject, then they will TEACH their children..about the subject..more focus lah". Fadish who believes that parents have influence over their children adds "mak bapak diorang paksa" (the parents force them). Jamizal and Mustam agree by giving almost similar phrases "mak bapak dia" (their parents)

4.2.1.3.3 Individualism

In 4.2.1.2, several students mentioned teacher as a factor that can help their learning. In the group discussion, I asked the students "how would the knowledge on MI help students and teachers?" Six students (Kartigam, Fadish, Haziq, Kiruthy, Bavithram, Mariam) believe that if teachers know about students' learning preferences, learning are felt to be easier. According to these students, teachers should be able to make the classroom cheerful. The excerpt below exemplifies what the students say (Sch A-GDI3-Class A, pp. 10-11)

Kartigam: *Yes! If teacher could change, the class would not be too boring*
R: *but, do you mean this should be helping you to learn better, and not too much on entertainment?*
Fadish: *Yeeess, if we want to learn, the environment has to be cheerful..easier to absorb what we learn!*
Mariam: *agree*

Kartigam: *will be able to enter a cheerful surrounding*(grins)
R: *cheerful is important... Meaning, the teacher should know which MI [profile] you fall into?)*
Haziq:
[*yees)*
Fadish: *teacher have to know*
Kiruthy: *definitely! Have to change teaching style*
R: *change teaching style... for instance?*
Mariam: *to be cheerful..)*
Bavithram: *enjoy making jokes*
Kiruthy: *...enjoy making jokes*
R: cheerful..enjoy making jokes
Fadish: *but don't make stupid jokes*
(girls giggling)
Bavithram:*teeeach with....more details and explanation*

4.2.1.3.4 History

The historical background of Malaysia seemed to influence students' perception on learning styles too. Three students have referred to history in their discussion. Chong explained "it's how they learn...in Chinese they are the different, they think different. There are different ways to learn.

Not only reference to the Chinese, for the Malays, the students believed that learning tendencies are mostly because of *Agama* (religion). Malays are believed to show good memorisation skills because they "are use to memorise Al-Quran" (Lila in SchB-GDI3-Class A, pp 17). As students carry on discussion, religion was also discussed. Zulihasmi recalls "have solat and zikir, learning the Quran, and prayers five times a day" actually is repetitions that helps the Malays at memorising.

4.2.1.4 Classroom factors that facilitate or are barriers to making use of metacognition

4.2.1.4.1 Culture

In the Malaysian culture, traditionally, the respect for elders is quite high. In Malaysian primary and secondary schools, students are taught to respect teachers in subjects like Islamic studies and Moral Education. From the students' responses, 2 students (Abiravi, Lila) believe they would approach the teacher to ask for specific approaches – to help them, in this case, to bring music to help Musical Rhythmic attribute learners. In the same instance nonetheless, Chong opposes the action because "I respect my teacher doh" (SchB-GDI3-Class A, pg 6).

4.2.1.4.2 Family background

Family background can also be a factor. One student, Reshanty proposes that "some parents won't err..won't sit beside the student and teach.."

4.2.1.4.3 Individualism

a) *Malas*(laziness) is quite a common word to characterised students and more common concerning the Malays. As an elaboration to the question "Does it help you in your learning? With the knowledge of your own MI profiling?" one student, Siti, used the exact word to describe how she feels, in fact, she repeats the same word 3 times in the discussion with no further explanation

R: …some of you who say MAYbe, err, why do u say maybe? How do u say maybe? Can u give an eXAMple?
Siti: because..
R: yes, because?
Siti:....malas.
(some giggles)
Siti: heheh, (softly) sometimes we get malas

R: uhuUUuh, okei. And then?
Siti:..malaslaa..heheh..
(Siti in SchB-GDI3-Class B, pp 7).

b) Two students think that *Malu*(shyness) is another factor that has a negative effect on one's learning. Kartigam said "because he is shy*"* and Mariam answered "he feels shy maybe, or less clever"(Sch A-GDI3-Class A, pp19)

c) When teacher has a negative referral by the students, learning can be difficult. Kartigam is one of the students who has negative reference when talking about teachers. He adds "teacher should change too..teacher just cannot sit down and give instruction to students to copy what she says…lalallaa.."

4.2.1.5 Purposes of understanding of Students' MI Learning Profiles

The data in this section is mainly collected from the post study, Group Discussion between the students. Out of the total of 26 individual students who were selected for individual input for this research, 22 students have indicated that understanding learning profiles will help them to learn better. In the question which asks students "How do you feel about your results? Do you think by knowing the MI profiles, you have gained new knowledge?".

Twenty-two students gave the answer "yes" while 4 students have different views. Kartigam replies "it's not new knowledge", Zafi disagrees with his results, Chong says "it is just enough to know about the results that he would not take it further" and Husni confesses that she "does not really care about the results". Among the 22 students who felt the knowledge would be useful, Hemarathy, Reshanty and Pravit agree that they think their MI profiling is "true" while Kuan, Chong and Kiruthy also mention uncertainty of their MI

profiling, a "50-50, *bolehla (*acceptable)*"*. Majority of the students were satisfied by quoting in percentages how much they are satisfied like 80% (Zulihasmi), 70% (Abiravi) and answering "happy" (Reshanty, Jamizan, Chua) with their results.

When asked about "How would the information on MI profiling help you to learn better?", 2 students (Zafi, Alina) show disagreements that it (individual MI profiles) will help learning to be better because both of them just "feel the same" with their own learning. Four students explain that they would use the knowledge to cater to their specific MI profiling. For example, three students (Hazim, Kartigam, Siti) refer to how they will "listen to music" as Musical Rhythmic attribute learners. Reshanty elaborated that it is important to know her "level" (how she is getting on with her studies) so that she can "understand what the teacher was explaining…to be good in Maths" as she is Logical Mathematical attribute learner.

To elaborate further, students were asked "How would knowing about the MI information help your learning? What can you do with this new knowledge?". A majority of 16 students gave several points which came back to the need and objective of understanding their own learning profiles. Most of the students, 6 of them (Fadish, Mustam, Kuan, Siti, Jayi, Zulihasmi), suggested that they will use the knowledge specified to their MI profiles. Zulihasmi mentioned "helps to know my strength…to build up more of my interpersonal intelligence.. I would speak in front of the class", Jayi talked about how he enjoys "movement" in class since and believed that he is Bodily Kinesthetic attribute learner. Five students (Bavithram, Kiruthy, Mustam, Zafi, Jamizan) expressed that the knowledge will help them to "recognise themselves" and know "own strength and weaknesses". Three students (Kartigam, Niman, Kuan) asserted that they could make "changes" in some way in their learning. For example, Kartigam said "we can change ourselves… (then) it will be easier to concentrate, to learn" and Kuan elaborated that "I can do many things, (where) I can balance my head (brain)..so I can use all parts of my brain the right way…like Da Vinci..maybe I can

be more intelligent". Two students (Lila, Tomark) mentioned they will "apply in their studies" as Tomark added "..can use better technique to train my intelligence…I can start using my brain more, not just having a brain just to use our body". Two students (Reshanty and Abirami) also talked about how they will discuss with their teachers about their profile so that "teachers can change teaching style"; as Abirami announced "I would go to teacher to demand personal intelligence learning profile be met". Reshanty justified that "it will be easy for teacher to group students so that can give attention and independence (for groups of individuals with similar MI profiles).

On the final question if students think that the information on MI profiles will help teachers or themselves more, 7 students (Niman, Hemarathy, Reshanty, Pravit, Lila, Kuan, Abiravi) felt that teachers will benefit more and 4 (Bavitram, Kiruthy, Kartigam, Hazim) believe that it will be better if students themselves know. In the conversation of the 7 students, they also discussed that "teachers need to change teaching style according to students' profiles". Another 3 students (Fadish, Mustam, Jamizan) believe that both parties should make a point to know about the individual profiles. In contrast, Mariam did not believe that it will be useful to "anyone". In addition, Tomark and Chong who disagreed, did not gave specific answers but offered explanations. Tomark mentioned "the teacher has to adopt to every single person in the class..so it will be difficult for the teacher "(to know individual profiles) while Chong said "it (the results) is private..for himself only". Some students went further by suggesting that "everyone" (Mustam, Niman, Hemarathy, Reshanty, Pravit) which includes "parents" (Niman, Reshanty, Pravit), "siblings" (Niman), "family" (Pravit), "society" (Reshanty) should take part in understanding individual MI profiles.

4.2.2 Data Analysis of the Teachers

The method of data collection for the teachers involved three sessions of interview, which also includes a group discussion, and observation in the classroom. I was also fortunate to have informal chats with the teachers outside of classroom, which I kept separate in a research journal. General observational notes on teachers' interactions with individual student are also presented earlier.

For the interviews, the data were first transcribed, where similar words were grouped together, distributed into tables and coded under similar themes just like the students' analysis for easier cross-referencing. The collection of interview questions for the teachers are aimed to find out what teachers think about:

1) teaching and learning in Malaysia
2) individual preferences and the existence of ethnicity issues in learning.
3) factors that affect teachers perception in the classroom
4) factors which help or less helpful in understanding students' learning profiles.

From these objectives, similar to the students' data, findings are presented in different sections. Below are the patterns found in the teachers' data, presented according to themes similar to the students'.

4.2.2.1 Teachers' opinions on teaching in the Malaysian classroom

From the total of 10 teachers involved in this research study, all of them expressed opinions on the factors that affect teaching in the classroom. The interview questions that relate to this theme are:

- What do you think about the education system in Malaysia?
- How would you describe your teaching style?

A majority of 8 teachers (Ms Hanizan, Ms Emily, Ms Sara, Ms Salina, Ms Rahida, Ms Ning, Ms Azlina, Ms Rosnah) mention students' character as one factor. Three teachers (Ms

Hanizan, Ms Emily, Ms Sara) share their ideas on the importance of understanding individual characteristics of students. Ms Sara believes that all students "have different perception..therefore, we have to use different styles. If we can't use this style, have to try the other..until they can understand. The only problem is, for weak students, we don't know if they understand". Another 4 teachers (Ms Salina, Ms Rahida, Ms Ning, Ms Azlina) have provided a comparison of groups of students according to their performance. Two teachers (Ms Salina, Ms Rahida) explained the difference between "weak" and "able" students, Ms Sara and Ms Ning compare "good students" vs. "others" and 2 teachers (Ms Sara, Ms Azlina) compares "clever vs. not clever" students. In this comparison, the teachers mention specific characteristics like the explanation given by Ms Rahida. She explains that in tests and writing tasks, some "have problem in expressing themselves", thus, she could distinguish students who "require special attention" such as, more individual tutoring from her in the classroom.

Six teachers talk about their own different teaching style in the classroom. Three teachers (Ms Emily, Ms Noor, Ms Rahida) believe in the importance of setting certain rules in their class, 3 teachers (Ms Ning, Ms Rahida, Ms Hanizan) believe a fun and easy environment class will help students to learn better. Two teachers (Ms Salina, Ms Rahida) mention about doing extra classes to help students, while individual teachers mention their own specific teaching style like using text book (Ms Salina), transparency (Ms Sara), Power Point presentation (Ms Azlina), being creative and adapting to situation (Ms Ning, Ms Hanizan). Ms Hanizan agrees that she tries to be "student based, have lotsa activities like presentation, group works" and Ms Ning explains "its communicative learning now. I think it's to gain students' confidence. I have to adjust, a lot of adaptation in the class. Have to be flexible…I like to enjoy the lesson with the students."

Five teachers also perceive the school system as a factor that affects teaching and learning in Malaysia. Ms Hanizan, Ms Emily, Ms Rosnah, Ms Noor and Ms Azlina agree that

because of the “exam-oriented” system, teachers are likely to be busy preparing students for exams. Ms Rosnah expresses that she “doesn’t have the freedom to teach ..have to aim more on finishing the syllabus” while Ms Hanizan adds because it is “very syllabus based, students want to perform and perform in their exams….no ROOM for discovery learning”. Ms Hanizan seems to even stress the word “room” for emphasis.

It seems not just the students who think that teachers’ characters is also a factor, because 2 teachers also mention this in the interview sessions. While talking about students’ differences, Ms Salina also adds that “teachers too, have different Multiple Intelligence” to further explain that each teacher has their own style. Ms Azlina elaborates that a reason why student lost their interest to learn is because he/she “does not like the teacher….but sometimes, it is not entirely the teachers’ fault, because, there should be a reason why the teacher reprimand a student, right?”

4.2.2.2 Teachers’ perception on how students learn

Teachers were also asked in interview sessions to share their thoughts on how students learn. The questions were:

1) What do you think about the students here?
2) Do you feel students have different learning preferences?
3) What do you know about the Multiple Intelligence theory?

The thoughts shared by the teachers are grouped into five sub-themes. The students’ characteristics (in relation to students’ learning habits and potentials) are mentioned most often by 8 teachers. Seven teachers talked about different groups of students while 6 teachers talked about different individual students. Other sub-themes include the school system whereby 5 teachers offer their opinions, and the classroom environment with only 1 teacher’s opinion.

As in the students' data, students' learning characteristics are pointed out by the teachers, and are also divided into the positive and the negative. Two teachers (Ms Emily, Ms Rahida) connote the positive characteristics of students with examples like "some of them must always ask questions, even after you had said that EXACT thing they (students) must ask again, so I think for them is sort of reinforcement, they heard it but they want to check, whether they are right" (Ms Emily) while Ms Rahida firmly believes in the power of the will of the students. She affirms "..students are willing to LEARN, it's just that they, it requires them TIME and also, TRUST. To be able to open, be open with the teacher". In contrast, 4 teachers (Ms Rosnah, Ms Ning, Ms Juzaidah, Ms Rahida) disclose the negative characteristics in reference to how they learn. In the earlier sections, Ms Juzaidah talks about how the students are lazy. She then elaborates on students' attitude "it's because they (students) are in the leisure time, they don't know….they could not see..because they are in their comfort zone". Ms Juzaidah elaborates how students are still immature and students seemed to be in a time where they play more even in schools. In language acquisition, Ms Rahida opens up that students are not brave enough to use English in class, maybe because of "peer pressure, if they USE English, they are worried that their friends are going to laugh at them". Another 4 teachers from the same school B, (Ms Hanizan, Ms Rahida, Ms Salina, Ms Sara) talk about students' ability. Ms Hanizan believes students in her class are "very able", similarly, Ms Rahida adds that "it's not difficult to get A in English I'm sure of it. And then all of the students in Malaysia are very clever. They can get nine As eight As easily, but to SET YOU apart from other people is your ability to communicate with other people". Ms Salina, however, has a different view, she believes that some students are gifted with "Mathematics brain" and there are students who just "can't get what you teach however you tried to".

It is interesting that teachers also distinguish students in different groups with how they learn. Six teachers (Ms Emily, Ms Sara, Ms Salina, Ms Juzaidah, Ms Rosnah, Ms

Azlina) insinuate that students in different ethnic groups learn better or differently. Ms Juzaidah who in discussion has shared quite a lot on the ethnicity issue describes the environment of learning in a Chinese school as being "persistent". She gives the example that the Chinese students will "bring a dictionary everyday to school and look up every single word" and will "read or revise any academic book at any opportunity, will ask impromptu questions about the subject too…or read any story books while sitting at the corridor". Ms Sara's opinions on the Malay students is that "they don't like to read the book, so, they have a lot of problems". Ms Azlina, Ms Hanizan and Ms Emily note that having discussions with friends from other ethnic groups will help the students. Ms Azlina proposes that students who are weak in class will benefit from "friends who are clever, they can explain, discuss and they themselves will be able to learn something new too". Ms Hanizan, too, encourages group work among her students because it "gives them freedom to discuss, learn and enjoy the process". In addition, Ms Emily also adds the difference between boys and girls that could affect the way they learn. She suggests that even the body shape of girls and boys plays a role:

> " I read that it's the shape of their body…that is why they cannot sit..in an article because the boys have broad shoulders and narrow at the bottom. Okey ladies are broad at the bottom..so they can sit for longer. Boys cannot sit too long in class…which I feel many people don't understand". Ms Emily suggest that in a double period class there should be breaks, as it is "difficult for boys to sit through double periods. ..they just cannot sit quietly"

Six teachers (Ms Rosnah, Ms Ning, Ms Juzaidah, Ms Azlina, Ms Rahida, Ms Salina) discuss about individual differences as well as group characteristics. They agree that knowing about students' MI profiles will help them learn better. Ms Rosnah suggests it will help students to be more "interested in learning". Ms Azlina adds "as teachers we can use a variety of teaching styles to suit the students' individual needs to make learning easier, following teachers' own creativity and also students' level of achievements". Ms Ning says "then only you tend to understand more about your students' ability, your students' profile. I think it's good". In addition, Ms Ning elaborates that "students' socioeconomic background" plays a

role in influencing how the students learn best too. If the student comes from a low income family, their attitude might be "very negative" to come to school and learn.

The Malaysian school system is also another factor mentioned by Ms Juzaidah, Ms Hanizan, Ms Sara, Ms Noor and Ms Ning. The majority of the teachers suggested that the class streaming influenced how they view students. Ms Ning, Ms Sara, Ms Noor, Ms Hanizan talk about the "ease of teaching" in "good classes". In contrast, Ms Juzaidah points out how the school system can give pressure to students with all the many "rules and tests", so that students resort to "tuition classes" and become "boastful of being clever in class". Ms Rahida, who is also the only teacher who talks about the classroom environment, emphasises the importance of a relaxing classroom atmosphere. She has "lessons with stories for students to enjoy. I believe through the stories, that actually they are learning some part of the language".

4.2.2.3 Teachers' thoughts in understanding Students' Different Learning Profiles and/or MI Profiles

This section is an extension to 4.2.2.2, from the research objective to investigate students' MI learning profiles. Therefore a recollection of the interview questions were asked especially in the group discussion with the teachers (the post study):

1) Do you feel students have different learning preferences? What is your opinion?
2) What is your opinion on the Multiple Intelligence theory?
3) Do you think teaching and learning will change with the knowledge of MI?
4) How would you use the knowledge on MI now that you have some idea about it?

For question 1, all 10 teachers agree that their students have different learning preferences. Out of the total, 4 teachers (Ms Noor, Ms Rahida, Ms Sara, Ms Salina) point out students are different according to performance, where Ms Rahida describes students who

"require special attention" because students are "having problems expressing themselves" and Ms Noor talks about the students in different class stream where the "students have more or less similar learning styles". Ms Sara mentions students' difference by comparing "clever and less clever students" while Ms Salina has a specific term for students who perform well in her class as "students with Maths brain". Three teachers (Ms Rosnah, Ms Emily, Ms Hanizan) describe the different styles students have in their class. Ms Rosnah mentions "read aloud, write notes" are the common learning styles of her students and Ms Emily says her students work "in groups and some are loners". Ms Hanizan also echoes that her students "enjoy discussion in groups". One teacher, Ms Ning, talks about students' "attitude" that will affect how they learn. Additionally, Ms Juzaidah offers her thoughts that each student is different and "student centered learning should be introduced in class".

For the questions on MI, similarly, a total of 10 teachers have more or less some idea about the theory. Eight teachers have pointed out that MI will help to know students better while another 2 teachers (Ms Ning, Ms Salina) only mention generally "there are students like that (with different MI profiles)". Ms Ning even goes further with her sceptical view on "people like to cook up theories….I don't see if it (results of theories) happens" although accepts that "it is good to know the theories. Because then only you tend to understand more about your students' ability, your students' profile."

From the 8 teachers, several reasons were gathered. Ms Rosnah suggests it "will help those who are less interested in class to be more interested" when the teacher knows how to make lessons to cater to them. Ms Noor, who can even list out different MI profiles, says "it will certainly help teachers to know their students". One teacher expresses that teachers can find "different approach for different students' profiles" which is very helpful for "both group, teachers and students will benefit from knowing students' MI profiles" (Ms Azlina). Ms Rosnah, Ms Noor and Ms Juzaidah also describe that class size and time limitation will

affect them trying to adapt the MI theory to make "teaching better" (Ms Juzaidah). Adding to how it can help students, Ms Hanizan explains that once the students know their strength with MI profiling, "they can help teachers to help the poorer ones in the class". Four teachers (Ms Rosnah, Ms Hanizan, Ms Rahida, Ms Noor) also agree that MI transcends all subjects, that each subject requires MI. Ms Hanizan explains "MI works with other subjects, like you can use Geography to teach English….yes, incorporating MI in other subjects".

The final count for the question: *Will knowing MI profiles help teachers or students more?* concludes that 8 teachers (Ms Rosnah, Ms Noor, Ms Ning, Ms Juzaidah, Ms Hanizan, Ms Sara, Ms Rahida, Ms Salina) suggest students will benefit from it more and 2 teachers (Ms Azlina and Ms Emily) suggest both teachers and students will benefit.

4.2.2.4 Teachers' opinions on ethnicity as a factor in students' learning preferences

In the first interview with the teachers, one of the five open ended questions aimed to explore the ethnicity issue in the Malaysian classroom. Teachers were asked "Has this thought ever come into your mind, or you might have come across (in your experiences) that Chinese, Indians and Malays have different learning abilities-, different learning styles?". All 10 teachers have thoughts on the ethnicity difference and 9 teachers mentioned positive characteristics of different ethnic groups. For Chinese students, 2 teachers (Ms Sara, Ms Noor) praise their concentration. Ms Sara explains that "Chinese students are very concerned about gaining knowledge so in the classroom, they give full concentration, unlike the Malays". Another 2 (Ms Emily, Ms Juzaidah) mention determination and 2 teachers (Ms Rahida, Ms Azlina) believe Chinese students are vocal in the classroom especially in asking questions to teachers. Ms Rahida also mentions the same characteristic for Indian students. Ms Emily elaborates that " I feel the Chinese ah..especially for Maths ah….they must get (it).

They MUST get (it). If not they will not stay quiet, and won't be happy with you if you go against their way of thinking also…so they will go round and round until they get it. Okey..both the Indians and the Malays are a little laid back, unless they're pushed". So, ethnic groups are characterised in both positive and negative ways. Malay students are characterised as playful (Ms Sara, Ms Juzaidah), lazy (Ms Sara), quiet (Ms Rahida), weak (Ms Rosnah), taking things easily (Ms Emily, Ms Ning) and liking to chat with friends (Ms Juzaidah). Ms Juzaidah, when talking about the Malay students' characteristics, recollects that " melayu..they want to play… come to school, to make friend and quarrel..emm, that's all", while Ms Rosnah repeats that Malay students are "weak" about 3 times in her interview and adds "I have to repeat more and more..and sometimes, they (Malay students) still don't get it". Four teachers talked about the negative characteristics of the Indian students, mentioning that Indian students also take things easy (Ms Emily), are weak (Ms Azlina), give less cooperation (Ms Azlina), have low potential (Noor) and have discipline problems (Ms Juzaidah). As for the Chinese students, Ms Salina recalls that they are a close knitted group and "when discussing will do it in their own groups only".

In the group discussion teachers were asked "Do you still think that students' learning preferences are in some ways associated with any particular ethnic group? Can you please explain?" When asked to elaborate about the factors of this issue, 4 teachers try to explain with their own beliefs. Three teachers (Ms Emily, Ms Azlina, Ms Ning) believe family background plays a role. Ms Ning noted that

> "it depends on the individual more or less. Because to say ethnicity or race has a role to play it depends on whether, the parents are supportive enough, you know? I mean when you talk about the support that students get, I would say..the background..well, you talk about the exposure of the parents themselves into education. The parents are..they feel in education is important. Doesn't matter if they are Malay, Chinese or Indians. They would still involved in the students education."

In reference to labelling certain ethnic groups with certain characteristics, Ms Ning also adds that people say a lot of things, it's their "perception" and "people do stereotype a lot".

Ms Hanizan, however, has a different view. She recalls the historical background of Malaysia which she thinks has influenced the ethnicity labelling For example, the Chinese who are more focused on business:

> "..lived in town areas okay, and most..err..good education would be from town area, right? And the Malays they are back in *kampong* (the village) and all that okay..where education is not so what you call that the opportunity is not great… people were about to open their eyes and move up the social ladder.."

Two teachers (Ms Azlina, Ms Ning) explain school culture is another factor to consider. They believe the environment where the students are will influence students' attitude or learning characteristics too, more than ethnicity. Ms Azlina elaborates "in those good schools where only good students are selected to enrol, classroom learning is good too".

4.3 Discussion

The second part of Chapter 4 will explore the issues of teachers' and students' perceptions and their effects on the understanding of students' learning preferences, how certain themes came up in the data analysis. Among the issues are: the factors that help or work as barriers, the question of making use of students' and teachers' metacognition in understanding MI profiles, and how the understanding of MI profiles is important to students and/or teachers. The discussion will include reference to interview and observation data, and the relevant literature.

Details from this section will then be used to suggest recommendations for further expansion in the next chapter.

4.3.1 The teachers' tendency to situate learning strengths and weaknesses within students

Perhaps the most salient theme which emerged from the above analysis is the fact that most teachers seemed to locate the students' learning issues within the students. Whether a student is learning well, or struggling, teachers tend to believe that the issue is with the student's ability and preferences, without acknowledging the possibility that the curriculum or teaching methods might be issues for individual students. Teachers categorised individual students as "immature", "pandai" or "tidak pandai" (clever or not clever) and "weak" and "able" in explaining their performance. Some of these characteristics are perceived to be in-born, for example, in relation to physical characteristics related to gender which have implications for learning. As we have seen, for example, Ms Emily recollected how the shape of students' body between boys and girls can affect students' learning with their secondary sexual characteristics being cited as causes for students' concentration (or lack of) in class. While this belief was unique and surprising, it illustrates teachers' desires to find explanations from within the students for their behaviours, whether they see these behaviours as positive or negative.

This also shows that Ms Emily is one of those teachers who are concerned about how her students learn. She managed to find one cause as to why her student act a certain way in the class. Other examples show that teachers come up with positive and negative characteristics to group their students as can be seen in the analysis. Most teachers clearly expressed the need to know about their students' learning preferences in the classroom in order to be able to teach them effectively. This need is expressed in the form of situating the factors in the students, not in the teachers.

In line with the teachers' responses on how students learn (4.2.2.2), my observations of teachers and students in the classroom show that teachers have different ways in approaching students according to what the teachers perceived the student to be like. We have

seen how Ms Emily and Ms Rahida connote the positive characteristics of students with examples like "some of them must always ask questions, even after you had said that EXACT thing they (students) must ask again, so I think for them it is sort of reinforcement, they heard it but they want to check , whether they are right" (Ms Emily). The literature on the importance of how teachers can deal with individual difference (Marton and Booth, 1997; Biggs, 1999; Prosser and Trigwell, 1999; Meighan and Harber, 2007; Sulaiman and Sulaiman, 2010) does support this approach but it places the onus on the teachers to understand their students and respond to their needs, rather than to situate blame or success as an innate likelihood. This extends to MI as well as to general talents or weaknesses.

As shown in the analysis, six teachers (Ms Rosnah, Ms Ning, Ms Juzaidah, Ms Azlina, Ms Rahida, Ms Salina) discussed individual differences as well as group characteristics. They expressed the belief that knowing about students' MI profiles will help them learn better. Rosnah suggest it will help students to be more "interested in learning". However, this belief was not followed through in practice, and while teachers held beliefs about individual students, and believed that individual differences were important, they did not respond to them in an observable way. As I noted earlier, in the Malaysian classrooms, students are usually spoon-fed as a consequence of exam backwash. This is not unique to Malaysia in fact, the exam backwash effect has been a concern in many Asians countries like China, Hong Kong, Singapore (and Western contexts such as the USA, Sweden and many others) (Tang, 1991; Messick, 1996; Watkins et al, 2005). In Malaysian secondary schools, teachers provide very few opportunities for students to explore and use their critical thinking to understand their own learning profiles. In fact, teachers' teaching practice is directed towards collectively completing the syllabus.

The fact that students' learning strengths and weaknesses are seen as inherent and specific to them opens the door to essentialising and labelling of individual students.

4.3.2 Essentialising/categorising individual students (or labelling)

The view of the teachers associating learning strengths strongly within the students themselves, they also showed high preferences to identify students under certain categories. In simpler words, teachers do label their students as presented in the findings of this study. Not only do teachers establish labels for students, these perceptions become fixed. Arguably, teachers explain that it is easier to identify the students according to a certain group or way, but it still supports the point that teachers almost always assume the cause dwells within the students themselves, "diverting" from the focus of the teachers teaching style or any other factors. Moreover literature that discussed "estimating of MI distribution in the classroom" (Furnham et al., 1999; Furnham, Hosoe, and Tang, 2001; Furnham & Akande, 2004) confirmed the weight of estimation and perception and its possible effects. The word 'estimate' is very closely related to 'perception' is seen in studies of MI which is related to the teachers having a preconceived idea that certain ethnic groups of students have certain intelligence profiles.

Additionally, another important factor essentialised by the teachers was the students' family background. Ms Ning elaborates that "students' socioeconomic background" plays a role in influencing how the students learn best too. If the student comes from a low income family, their attitude might be "very negative" to come to school and learn. However, studies on MI estimations have also shown little correlation between parental and students' intelligence profiles (Swami et al, 2006; Kaur and Chhikara, 2008, Saricaoglu and Arikan, 2009). It seemed that teachers also tend to look at students based on the family background and there were also reference on the siblings. The perception is that if the sibling is a 'good' student, the other sibling should also be 'good' as mentioned by Ms Azliza. This perception even comes to a point where it becomes like a norm. Thus, if the brother is a clever student,

teachers will immediately assume that the younger sibling will be almost as clever as the brother. Thus, a label has already occurred even before teaching the student.

Teachers also tend to label students following how the school system has initially classified them according to achievement levels, the streaming of classes from the high intermediate achievement learners to the low achievement learners. The majority of secondary schools in Malaysia still adopt some form of streaming for students because of the huge number of students' enrolment. In Malaysia, the classroom scenario is commonly seen to have 35-40 students in a classroom, either in primary or secondary schools. The major concern is when teachers are given the opportunity to teach a "good" class, they immediately have a perception that it will be "easy teaching" and vice versa for the lower achievement class. This view is shared by five teachers as quoted in the analysis. Teachers also insisted that the syllabus imposed by the government leads to more pressure on the students as well as teachers.

Teachers' initial perceptions of their students' learning preferences did not seem to change over time either. As the above analysis has shown, teachers seemed to have developed specific ideas of how certain students learn which were expressed by them in the form of strong beliefs about their students. In simpler words, teachers seemed to be labelling their students. Some of the examples recollected are like "talkative", "playful", and "good students" vs. "others".

The fact about labelling, it stays with you and these perceptions will be difficult to ignore or change. Towards the end of the data collection process, during the group discussion with the teachers, although they have a strong belief in the need to understand students' learning profiles, the majority of the teachers still cling to their "categorisation" of the students as exemplified in the post study. To illustrate further, I would like to quote examples from Ms Noor who strongly agreed "students tend to stick to their groups definitely!, they

will not change" and Ms Rosnah who kept using labels according to class streaming with words describing students such like *lembab* (very slow), slow and *teruk* (very bad in their performance). The main problem of having a fixed perception is that it can give a negative impact on the students' learning profiles. As explained by Walker (2007: 373), students' "educational life chance" relate to factors like "social class, school staffing, parents' educational experiences".

As if labels on students' performance are not enough, teachers also cling to the labels of ethnic groups as a factor for students learning preferences too. Ethnicity was a foci in this research and also another label which is common among teachers. As mentioned, ethnicity, religion, politics are very sensitive subjects in Malaysia. Although ethnicity seemed to be a taboo subject, in schools, many talked about it. It seemed easy for teachers and students to categorise ethnic group with some "specific and unique characteristics" or as discovered in this research "labels". Teachers bearing high beliefs that students from different ethnic groups behave in certain ways. My early concern of this notion (ethnic labels) as just a rumour has been made valid in this study. According to these teachers, Chinese students are almost always given positive reference such as "clever" and "hardworking", Malay and Indian students given the negative references such like Malays are "playful" and "*malas*" (lazy) and Indian are "chatty" and "weak". From these characterisations, we can feel the negative connotation of the words themselves much less the perception or behaviour that will be affected in the classroom.

Recently, the Malaysian government has been promoting the concept of "One Malaysia" to promote equality among all Malaysians but transparently, this study put forward that ethnic labels exist in schools. Teachers candidly use these labels to "help" them understand students to learn better. In the teachers' view, students have a high tendency to group themselves in the same ethnic groups even after a change in the seating arrangement.

Contrastingly, in the end of the data collection, teachers did not show any change of views but seemed to dismissed the views with 'excuses' like time limitation and too many students in the class.

4.3.3 Evaluating the pervasive belief in the Malaysian culture in regards to learning preferences and abilities

Earlier in the discussion, I mentioned teachers looked at ethnic groups and have specific labels to describe students. Labels and stereotypes seemed part of normal culture in the Malaysian classroom. As an extension to 4.3.2, Kaur and Chhikara (2006: 10) added that stereotyping is "well established particularly in rural areas", while in this research, stereotyping is also true in this suburban area. Earlier in the discussion, Malaysian culture is suggested to be one of the factors that affects teachers' and students' perceptions in schools. As a matter of fact, teachers and students mentioned the influence of culture in the learning classroom. Other researchers have also looked at cultural in the students' learning (Diaz and Heining-Boynton, 1995; Furnham and Baguma, 1999, Furnham and Fong, 2000; Wilson and Mujtaba, 2007).

The findings have also turned a spotlight on the students who are less successful in understanding the open ended questions in the Quiz Questionnaire because

1) students never had the question in their mind as they have not thought about answering the question of how they learn best OR

2) students might be ignorant or felt that it is not too important for them at the moment

These findings are in line with the Malaysian culture of being "modest" and differential to just accept what the teachers bring to class and to accept the situation as it is.

According to Furnham (2001), the reason why Asians tend to be modest in self-estimates is presumably because of the modesty in the culture. Similarly, Neto et. al (2009: 525) highlight the cross-cultural differences that show how Asians display a notion of

"humility" which explain how such individuals can be biased but in a "modest" way. This helps explain reasons why Malaysian students behave in certain ways in the classroom with respect to my observation notes.

In the analysis, teachers and students gave examples of ethnic groups with specific examples and factors why the Chinese, Indians and Malays have these characterisations. They made their own evaluations and suggest that it be true for each ethnic group. Generally, everyone builds their own conclusions in their head based on inductive and deductive reasoning. As Johnson-Laird (2010: 7) suggested, people create their own "mental models..and we base our conclusions on them". In some way, it seems that they are promoting labelling. The Chinese are associated as being very good in mathematics and business, the Indians seemed to be associated with being good in language and the Malays are good with memorisation subjects.

Taking the Malaysian context into account, this study suggests teachers' and students' perceptions are often shaped and characterised by over generalisations and personal bias. During the interview sessions and the group discussions, teachers tend to generalise characteristics of students' ethnic groups and students confirmed ethnic labelling based on few experiences with friends who are from different ethnic groups. As mentioned, participants were aware of the sensitivity of the subject but are quite comfortable sharing their views in the study. What seemed to be a mutual understanding about the ethnic labelling also confirms that it portrays the common views in the Malaysian culture. As Laverty (2009: 120) says about the importance of dialogue, "..it represents an open-ended, inclusive, and reciprocal relationship to promote connection across differences". Nonetheless, there are a few students who were quite careful to share views about their teachers mainly because of the culture that promotes always to respect elders, especially teachers.

It is not complete to discuss ethnic groups without looking at the identity resulted from the political history of Malaysia. Cohen (1978) also suggests that claims concerning "ethnic" identity (like earlier claims concerning "tribal" identity) are often colonialist practices and effects of the relations between colonized peoples and nation-states. Moreover, ethnicity can be narrowed or broadened to relate to the specific needs of political mobilization (Cohen, 1978). A look from the historical side, it is shown that because of political interest and colonialisation effects in the past, Malaysian Chinese were mostly situated in the business areas, Malays were in *kampungs* (undeveloped rural areas) and Indians were mostly situated in plantations and estates where the schools were quite near (Nah, 2003). As discussed in many studies, citizens have a "duty" to be and act passively as a political influence hugely affect the society, economy (Jackson and Penrose, 1994; Cartier, 2003; Nah, 2003) and in Malaysia, even education. Based on the history and over-generalisation, it is believed that Malaysians stereotyped that Chinese are good in Maths, Malays are good at memorisation and Indians are good in languages. Importantly, teachers and students disclose the same stereotypes of ethnic groups in this study. Further discussion on ethnicity and Malaysian culture will be presented in the next chapter.

4.3.4 Evaluating how knowing MI profiling will be useful in the classroom

Studies have shown that not just teachers, even student teachers (Durmaz, 2005; Dumitru and Jelea, 2010; Karamustafaoğlu, 2010) believe it is important information to know about their students' MI profiles. Data collected in this study also show that teachers and students, both agreed on the relevance of knowing MI profiles. Nonetheless, teachers also proposed reasons or perhaps that they have "not enough time, a lot of syllabus to catch up, other administrative work and there are too many students in the classroom", and cannot act on the information.

As much as the teachers may want to understand students learning profiles, even if they are given the information, according to the data in this study, teachers were not seen to be making any changes or using the information to assist teaching in the classroom. They have insisted on these excuses for not being able to adapt to the many individualities of their students. The reason why I used the word "insisted" is because towards the end of this study, teachers avoided answering how MI profiling can be useful in the classroom and insisted on explaining the reasons why it is impossible for teachers to be able to know about their students' learning profiles. Sadler (1998) asserted that teachers tend to judge and give feedback on students' effort rather than offering concepts or facts. As mentioned, the reasons are strict time management, huge syllabus to cover, other administrative work and too many students in the class.

Two teachers (Azliza and Emily) argued that these students are probably still in trial and error of finding the most suitable style to make learning easier. In my opinion, whether students understand or not, the main point is students are in control of their own learning experiences. As an extension to studies showing the importance of understanding individual capabilities in learning (Marton & Booth, 1997; Biggs, 1999; Prosser & Trigwell, 1999; Meighan & Harber, 2007), the evidences from the students' perceptions support the need for more meaningful learning experiences.

4.3.5 Discovering the need of MI profiling vs. the probability of labelling

Towards the end of this study, the data analysis showed that all teachers confirmed the need to understand how their students learn. These teachers also gave reasons and suggested possible factors. The most prominent finding from the data is that these factors mentioned by

the teachers reside within the students. Consequently, teachers are very likely to be labelling their students.

From the analysis and discussion, I believe that Malaysian culture has a significant influence in these perceptions too. Studies on cultural/social factors of stereotyping in teachers and students perceptions (Diaz and Heining-Boynton, 1995; Furnham and Baguma, 1999, Furnham et al, 2001; Kaur & Chhikara, 2008) also support this finding. It is very difficult to 'unlabel' the characteristics of a culture that has been around centuries. Therefore, with the exposure and knowledge of MI, teachers could be better informed and could help limit any 'negative labelling' but more of a 'positive labelling'; one that will help students to learn better.

It is known that labels exist even in the simplest form in our everyday lives, to make it easier to group and identify categorisation. In my opinion, as long as the categorisation does not hinder the students from fully capitalising their preferences in learning, or diverting students from understanding what works best for them, then, having 'positive categorisation' might actually help the students more. What is meant by 'positive categorisation' are the perceptions that will genuinely be used by teachers to help students learn better but this requires them to be willing to change. Ms Rahida, for example, was very thankful to know about her students' MI profiles and has been using the information to help her students to find ways to learn better. She mentioned that with the profiling, she is able to know that Husna (M17) "does not like role plays" and could substitute a different learning strategy for Husna to be more comfortable in class.

From the data analysis, teachers agree that MI is helpful in helping them to get to know students. This has been supported by many studies of successfully applying MI in teaching and learning in the classrooms (Hoerr, 2000; Shearer, 2004; Armstrong, 2009).

Additionally, students too, show a high interest in knowing their capabilities and understanding themselves better.

To help learners identify their own strength and weakness, or to help them in the choice of how to approach learning, good instruments are needed. Knowing one's weakness will help to further improve oneself. A well-developed multiple intelligence inventory could help poeple to make decisions according to the individual's preference at such points. As a conclusion, Gardner (1993) believes that educational methods should be more flexible to cater to the different abilities of the students. Additionally, in the group discussion, students have suggested that teachers and family members should play an active role in understanding their learning styles because it will also assist in making learning easier for them. Currie (2003) believes that teachers are well aware of the students' individuality in the classroom and suggest the MI as initial step in understanding students' strength and weaknesses.

> *However, it should be emphasized that this kind of questionnaire should only serve as a starting point for the process of getting to know the students in any classroom. Constant observation and evaluation should be regarded as two of the most important factors in the teaching-learning process, factors which should be essential to the teacher's attitude in the classroom at all times*.
>
> (Currie, 2003:2[11])

However, although it seems that the teachers believe in the importance of knowing their students' strength and weaknesses, changes in the way they teach were not visible. Teachers seemed to only have a strong belief but indicated they could not change their teaching to adapt the needs of the students because of the time limitation, the system's requirements, and also because of the pervasive belief in respects of culture.

[11] Article can be accessed at http://iteslj.org/Articles/Currie-MITheory.html

4.3.6 Evaluating the Research Questions

The present study has aimed to investigate teachers' and students' perception of students' learning profiles. As further discussion, I would like to recap the Research Questions and evaluate according to the findings and analysis of this study.

1. What are teachers' and students' pre-existing perceptions of students' learning profiles? (aiming for early perceptions)

As mentioned earlier, teachers tended to have a fixed perception on the students even before they enter the classrooms. They mentioned factors situated within the students and outside factors like the classroom streaming system, time limitation, and packed syllabus which are barriers for teachers to understanding students' learning profiles.

2. How do teachers' perceptions of students' learning profiles compare to the students'?

Teachers have fixed beliefs on students. Students are labelled according to their performance, their ability, ethnicity groups. Many students, on the other hand, have not had the opportunity to think about how best they learn or what their learning profiles are. Students also offer ethnicity as a factor in learning profiles, similar in a way to the teachers' perceptions.

3. How does information about students' MI profiles affect students' perceptions and their learning profiles in the classroom?

Students have voiced that they are very interested to know about their own learning profiles to be able to learn about their own strengths and weaknesses in learning. Nonetheless, students have looked at factors like culture and history, family background and teachers that could be barriers to their understanding, along with the Malaysian culture and the education system (exam backwash and spoon-feeding). Teachers, who also believed in the importance of knowing students' learning profiles, still are not able to adapt to individual learning profiles because of factors mentioned earlier.

4. To what extent can teachers' and students' perceptions of students' learning profiles be linked to students' ethnic background?

The analysis has highlighted that these teachers do have fixed perceptions on their students, even before they enter the class to teach. This study also showed that by essentialising, teachers also subjected students to labelling. This chapter's discussion showed teachers and students believed in the need of understanding students' learning profiles while these findings are confined to these participants, there may be implications. In the next chapter, with the themes that have been discussed, I will offer my conclusion and recommendations.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Introduction

In this chapter, I will offer my conclusion based on the analysis and discussions that emerged from the study. The first three sections will summarise the main themes that were found and evaluate how the themes can be useful in teaching and learning in Malaysia.

Next, this chapter offers at personal reflections, a self-evaluation of the research process and how the study adapted MI theory successfully. This chapter ends with discussion on further improvement and recommendations for further study.

5.2 Teachers' Perceptions

The most important issue that has been uncovered in this study is teachers certainly have their own perceptions about how individual students learn. Teachers have different expectations on different individuals and the majority of teachers are more concerned with students' achievements rather than looking at ways to help students learn better. They believed that the notable factor of students' learning experiences is mainly focused within the students' characters and/or abilities. Teachers believe that their perceptions are helpful 'notes' for them to interact and assist the students in classroom learning. In the discussion chapter, teachers revealed

- The tendency to situate learning strengths and weaknesses within students
- The tendency to also essentialise students which will then lead to labelling the students
- The knowledge and guidance on students MI profiles but teachers have shown unwillingness to use these to help students reach their potential in the classrooms.

This study described how teachers are given the opportunity to know about the students learning profiles and yet, they did not show any effort to use the knowledge of these differences to help students' learning. The fact that each student has their own learning profiles must not be ignored. Kumar et al (2009) stressed educators should be able to facilitate students' awareness of the way they learn in order to help students be more "efficient learners" (*ibid*: 37). Throughout the study, teachers cling to the idea that the factor lies on the students or point to barriers like the school system, strict syllabus and time limitation. This leads to a bigger concern that even if teachers are given the information on individual learning profiles, how much can the teacher use the knowledge? This study was not able to find or offer the answer to the question but it locates a potentially significant problem

5.3 Students' views

What this study also shows is how most students are highly motivated to learn about themselves and to apply their new metacognition once they have their MI results. Students in this study have clearly expressed their interest to learn about themselves. These students are motivated to find their strengths and weaknesses in learning because for them, it is an opportunity that they were never offered before. If these students can represent the many Malaysian students' voices, it would mean that there will be more Malaysian students who genuinely want to find out ways to learn better.

On the other hand, students also mentioned the stress of being burdened with high expectations from not just the society, but also teachers. The issue on 'exam backwash' was earlier described to add to the problem too. However, the students in this study also demonstrated the need to understand themselves too. The study also showed that teachers' expectations and perceptions have some degree of influence on students' perceptions in learning. Thus, the outcome of this also means that this study challenges the way teachers'

view their students, the education system and Malaysian school's administration to put additional emphasis on student-centered learning in the classroom.

5.4 Ethnicity and Malaysian Culture

From the study, we see that participants think that ethnicity is an important factor in teaching and learning in Malaysian classroom. They see that ethnicity helps to identify themselves and set boundaries in other ethnic groups. They even brought up factors on family backgrounds where ethnicity is strongly emphasised.

Each ethnic group was labelled with particular ways of behaviour, and labelled with particular characteristics. This is also explained by a quotation by Gillborn (1990:4)

> *Members of ethnic groups see themselves as culturally distinct from other groupings in society, and are seen by those others to be so. Many different characteristics may serve to distinguish ethnic groups from one another, but the most usual are language, history or ancestry (real or imagined), religion, and styles of dress or adornment. Ethnic differences are wholly learned*.
>
> (Giddens, 1989:243-244, quoted in Gillborn, 1990: 4)

Ethnicity serves to provide identification for people and can be expressed either in action or feeling, or combination of these. In agreement with the prevalent view in literature on ethnicity in learning achievement, the participants of this study appeared to think that ethnicity is of importance to them. They see ethnicity as a helpful factor in identifying themselves and set boundaries towards other ethnic groups. This seems to be influenced by their older generations as they are taught the meaning and significance of being a member of a particular ethnic group. They may even be brought up in families where ethnicity is strongly emphasised. The degree of importance of ethnicity varies from society to society, and the study shows that in multicultural Malaysia, the role of ethnic background is of a significant importance.

While the limitation of time brings restraint to explore more about the identification of ethnic groups in more depth, I believe that this issue is also largely connected with the political issue of a country. Despite the fact that the country's political leadership has encouraged Malaysians to ignore ethnic groupings, many concerns have been recently raised regarding growing divisions between ethnic groups of Malay, Chinese and Indians. As briefly mentioned in the previous chapter, in the history of the British occupation around the late 19th century, the Chinese from the mainland China started their journey to Malaysia (Cartier, 2003; Nah, 2003). During the time, it is believed that the majority of Chinese were excellent businesspersons and they were allocated around mines and city centres. The Indians were originally brought into Malaysia (was called Malaya, before independence) as part of the British Army and later, the majority of Indians were allocated around rubber estates and palm plantations. As for the Malays, the majority of them worked clerical positions or low paying jobs like drivers or 'peon's and were building houses around rural areas. The whole idea of social ordering of the three ethnicities, Malay, Chinese and Indian, could still be seen in Malaysia to this day. As Malaysia grew, the social 'ordering' was slowly dealt with by the government in an attempt to achieve a peaceful multiracial society.

Consequently, the ethnic labeling in learning profiles has become a reality characterising the Malaysian society. This study also supports the view that ethnicity plays a role in intellectual differentiation, which was raised by researchers (Walters, 1992; Diaz and Heining-Boynton, 1995; Furnham and Baguma, 1999). Armstrong (2000: 124) stressed that "every culture has and uses MI". Accepting the fact teachers are not able to run away from categorising their students according to ethnicity, teachers should ideally use knowledge of MI to tap into understanding the students better, and not to develop the categorisation into negative labeling.

It is also my hope to be able to continue investigating the ethnicity issue in Malaysian education. The analysis of ethnicity labeling is such a unique reference to Malaysian culture and the fact that both teachers and students believe in the labeling signals that there is a deeper issue that needs to be explored.

5.5 The exploration of MI in this study

As described in the literature review chapter, the Multiple Intelligence theory is a theory that has been a focus of the Malaysian government and they have included it on teacher training programmes and even for teacher's promotion examinations. Although there is no 'forceful' written instruction from the government to include MI in the classroom, the obvious requirement for all teachers to be well informed of this theory is very clear. In fact, all the teachers in this study have expressed that they have knowledge on MI and believed that MI profiles will certainly help teachers to know more about their students. It is also important to point out that the MI profiles used in this study are limited to the first SEVEN profiles to avoid any confusion among secondary school students. These students are required to learn about Biology and General Science in the schools where they are heavily exposed to the idea to enjoy and like any subjects of nature. My experience as a student and a secondary school teacher exonerate my belief that to include the EIGHT intelligence, (Naturalist Intelligence) will only bring confusion that will affect the validity of the QQ results. Having said this, before the data collection, I have also presented all NINE intelligence in a Power Point presentation to the participants in the study so that they are aware of all the intelligences. Participants were also offered the opportunity for further questions on all the intelligences.

This study has not explored MI to solve the issues in Malaysian secondary classrooms but rather, to stress the important notion that each student has his or her potential to experience a more meaningful learning. The learning that will actually help students to

explore their strengths and find ways to address their weaknesses. Only then, Malaysian students will be more confident and successful 'problem solvers'. Teachers should not just be aware about the theory, but, be able to use MI profiles as an important "tool" to add to teaching and learning in the classrooms. The current study has shown that the question of which learning theory is the best is neither the question nor the issue. As echoed by Kagan & Kagan (1998: 24), "..instead of replacing any proven educational innovation with another, teachers should add more tools to their teaching strategies".

5.6 Personal Reflections: Research process and limitations

Embarking on this study has been quite a challenge especially when one of the research questions involves a sensitive topic in Malaysia. The research design has gone through a rigorous process of trying to find the most workable plan. One of the biggest setbacks was the long process of obtaining an approval to proceed to the data collection stage of my research.

With regards to the government's approval, the issue of ethnicity is fundamentally dealt with such careful approach which also meant that most of the data such as the sample interview and group discussion transcripts are treated confidential at all times, thus, was not presented in the Appendices. In the beginning of the data collection, every effort has been made to make sure that the information on the research design is shared with not only the participants but also the school's management for better understanding and to promote comfort. Besides the sharing of information was aimed to create an environment in which the participants would feel comfortable to share personal views and feel at ease to discuss, evaluate and even suggest factors relating to learning profiles. Participants were also given a choice of venues to have the group discussions and they have expressed great gratitude. As a Malaysian, I too, understand the 'weight' of talking about others and ethnicity in the school's

compound. It seems like a 'conspiracy' to have a group of people discussing critically about the education system, teachers, ethnicity in schools, especially in a recorded research study. Conclusively, good rapport with the participants has resulted in a huge and successful data collection.

The only limitation with the data collection is I am not able to offer a wider exploration on other themes (such as, the evaluation of history and politics on ethnicity, students' and teachers' chosen responses in the classroom and several others) found in the data as this thesis is aimed for a solid MPhil study. I hope to offer my aspirations for a further study later in this chapter.

I have to mention that the rationale for this qualitative study was to help look at how teachers' perceptions have a high value on students learning. It gives such an impact. Having such a high value over what teachers bring into the class, Malaysian students should acknowledge of what makes learning better for them. This study's aim was to recognise students' potential in order to find ways to deal with students who are not successful in schools. In line with the Malaysian government's aspirations (PIPP), educational researchers are always looking at issues in learning.

The outcome of the study however, has also opened up many other doors for research that will be useful for further studies. As a researcher/student/teacher, I hope to continue looking at ways to improve teaching and learning in Malaysian classroom. My experience in Malaysian schools also has shaped my thoughts and epistemological stand. It has been the subject of discussion with peers and friends that we want to be able to find ways for teachers to be critical of teaching methods in order to bring about the best in our students and making teaching and learning more student oriented.

A revisit to the epistemological part of this study shows that it is clear that the Interpretive paradigm has provided this study a good analytical tool. However, clichéd it may

seem, I would like to also conclude that each paradigm has its own ontological and epistemological 'school of thought' which can be considered as early phases of a study. It was an interesting journey to explore my own experiences, early beliefs and even 'perceptions' in order to find what seemed to work best for this study. Although I believe that 'having' a philosophical paradigm as a starting point for a research seems acceptable, my experience has taught me that it is more logical and easier to start off with questions.

Whatever research studies we embark on, I truly believe that there is no 'absolute' or 'complete' knowledge that we can 'achieve'. As it is, knowledge is a truly complex process where it involves almost anything and everything. Although some would argue that knowledge is familiar at some point, but there are various levels of engaging knowledge. As an example, our knowledge about the world before the Internet era was only through reading books and experiences. Nowadays, our knowledge is widely influence by what we get from the Internet as well. Seeking knowledge and learning is certainly infinite and will never be 'complete'. As Grene (1966) concludes,

> *...whatever we seek it is not some definite thing which will reveal itself self-sufficient and complete, but a point of entry to a reality that is in some sense more than any one object we aspire to know...(ibid*,.: 34)

5.7 Contribution to Knowledge

In addition to contributing to the MI literature, this research contributes to fill the gap in understanding of how teachers' pre-conceived perceptions will influence students' learning in the Malaysian classroom. Moreover, the outcome of this study will act as important insights to guide and be referred to by schools and all teaching staff to further improve the teaching and learning environment in Malaysia. It will certainly help the Ministry of Education in Malaysia in reviewing the current syllabus. This research will also further clarify

the importance of MI in teaching and learning besides providing to the database of MI perceptions in the Malaysian classroom.

Upon the completion of this research, it is my hope that it will initiate other researchers to carry out study to look at different Asian cultures and perhaps, to carry out comparative studies to look at similarities and differences. Subsequently, more studies could certainly expand the knowledge bank for teacher and curriculum development.

5.8 Further aspirations and recommendations

In the early process of materialising this study, the main ambition was to make it into a thesis for a Doctorate study. The study was aimed wider to look at the impact of ethnicity 'labelling' in the education system of Malaysia in depth. I was hoping to explore how history and politics have played some role in the labelling phenomenon. Besides that, the study was originally aimed to investigate the significance of impact from teachers' and students perceptions in learning profiles. It is hoped that by understanding the issues of perceptions in learning, educators, teachers, educational researchers and policy makers in Malaysia may be willing and able to draft out better possibilities for a new education policy that will actually focus on the students rather than imposing too much information for the sake of written examinations. It is also my hope that Malaysian classrooms will move to promote a more student-centered learning. I have to stress that teachers should remember the MI 'mantra' of "How am I smart?" in contrast to the traditional question of "How smart am I?". Interestingly, this study also inspired new thoughts of investigating 'labelling' outside the school too.

The much-publicised assumption that Malaysian society is one which highly promotes climbing the social ladder could potentially provide a deeper discussion of this study. Malaysian students these days are always racing to be tops of their class and obtain straight

A's in examinations. In carrying out this study, I could also see how the stress of this issue might also affect students' and teachers' views of classroom learning in Malaysia. Although this study did not aim directly to investigate the effect of the society's perceptions, I propose future research studies to investigate this issue with regards to the Malaysian society. Perhaps, further studies could extend the scope to other South East Asian countries like Singapore, Indonesia, Thailand thus, adding the cultural studies for Asian countries.

There were some interesting themes and issues that could has been addressed but were constrained by time limitation, which in my opinion, could provide better and wider perspectives for the discussion chapter. Although this study has brought up positive outcomes for students, I believe that the study can be improved by also adding more data concerning how exactly students can use the knowledge to help them to learn better. In addition to that, a further investigation on the teachers' metacognition in using the knowledge of MI profiles to help teaching and learning will give a deeper perspective to this study. I suggest further action by having more group discussions or focus groups to help investigated this issue.

Finally, I have to acknowledge that my research journey have been like 'a swim in a huge and raging sea of knowledge' that many a times, felt like 'drowning'. I am very thankful that there are many outstanding characters who have been very supportive and helped me find 'land' again. Indeed, a great support system is crucially important in completing this study. The knowledge and experiences I have gained throughout the journey are implants I will often cherish. Admittedly, this study has opened up new insights and I must say, this has motivated me to plan a further study to investigate this study deeper.

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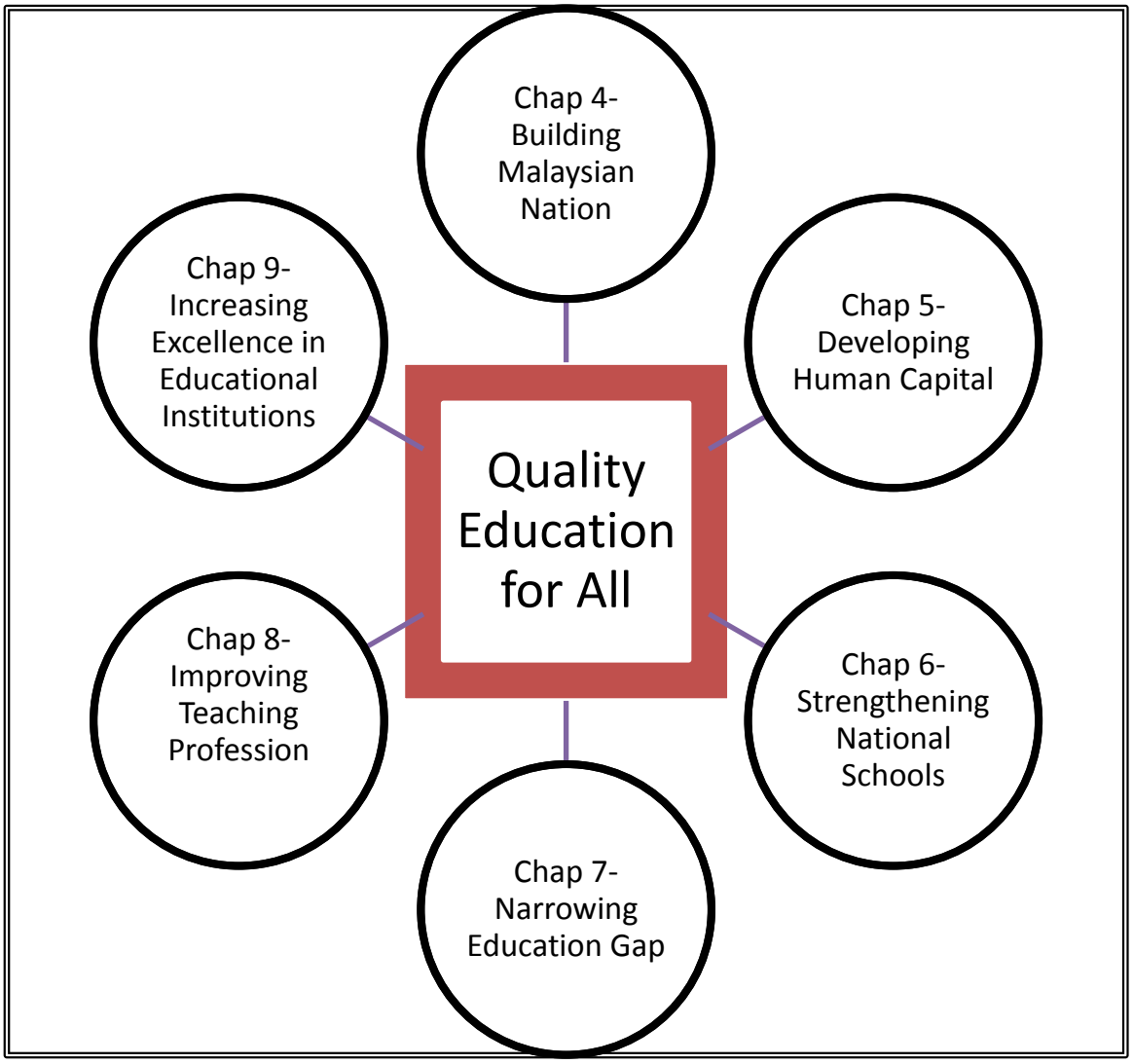
Several websites with MI tests online:

1) http://www.nedprod.com/Niall_stuff/intelligence_test.html
2) http://www.bgfl.org/bgfl/custom/resources_ftp/client_ftp/ks3/ict/multiple_int/questions/questions.cfm
3) http://www.literacyworks.org/mi/assessment/findyourstrengths.html

APPENDICES

Appendix 1: Diagram of Six Main Chapters of the Education Development Master Plan (PIPP) 2006 – 2010. *The first three chapters are:-

1. *Pendahuluan [Introduction]
2. *Pendidikan Kebangsaan:: Perletakan Asas [National Education: the Foundation]
3. *Pendidikan Kebangsaan: Melangkah Ke Hadapan [National Education: Moving Forward]



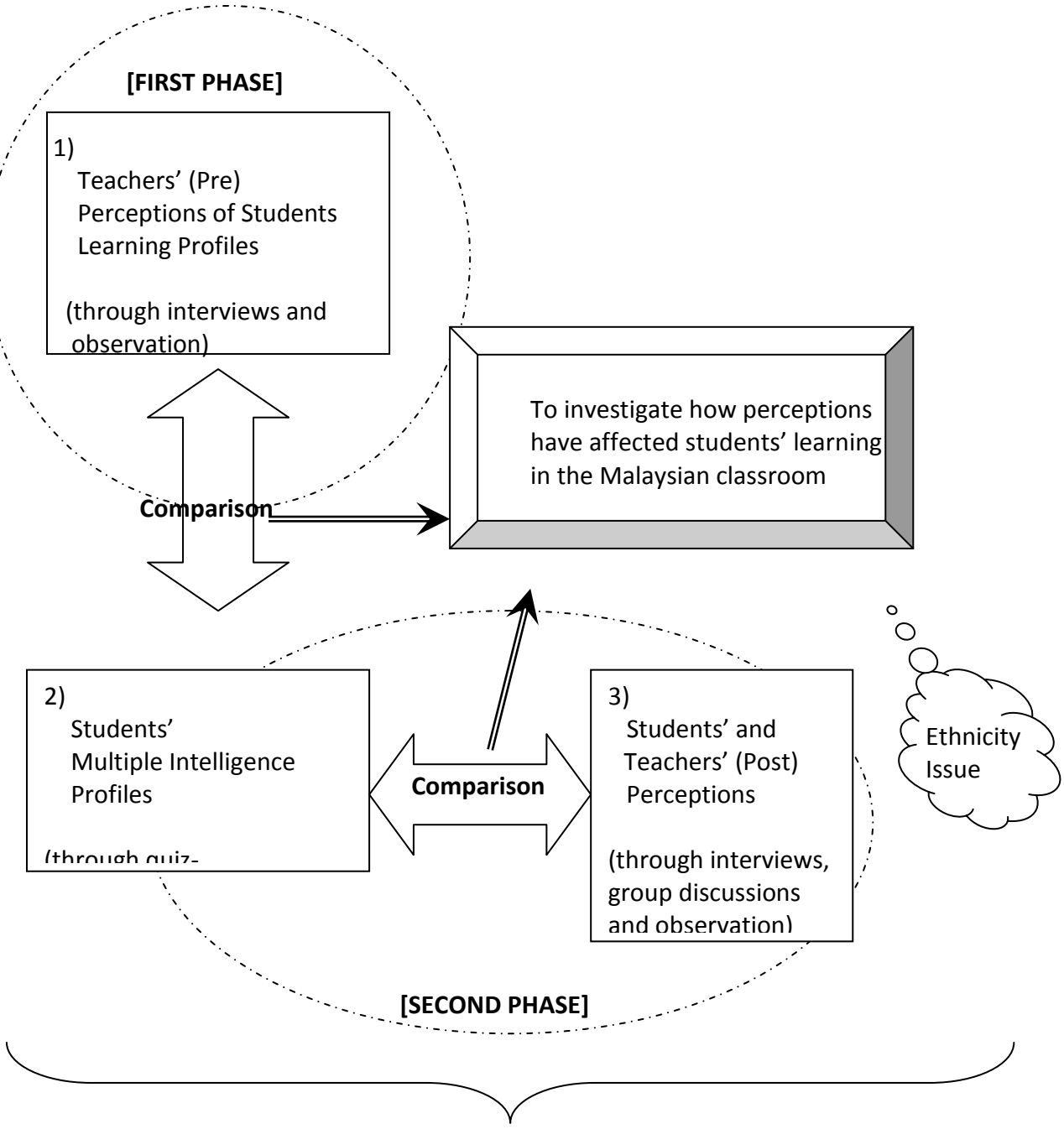
(diagram created from http://www.moe.gov.my on *PIPP*, accessed on 14/03/2011)

Appendix 2: Table of Multiple Intelligence Learning Activities for Language Learners

Verbal Linguistic	• read English books or magazines just for the fun of it • read English newspaper every day • memorize a favourite song, poem or story
Musical Rhythmic	• listen to different kinds of music • sing English songs in the shower • turn some of the learning into a song or rhythmic chant
Logical Mathematical	• watch television shows about science • read about detective stories • play logical-mathematical games
Visual Spatial	• work on jigsaw puzzles involving language • cut out favourite pictures from magazines and make a collage • pay close attention to the television advertisement, films seen
Bodily-Kinesthetic	• put on music with songs and make up own creative dance to reflect words • enrol in a dance, drama or poetry class • learn cooking, gardening, woodworking
Intrapersonal	• think about ones goals and hopes for the future • record ones thoughts and feelings in a daily journal • list strength and weakness in language learning
Interpersonal	• join English club at school • meet and talk English with one new person every month • interact with at least one person out of class in English every day

Adapted from Sulaiman & Sulaiman (2010: p141)

Appendix 3 : Research Design Diagram



A mixed method study: three interview sessions for teachers, eight classroom observation of teachers and students, one group discussions for teachers' and students' groups

Appendix 4: Informed Consent Form (Teachers)

UNIVERSITY OF BIRMINGHAM

Informed Consent (Teachers)

First and foremost, I would like to express my utmost gratitude for taking time to fill in this form and considering participating in this study. Your participation is highly regarded as the most essential component to help make this study a success. **Thank you!**

Before agreeing to participate in this research study, it is important that you read the following explanation of this study. Please feel free to contact me should you have any questions.

Title of Research : *A Study of Malaysian Teachers' Perceptions of Students' Learning Profiles in Malaysian Secondary School Classrooms. – Pilot Process 1*

Researcher: *Eti F. Zainudin*
Email : *efz767@bham.ac.uk*

Explanation of the Main Research

This research study aims to compare and contrast teachers' perceptions in Malaysian classroom context and to investigate the change of teachers' perceptions in two research study phases. The First Phase is before teachers and students are informed about students' Multiple Intelligence learning profiles and the Second Phase will investigate what happens after teachers and students received the information. According to the literature, teachers' perceptions have significant impact on students' understanding, achievement in schools, and helps build student-teacher relationship for a more meaningful learning experience in the classroom. On the completion of this study, it will hopefully enhance teaching and learning in the classroom, which will benefit not only the students but the teachers as well. In addition, this study would also like to investigate the ethnicity differences of students' learning profiles.

Participation in this study involves three interview sessions with teachers, completion of a quiz-questionnaire from students, observation inside and outside the classroom and a group discussion. Where agreed, the interviews and group discussions will be audio taped and/or

videotaped by the researcher. For this ***Pilot Process 1***, the data will be used to restructure the research methods before the main research study is carried out.

Confidentiality

All the information and data collected in this study will be treated confidential at all times. For the anonymity of the participants, the researcher will use pseudonyms or labels according to the participants' status (e.g. Students as S1, S2 etc and Teachers as T1, T2) and will be used throughout the whole research (collecting and presenting data).

These data will be stored in a locked box at the researcher's home for five years after the completion of the project and the researcher will be the only person having access to them. After five years, all documents will be shredded and the recording tapes will be destroyed.

Right to withdraw

Each participant has the right to withdraw from the study at any time without prejudice. If for any reason either students or teachers appear to be finding the process difficult, the researcher will remind them of their right to withdraw.

Please indicate, by ticking the boxes below, whether you are willing to take part in this research study, be recorded audio or visually, and whether the researcher may quote your words directly, in reports and publications arising from this research.

- ☐ I agree to take part in this research study.
- ☐ I agree to be video recorded and/or audio recorded (Please delete where not agreeable)
- ☐ I understand that I will not be identifiable in reports made available for the research, or in any publications. My words may be quoted provided that they are nameless.

Please print your name: _____

Signature: _____

Date: _____

(Adapted from : www.data-archive.ac.uk/ and Samford University website)

Appendix 5: Informed Consent Form (Students)

UNIVERSITY OF BIRMINGHAM

Informed Consent (Students)

First and foremost, I would like to express my utmost gratitude for taking time to fill in this form and considering participating in this study. Your participation is highly regarded as the most essential component to help make this study a success. **Thank you!**

Before agreeing to participate in this research study, it is important that you read the following explanation of this study. Please feel free to contact me should you have any questions.

Title of Research : *A Study of Malaysian Teachers' Perceptions of Students' learning profiles in Malaysian Secondary School Classrooms – Pilot Process 1*

Researcher: *Eti F. Zainudin*
Email : *efz767@bham.ac.uk*

Explanation of the Main Research

This research study aims to compare and contrast teachers' perceptions in Malaysian classroom context and to investigate the change of teachers' perceptions in two research study phases. The First Phase is before teachers and students are informed about students' Multiple Intelligence learning profiles and the Second Phase will investigate what happens after teachers and students received the information. According to the literature, teachers' perceptions have significant impact on students' understanding, achievement in schools, and helps build student-teacher relationship for a more meaningful learning experience in the classroom. On the completion of this study, it will hopefully enhance teaching and learning in the classroom, which will benefit not only the students but the teachers as well. In addition, this study would also like to investigate the ethnicity differences of students' learning profiles.

Participation in this study involves a three interview sessions with teachers, completion of a quiz-questionnaire from students, observation inside and outside the classroom and a group discussion. Where agreed, the interviews and group discussions will be audio taped and/or videotaped by the researcher. For this ***Pilot Process 1***, the data will be used to restructure the research methods before the main research study is carried out.

Confidentiality

All the information and data collected in this study will be treated confidential at all times. For the namelessness of the participants, the researcher will use pseudonyms or labels (e.g. Students as S1, S2 etc and Teachers as T1, T2) and will be used throughout the whole research (collecting and presenting data).

These data will be stored in a locked box at the researcher's home for five years after the completion of the project and the researcher will be the only person having access to them. After five years, all documents will be shredded and the recording tapes will be destroyed.

Right to withdraw

Each participant has the right to withdraw from the study at any time without prejudice. If for any reason either students or teachers appear to be finding the process difficult, the researcher will remind them of their right to withdraw.

Please indicate, by ticking the boxes below, whether you are willing to take part in this research study, be recorded audio or visually, and whether the researcher may quote your words directly, in reports and publications arising from this research.

- ☐ I agree to take part in this research study.
- ☐ I agree to be video recorded and/or audio recorded (Please delete where not agreeable)
- ☐ I understand that I will not be identifiable in reports made available for the research, or in any publications. My words may be quoted provided that they are nameless.

Please write your name: _____

Signature: _____

Date: _____

(Adapted from : www.data-archive.ac.uk/ and Samford University website

Appendix 6: *Information Leaflet (adapted to fit from original leaflet design)

CONFIDENTIALITY AND RIGHT TO WITHDRAW

All the information and data collected in this study will be treated as CONFIDENTIAL at all times. For the anonymity of the participants, the researcher will use pseudonyms or labels (e.g. Students as S1, S2 etc and Teachers as T1, T2) and will be used throughout the whole research.

Please also note that ALL participants have the right to withdraw from the study at any time without prejudice.

UNIVERSITY OF BIRMINGHAM

SCHOOL OF EDUCATION

Researcher: Eti F. Zainudin
PhD Educational Psychology

E-mail: efz767@bham.ac.uk

A Study on Malaysian Teachers' Perceptions of Students' Learning Profiles in Malaysian Secondary Schools

Perceptions?
Learning Profiles?
Individuality?
Change?

UNIVERSITY OF BIRMINGHAM

SCHOOL OF EDUCATION

RESEARCH STUDY PURPOSES

- *to compare and contrast teachers' EARLY perceptions of students' Multiple Intelligence profiles with teachers' perceptions and teachers' classroom practices AFTER the information of students' Multiple Intelligence profiles*
- *to investigate similarities and differences of teachers' perceptions AFTER the given information of students' Multiple Intelligence profiles*
- to compare and contrast teachers' perceptions with students' learning profiles with reference to the students' individual background

<u>*Explanation of the Research*</u>

The First Phase is before teachers and students are informed about students' Multiple Intelligence learning profiles and the Second Phase will investigate what happens after teachers have receive the information. According to the literature, teachers' perceptions have significant impact on students' understanding, achievement in schools, and helps build student teacher relationship for a more meaningful learning experience in the classroom. On the completion of this study, it will hopefully enhance teaching and learning in the classroom, which will benefit not only the students but the teachers as well.

Participation in the study involves a series of interviews with teachers, completion of a quiz-questionnaire from students, observation inside and outside the classroom and a group discussion. Where agreed, the interviews and group discussions will be audio taped and/or videotaped by the researcher. The data will later be transcribed for the purpose of data analysis. This research study will be compiled for the researcher's PhD thesis.

However, for the purpose of the PILOT STUDY, all data collected will not be used for the real research study.

UNIVERSITY OF BIRMINGHAM

SCHOOL OF EDUCATION

Researcher: Eti F. Zainudin
PhD Educational Psychology

E-mail: efz767@bham.ac.uk

Please feel free to email me should you have any [illegible] to get more information on the study.
THANK YOU!

Appendix 7: Questionnaire – Original Form

Reproducible from:

National Education Association. (1996). ***Multiple intelligences. USA: NEA*** Teacher-to-Teacher Books (p. 45-46).

Where Does Your True Intelligence Lie?

This quiz will help you identify your areas of strongest intelligence. Read each statement. If it expresses characteristic of you and sounds true for the most part, jot down a "T."
If it is false, mark an "F." If the statement is sometimes true, sometimes false, leave it blank.

1	_____	I'd rather draw a map than give someone verbal directions.
2	_____	If I am angry or happy, I usually know exactly why.
3	_____	I can play (or used to play) a musical instrument.
4	_____	I can associate music with my moods.
5	_____	I can add or multiply quickly in my head.
6	_____	I can help a friend sort out strong feelings because I successfully dealt with similar feelings myself.
7	_____	I like to work with calculators and computers.
8	_____	I pick up new dance steps easily.
9	_____	It's easy for me to say what I think in an argument or debate.
10	_____	I enjoy a good lecture, speech, or sermon.
11	_____	I always know north from south no matter where I am.
12	_____	I like to gather together groups of people for parties or social events.
13	_____	Life seems empty without music.
14	_____	I always understand the drawings that come with new gadgets or appliances.
15	_____	I like to work puzzles and play games.
16	_____	Learning to ride a bike (or skates) was easy.
17	_____	I am irritated when I hear an argument or statement that sounds illogical.
18	_____	I can convince other people to follow my plans.
19	_____	My sense of balance and coordination is good.
20	_____	I often see patterns and relationships between numbers faster and easier than others.
21	_____	I enjoy building models (or sculpting).
22	_____	I am good at finding the fine points of word meanings.
23	_____	I can look at an object one way and see it turned sideways or backwards just as easily.
24	_____	I often connect a piece of music with some event in my life.
25	_____	I like to work with numbers and figures.
26	_____	I like to sit quietly and reflect on my inner feelings.
27	_____	Just looking at shapes of buildings and structures is pleasurable to me.
28	_____	I like to hum, whistle, and sing in the shower or when alone.
29	_____	I'm good at athletics.
30	_____	I enjoy writing detailed letters to friends.
31	_____	I'm usually aware of the expression on my face.
32	_____	I'm sensitive to the expressions on other people's faces.
33	_____	I stay "in touch" with my moods. I have no trouble identifying them.
34	_____	I am sensitive to the moods of others.
35	_____	I have a good sense of what others think of me.

Scoring Sheet

Let's Circle the number marked as "T" in the above questionnaire and in the table below. A total of four in any of the categories indicates strong ability.

A	B	C	D	E	F	G
9	5	1	8	3	2	12
10	7	11	16	4	6	18
17	15	14	19	13	26	32
22	20	23	21	24	31	34
30	25	27	29	28	33	35

A = **Verbal Linguistic** intelligence

B **=** **Logical Mathematical** intelligence

C = **Visual Spatial** intelligence

D = **Bodily Kinesthetic** intelligence

E = **Musical Rhythmic** intelligence

F = **Intrapersonal** intelligence

G = **Interpersonal** intelligence

Appendix 8: Quiz-Questionnaire – for Pilot and Main Data Collection

Want To Know Where Your True Intelligence Lies???

Try this simple questionnaire at one go...but, DON'T think too much about your answers or it might not work! ☺

This quiz-like questionnaire will help you to identify your areas of strongest intelligence. Read each statement. If it expresses characteristic of you and sounds ***TRUE*** *for the most part, jot down a "**T.**" in the box.*

If it is ***FALSE****, mark an* ***"F." in the box.***

If the statement is SOMETIMES true, sometimes false, leave the box ***blank****.*

1	I'd rather draw a map than give someone verbal directions.	
2	If I am angry or happy, I usually know exactly why.	
3	I can play (or used to learn to play) a musical instrument easily.	
4	I can associate music with my moods.	
5	I can add or multiply quickly in my head.	
6	I can help a friend sort out strong feelings because I successfully dealt with similar feelings myself.	
7	I like to work with calculators and computers.	
8	I pick up new dance steps easily.	
9	It's easy for me to say what I think in an argument or debate.	
10	I enjoy a good speech, or chats.	
11	I always know north from south no matter where I am.	
12	I like to gather together groups of people for parties or social events.	
13	Life seems empty without music.	
14	I always understand the drawings that come with new gadgets or appliances.	
15	I like to work with puzzles or play games.	
16	Learning to ride a bike was easy as far as I can remember.	
17	I am irritated when I hear an argument or statement that sounds illogical.	
18	I can convince other people to follow my plans.	
19	My sense of balance and coordination is good.	
20	I often see patterns and relationships between numbers faster and easier than others.	

21	I enjoy building either models or replicas.	
22	I am good at finding the meaning of words.	
23	I can look at an object one way and see it turned sideways or backwards just as easily.	
24	I often connect a piece of music with some event in my life.	
25	I like to work with numbers and figures.	
26	I like to sit quietly and reflect on my inner feelings.	
27	Just looking at shapes of buildings and structures is pleasurable to me.	
28	I like to hum, whistle, and sing in the shower or when alone.	
29	I'm good at athletics.	
30	I enjoy writing detailed letters to friends.	
31	I'm usually aware of the expression on my face.	
32	I'm sensitive to the expressions on other people's faces.	
33	I usually know what mood I am in.	
34	I am sensitive to the moods of others.	
35	I have a good sense of what others think of me.	

~~~~~THANK YOU FOR PARTICIPATING~~~~~

Adapted from:

National Education Association. (1996). ***Multiple Intelligences.U SA: NE A*** Teacher-to-Teacher Books (p. 45-46).

The Simple Scoring Sheet

*Let's look at your result. Do you have more "**T**" than "**F**" or blank?*
If your answer is "NO", no worries!
Circle ALL the statement numbers (first column, previous pages) where you had marked with a "T" and circle the same numbers in the table below.
E.g. if statement 1 is marked "T", then you should circle no 1 in column C of the box below.
*A total of four circles in **any** of the columns (A – G) indicates strong ability.*

	A	B	C	D	E	F	G
Statement Numbers (1 – 35)	9	5	1	8	3	2	12
	10	7	11	16	4	6	18
	17	15	14	19	13	26	32
	22	20	23	21	24	31	34
	30	25	27	29	28	33	35

Now that you know the result, which intelligence category do you fall into?

A = **Verbal Linguistic** intelligence

B = **Logical Mathematical** intelligence

C = **Visual Spatial** intelligence

D = **Bodily Kinesthetic** intelligence

E = **Musical Rhythmic** intelligence

F = **Intrapersonal** intelligence

G = **Interpersonal** intelligence

If you would like to know MORE about the intelligence categories stated, please do not be shy to discuss with your teacher or the researcher. OK? ☺ Could you also answer the questions below to help further describe yourself? Don't worry, all information will be kept CONFIDENTIAL.

a. Are you : (Please Circle)

Male Female

b. How old are you now? (Please Circle)

13 14 15 16 17

c. If someone asks you to describe your ethnicity, how would you explain?

d. Which major Malaysian ethnic group do you fall into? (Please Circle)

Malay Chinese Indian

Other (Please describe): _____

e. What are your FAVOURITE activities in lessons and why? (perhaps, from primary-secondary, like, group work, role plays, fieldwork etc)

f. What are your LEAST FAVOURITE activities in lessons and why? (perhaps, from primary to secondary, like, group work, role plays, fieldwork etc)

g. If someone asks you this questions "What makes learning easy for you OR How do you like to learn?", what will be your best explanation? You can also write down how this make you feel to have to answer this question. (Please write as much as you want to)

~~~~~AGAIN, THANK YOU FOR PARTICIPATING!!~~~~~

Researcher:
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Appendix 9: Interview Questions – for Teachers

For Teachers

INTERVIEW 1 (First Phase)

Semi-Structured Interview Questions

Introduction (adapted from Robson, 2002: p277)

self introduction and brief information on research, purpose of interview, assures confidentiality, permission to take down notes.

Warm-up topics : (2 – 3 mins)

- Well-being, teaching
- Teaching experience, good / unpleasant memories
- Malaysia's educational system

Classroom Practices : (5 – 8mins)

1) How would you describe your style of teaching?
2) What is your perception of individual students' learning experience in your class?
3) Do you feel that students have different learning preferences? What is your opinion on this?
4) If you believe in variety of teaching styles, can you give some examples of teaching practices in your class to certain students

The last question will be in reference to ethnicity differences in Malaysia. I will only continue if you are comfortable with the topic'.

5) Has this thought entered your mind at some point: -*Do you think these learning preferences are in some ways associated with any particular ethnic group? Can you please elaborate?*

Multiple Intelligence (MI) : (3 – 6 mins)

1) Have you heard anything about the theory of Multiple Intelligence?
2) At this moment, can you describe what you know about MI Theory?
3) What is your opinion on the MI Profiles?

4) Do you think teaching and learning will change with the knowledge of MI?

~~~Thank you for your time and your helpful comments. Have a nice day!~~~

For Teachers

INTERVIEW 2 (after observation in First Phase)

1) At the beginning, the question on general style of teaching was asked. This is a continuation of the questions. How would you describe your style of teaching to certain students? Lets say:
   Student A :

   Student B:

   Student C:

   Student D:

2) What is your perception of these students in the class? Do you notice any difference in learning?

3) During my observation, I've noticed that…….

For Teachers

INTERVIEW 3 (Second Phase)

Warm-up topics : (1 – 3 mins)

- Well-being, teaching

Explanation on Students' Multiple Intelligence (MI) Profiles (MI) : (10 – 15 mins)

Classroom Practices : (5 – 8mins)

1) What is your opinion on certain students with certain MI profiles? How do you feel with the results? Are you surprise with any of it?
2) With this information, do you think that your teaching practices will be different in the classroom? Can you explain what you think

For Teachers

GROUP DISCUSSION (Second Phase – Post inquiry)

Classroom Practices : (5 – 8mins)

1) What is your opinion on your teaching practices now? Do you feel that anything has changed?
2) Would you say that classroom teaching and learning is quite different after the information on students' learning profiles?
3) Do you think that the knowledge of students' MI profiles have benefit you in some ways?
4) Do you think the students have the same opinion?
5) How would you use the knowledge on MI now that you have some idea about it?

The last question will be in reference to ethnicity differences in Malaysia. I will only continue if you are comfortable with the topic'.

6) Do you still think that students' learning preferences are in some ways associated with any particular ethnic group? Can you please explain?*

For Students

GROUP DISCUSSION (Second Phase – Post inquiry)

Classroom Practices : (5 – 8mins)

1) Do you still remember the quiz-questionnaire results? How do you feel about it?
2) What is your experience in (English, Science and Mathematics) classes after the administration of the quiz-questionnaire? In reference to your teacher, do you feel that classroom teaching practices has changed?
3) In your opinion, do you feel that the knowledge of MI profiles have benefit your (own) classroom learning in some ways?
4) Do you think your friends have benefit from the knowledge of MI profiles?
5) How would you use the knowledge on MI now that you have some idea about it?

The last question will be in reference to ethnicity differences in Malaysia. I will only continue if you are comfortable with the topic'.

6) If someone asks you to describe your ethnicity, what would be your explanation?
7) In your opinion, do you think there is any similarities or differences in the way each other learn? What would you say about their profiles?

Appendix 10: Observation schedule form

Table 1: Individual interactions in the classroom

T and S Interaction	Notes

Examples:

1 – Asking Questions	2 – Answering Questions	3 – Giving explanation
4 – Giving instructions	5 – Ignorance	6 – Personal contact
7 – Giving praises	8A – Encouragement	9A – Verbal Affirmation
	8B – Consolation	9B – Verbal Negation
10 – Personal tutoring	11A – Discussing	12 – Verbal Reprimand
	11B – Debating	
13 – Physical punishment	14 – Kinesthetic interaction	15 – No interaction

Table 2: Individual Student's Behaviour, either with T or other S

	Individuality	Notes
S1		
S2		
S3		
S4		
S5		
S6		
*		
*		

Examples:

1 – Q and A	2 - Discuss	3 - Still / Quiet
4 – Raise hand	5 – Nod head	6 – Shake head
7 – Self-Vocalised	8 – Moving Actions _____	9 – Carry out task
10 – Play with _____	11 – Doing others _____	12 – Seems lost

Table 3: Teacher's teaching style

TEACHING STYLE	NOTES
Lecturing	
Dictation / Reading	
Organising games / activities	
Q & A	
Demonstration / Explanation	

Table 4: Teacher's Work Management to Students

WORK MANAGEMENT	NOTES
Whole Class	
Groups	
Pairs	
Individual	

Table 5: What is the Teacher doing while not teaching?

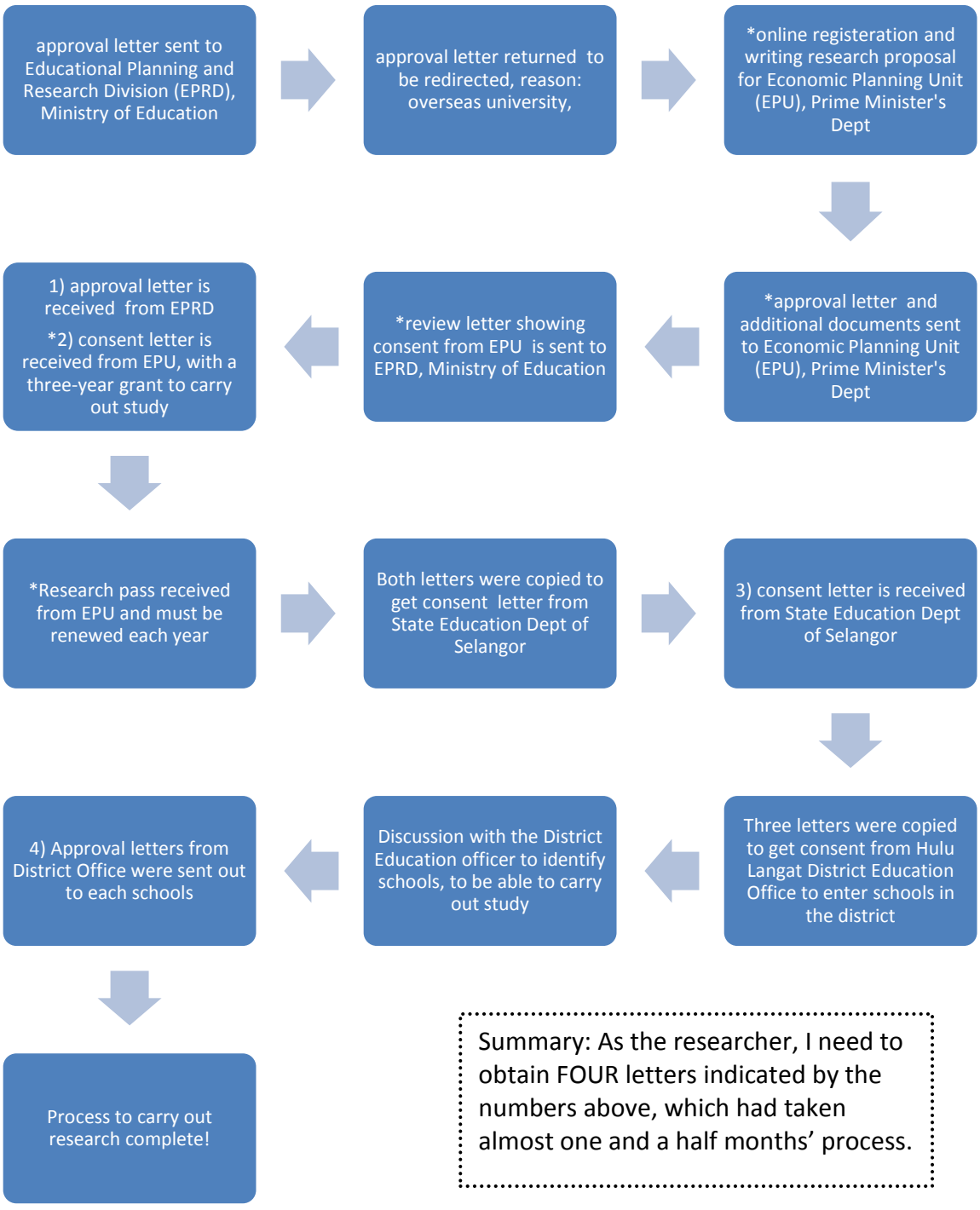
NOT TEACHING ACTIVITY	NOTES
Doing work at her desk	
Walking around the classroom	
Helping students	
Not present in the classroom	

Table 6: Teacher's teaching source

TEACHING SOURCE	NOTES
Textbooks	
Printed materials	
Graphical Presentations e.g charts, models	
OHP	
Computer and/or Internet	
Video and/or audio	
Laboratory instruments	

RESEARCHER'S NOTES : overall observation, thoughts and personal opinions.

Appendix 11: Diagram of the Tedious Process to Obtain a Research Pass in Malaysia.



Summary: As the researcher, I need to obtain FOUR letters indicated by the numbers above, which had taken almost one and a half months' process.

*** This part of the process is omitted if the researcher is a Malaysian studying in a Malaysian university. The new security policy requires all international researchers to go through the EPU and obtain a research pass (an identity research card). The research pass must be returned to EPU before the researcher leaves Malaysia.**

Appendix 12: Pilot Study: Multiple Intelligence Individual Report

Pilot Study: Multiple Intelligence Individual Report

	C3	C4	I1	I4	M1	M2	M3	TOTAL
Verbal Linguistic	3	2	3	1	1	3	1	**14**
Logical Mathematical	0	4	3	1	1	4	1	**14**
Visual Spatial	3	2	2	0	0	2	0	**9**
Bodily Kinesthetic	2	1	4	2	2	1	3	**15**
Musical Rhythmic	4	4	5	4	5	4	3	**29**
Intrapersonal	4	3	4	3	5	3	5	**27**
Interpersonal	4	4	3	1	2	5	5	**24**

1) The majority of the students in the class has high results on Musical Rhythmic, with Visual Spatial the least. This is also represented in individual report above.
2) The hierarchy according to the points collected are :
   Musical Rhythmic->Intrapersonal->Interpersonal->Bodily Kinesthetic->Verbal Linguistic, Logical Mathematic->Visual Spatial
3) As for the ethnicity report,
   Malay (M) majority = Intrapersonal & Interpersonal
   Malay (M) least = Visual Spatial
   Chinese (C) majority = Musical Rhythmic & Interpersonal
   Chinese (C) least = Bodily Kinesthetic
   Indian (I) majority = Musical Rhythmic
   Indian (I) least = Visual Spatial

Pilot Study: General Comments on Learning in class

	Likes	Dislikes	Own Learning Styles
C3	Watching people	Presentations	Watch and learn
C4	Group work	Role plays	With music
I1	Debate, politics	Certain teacher's teaching style invites sleepiness	Certain teacher's teaching style : prefer acting
I4	Group work	Fights with friends	IT & computer
M1	Listening	Playing games	-
M2	Mathematics – brain training	History – becomes sleepy	With music
M3	Hands on learning	Friends who do not want to help	Study group to build confidence

Note: [overlap speech] (additional info) {English translation}

Appendix 13: Pilot Study: Excerpts of Transcripts from the Interview Sessions and Group Discussion

- Talking about the MI report and knowledge on students' MI profiles

Excerpt 1

R: this is the interview 3 after the MI report...with T1
Now what is..after the brief report on the MI and the results..what is you opinion on certain students with certain Multiple Intelligence? What what.. how do u feel with the results..are u shocked..or it doesn't surprise you at all
T1: it doesn't surprise me ..because I think the result is quite ..quite true..emm...because I know I know them you know..since they were in Form 3, so I think it is true..especially like C4 and C3..not so much of M1. I think she should have a learning style..maybe she doesn't know how to write...
R: ohh..yes..maybe she doesn't know how to explain.
T1: yeah...she doesn't know how to
....
R: Do u think with this information it will help them..or the teachers to teach them better and also to help them learn better?
T1:I think..this this..if you give me this one (gesturing to the report on individual MI)..ok..this student has this and this..maybe I can try to understand them more..[R:ehm..yes..]and then to help them in the class..YES..i mean..if I go to them personally, I know this student is like this..so this is how I should approach this student..[R: ah huh..haa..haa..]..YES, I think it may help..
R: and it would be better for them to know this information sooner..as you said..right?
T1: yess..(nods)..perhaps in Form 2.or so..
R: so, do you think that MI can help teachers in the classroom..
T1: yes. Yes..i can see now..what MI is...and how it can help teachers in the class..yes.. YES.

Excerpt 2

R: this is the interview 3 after the MI report...with T2
Now that you have seen the results of the students..umm what do u feel...about the result..are u shocked..or happy about the results..
T2: ok...from the report..im not shocked because..its just that I don't go analyse them very detail according to their verbal, linguistic, logical mathematical..but I know they are different in their own way.the way how..the way..the way how they represent in the class.
R: maybe you seen them in the class differently?
T2: maybe I see them..in the class I can see half of them..but with this report I can see the other half of them better. (laughs)
R: ok..lets say if you were to teach these students next year ..again..do you the information will help you in terms of teaching them?
T2: may be it will help me a little bit. Help the way the teacher teach. Maybe some of them need group work coz they need friends to study..and then for boring subjects..i can do something to avoid them feeling sleepy.
...
R: Do you think that with this knowledge, it will help the students? If they know about it? Or do you think it will help the teachers more..rather than the students?

T2: both lah..BOTH.

Conclusion on the 2 excerpts of the teachers' interview of the pilot study:
This shows that the teachers are interested with the MI profiles and feel that the knowledge could help their teaching. Besides that, teachers also support that the knowledge will help students too.

<u>Excerpts on The Group Discussion with the students</u>

- Talking about the MI results and knowledge on MI profiles

Excerpt 3
R: Umm..ok...what is your experience in your subject kan umm,after the quiz-questionnaire. Lepas you tau you punya result tu, you masuk kelas tu..ker your rasa lain..ker rasa sama ja {After you know your results, you enter the class, do you feel the same with your learning?}[M3: sama ja] ker you rasa..{or you feel..}
Majority: Same
I1: tapi Cuma rasa macam lebih mengenali diri kita la {you get to learn more about yourself}
[R: ohhh]
R: ye ke? Adekah ia membantu you untuk untuk belajar inside the class? {really? does the knowledge help you to learn in the class?}
Majority: (strong) yes...[membantu..] {yes..it helps}
Excerpt 4
R: how does it help you?
M3: cakap bahasa melayu boleh? Saya kawan-kawan kan? Haa, kalo tak tahu boleh tanya ke. Lepas tu macam..boleh share la semua {can I reply in Malay? Mine is interpersonal intelligence, right? If I don't know than I can ask my friends. And I can share everything}
R: sebelum ni you rasa you tahu tak diri you..sebelum buat Questionnaire tu. You tahu tak? {meaning to say before the questionnaire, you don't know that about yourself, right?}
[M3: tak]..tak sangat {not really} (shakes head) lah...so, sekarang you tak tahu diri u siapa basically..{and now you know who you are basically..
M3: (agrees and nods)
Excerpt 5
R: How do you use information yang you dapat dari questionnaire tu..untuk membantu you belajar? Camana ek..contohnya macam...sesapa dapat musical rhythmic..contoh dia...bila dia dpt tahu dia musical rhythmic...so, dia balik rumah dia dengar music utk dia belajar...contohlah..{How do you use the information you get from the questionnaire to help you to learn better. For example, those with Musical Rhythmic, probably goes home and turn on music to help them to learn better, as an example only}
I1: ok..ok..saya...rasenye saya mmg dpt music tu..[ok]..so bila saya balik rumah..saya mmg macam..saya dah off..saya mmg tak boleh fikir lagi..so, bila saya bukak ja radio..saya dengar satu lagu ni..rasa macam lagu tu quite rancak..semangat.. dia beri semangat..so saya rasa macam bersemangat balik..jadi saya mmg ok. So, saya boleh ingat semua..{ok..ok I think mine is Musical Rhythmic..so when I go home, I feel too tired already. And I switch on the radio. And if I get a fast song, I will feel more motivated and easier to remember what I learn}

R: so maknanya the music tu tolong membantu you punya proses belajar? {so, does this means the information has helped you to learn better?}
I1: emm..(nods) yeah.

Conclusion on the 3 excerpts of the students' discussion:
This shows that the students are interested with the MI profiles and feel that the knowledge could help them become better learners.

Appendix 14: Overview of the Data Collection Processes in the Schools for the Pilot and the Main Data

The Study	Data Collection	Subjects Involved	Time duration
PILOT STUDY Details: 1 secondary sch. 2 Classes, Form 5 Students: 16-17yrs old, 4M, 3C, 3I 2 Teachers: Sc and Maths	Interview 1 Observation QQ Interview 2 and 3 Observation 2 GD	T1, T2 = 2ppl T1, T2, 4M, 3C, 3I = 12ppl Both classes: 28+24 = 52ppl T1, T2 = 2ppl T1, T2, 4M, 3C, 3I = 12ppl a) T1, T2 = 2ppl b) 4M, 2C, 3I = 9ppl	12 – 15mins 4 classes 25 – 35 mins 5 – 10 mins 4 classes 20 – 25 mins 25 – 35 mins
MAIN DATA Details: 2 secondary sch. Sch A: 2 Classes, Form 2 Students: 14yrs old, 3M, 3I (the same with both classes) 5 Teachers: 2 Eng, 1 Geog, 2 Maths Sch B: 2 Classes, Form 4 Students: 16yrs old, 3M, 2C, 2I (for both classes) 5 Teachers: 1 Bio, 2 Eng, 2 Maths	Interview 1 Observation QQ Interview 2 and 3 Observation 2 GD Interview 1 Observation QQ Interview 2 Observation	T1, T2, T3, T4, T5 = 5ppl T1, T2, T3, T4, T5, 3M, 3I = 11ppl Both classes: 28+32 = 60ppl T1, T2, T3, T4, T5 = 5ppl T1, T2, T3, T4, T5, 3M, 3I = 11ppl a) T1, T2, T3, T4, T5 = 5ppl b) 3M, 3I = 6ppl T1, T2, T3, T4, T5 = 5ppl T1, T2, T3, T4, T5, 3M, 2C, 2I = 12ppl Both classes: 27+26 = 53ppl T1, T2, T3, T4, T5 = 5ppl T1, T2, T3, T4, T5, 3M, 2C, 2I = 12ppl	12 – 15mins 8 classes 25 – 35 mins 5 – 10 mins 8 classes 20 – 25 mins 25 – 35 mins 12 – 15mins 8 classes 25 – 35 mins 3 – 5 mins 8 classes

	2 GD	a) T1, T2, T3, T4, T5 = 5ppl b) 3M, 2C, 2I = 7ppl	 20 – 25 mins 25 – 35 mins

The Methods of Data Collection in Reference to the Research Questions

	DATA COLLECTION	DETAILS	Reference to R. Questions
1	Pre-intro	To get familiar with school and classes. To discuss about ethnicity distribution and get suggested names by school management/class teacher	
2	Interview 1	To investigate early perceptions : General Q, teaching, ethnicity differences, MI, education system	RQ 1 (and RQ 4)
3	Observation	To validate interview1	RQ 1
4	QQ	To investigate MI distribution To report to T and investigate perceptions	RQ 2
5	Interview 2	To investigate T perceptions on Ss learning profiles based on MI report To share report on indi MI report	RQ 2
6	Observation	To compare with what T says and observation To observe and write classroom interaction in class and ss	RQ 2, 3, 4
7	GD	To investigate what Ts' and Ss' perceptions about the second phase, find any similarities, differences and comments. To validate all the above	RQ 3, 4

Appendix 15: QQ Report for School A - Class A

	VL	LM	VS	BK	MR	Intra	Inter(Ppl)	Likes	Doesn't Like	Learn best by:
I1 – Bavithram	4	3	2	2	3	1	4	group work.	presentation	1- don't study hard, study smart, 2- don't think it's impossible, 3- concentrate when teacher is teaching
I3 – Kiruthy	3	3	2	2	5	3	5	group works	role plays, presentation	1- study smart, don't study hard, 2- don't think it's difficult, just think it's easy, 3- if impossible, think I'm possible
I2 – Kartigam	2	2	2	2	4	1	1	group work = help me understand. playful study make me understand more	role plays = makes me uneasy	learning with friends. Concentrate more. Sometimes jokes me understand the subject because I like jokes
M18 – Haziq	1	0	0	2	3	2	0	group work = can work with friends, I love it	I don't know	when I am in a good mood
M16 – Fadhish	3	3	3	3	4	3	3	fieldwork because it's interesting	0	0
M6 – Mariam	2	4	0	1	4	4	4	role plays = I like to act	History = don't like to memorise facts	study group make learning easy. I like to learn because I like to learn new things

***Yellow highlights = the MOST numbers**

***Cyan highlights = the LEAST numbers**

Appendix 16: QQ Report for School A - Class B

	VL	LM	VS	BK	MR	Intra	Inter(Ppl)	Likes	Doesn't Like	Learn best by:
M2 – Mustam	4	5	3	4	4	3	5	likes beautiful teacher and sporting	BI, Sc	I like nice, caring teacher
M9 – Jamizan	1	1	3	5	1	4	2	likes drawings	BI	BM, Geog, KHB, AG, Seni, PJK, Sivic
M36 – Niman	1	2	2	1	3	0	2	group work	teasing	learn with music, sharing knowledge, not in a quiet environment
I1 - Hemarathy	3	5	3	3	4	3	2	ICT class in Sivic subject. don't like people talking about her in lessons. Likes to discuss lessons	don't like to talk too much with friends=not good	1) learn a lovely and romantic song= free mind, make study easy 2) talk to friends personally, jokes and enjoying someone I love and liked 3) study in quiet place while eating sweets or junk food
I5 – Reshanty	4	5	3	2	4	4	2	go to Sc lab to hold and see the apparatus, do experiments	don't like teacher talking too much about others	I love romantic songs and rap songs. Jog with friends while studying. Be alone to think. ("I like to be cool listening to hot topic")
I3 – Pravit	4	4	4	4	5	4	3	Moral	Sc, BM	I like BM because I like Msia

Appendix 17: QQ Report for School B - Class A

	VL	LM	VS	BK	MR	Intra	Inter(Ppl)	Likes	Doesn't Like	Learn best by:
M 9 – Lila	2	1	0	4	4	4	4	no favourite act. Enjoy almost all act	none	study alone. Like quiet place and figure out things on my own
I3 – Tomark	2	3	3	3	3	2	3	listen to teacher in class= learn something new	listen to teacher talking to self. Learning should be mutual. If teacher can't communicate = boring class	learning is not enjoyable at first.as get used to reading/learning=builds interest. People yearn more knowledge= learn more and makes learning easy
C2 - Chong	2	4	2	2	3	3	4	activities not based in books. I like paper works but not essays	teacher gives question blindly and students copy blindly. Hate group discussion = students give wrong facts	watching movie, listening to songs=apply attention and understand thoroughly = feel satisfied
C3 - Kuan	3	5	4	4	3	5	4	role playing. Tell jokes. Singing	doing homework. scolded by T	incl other characters in either game or comics. Can easily connect to the ideas using the skills and characters' intelligences
I5 – Abiravi	3	4	2	3	5	3	4	role plays and fieldwork=interesting act and make learning process easier	0	based on theory and practical. Exam once a year only. Reading and making notes boring. Learn lessons through experiments, role plays = easier to absorb and more ideas come

M17 – Husna	1	2	0	2	4	1	3	fieldwork = don't need to think anything. Can enjoy	role plays. = don't like acting and don't know how. Everybody wouldn't enjoy my acting	without books and exam. Play on something to learn. Fun game= helps memorisation=fun education and bring good memory
M1 - Zulhasmi	2	0	0	1	4	4	4	religious discussion with friends=lots of ideas. Becomes open minded and critical thinking to choose which is the best for Islam	fieldwork because need of travelling. Rather stay home and surfing internet to get info.	I'm a determined person. To get success, I need to learn on my own. As long as I get good mark, I'll do homework when I want. Only ask T if I can't understand so that I can concentrate on what I'm doing

Appendix 18: QQ Report for School B - Class B

	VL	LM	VS	BK	MR	Intra	Inter(Ppl)	Likes	Doesn't Like	Learn best by:
M24 – Zafi	1	3	2	1	4	2	4	role plays and physical education.do anything, feel free	presentation. Scared to be laughed at	learn in class using laptop and internet
C2 – Chua	4	5	0	3	5	3	5	Group work. Students get closer and know each other well	maybe don't have	concentrate in class.do revision.preparetimetable.sports to relax mind
M15 – Siti	3	5	2	2	5	4	5	role play because I like it	when teacher teaching in front talking to themselves = boring	learn while playing games. Make my brain grab faster the subject. learn with music, e.g. change lyrics from popular songs = easy to memorise
M16 – Alina	3	5	4	2	4	4	4	like to listen, understand and answer Q=easy to absorb and retain	hate group work = involves others = slower results. Rote memorisation = pointless. Hate reading	when the info is logical and well organised. Good explanation. Use of diagrams. ("I am glad to be able to express my preferences. Hope this Questionnaire will lead to improvement in our education system.)
C3 – Tam	3	3	2	1	5	5	3	role plays because friends will make it funny = easier to understand	give speech. = nervous and I don't like to speak in front of people	go to vacation while learning=enjoy and easy to understand. can visit new place
I3 – Jayi	3	3	3	4	3	1	4	Fieldwork = like to see new people, things	group work=members don't do their job	having jokes. Do mind maps

								outside	= I have to do all	
I2 – Ragesh	4	5	4	4	5	2	2	fieldwork=meet people and interact w them	role plays=not a good actor	adding jokes, laughter. I capture jokes easily.

Appendix 19: The List of participants' given names for this research study

For Students

School	Pseudonyms	Given Names	Pseudonyms	Given Names
Sch A SAAS	Class A - 2 Ce		Class B – 2 Har	
	M18	HAZIM	M2	MUSTAM
	M16	FADISH	M9	JAMIZAN
	M6	MARIAM	M36	NIMAN
	I2	KARTIGAM	I1	HEMARATHY
	I3	KIRUTHY	I5	RESHANTY
	I1	BAVITHRAM	I3	PRAVIT
Sch B SMKJ4	Class A - 4 Cen		Class B - 4 Din	
	M9	LILA	M24	ZAFI
	C2	CHONG	C2	CHUA
	C3	KUAN	M15	SITI
	I3	TOMARK	M16	ALINA
	I5	ABIRAVI	C3	TAM
	M17	HUSNI	I3	JAYI
	M1	ZULHASMI	I2	RAGESH

For Teachers

School	Pseudonyms	Given Names
Sch A SAAS	T1 - Eng (H)	ROSNAH
	T2 – Sc (H)	NOOR
	T3 – Geog (H)	AZLINA

	T4 – Eng (C) T5 – Maths (C) T6 – Geog (C)	NING JUZAIDAH AZLINA
Sch B SMKJ4	T1 – Eng (D) T2 – Maths (D) T3 – Bio (D) T4 – Eng (C) T5 – Maths (C) T6 – Bio (C)	HANIZAN EMILY SARA RAHIDA SALINA SARA