THE CONCEPTUALISATION AND ASSESSMENT OF CHILD AND ADOLESCENT WELL- AND ILL-BEING

by

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Abstract

Grounded in Piagetian epistemology, a key aim of this thesis was to better understand the complex constructs of well- and ill-being. According to Deci and Ryan (2000) the quality of our well-being is fundamental to how much we consider ourselves to be functioning optimally. Yet little is known concerning how children and adolescents conceptualise well- and ill-being. To address this limitation, the overarching aim of this thesis was to develop an assessment tool for use with children and adolescents to meaningfully, validly and reliably measure youngsters' well- *and* ill-being via the concepts and words of young people themselves. In Chapter 2, an indicator of well-being (i.e., the subjective vitality scale) often employed with younger populations, was examined in terms of measurement invariance. Findings suggested differences between children and adolescents well-being scores warranted further investigation. In Chapters 3 and 4, a developmental approach was used to explore children's (7-11years) and adolescents (12-18 years) understanding and experience of well- and ill-being. A developmental trajectory in well- and ill-being was revealed, which holds implications for valid and reliable assessment in research and practice contexts. Using the young people's descriptors of well- and ill-being derived an initial questionnaire was presented in Chapter 4. A set of studies presented in Chapter 5 details the development of two multidimensional measures of well- and ill-being (MMWIB-C), one for children and another version for adolescents (MMWIB-A). Evidence of validity and reliability of the new measure(s) outlined in Chapter 5 is promising, suggesting the MMWIB has the potential to validly record and report on the well- and ill-being of children and adolescents in future.

Keywords: children, adolescents, developmental, well-being, ill-being, measurement.

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I wish to dedicate this thesis to the loving memory of my father Brian James Kitchin.

It is a good job I inherited your dogged determination Dad; without which this thesis would not be finished!

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LIST OF PAPERS

This thesis is comprised of the following four papers. Study design, data collection, statistical analysis and writing were conducted by Samantha Bracey. Dr Eleanor Quested, Dr Paul Appleton and Professor Joan Duda advised on study design, data analysis and paper editing. Where listed, the secondary authors also advised on study design, data analysis and manuscript editing.

Bracey, S.J., Appleton, P.R., & Duda, J.L. (in preparation). A Test of Measurement Invariance of the Subjective Vitality Scale across Children and Adolescents.

Bracey, S.J., Quested, E. & Duda, J.L. (in preparation). Children's and Adolescents' Conceptualizations of Well- and Ill-Being: A Qualitative Inquiry.

Bracey, S.J., Appleton, P.R., Quested, E. & Duda, J.L. (in preparation). Children's and Adolescents' Well- and Ill-Being: Initial development of a new assessment tool

Bracey, S.J., Appleton, P.R., Quested, E. & Duda, J.L. (in preparation). An Initial Test of the Validity and Reliability of the Multidimensional Measures of Well- and Ill-Being (Child and Adolescent versions MMWIB-C/ MMWIB-A).

During the period of postgraduate study within the School of Sport, Exercise and Rehabilitation Sciences at the University of Birmingham, the following manuscripts and conference abstracts have been accepted for publication and/or presentation.

Wold, B., Duda, J.L., Balaguer, I., Smith, R., Ommundsen, Y., Hall, H.K., Samdal, O., Heuzé, J-P., Haug, E., **Bracey, S.J.**, Castillo, I., Ramis, Y., Quested, E., Krommidas (2013). Comparing self-reported leisure-time physical activity, subjective health and life satisfaction among youth football (soccer) players and adolescents in a reference sample. *International Journal of Sport and Exercise Psychology*.

Bracey, S.J., Quested, E. Duda, J.L. (2013, December). *The conceptualization and assessment of children's well- and ill-being.* Paper presented at the British Psychological Society's Division of Sport and Exercise Psychology biannual conference 16th – 17th December 2013, Manchester, UK

Bracey, S.J., Quested, E., & Duda, J.L. (2011). Children's conceptualisations of well- and ill-being: Summary of a qualitative inquiry and initial development of a multi-dimensional measure of children's well- and ill-being. *Sport & Exercise Psychology Review.*

Bracey, S.J., Quested, E., & Duda, J.L. (2010, December). *Children's conceptualisations of well- and ill-being.* Poster session presented at the British Psychological Society's Division of Sport and Exercise Psychology biannual conference 8th – 9th December 2010, London, UK.

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GENERAL INTRODUCTION

The United Nations (2015) produced global sustainable development goals (SDGs) which incorporate promises in the Convention of the Rights of the Child (CRC; United Nations, 1989) "…*to ensure the child such protection and care as is necessary for his or her well-being*…". The 2030 agenda for SDGs is testament to a continuing imperative to promote and nurture the well-being of children worldwide. The goal is "…to leave no child behind" to enable every child to thrive through equal opportunities for optimal social, psychological and cognitive development. Investments by governments and non-governmental organizations in the promotion and measurement of adults' and children's well-being further attests to the current interest in well-being globally (Bradshaw & Richardson, 2009; Headey, Muffels, & Wagner, 2010; Land, Lamb, & Zheng, 2011; WHO, 2010). The challenges in all of these efforts is the lack of data and how to measure effectiveness of initiatives focused on enhancing the well-being of young people (Unicef, 2017)

The importance of 'well-being' to human development and child and adolescent welfare in particular seems unequivocal yet there is a lack of clarity in what is meant by well-being. For example, in the CRC preamble a description of human flourishing is proposed as essential for children "…for the *full and harmonious development* of his or her personality…*"* (United Nations, 1989, p.1). Nevertheless, within the CRC *optimal* functioning is not protected as a right "…States recognise the right of every child to a standard of living *adequate* for the child's physical, mental, spiritual, moral and social development*"* (United Nations, 1989, p.8). Perhaps because 'well-being' has been adopted both as a populist term and a construct of interest within a number of academic disciplines, it has been applied somewhat ambiguously not only in the CRC but also in the broader literature.

Well-being is widely referred to in contemporary culture as a highly valued human condition, a state to be aspired to for all individuals old and young alike. Indeed, human

happiness and flourishing has long been a focus of scholarship since the time of Aristotle (Waterman, 1993), though the subtopic of child well-being has only recently received particular attention (Casas, 2011). Further, the *Lancet* Commission on adolescent health and wellbeing highlights a growing impetus to focus more specifically on the welfare of adolescents as an often previously overlooked but crucial population in terms of humanity. (Kleinert & Horton, 2016; Patton et al., 2016). This important age of adolescence is distinguished from child- and adult-hood by the often dramatic physical, social, emotional and psychological developmental changes which can result in particular challenges for youngsters to adapt to (Patton et al., 2016). However, by the same token, adolescence also offers opportunities for human flourishing by securing young people's future health and well-being through advocacy, education and engagement of youth concerning decisions about and knowledge of their well-being (Kleinert & Horton, 2016).

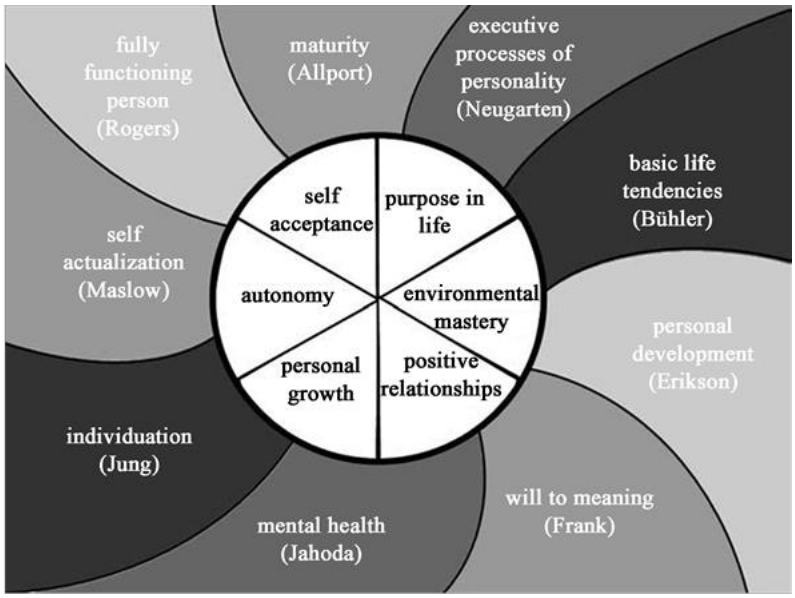
Definition and Conceptualision of Well- and Ill-Being

Well-Being. Well-being often seems to be a 'catch-all' phrase to capture how well an individual (or population) is feeling or doing. Though frequently used in popular discourse and research, 'well-being' lacks a consistent and well-articulated definition (Ben-Arieh & Goerge, 2001; Gobbo & Raccanello, 2011; Ryff, 1989). There is an ongoing debate concerning the meaning and consequently the assessment of well-being. Some (e.g., Diener, 1984; Diener, Emmons, Larsen, & Griffin, 1985; Seligman & Csikszentmihalyi, 2000) propose well-being should be examined from a hedonic perspective which focuses primarily on personal evaluations of satisfaction with life, maximizing positive affect and minimizing negative emotions. Others (e.g., Ryan & Deci, 2001; Ryff, 1989; Waterman, 1993) coming from an Aristotelian teleological perspective suggest well-being is more than striving for individual happiness. They argue that optimal well-being is achieved via ethical, purposeful,

aspirations for a better life for all, which often includes unpleasant experiences along the way, which are learned from and overcome.

Ryff's (1989) conceptualization of Eudaimonia, termed psychological well-being (PWB), comprises six theoretically-derived dimensions (i.e., self-acceptance, purpose in life, environmental mastery, positive relationships, personal growth and autonomy; see Figure 1.1). Ryff posits that better understanding of the optimal or peak experience which provide resources to overcome adversity will lead to improved knowledge of well-being. Further, she suggests that assessing the degree of contributions of the six dimensions to foster (or thwart) optimal individual flourishing provides an indication of overall well-being. The implication here is that Ryff's conceptualization describes the correlates rather than the constituents of eudaimonic well-being.

Figure 1.1. Ryff and Singer's model of eudaimonic well-being: Theoretical foundations and core dimensions of PWB (2008, p.20).



Waterman (1990, 1993, 2008), another proponent of a eudaimonic approach to well-being research, defines the construct as *personal expressiveness*. This state of personal expressiveness emanates from intrinsically motivated, personally fulfilling, absorbing, and energizing activities (Waterman, 1990, 1993, 2008). Conceptually, this perspective draws from the philosophy of Aristotle and also the psychological knowledge-base concerning

human motivation; more specifically, self-determination theory (Deci & Ryan, 1985), the theory of flow (Nakamura & Csikszentmihalyi, 2014), and self-actualization theory (Maslow, 1943). Seemingly, again this characterization of well-being looks to associated variables as indices of eudaimonia instead of defining well-being in and of itself.

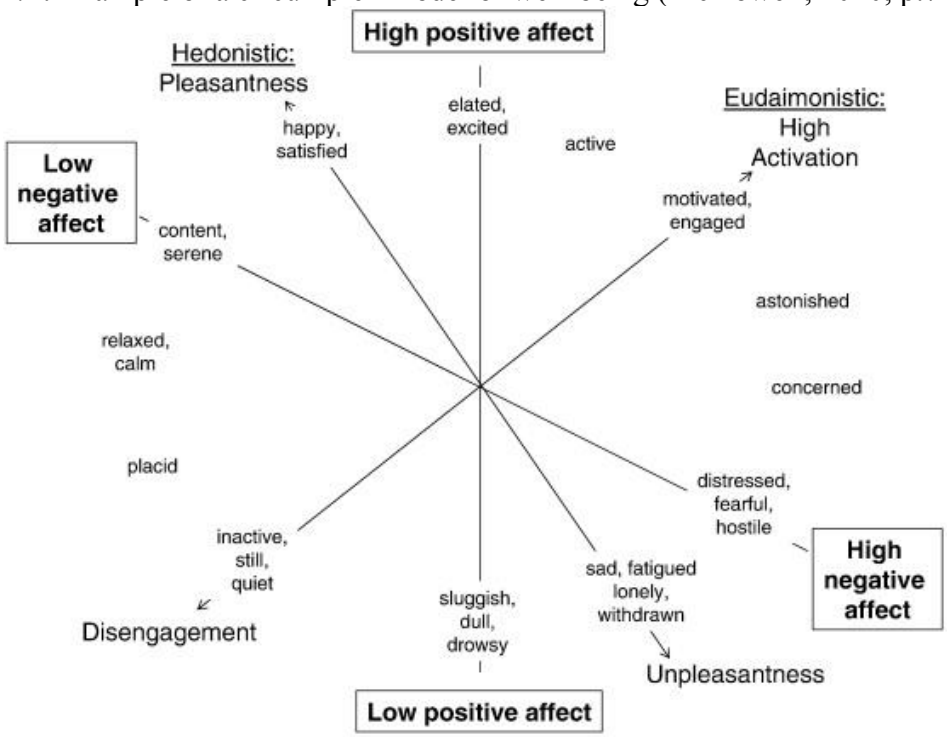
This merging or blurring of correlates, causes and consequences of the targeted constructs within the definitions of the construct per se is unsurprising due to the elusive nature of the concept. Furthermore, the difficulties in offering a clear definition of well-being are compounded further as the concept of hedonic happiness is incorporated into the descriptions of Eudaimonia (Huta & Ryan, 2010; Waterman, 1993). It is perhaps this desire to distinguish eudaimonic and hedonic experiences of wellness which places scrutiny on the origins and manifestations of well-being in the definitions found in the literature. In their attempt to define well-being, Deci and Ryan (2001, p.141) describe "*a complex construct that concerns optimal experience and functioning"*. Here, once again it would seem that well-being is somewhat vague in the conceptual definition. However, through further elaboration of well-being when describing the distinction between hedonia and Eudaimonia, a caveat for the initial definition is provided:

> The term eudaimonia is valuable because it refers to well-being as distinct from happiness per se. Eudaimonic theories maintain that not all desires—not all outcomes that a person might value—would yield well-being when achieved. Even though they are pleasure producing, some outcomes are not good for people and would not promote wellness. Thus, from the eudaimonic perspective, subjective happiness cannot be equated with well-being. (Deci and Ryan, 2001, pp.145-146)

Even within each paradigm concerning the concept of well-being there is dispute in respect of the number and content of dimensions comprising well-being (Ryan & Deci, 2001). To help explain the divergence and convergence in the perspectives, a model of well-

being has been proposed (McDowell, 2010) (see Figure 1.2). Based on Russell's (1980) model of affect in which emotions are delineated according to levels of activation, arousal and valence, McDowell's (2010) representation of well-being illustrates different facets and conceptualizations (i.e., hedonic/eudaimonic, high-activation/low-activation, positive/negative affect) on a pictorial well-being wheel or *circumplex*. It is worth noting that facets of ill-being (i.e., low positive affect and high negative affect) are distinguished in the depiction as component parts of well-being. The segments of the wheel are arranged on a bi-polar inversely related continuum (see Figure 1.2). For example, hedonic well-being is positioned on an interrelated *pleasantness- unpleasantness* axis, whereas eudaimonic well-being is placed on an *engagement-disengagement* spoke.

Figure 1.2: Example of a circumplex model of well-being (McDowell, 2010, p.71).



Ill-Being. The concept of ill-being has had less attention than the concept of well-being, perhaps due to a contemporary focus on positive rather than deficit models of wellness (Bech, Olsen, Kjoller, & Rasmussen, 2003; Seligman, 2008). Indeed, definitions of ill-being are more often than not absent or at best implied as an extension or the opposite of well-being

(Kagan, 2014). For example, Diener (2006, p.399) suggests "subjective well-being refers to all of the various types of evaluations, both positive and negative, that people make of their lives", as such, ill-being is incorporated into a well-being definition. Ill-being appears as challenge or adversity in Ryff's PWB, as negative effect in Diener's SWB and has only recently been the focus of interest in the *darker side* of well-being through work on needs thwarting (e.g., Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Ryan & Deci, 2000). This work is grounded in Deci and Ryan's (1985; 2000) Self-Determination Theory. In contrast to the inversely correlated schematic of well-being (comprising ill-being) proposed by McDowell (2010), it is argued that well- *and* ill-being are independent and distinct constructs (Headey, Holmstrom, & Wearing, 1984). This perspective is largely supported by findings in a study in which older women's well- and ill-being was assessed in relation to known biological markers (Ryff et al., 2006). Seven of the nine markers employed were only related to either well- or ill-being, suggesting the constructs are different.

Ill-being is generally examined in terms of distinct components, such as a deemed undesirable physical condition (e.g., obesity) or negative emotional state (e.g., anxiety) (Rosen et al., 2014). The complex nature of both well- and ill-being along with the blurred taxonomies and ambiguity concerning whether components of the constructs include concomitants (i.e., antecedents or consequences) make it difficult to advance knowledge coherently. This lack of agreement on the inter-relatedness and nature of the constructs of well- and ill-being in adult research has no doubt contributed to ambiguity in operationalizing and assessing these concepts in the case of younger populations. A consensus concerning the definition of and approach to measurement of well- and ill-being is unresolved. However, in that, there is little or no support for a unidimensional model of well- (and ill-) being (i.e., assuming these constructs are two ends of one continuum (Deleval, 1995; Huta & Hawley,

2010)), there is agreement to some degree concerning the multidimensional complexity of the constructs (Linton, Dieppe, & Medina-Lara, 2016; Ryan & Deci, 2001).

Understanding and Assessing Children's Well- (and Ill-) Being

It would seem if extant theoretical models and conceptualisations are equivocal, the most appropriate course to better understand phenomena would be to turn to the target population to advance knowledge regarding the states of well- and ill-being. More specifically, in regard to the focus of this thesis, the children and adolescents themselves. As key actors, it has been suggested that young people should be involved in the discourse concerning well- and ill-being (Ben-Arieh, 2008). As children develop physically, emotionally socially and cognitively so too does their knowledge about the world and themselves (including psychological aspects). As such, young people can provide important information regarding the composition and content of the constructs of well- and ill-being.

There is compelling evidence that human development plays a key role in the formation of well- and ill-being beliefs, experience and understanding. For example, according to Piaget (1961), children understand concepts in increasing complexity as they age; with thought processes moving from the concrete (at around age 8) to having ability to perceive in the abstract (at around age 12). This supports the need for a developmentally appropriate method when conceptualizing and subsequently measuring well- and ill-being with non-adult populations. Neuroscientists have identified specific sites of pleasure and dread or 'hedonic hotspots/coldspots' in the brain (i.e., nucleus accumbens (NAc), ventral pallidum (VP), and amygdala) (Berridge & Kringelbach, 2015; Kringelbach & Berridge, 2009). These anatomical areas of 'reward circuitry' in the brain are known to develop during childhood through to early adulthood (Guyer, Pérez-Edgar, & Crone, 2018; Schreuders et al., 2018). Further, though related to pleasure in reward circuitry, dopaminergic activity, has been found to be disassociated from hedonic 'liking' which can occur independently (Berridge & Kringelbach, 2015). Interestingly, without dopamine the incentive or wanting (e.g., motivation) component of the pleasure cycle is redundant (Berridge & Kringelbach, 2015).

Recent research has also found a peak in reward-related NAc activity in adolescence that was "…driven by developmental differences in a general trait-level drive to pursue personal goals" (Schreuders et al., 2018, p. 808).

Past work on the assessment of self-concept has found children to conceive the construct with greater sophistication and differentiation as they move from childhood into adolescence (Harter, 1982; Harter & Pike, 1984; Marsh & Shavelson, 1985). Prior research concerning the concepts of effort and ability in academic (Nicholls, 1978) and physical (Fry & Duda, 1997) domains, has also offered strong support for a developmental approach when conducting research with children. Indeed, the findings in these studies provide evidence of the developmental nature of goal orientations which can also be explained by plasticity in the brain proposed by affective neuroscientists (Berridge & Kringelbach, 2015; Schreuders et al., 2018). Given that eudaimonic well-being is assumed to be related to motivation to pursue personally-meaningful goals (Sheldon & Kasser, 2001), it does not seem unreasonable to suggest that a state of eudaimonia cannot exist in childhood without the influence of certain neurochemicals in the brain or the cognitive capacity to appraise, plan and carry out goal-directed behavior.

Yet, most theorizing concerning the conceptions of well- and ill-being, and empirical evidence gathered relating to these constructs, has concentrated on adults rather than children (Ben-Arieh, 2008; Fernandes, Mendes, & Teixeira, 2012). Assumptions that adults' and children's perceptions and experiences of well- and ill-being will be equivalent or equal, lack evidence and are speculative at best (Casas, 2011). Indeed, as their worlds and daily activities are quite different, it does not seem unreasonable to assume, for example, that an 8-year old's experience and understanding of well- and ill-being would be discrepant to that of an adolescent (whose experiences are likely to be different from an adult). Furthermore, to date

adopting a developmental approach, conceptualization of well-being from a hedonic and eudaimonic perspective has not been examined in the case of children and adolescents.

As such it would seem pertinent to investigate if well-being has a developmental trajectory beginning with hedonic pleasure in children through to a more complex manifestation of well-being encompassing hedonia and eudaimonia in adolescence. In this thesis therefore, well-being will be explored from a developmental perspective to contribute to understanding of these phenomena in the early life course. To explore this proposal further, prior research concerning emotions, thoughts and concepts of health and illness (i.e., key components of well- and ill-being) will be examined from a developmental perspective in the next section.

The Importance of a Developmental Approach

Emotional understanding. Emotional understanding is proposed to develop concurrently and hierarchically through early-, middle-childhood and adolescence (Pons, Harris & de Rosnay, 2004). The extent to which children and adolescents understand and can explain the emotions they experience is likely to have an impact on their conceptions of well- and ill-being. For example, in early work by Harter and Buddin (1987), they reported younger children more commonly articulated basic emotions (e.g., 'happy', 'sad') than the nuanced affective states (e.g., 'excited' 'depressed') voiced by children approaching adolescence (e.g., 9-11 years). These findings were congruent with results of a later study which suggested at around age 5-7 years old, children's emotional understanding is unidimensional (e.g., singularly occurring emotion) (Pons, Harris, & de Rosnay, 2004). Research has shown children recognize their own feelings and others' rudimentary emotions via facial expressions (e.g., smiling equates to happiness) (Pons et al., 2004; Sagone & De Caroli, 2014). Researchers agree, children at this age find emotions hard to self-regulate (S.K. Donaldson & Westerman, 1986; Harter & Buddin, 1987; Lagattuta, 2014). Studies have also

shown that children believe emotions occur in temporal singularities rather than simultaneously and external factors are recognized as influencing emotions and emotional regulation (e.g., a child is happy eating ice-cream, sad if the ice-cream is dropped and happy again when the parent comforts them) (S.K. Donaldson & Westerman, 1986; Harter & Buddin, 1987; Lagattuta, 2014). Arguably, early emotional development is aligned with Maslow's (1943) hierarchy of human needs, as children express simplistic emotions to enable adults to respond to and resolve quickly, issues aligned to children's (and humanity's) fundamental needs for survival. For example, a child cries when hungry and the adult learns to feed the child to stop the crying, creating a mutually beneficial transaction and building early communication. It is irrelevant to the child if the adult is tired or irritable. The child does not need to please the adult, he/she only needs to eat. That is the primary motivation for the child.

In pre-adolescence, emotional understanding begins to be influenced by internal factors (e.g., memories, thoughts). For example, a child is happy when remembering eating an ice-cream. From an evolutionary perspective, children at this stage are less dependent on their parents and as such it is necessary for them to begin to manage their own emotional needs and it is useful to learn from their experiences to enable them to optimize positive outcomes for themselves. Humans appear to be goal-directed from birth, acting on their desires to complete tasks, the complexity of correspondent motivators and judgements of success in these actions increase in age-related developmental stages (Ames & Ames, 1984; Nicholls, 1989). Goals are linked with emotions via neural rewards (e.g., release of dopamine) (Kringelbach & Berridge, 2009). These affective responses influence behavior and choices (e.g., the taste of chocolate gives pleasure and encourages eating). Furthermore, changes in the brain associated with rewards and personal goals have been linked to developmental differences (Schreuders et al., 2018).

Research has found a growing awareness of other's emotional states becomes more evident in pre-adolescent children (Bajgar, Ciarrochi, Lane, & Deane, 2005; S.K. Donaldson & Westerman, 1986; Lagattuta, 2014). Here the purpose of knowing whether another person is contented or angry is likely linked to successful assimilation into wider society and correlates to an extent to the stage where a child becomes less egocentric. This signifies an increasing recognition of co-occurring feelings in self and others as society is negotiated (Bajgar et al., 2005; S.K. Donaldson & Westerman, 1986; Lagattuta, 2014). For example, in studies, adolescents (e.g., 12+ years) have been found to understand that external demonstrations of emotions can disguise or misrepresent those felt internally and they also recognize that conflicting emotions can occur simultaneously (S.K. Donaldson & Westerman, 1986; Lagattuta, 2014).

It is clear from the research reviewed above concerning emotional understanding, the participants in these studies were able to recognize and discuss their perceptions and experience of different emotions, whether younger or older. Nevertheless, developmental differences between children and adolescents in terms of the complexity of emotions articulated and experienced are evident in the literature (Lagattuta, 2014). It follows that an age-related increase in complexity of emotional understanding (e.g., internal, external and empathic) is likely to be reflected in youngsters' concepts of and their experiences of well- and ill-being.

Regulation of emotions. Another factor which could impact on children and adolescents' understanding of well- and ill-being is their regulation of emotions. The intensity and duration of affective states is directly linked to the ability of young people to control emotions (Silk, Steinberg, & Morris, 2003). Compas et al. (2014) define coping as 'controlled management of stressors'. Management of emotions is both a considered process and a reflex, as such emotion regulation and coping are proposed to be distinct (Zimmer-

Gembeck & Skinner, 2011). In their study of coping in childhood through to early adulthood, Compas et al. (2014) note the developmental differences found in child and adolescent coping are due to differences in cognitive abilities. It would seem therefore that cognitive maturity is an important influence on self-regulatory processes and emotional control, pointing to a potential developmental difference in the way children and adolescents experience and conceive of well- and ill-being.

Steinberg (2008) suggests a lag in maturation of socioemotional compared with cognitive control neural networks in brain development is responsible for the risk-taking behaviors associated with adolescence. Findings of Zimmer-Gembeck and Skinner's (2011) critical analysis and review of coping research from infancy to early adulthood support this proposition. Zimmer-Gembeck and Skinner (2011) suggest that a slight decline in problem-solving coping of 14-15 years may be associated with pubertal changes. In a recent study differences in the emotional and cognitive developmental trajectories of 13-19 year olds were examined (Keulers, Evers, Stiers, & Jolles, 2010). In Keulers et al. (2010) study, speed of decision-making concerning real-life situations was measured and related questions were posed in both first- and third-person perspectives to assess understanding of emotions and causal consequences of actions (termed *mentalizing-action/emotion*). Mentalizing capabilities were correlated with results of a spatial planning task designed to calculate executive function, and cross-referenced with participants' pubertal status, age and gender (Keulers, et al., 2010). Cognitive capacity and mentalizing skills were found to be positively related to age, with older participants needing less thinking time than younger participants. The degree of emotional aptitude both in terms of personal and empathic understanding was also found to be age-related with all participants' decision-making speed faster in first-person as opposed to third-person perspectives. Further, a gender effect was found in mentalizing skills with girls surpassing boys in the study. Finally, emotional understanding and interpretation of

causal behavioral responses linearly decreased in boys during pubertal phase (Keulers, et al., 2010).

Steinberg (2010) explains the difficulties that 14-17-year olds have in regulating emotions and behavior are due to the dramatic and critical changes in the brain during puberty (particularly maturation of the prefrontal cortex and the development of synaptic connections to other areas of the brain). The rapid increase in dopaminergic activity during this phase is also thought to be a key factor in decision-making, which increases vulnerability to emotional and behavioral problems (Steinberg, 2010). Zimmer-Gembeck and Skinner (2011) found use of cognitive strategies was related incrementally to age but that an increased mental approach to coping though generally positive, could also be linked to adverse outcomes: For example, the ability to be future-focused (a cognitive strategy employed by adolescents) can have both positive (e.g., planning) and negative (e.g., worrying) implications. (Zimmer-Gembeck & Skinner, 2011). It is not until late adolescence/early adulthood (17-22 years) that maturation of frontal lobes and a fall in dopamine activity levels fully enables self-regulated emotional and cognitive control (Steinberg, 2010).

The ability to differentiate and regulate emotions appears to be age-related, with complexity of these constructs increasing linearly between children and adolescents (Zimmer-Gembeck & Skinner, 2011). Furthermore, the ability to control and regulate emotions appears to be directly related to young people's cognitive capacities and pubertal state (Keulers, et al., 2010; Steinberg, 2010). Limited ability to regulate emotions (e.g., use of avoidance rather than approach strategies) has also been positively related to mental ill-being in adolescents (Silk et al., 2003) and has also been linked with risk behaviors (e.g., alcohol use) and poor physical health outcomes in young people (Blumenthal, Ham, Cloutier, Bacon, & Douglas, 2016). This implies that levels of cognitive, physical and pubertal development

may also be related to how well- *and* ill-being are experienced by young people which hold implications for the key aims of the thesis.

Development of health and illness beliefs

The degree of cognitive development has also been found to have implications for children's health beliefs. Prior research has found that children's conceptions of health and illness change with age from concrete singular ideas about health which have external causes (e.g., you hurt yourself if you fall over) and are focused in the present, to abstract multidimensional conceptions which have an internalized future focus (e.g., eating fruit is good for you, can prevent illness and promote long-term health) (Natapoff, 1982; Normandeau, Kalnins, Jutras, & Hanigan, 1998). Children as young as five were able to articulate their ideas concerning health and express how being healthy affected them. For example, rather than viewing health in a deficit model or the absence of disease, children tended toward a positive hedonistic view of health where health enabled them to participate in desired activities (Natapoff, 1982; Normandeau et al., 1998). On the other hand, illness was viewed as being unable to do what you want to do, perceived as a short-term condition and health a long-term usual state. Interestingly, adolescents aged 12 and over also referred to health as being associated with ability to focus on schoolwork or other necessary tasks that are perhaps less pleasurable (Normandeau et al., 1998). These expressions of the experience of health by children and adolescents aged 5-12-years, point towards taxonomies of well- and ill-being in both hedonic and eudaimonic perspectives. Normandeau et al. (1998) proposed children's health beliefs were multidimensional comprising functionality, healthful lifestyle and mental health. Moreover, evidence of age-related complexity in constructs of health, along with greater awareness of causation of health/illness relating to developmental stages by Normandeau et al., (1998) are in line with earlier work concerning children's concepts of illness by Perrin and Gerrity (1981).

In Perrin and Gerrity's (1981) study, perceptions of children (aged 7-14-years) concerning ill-health were found to relate to cognitive development and age in respect of complexity and nuanced understanding. For example, children aged 7-11 years had a passive, concrete view of illness with no real knowledge of causation, whereas adolescents aged ≥14 had an understanding of cause and effect, knew they had an active role in maintaining health and were able to describe illness in terms of physiologic processes (Perrin & Gerrity, 1981). In contrast, Gobbo and Raccanello's (2011) study of children's perceptions of well-being and suffering also found age-related differences although in their study children as young as 9 years old were able to articulate causes of physical ill-being. Moreover, children in their study were found to consider internal, mental components of the constructs particularly when narrating well-being states. The youngest children (aged 5 years old) more often recalled physical states as suffering (e.g., physical injury) and emotional states as well-being (e.g., happiness), though most could not discuss causes of suffering or well-being states. With the seven-year olds, the results were similar although a majority of these children could describe a psychological suffering event. The oldest children in the study (aged 9-years) used more abstract internalized descriptions of well-being and suffering and refer to causes of physical ill-being. Findings of both studies (i.e., Gobbo & Racanello, 2011; Perrin & Gerrity, 1981) are supportive of multidimensional concepts of well- and ill-being. Further, even very young children were able to articulate their ideas regarding experienced manifestations of key components of well- and ill-being (i.e., they were able to recognize, describe and analyze aspects of their emotions, thoughts and physical symptoms relating to health and illness).

All of the work reviewed in the current section points to children's and adolescents' ability to synthesize and disseminate complex internalized concepts, establishing an evidence-base which suggests that children and adolescents can be enactive agents in the research process. Based on the existent literature, we can speculate that children conceive the

constructs and key dimensions of well- and ill-being (i.e., health and illness, positive and negative emotions) as distinct yet related constructs. For adolescents, past research suggests that the two constructs are not opposite ends of a continuum. For example, adolescents could articulate/understand that individuals can be healthy but, at the same time, experience an illness (Natapoff, 1982). Moreover, children are clearly able to delineate emotions, thoughts and physical components of constructs thought to comprise well- and ill-being (Gobbo & Racanello, 2011).

Children's Conceptualizations of Well- and Ill-being

The implications of studying children's well- and ill-being are far reaching in terms of children's psychological and physical health and optimal functioning. It would also appear to be pertinent, based on findings discussed above, to study both well- and ill-being concurrently to tease out the potential inter-relationships, nuances and complexity of the constructs. This line of inquiry is also supported in prior research which found evidence to suggest well- and ill-being are distinct constructs (Ryff et al., 2006) and studies where low well-being scores were not found necessarily to predict high ill-being and vice versa (Huta & Hawley, 2010; Nix, Ryan, Manly, & Deci, 1999; Quested & Duda, 2010; A. Smith, Ntoumanis, & Duda, 2007). Indeed, similar findings were observed in a recent study examining daily fluctuations in 8-12-year-old children's well- and ill-being by employing a 6-item scale based on Laurent et al.'s (1999) children's positive and negative affective scale (van der Kaap-Deeder, Vansteenkiste, Soenens, & Mabbe, 2017). The scales contained three items capturing well-being ("I was joyful and excited today," "I was happy today," "Today was a good day"), and three items tapped into ill-being ("I felt bad today," "I felt sad today," "Today was a bad day"). The overarching aim of van der Kaap-Deeder et al. (2017) was to

investigate how perceived autonomy-supportive and psychologically controlling behaviours influence the extent to which children feel their psychological needs are supported or thwarted and the consequent impact on well- and ill-being. Researchers found daily fluctuations in need satisfaction/frustration were associated with autonomy-support and psychological control. Further, positive relationships between psychological control and ill-being and autonomy-support and well-being were also found. Of note was the finding that increased ill-being *and* reduced well-being were related to perceived psychological control but not necessarily related to perceived low autonomy-support. However, the scale seemed to assess a generalized emotional response to the day rather than a nuanced reflection of the children's well- and ill-being states. These limitations were acknowledged by the researchers who pointed out that the scale employed was inadequate in fully describing children's psychological functioning due to a similarity in the items for each scale (van der Kaap-Deeder et al., 2017). In the study no effect of gender or age was found although it should be noted that the study did not take a developmental approach. To ensure the constructs are reliably and validly assessed in future studies, van der Kaap-Deeder et al. (2017) called for researchers to employ more heterogeneous items when characterizing the different facets of well- and ill-being.

Aims of the Thesis

The work in this thesis will address the call of van der Kaap-Deeder and colleagues (2017) and other researchers (e.g., Ben-Arieh, 2008; Casas, 2011; De Civita et al., 2005; O'Connor, Dyson, Cowdell, & Watson, 2018) by extending the current conceptualisations of children's and adolescents' well- and ill-being. In this thesis, the understanding, experience and measurement of children's and adolescents' well-being and ill-being will be explored from a developmental perspective. The over-arching aim of the studies contained within this thesis is to develop a valid and reliable measure of well- and ill-being for use with children and adolescents using young peoples' own words and explanations. In line with a rights-

based approach (Muntarbhorn, 2017), children and adolescents were directly involved in the research process. A mixed-methodology (Yoshikawa, Kalil, Weisner, & Way, 2008) was chosen as appropriate in respect of the research aims.

Chapter Overview

The starting point for this exploration of youngsters' well- and ill-being was the study of an existing indicator of human flourishing; the subjective vitality scale (SVS; Ryan & Frederick, 1997). The construct of subjective vitality describes self-perceived energy levels or personal dynamism. Subjective vitality was chosen because it is proposed to be an essential component of optimal psychological functioning (Deci & Ryan, 2000; Ryan & Frederick, 1997). This unidimensional scale has been found to be a reliable and robust measure of eudaimonic well-being when employed in various contexts and cultures (Fayad & Kazarian, 2013; Kawabata, Yamazaki, Guo, & Chatzisarantis, 2016; Moutao, Alves, & Cid, 2013; Papaioannou et al., 2013; Rouse et al., 2015). The psychometric properties of the SVS have been subjected to extensive testing in numerous studies and evidence suggests the SVS offers researchers a sound assessment tool (Bostic, Rubio, & Hood, 2000; Castillo, Tomas, & Balaguer, 2017; Ryan & Frederick, 1997).

The capabilities of this instrument however, to validly compare associations or differences between SVS responses of children and adolescents have not previously been examined. Based on expectations that children and adolescents are likely to experience fluctuations in well-being due to developmental differences (e.g., increasing dopamine levels in adolescence) and varied perceptions of well-being due to age-related changes in cognitive abilities, the first aim of this study was therefore to determine if the construct assessed by the SVS had the same meaning for children and adolescents. Associated aims were to further test the child and adolescent scores examining measurement invariance of the scale. If invariance was established, differences in SVS scores could indicate between group differences.

Findings of strict invariance of the SVS would suggest it is a tool which can validly be used in future research to examine developmental differences in well-being of younger populations (albeit as a unidimensional indicator of well-being).

Although a frequently used measure of euadaimonic well-being in the broader literature, the extent to which the SVS can be used to assess the nuanced complexity of well-being is limited. Furthermore, the SVS is not designed to capture ill-being scores of participants and though low well-being scores can be related to indices of ill-being the constructs are not bi-polar opposites and serve as poor indicators (Ryff et al., 2006). In prior research composite measures have been used to tap certain aspects of well- and ill-being (e.g., Currie et al., 2004; Rosen et al., 2014). However, no measure has been developed which attempts to capture the experience and understanding of these constructs (i.e., well- and ill-being) from the child's perspective. The overarching aim of this thesis is to address this gap in the research by furthering our understanding and subsequently developing a valid and reliable measure of children's and adolescents' well- and ill-being. This aim is addressed in chapters three through five.

The focus of chapter three, in particular, was to extend knowledge of children's and adolescents' concepts of well- and ill-being. Grounded in a Piagetian epistemological approach to human development (Piaget, 1961), children's and adolescents' ideas concerning the experience of well- and ill-being were garnered via one-to-one interviews. Data were examined in terms of similarities and differences in concepts of human happiness, suffering, health, and illness between children and adolescents.

In chapters four and five, the initial development and validation of a multidimensional measure of well- and ill-being are presented. In chapter four, a two-phased study describes the initial development and validation of the multidimensional measure of well- and ill-being child/adolescent (MMWIB-C/MMWIB-A). In the first phase of the study, the aim was to

garner children and adolescents' (N = 50) conceptualisations and descriptors of well- and ill-being using a qualitative approach. The second aim was to create items to measure well- and ill-being using the youngsters' own words. A focus of the study was also on the children's and adolescents understanding of wording and items used in existing measures. Many of the existing measures of children's and adolescents' well-being comprise adult generated item content which may not be conceived of in the same way by young people. Therefore, guided both by extant well-being theory *and* the young peoples' conceptualisations of the constructs a multidimensional model of children's and adolescents' well-being was proposed.

When developing a psychometric tool, it is essential that the instrument is fit for purpose (i.e., measures what it intends to). Verifying the meaning and content of items is an important preliminary step in the measure development process. In the second phase of the study presented in chapter four, the first aim was to verify the face validity of the proposed measure with a panel of experts in scale development and well-being research. A further aim was to further reduce the number of items to a more reasonable amount for use in applied contexts.

In chapter five a collection of studies is presented. First the background to this research will be explored via the constructs of well- (and ill-) being and a brief overview of current measurement models. The main aim of these studies was to test the psychometric properties of the multidimensional measure of well- and ill-being (child/adolescent). The factorial, construct, concurrent, and predictive validity will be tested, and internal reliability will be calculated for the MMWIB-C and MMWIB-A.

A TEST OF MEASUREMENT INVARIANCE OF THE SUBJECTIVE VITALITY SCALE ACROSS CHILDREN AND ADOLESCENTS.

Abstract

The Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) is a short, frequently used indicator of psychological flourishing or eudaimonic well-being. The SVS has been extensively tested with adult populations and has been found to be a valid and reliable measure of well-being across different contexts, cultures and populations. Although employed in research involving youth (e.g., Papaiannou, et al., 2013), confirmation of measurement invariance of the SVS across age groups in younger participants is lacking. The specific aim of this study was to test the invariance of the SVS from a developmental perspective (i.e., across child and adolescent populations). Participants (N=1386) were 678 children aged 9-11 years and 618 adolescents aged 12-15 years. Multi-group confirmatory factor analysis (CFA) using structural equation modelling (SEM) was employed to analyse the data. Sequentially constrained models were used to determine the extent of invariance in the measure. Equivalence between groups was established under the least to the most stringent conditions. Results provided support for the validity and reliability of the five item SVS in the targeted child and adolescent populations. Furthermore, findings of strict invariance imply observed variability in child and adolescent SVS scores can be attributed to group differences as opposed to discrepancies in the measurement scale. However, the SVS is a unidimensional scale and as such cannot fully capture all aspects of well-being. Moreover, the SVS is not capable of assessing levels of ill-being. In order to enable researchers to validly and reliably tap a more nuanced aspect of children's well- and ill-being more knowledge concerning young people's concepts and understanding of their experiences of wellness and suffering is needed.

Keywords: measurement invariance, subjective vitality, well-being, children, adolescents

A Test of Measurement Invariance of the Subjective Vitality Scale across Children and Adolescents

'Really feeling alive' or 'full of life' is a psychological state of being which indicates human flourishing (Ryan & Deci, 2001). This feeling of liveliness and alertness is termed 'subjective vitality' and has been operationalised in a short scale to assess the extent of perceived self-derived positive energy (Subjective Vitality Scale (SVS); Ryan & Frederick, 1997). The SVS originally consisted of seven items including one negatively worded item (i.e., 'I don't feel very energetic'). A 6-item SVS, with the negative worded item removed, has been extensively validated over the past several years and has been found to be a good indicator of eudemonic well-being (Huta & Ryan, 2010) in a variety of contexts (e.g., sport; Duda et al., 2013; the workplace; Gagne et al., 2015; dance; Gonzalez, Castillo, García-Merita, & Balaguer; health-related exercise schemes; Rouse et al., 2015; the military; Skare, Hopkins, & Solberg, 2017; physical education; Vlachopoulos, Katartzi, Kontou, Moustaka, & Goudas, 2011) .

This growing body of research has also contributed to further evidence on the reliability and validity of participants' scores on the SVS. Ryan and Frederick (1997), for example, reported the original seven item scale to have good internal consistency (Cronbach alphas ranging from 0.84 – 0.86). In addition, evidence for the concurrent and construct validity of the SVS has been provided in a series of studies which examined how the scale correlated with existing measures of theoretically related variables (e.g., health, self-actualisation). More recently, Bostic et al. (2000) provided further support for the construct validity of the SVS using structural equation modelling (SEM). The seven-item scale comprised six positively phrased descriptors which characterise subjective vitality and one negatively framed item (i.e., item two 'I don't feel very energetic'). The most parsimonious model emerged when the negatively worded item was removed to create a six-item scale and

when the error terms for items four (i.e., 'I have energy and spirit') and seven (i.e., 'I feel energized') were correlated (Bostic, et al. 2000). As items four and seven refer to positive energy available to the self, it makes sense that the residuals would be related. It also follows that the reduced scale characterises the construct better as all retained items are positive. Past psychometric research using factor analysis with scales comprising several positive and negative items often reveals two factors rather than one (Woods, 2006). As vitality has been purported to be unidimensional the negative item has the potential to compromise the factorisation of the model (Castillo et al., 2017). The improved model fit with the six-item scale can therefore also be explained in terms of improved factorial validity of the SVS.

In a study exploring passion and well-being, the six-item SVS was used as an indicator of eudaimonic well-being (Schellenberg, et al., 2018). A similar data-driven adaptation to the solution proposed by Bostic and colleagues was employed to improve model fit, in this case the residuals allowed to correlate were items 5 and 6 of the reduced scale (i.e., 'I nearly always feel alert and awake' and 'I feel energized') (Schellenberg, et al., 2018).

Further evidence of the sound psychometric properties of the SVS were provided when the measurement invariance of the six item SVS was tested by Elliot et al. (2012) across participant responses over two time periods and from two countries (i.e., Japan and USA). Elliot et al. reported that the scale was equivalent both when employed longitudinally and also in different languages. Evidence for the invariance of the six-item SVS in the case of soccer players and dancers was also established using structural equation modelling by Gonzalez and colleagues (Gonzalez et al., 2015).

Recently, in a large-scale intervention study conducted across five European countries, an adapted 5-item SVS scale was employed to assess an indicator of well-being in life in general of young sport participants (Papaioannou et al., 2013). Informed by the work

of Bostic et al. (2000), the negatively worded item was removed by Papaioannou et al. (i.e., item two from the original seven items (the 5 items are presented in Table 2.1)). In consideration of the age of participants (i.e., 10-14 years) this adaptation of the scale is further supported by evidence which suggests response bias to negatively framed items can occur with children (Marsh, 1986). The rationale for further revising the measure (and reducing the scale to 5 items) was in part due to problems with construct validity of item three (i.e., 'Sometimes I feel so alive I just want to burst') but also to simplify the language for ease of translation and readability for the sample population (i.e., 9-15 year olds from five European countries). The adapted 5-item scale exhibited high internal reliability and was found to be structurally and measurement invariant in five languages across the sub-samples of young football players (Papaioannou et al., 2013). Further analyses provided evidence of concurrent validity of the SVS as athletes' scores on the scale correlated positively with general self-esteem and moderate-to-vigorous physical activity as predicted (Papaioannou et al., 2013).

The five-item version of the SVS has also been used to assess the eudemonic well-being of middle-aged rheumatoid arthritis patients (Rouse et al., 2015). The five-item SVS exhibited good internal consistency and provided a valid and reliable measure of well-being in this clinical population. More recently, five-, six- and seven-item versions of the SVS were tested in Asian young adults (Kawabata et al., 2016). Kawabata et al. (2016) found the SVS to have good factorial and content validity across samples of Japanese and Singaporean undergraduate students. Furthermore, responses to a five-item scale resulted in an improved model fit compared with the six- and seven-item SVS (Kawabata, et al., 2016).

Despite the growing evidence regarding the sound psychometrics of the SVS (particularly the 5 and 6 item versions), the suitability of the scale when employed with young people warrants further examination. The seven original items comprising the SVS

were derived from 19 theoretically prescribed phrases concerning personal energy (Ryan & Frederick, 1997). Reduction of these 19 items to the 7-item scale was subsequently based on data provided by adult respondents (Ryan & Frederick, 1997). Bostic et al.'s (2000) further validation and refinement of the measure (resulting in the 6-item scale) also involved adults. Indeed, the scale (whether 5-, 6- or 7- items) has mostly been employed and tested with participants of college age and older (i.e., ≥ 18-years), albeit the SVS has been used to a lesser extent to assess reported aliveness and personal energy in young people (e.g., Adie, Duda, & Ntoumanis, 2012; Papaioannou et al., 2013). In the studies conducted with young people, the participants have ranged from middle childhood to adolescents (i.e., aged 10-years to 18-years).

To date, however, we do not know whether the SVS is measuring the same construct with children and with adolescents. This is important to establish because in previous research differences in SVS mean scores between children and adolescents have been found (Vlachopoulos et al., 2011). Rather than reported differential levels of the construct itself, such observed variation could suggest group differences in how subjective vitality is understood and captured (via the SVS) in the case of younger and older age groups. In a study examining levels of well-being experienced in school-based physical education (Vlachopoulos, et al., 2011), the extent to which scores on the SVS correlated with self-determined motivation varied between elementary, middle and high-school participants. However, without testing for age-related equivalence in responses to the SVS, we cannot discern whether the observed differential correlations were a function of age differences in the relationships between the variables or how the well-being outcome (subjective vitality) was assessed. The same issue comes to play when we consider observed group mean differences in a construct. In their study, Vlachopoulos and colleagues (2011) reported

decrements in mean levels of subjective vitality as respondent age increased through childhood into adolescence.

In longitudinal and cross-sectional studies concerning developmental trajectories from childhood to adolescence, evidence of assessment invariance is essential when drawing conclusions (Knight & Zerr, 2010). Measurement invariance (MI) is a way of testing if a measure means the same thing to respondents from different groups (i.e., children and adolescents) (Grimm, Ram, & Estabrook, 2016). In other words, MI enables researchers to determine if an instrument has equivalence across groups and thereby will allow valid evaluations of observed group-level differences and/or group differences in associations. Establishing equivalence involves increasingly constraining nested hierarchical models via a systematic process derived from Jὸreskog (1971) and advanced by Meredith (1993) (cited in Byrne, 2013). Grimm et al. (2016) describe four levels of measurement invariance (i.e., 1. Configural, 2. Weak (metric) invariance, 3. Strong (scalar) invariance and 4. Strict (scalar/threshold) invariance). These levels of MI have been further delineated into a 13-level classification system to inform more advanced analyses involving multidimensional constructs (Marsh et al., 2009). Regardless of whether a scale is unidimensional or multidimensional, to be able to confidently compare mean scores between groups, strict invariance should be established (Marsh et al., 2009).

Age-related variance has also been found in response scores of associated indices of well- and ill-being. For example, in a longitudinal study of adolescents' emotional experience, evidence of configural, metric and scalar invariance suggested decreases in happiness and incremental anger, anxiety and sadness scores of 13 to 18-year olds could be age-related (Maciejewski, van Lier, Branje, Meeus, & Koot, 2017). Providing evidence to support structural and measurement equivalence is essential to interpreting comparisons between groups (Papaiaonnous et al., 2013). That is, it is not possible in multi-group studies

to discern whether there are 'true' differences in observed levels of the variable in question or whether any such differences are an artefact of the measurement tool capturing the meaning of the construct in question (Grimm et al., 2016; Knight & Zerr, 2010).

Middle childhood is viewed as a developmental period when children acquire foundation skills relevant to healthy social relationships (Ladd, 1999). It is also a time when children learn roles and develop abilities that prepare them for adolescence (and adulthood) (Eccles, 1999). Here children refers to boys and girls under the age of 12 years: Whereas, adolescence is typically defined as young people who are aged 12 years and older (and less than 20 years of age) (The American Psychological Association, 2010; Christie & Viner, 2005). This is a period of great change in human development encompassing biological, physical, cognitive, emotional and social development occurring after onset of puberty (Keulers et al., 2010; Ruck, Keating, Saewyc, Earls, & Ben-Arieh, 2016; Steinberg, 2005). It follows that how well-being is perceived and experienced by children as they transition into adolescence will also be influenced by increased cognitive and emotional understanding (Keulers et al., 2010). It is also possible that these key developmental changes occurring at around age 12 will impact personal aliveness and energy ratings of children and adolescents via the SVS.

The major purpose of the present study, therefore, was to systematically test age-related measurement invariance (namely, configural, metric, scalar, and scalar/threshold invariance) of the SVS when completed by 9-11-year olds (middle childhood) and 12-15-year olds (adolescents). Based on the developmental differences described summarised above, it can be assumed that children and adolescents will differ in terms of the meaning of subjective vitality or their SVS scores. Two hypotheses are offered:

1. It is expected that a difference in the meaning of the latent construct of subjective vitality generally and the content of the items of the SVS between children and adolescents will be evidenced by variance at the scalar level.
2. If the SVS is found to be invariant across age groups, it is hypothesised that there will be a significant difference in the observed mean SVS scores for children and adolescents.

Method

Participants and procedures

The sample (N = 1386) comprised 678 children (aged 9-11 years, girls = 91, M age = 10.22 years, SD = .76) and 618 adolescents (aged 12-15 years, girls = 98, M age= 12.89 years, SD = .85). All participants were part of the data collection for the Promoting Adolescent Physical Activity (PAPA) project, English baseline data collection (Duda, 2013; Duda et al., 2013). Ethical approval was obtained via the ethical committee of a UK University. Participation was voluntary and informed consent was received for each participant verbally and in writing. In addition, approval was granted from the grassroots football clubs and informed parental consent was obtained via an opt-out method where parents could choose to exclude children from the study. The SVS was completed as part of a questionnaire pack administered before, during, or after a usual training session by trained research assistants at the start of a competitive season.

Table 2.1
The five-item Subjective Vitality Scale: Item distributional characteristics

Items	N	% floor	% ceiling	M	SD	Sk	K
1. I felt full of excitement	1284	2.1	37.9	3.99	.995	-.767	.082
2. I had high spirits	1282	.9	35.6	4.03	.907	-.669	-.039
3. I looked forward to each day	1280	1.6	38.3	4.05	.944	-.856	.367
4. I nearly always felt alert and awake	1278	2.7	30.0	3.79	1.043	-.552	-.310
5. I felt I had a lot of energy	1285	1.5	37.0	4.04	.929	-.817	.357

Notes: % floor, percentage of players who picked category 1 (minimum); % ceiling, percentage of players who picked category 5 (maximum); Sk, skewness; K, kurtosis.

Measure

The Subjective Vitality Scale (SVS; Frederick & Ryan, 1997) employed in this study was a 5-item version worded appropriately for children (Bostic et al., 2000; Papaioannou et al., 2013). Items can be viewed in full in table 2.1. A 5-point response scale was used

(ranging from 1 = strongly disagree to 5 = strongly agree). The stem asked participants to answer questions based on how they '*…generally felt over the past month in their everyday lives'.* In previous studies employing the 5-item version of the SVS, good internal consistency was demonstrated with Cronbach alphas ranging from 0.85 - 0.89 (with adolescent dancer and soccer player respondents; Gonzales et al, 2015), 0.79-0.88 (adolescent sport participants; Papaioannou et al., 2013) and 0.93 (adults with rheumatoid arthritis; Rouse et al, 2015).

Preliminary analysis

A missing values analysis was conducted on the entire dataset and each subset (i.e., child and adolescent) using SPSS version 22 (Arbuckle, 2013). The analysis revealed acceptable percentages of missing values and patterns of missing values were randomly distributed. The default approach for treatment of missing values in M*plus* (Version 7; L. K. Muthén & B. Muthén, 2012) was thus employed (i.e., missing values were indicated in the commands and models estimated under missing data theory using all available data). The distribution of item response scores were also assessed in terms of skewness and kurtosis using SPSS (see table 2.1). These data were found to be non-normally distributed therefore were treated as categorical variables following recommendations by Millsap and Yun-Tein (2004). Before tests of measurement invariance (MI) can begin. it is necessary to specify a theoretically derived model of the latent factor(s) (i.e., subjective vitality in this case) (Byrne, 2013). One method used to generate models to explore MI in unobserved or latent factors is multiple-group confirmatory factor analysis (CFA) (Grimm et al., 2016). Through CFA, factor loadings, thresholds and residuals can be examined. Initially a model is established for the overall dataset and then each sub-group of interest (in this case child and adolescent models of SVS) using CFA. It is important to note this preliminary step does not allow comparison of group-invariance. This step ascertains if the same number of latent factors are present in each

group and if the model fit is adequate (Byrne, 2013), providing evidence of construct validity (i.e., the scale is measuring the intended construct).

Assessing model fit indices

Goodness of fit indices (GFI) are commonly used to assess model fit to the data. For example, if the comparative fit index (CFI; Bentler, 1990) and the Tucker-Lewis index (TLI; Tucker & Lewis, 1973) values are ≥ 0.95 and the root mean square error of approximation (RMSEA; Steiger, 1990) is ≤ 0.06 the model fit is considered to be excellent (Hu & Bentler, 1998), whereas CFI and TLI values of ≥ 0.90 and RMSEA ≤ 0.08 are deemed to indicate an acceptably fitting model (Marsh, 2004). The RMSEA also produces 90 percent confidence interval (lower and higher) statistics to assist in the interpretation of the RMSEA value; the closer the range the greater probability in the true population parameter being produced. The RMSEA is a measure of discrepancy of degrees of freedom in a model. As such, it indicates model fit via estimates of population parameters (Hu & Bentler, 1998). However, Kenny, Kaniskan, and McCoach (2015) recommend RMSEA cut-off criteria should be viewed with caution in models with small degrees of freedom (*df*). Furthermore, they contend when data are non-normally distributed, χ^2 value tends to be inflated, this in turn impacts RMSEA which is hypothesised to result in false rejection of well-fitting models (Kenny, et al., 2015). This is also the case in SEM analysis of unidimensional models with few indicators (e.g., the SVS has one factor and only five indicators) due to the small *df*. In such models, it would appear that the RMSEA values may be less meaningful than CFI as indicators of a well-fitting model to the data. It is also worth noting that Marsh advocates that when evaluating models, the recommended model fit indices should be viewed as a guide rather than as strict cut-off criteria or 'golden rules' that must be met (Marsh, & Hau, 2007; Marsh, Hau, & Grayson, 2005).

Measurement invariance

After acceptable SEM models have been established for these data, configural invariance can be tested. This, the first stage of MI, determines if the same items load on the same factor(s) in both groups. No constraints are imposed on the item factor loadings, item thresholds or item residuals in the specification of the configural model (Byrne, 2013; Grimm, 2016). However, the factor structure is identical across groups. Configural invariance does not allow comparison of group variance, rather it is the starting point for MI and the model against which subsequent constrained models are assessed (Grimm et al., 2016). When testing configural invariance, the model fit and model parameters need to be carefully scrutinised as comparison of subsequent models are conducted via changes in the model fit indices (Liu et al., 2016). Weak (metric) invariance is the second step of MI testing. The item factor loadings are constrained equally in both groups, but the item thresholds and residuals are freely estimated (Byrne, 2013; Grimm, 2016). The metric model fit indices should be compared with the configural model fit statistics. There is evidence for weak invariance if the model fit indices are similar (i.e., changes in CFI and TLI < 0.01 - < 0.02 and RMSEA of < 0.015) meaning variances and covariances can be meaningfully compared at the latent level (Dimitrov, 2010).

The next level of MI testing (strong or scalar invariance) requires further restriction of the model through constraining item thresholds equal across groups (Byrne, 2013; Grimm, 2016). If no substantive difference is found between the metric model and scalar model MI can be assumed. Equivalence at this level represents agreement between groups in terms of the underlying overall construct *and* the content of the items representing the factor (Millsap & Yun-Tein, 2004). Strict (scalar/residual) invariance is the next step in the MI testing process which involves constraining the item residuals equally in both groups (Byrne, 2013; Grimm, 2016). Models are compared to determine if any changes are evident in model fit indices which would suggest measurement variance. Evidence of invariance at this level

indicates latent mean comparisons are viable and ‘true’ group differences can be evaluated (Millsap & Yun-Tein, 2004).

Data analysis

To examine measurement invariance of the SVS, structural equation modelling (SEM) was performed using M*plus* version 7 (Muthén & Muthén, 2012). Data was treated as categorical due to item distribution, skewness and kurtosis (see table 2.1). Confirmatory factor analysis (CFA) was conducted using the weighted least squares mean and variance-adjusted (WLSMV) estimator and theta parameterization with pairwise deletion for missing values which are the defaults for categorical outcomes in M*plus*. The Satorra-Bentler chi-square χ^2 test statistic is not available in M*plus* when using the WLSMV. Instead, the χ^2 difference test option is used (Muthen & Muthen, 1998). Internal consistency of the SVS was tested using Cronbach alphas. If alphas ≥ 0.70 are established the scale is deemed to be acceptable. An independent-samples t-test was conducted using SPSS to compare the SVS scores for children and adolescents. If a significant difference is found the effect size is calculated using the eta squared statistic (i.e., .01 = small, .06 = moderate, .14 = large effect) (Cohen, 1988).

Evaluating model fit and evidence of MI

Cheung and Rensvold (2002) recommend that differences in CFI and TLI values of < 0.01 and increases in RMSEA of no more than < 0.015 are indicative of equivalence or MI of less and more restrictive models. Latterly, Meade et al. (2008) suggest changes of < 0.02 in CFI and TLI are permissible. The chi-square (χ^2) statistic is known to be sensitive to sample size and the assumption of normality in data precludes use with non-normally distributed data which typify self-reported well-being (e.g., SVS) (Cheung & Rensvold, 2002). The alternative Satorra-Bentler χ^2 is proposed to better represent non-normal data but is also reported to be problematic in terms of misrepresenting MI across groups (Pendergast, von der Embse, Kilgus, & Eklund, 2017). These well reported issues with χ^2 also have implications for RMSEA statistics as described previously with regard to model fit indices (e.g., Kenny, et

al, 2015). In the present study, MI will be assessed based on model fit indices and recommendations for acceptable changes in values for CFI, and TLI (i.e., < 0.01 - < 0.02). In addition, Kenny's proposals concerning RMSEA and confidence intervals (i.e., false rejection of well-fitting models) also inform interpretation of the results.

Results

In the present study alphas for the SVS scale were 0.87 for the overall sample, 0.88 for the children (N = 678) and 0.85 for the adolescent (N = 618) samples. Items loaded strongly onto the single factor (i.e., 0.758 – 0.908) (see table 2.2). The model fit indices further supported the unidimensional factor structure of the SVS (see table 2.3). A significant difference in SVS scores was revealed between children (M = 4.18, SD = 0.73) and adolescents (M =3.75, SD = 0.79) t (1252) = 9.99, p = .00 (two-tailed). The magnitude of the differences in the means (mean difference = 0.43, 95% CI: 0.43 to 0.51) was moderate to large (eta squared = 0.07). In order to be able to test the invariance of SVS as a measurement tool across child and adolescent populations, it is necessary to establish a good fitting model as a baseline (Byrne, 2013). The first step was to test the model fit for an overall group (i.e., children and adolescents together). The model fit was acceptable for CFI (= 1) and TLI (= 0.97) but the RMSEA (= 0.25, CI (0.23-0.272) value was poor (i.e., a good fit for RMSEA ≤ 0.08). In the overall model χ^2 = 444.066 (p = 0.000, df = 5), the df of 5 indicates the RMSEA may not be a reliable indicator of model fit. Kenny et al. (2015) suggest looking to the lowest point of the confidence interval (CI) to determine whether to reject the model and also to view other criteria. The lower CI (0.23) did not suggest a good fit so other parameters needed to be scrutinised. Examination of the modification indices for item 4 ('I felt alert and awake') and item 5 ('I felt I had a lot of energy') indicated items 4 and 5 were highly correlated (modification indices value = 388.476). Though the expected parameter change was low (EPC = 0.15), the content of items 4 and 5 is more similar in comparison with the other SVS

items (see table 2.1) which supports the high modification indices value. Further, the poor RMSEA score justified correlating the items to try to improve model fit. This resulted in an improved model fit (CFI = 1, TLI = 1, RMSEA = 0.11 CI [0.09 - 0.13], χ^2 of 71.063 and 4 *df*). The RMSEA improved but was still not good. However, guided by Kenny et al.'s (2015) recommendations concerning RMSEA and the low *df*, the lower CI value of 0.09 suggested an acceptable model.

Table 2.2

Factor loadings of SVS items

Items	Factor loading	SE	Est. SE	P value
1. I felt full of excitement	0.91	0.006	158.406	0.000
2. I had high spirits	0.91	0.005	173.790	0.000
3. I looked forward to each day	0.90	0.006	142.598	0.000
4. I nearly always felt alert and awake	0.78	0.009	84.608	0.000
5. I felt I had a lot of energy	0.76	0.010	73.357	0.000

In the interest of finding an even better fitting model, further investigations were conducted based on suggestions from Kawabata et al. (2016). In particular, Kawabata and colleagues' suggestion that item 3 ('I look forward to each new day') may describe optimism rather than the concept of subjective vitality was considered. Accordingly, a 4-item model which excluded item 3 was tested. The resultant model was inferior to the 5-item model (CFI = 0.98, TLI = 0.95, RMSEA = 0.40). Having determined that the best fitting model was the 5-item model with the residual error terms of items 4 and 5 correlated, this model was then tested independently with the child and adolescent groups. Both the child model (CFI = 1, TLI = 1) and the adolescent model (CFI = 1, TLI = 0.99) exhibited an excellent fit to the data (with the exception of the RMSEA criterion; child = 0.08[CI= 0 .05 - 0.12]; adolescent = 0.11 [CI = 0.08 - 0.15]). These findings provided further evidence to substantiate the validity of the proposed model. However, again following Kenny et al.'s recommendation regarding the

consideration of the RMSEA lower CI value as a marker of a good fitting model, the child model was deemed to provide an excellent fit to the data while the adolescent model was found to be acceptable. With the baseline model established, the logical process of invariance

Table 2.3
All model fit statistics and changes in model fit statistics

	CFI	Change in CFI	TLI	Change in TLI	RMSEA (95% CI)	Change in RMSEA
Model (i)*	0.985	-	0.969	-	0.252 (0.232-0.272)	-
Model (ii)*	0.998	-	0.994	-	0.110 (0.088 - 0.133)	_
Model (iii)*	0.982	-	0.945	-	0.356 (0.325 – 0.387)	-
Child Model*	0.999	-	0.997	-	0.083 (0.054 – 0.115)	-
Adolescent Model*	0.997	-	0.993	-	0.114 (0.082 - 0.149)	-
1: Dimensional	0.998	-	0.994	-	0.110 (0.088 -0.133)	-
2: Configural	0.996	0.002	0.995	-0.001	0.102 (0.085 - 0.120)	0.008
3: Weak	0.996	0.000	0.995	0.000	0.097 (0.081 - 0.113)	0.005
4: Strong	0.997	-0.001	0.998	-0.003	0.060 (0.049 - 0.072)	0.037
5: Strict(A)	0.998	-0.001	0.999	-0.001	0.051 (0.038 - 0.064)	0.009
5: Strict(B)	0.997	0.001	0.998	0.001	0.060 (0.049 - 0.072)	-0.009

*Model(i) is overall dataset all items, all parameters free; Model (ii) is overall dataset all items with error terms of item 4 and 5 correlated (i.e., the dimensional model); Model (iii) is overall dataset with item 3 removed; Model (ii) is replicated with 'Child' and 'Adolescent' datasets (i.e., each model has all items with error terms of items 4 and 5 correlated)

testing began with the configural model in which the factor structure for each subgroup is constrained equal and all other parameters are free. The model fit indices were excellent to adequate (CFI = 1, TLI = 1, RMSEA = 0.10 [CI = 0.09-0.13]). At this point, the groups are analysed separately thus no conclusions concerning group invariance are drawn. The configural model is the model against which subsequent more constrained models are assessed.

Step three tested weak factorial invariance. Here the factor loadings were constrained equal across groups. Across these nested models the factorial model held with no change in CFI or TLI (CFI = 1, TLI = 1). The RMSEA decreased by 0.005 (RMSEA = 0.097[CI = 0.081 - 0.113]). This suggests variances across groups can be compared. Strong invariance was tested in the fourth step; the item factor loadings and the item thresholds were constrained. The change in CFI = 0.001, TLI = 0.003 and RMSEA decreased by 0.037.

Model fit indices slightly improved for all criteria suggesting measurement equivalence across groups (CFI = 0.997, TLI = 0.998, RMSEA = 0.060 [CI = 0 .049 - 0.072]). The fifth step was a sideways step to establish a model in which factor loadings and item thresholds were held equal whilst error terms are free. Again, the model improved (CFI = 1, TLI = 1, RMSEA = .05 [CI = 0.04 - 0.06]) with CFI and TLI each changing by 0.001 and RMSEA decreasing by 0.009. This model was then used to test a fully constrained model in which factor loadings, item thresholds, and error terms (or item residuals) were also constrained equally to test strict factorial invariance. For this final model, the fit remained satisfactory. Resultant model fit indices changed by 0.001 in CFI and TLI and RMSEA decreased by 0.009 (CFI = 1, TLI = 1, RMSEA = 0.06 [CI = 0 .05 - 0.07]).

The 5-item subjective vitality scale exhibited measurement equivalence at all levels of MI (i.e., categorical, weak/metric, strong/scalar and strict invariance). Model fit statistics for all stages of testing (including preliminary/dimensional models) along with changes in model

fit statistics are presented in table 3. Overall the changes in CFI (0.998- 0.997) and TLI (0.994 – 0.998) from the dimensional model to the final strict model were within the ranges recommended from level to level of MI by Meade (2008) (i.e., differences in CFI and TLI values of < 0.02) and the more stringent criteria proposed by Cheung and Rensvold (2002) (i.e., differences in CFI and TLI values of < 0.01). The RMSEA values decreased from 0.110 to 0.060.

Discussion

The present study aimed to determine the validity and reliability of young people's scores on the SVS from a developmental perspective. In particular, the present research examined whether subjective vitality (as assessed by the SVS) had the same meaning and the scale exhibited structural and measurement equivalence across child and adolescent populations. Measurement invariance, when found at all levels (i.e., dimensional, configural, metric, scalar and strict) provides robust evidence of the equivalence of meaning and assessment of the construct of interest (Cheung & Rensvold, 2002; Knight & Zerr, 2010; Liu et al., 2016). Strong evidence of invariance (i.e., strict invariance) of the SVS was found in the current study across child and adolescent responses contrary to hypothesis 1. The implications of these findings are that the SVS measures the same construct in children and adolescents suggesting group comparisons in this study are meaningful and valid supporting hypothesis 2. Though caution is advised in extrapolating results more widely without further supporting studies with more heterogeneous samples of youth across contexts and cultures. Initial evidence presented herein suggests age group differences revealed in future research can be assumed to reflect developmental differences in experienced subjective vitality between children and adolescents rather than artefacts of measurement error of the SVS.

The observed structural and measurement equivalence also holds implications for future longitudinal research which can validly assess developmental trajectories in subjective

vitality scores as children move into adolescence (Knight & Zerr, 2010). This suggests when means of scale scores are compared over time between groups, findings of any variability will provide evidence of group difference at the latent level (Grimm, et al., 2016). With equivalence at the scalar level established, it can be assumed that the construct of subjective vitality assessed via the five item SVS has the same meaning for 10-14-year-old children and adolescents.

As with previous psychometric studies of the SVS (e.g., Bostic et al., 2000; Kawabata et al., 2016; Papaioannou et al., 2013), the current study provided evidence to support the construct validity of a scale with the negatively worded item removed. This finding is in concordance with proposals that negative items can be problematic, particularly with younger respondents (Marsh, 1986). This study also provides further support for the unidimensional structure of subjective vitality across child and adolescents. Reliability of the five item SVS was also examined providing evidence of high internal consistency of the scale when responded to by children and adolescents. Interestingly in the current study, the best fitting model was achieved by correlating the error terms of item 4 (i.e., 'I nearly always felt alert and awake') and item 5 (i.e., 'I felt I had a lot of energy'). This statistical adaptation makes sense from a conceptual perspective as both items refer to positive energy. Additionally, current findings are in line with prior research in which the same residual covariance was needed to improve the model fit of the SVS in US undergraduate students (Schellenberg et al., 2018) and in a Singaporean sample (though not in the Japanese sample tested) (Kawabata, et al., 2016). It is also worth noting that a five-item scale was superior in Kawabata et al.'s study (to a six- and seven- item scale) and in the present study (to a four-item scale). However, the five items differed in both studies: In the current study the five item SVS did not contain item 3 from the original scale ('Sometimes I am so alive I just want to burst'). This item was retained by Kawabata et al. and in contrast to the current findings, Kawabata et

al. proposed the SVS performed better when item 5 ('I look forward to each new day') from the original scale was removed. In the current analysis, the SVS produced an inferior fitting model when this item was excluded implying the importance of item 5 to the overall structure and measurement of subjective vitality.

The differences in the composition of the five item scale may be explained by differences in the age (i.e., adults in the Kawabata et al. study; under 18 year olds in the present study), language (i.e., Japanese, Singaporean and English in the Kawabata et al. study; English in the present study), culture (i.e., Asian in the Kawabata et al. study; European in the present study), and context (i.e., educational in the Kawabata et al. study; recreational sport in the present study) of the study populations sampled. Prior research has supported the validity of the five item SVS employed in the current study as a robust and reliable measure of young people's subjective vitality across languages (Papaioannou et al., 2013) and was found to be reliable in assessing adult SVS scores (Rouse et al., 2015). This research alongside the current study provide support for the five-item scale excluding items two and three from the original scale. However, further testing across different languages, cultures and ages will help to establish which five item scale performs better. Resolving this controversy will enable researchers to complete meta-analyses of SVS in future studies.

Furthermore, in tempering the current findings to some extent, it should be noted that the participants were all engaged regularly in recreational sport. As with other studies in sport (Adie, Duda, & Ntoumanis, 2008) and dance (Gonzalez et al., 2015), child and adolescent SVS scores were generally high which is in line with expectations that engaging in physical activity is associated with positive well-being (Duda et al., 2013; Papaioannou et al., 2013; Vella, Swann, Allen, Schweickle, & Magee, 2017). Nevertheless, in this sample of physically active youngsters, children's SVS mean scores were significantly higher than SVS mean scores of the adolescents. The sample was also made up of a majority of boys who all resided

in England. As such, findings should be treated with a degree of caution in regard to considering implications for all children and equivalence as a function of gender. It is recommended that tests of MI should also be conducted with SVS scores generated by more heterogeneous representative groups of young people (e.g., young people from different cultural backgrounds or national origin) to help establish generalisability.

Conclusion and Future Study

Structural and measurement equivalence has not previously been examined across child and adolescent respondents' scores of the SVS. The present study investigated whether observed variability in SVS mean scores could be attributed to measurement error or developmental differences in terms of the latent construct of subjective vitality. Future examination of the SVS should be conducted with a more heterogeneous representative sample of young people (including those who might be prone to lower subjective vitality scores) to ensure MI can be established in the general population. Further examination of a six-item scale with inclusion of items 3 *and* 5 in comparison with the five item SVS across ages and in different cultures may also be warranted to help to resolve the controversy concerning those items. Nevertheless, the findings of the present study do contribute support for suitability of the 5-item version of the SVS reported in Papaioannou et al's (2013) as a valid and reliable tool for assessing subjective vitality with younger populations. Notwithstanding the additional evidence of the validity and reliability of the SVS presented in the current study the SVS is unidimensional and as such cannot be utilised reliably to assess young people's *multidimensional* well-being. Further caution is advised if interpreting high scores on the SVS as representing low ill-being. The content of the SVS is exclusively positive in valence and therefore neither high nor low scores can validly be presumed to indicate a youngster's level of ill-being. However, the mean differences in reported SVS scores between child and adolescent respondents are notable in the present findings. This is

particularly noteworthy when we consider the participants' level of engagement in physical activity, where typically high vitality scores are expected. The observed differences in the mean well-being scores of child and adolescent cannot be fully explained. Further research from a developmental perspective is merited to add to the knowledge and empirical understanding concerning well- (and ill-) being of children and adolescents.

CHILDREN'S AND ADOLESCENTS' CONCEPTUALIZATIONS OF WELL- AND ILL-BEING: A QUALITATIVE INQUIRY

Abstract

Little is known concerning children's and adolescents' concepts of well- and ill-being. This study employed a qualitative developmental approach to begin to address this gap in the literature. Semi-structured interactive one-to-one interviews were conducted with 50 young people (N= 23 children aged 7-11 years and N= 27 adolescents 12- 18 years). Data were analysed using a latent thematic method. Developmental frameworks employed in past work to explore concepts related to well- and ill-being (such as health, illness, emotions) were used to inform the analysis. Well-being was perceived as a positive multidimensional state manifest mainly in regard to experienced emotions by children though awareness of facets of thoughts and bodily responses were also evident in children's explanations of the construct. The children's concept of well-being tended to represent a global hedonic experience of well-being (e.g., general happy state). The rationales that children relied on to further explicate their understanding of well- and ill-being, were largely rooted in external concrete experiences. Adolescents demonstrated a more complex conceptualisation of well-being comprising emotional, physical and cognitive manifestations. Further, the adolescents' rationales were positioned in abstract mentalising (e.g., internal thoughts), and included references to aspirations, good deeds and virtuous activities pointing to a eudaimonic conception of well-being (Waterman, 1993). Similarities were more evident across children's and adolescents' concepts of ill-being which comprised ill-health, lack of motivation and negative affect. Again, the children's concepts were grounded in concrete experience and were present-focused. On the other-hand, the adolescents conceived of ill-being in the same multiple dimensions (i.e., emotional, physical and cognitive) but their concepts were more abstract, future-focused and interrelated. In terms of the children's and adolescents' understanding and deemed relevance, words used to describe well- and ill-being by adults (and representing items assessing well- and ill-being in existent measures employed with

young people) were also examined in the present study. In general, the children displayed difficulty with these words and phrases suggesting unsuitability for this age group. Taken in their totality, findings suggested a developmental trajectory in concepts of well- and ill-being between childhood and adolescence.

Keywords: children, adolescents, qualitative, well-being, ill-being, developmental.

Children's and Adolescents' Conceptualisations of Well- and Ill-Being: A Qualitative Inquiry.

Well-being is understood to comprise of multiple dimensions including physical, affective and cognitive facets (Waterman, 1990). As a construct well-being has been widely examined by many scholars employing divergent approaches in attempts to better understand human happiness and flourishing (Ryan & Deci, 2001; Ryan, Huta, & Deci, 2008). Though extensive, the well-being literature is largely concerned with adult's conceptualisations of the construct (Fernandes et al., 2012). However, compared to the conceptual frameworks created by adults, children and young people's constructions of well-being may be quite different in terms of personal well-being judgements (Ben-Arieh, 2008).

The literature generally suggests that well-being is a multifaceted, complex personalised psychological construct. Many theorists have proposed frameworks designed to explain well-being and two perspectives have emerged; hedonic and eudaimonic (Deci & Ryan, 2008; Ryan & Deci, 2001; Ryff & Singer, 2008; Waterman, 1993). Hedonic proponents describe a construct which comprises emotional (positive and negative affect) and cognitive (ratings of satisfaction with life) components (Diener, 1984; Diener, Emmons, Larsen, & Griffin, 1985). How each individual judges the quality of their well-being is crucial in determining the extent to which each person is happy and satisfied with their lives and is termed subjective well-being (SWB; Diener et al., 1985). Eudaimonic perspectives suggest hedonia is a constituent part of well-being but as hedonic perceptions do not consider broader goals and aspirations for personal development, it is argued the hedonic depiction is an incomplete expression of well-being (Deci & Ryan, 2008; Ryan & Deci, 2001; Ryff & Singer, 2008; Waterman, 1993).

Eudaimonic frameworks incorporate the hedonic components of happiness, life satisfaction along with more philanthropical life affirming constructs rooted in a virtuous 'good life' and aspirations incorporating actualisation of human potential (Sheldon & Kasser,

2001; Waterman, 1993; Waterman, Schwartz, & Conti, 2008). The debate on happiness including or being separate from flourishing has been ongoing since human scholarship began (Ryan & Deci, 2001). Nevertheless, one aspect that both hedonic and eudaimonic of well-being assessments rely on is the ability of individuals to judge personal manifestations and experiences of well-being.

As much of the prior research has been concerned focused on the adult perspective using a top-down approach, rarely has the condition of children from their own perceptions entered academic discussions regarding personal understanding of well- or indeed ill-being (Eiser & Morse, 2001). In this chapter, the aim is to address this gap in the literature by exploring children's well- (and ill-) being as described in their own words via a qualitative approach. The present chapter expands the study of young people's well-being via examination of the subjective vitality scale in chapter two, in which variability in children's and adolescents' well-being could not be explained in terms of measurement error. The present study aims to garner in-depth rich data concerning young people's conceptualisations of well- and ill-being (including subjective vitality). Words and phrases employed by adults to define well- and ill-being (and constitute items in existing assessments of these constructs which have been employed with young people) will also be explored to determine if these descriptors have saliency and are understood by children and adolescents.

As little is known concerning children's and adolescents' concepts of well-being and ill-being, a starting point for this investigation is existing developmental literature concerning youngsters' concepts of what could be considered manifestations of well- (and ill-) being (e.g., health, illness, emotions; Normandeau et al., 1998; Perrin & Gerrity, 1981; Pons et al., 2004). The aim was to try to establish a framework as a guide to the analysis. A developmental perspective will enable analysis of similarities and differences between younger and older participants' depictions of the targeted constructs. It was expected that the

developmental trajectories reported in conceptualisations of related constructs (health, illness, emotions) in Chapter one would be similarly reflected in children's and adolescents' perceptions of well- and ill-being.

Developmental perspectives

A developmental theory often applied in research with children is Piaget's genetic epistemological theory of cognitive development (Piaget, 1961; Vergnaud, 1996). Piaget posits the child as 'scientist' developing knowledge through construction of schema (Piaget, 1961). It is proposed that when encountering a novel experience, the child adopts a systematic process to evaluate the new information comparing it to existing knowledge or schema, if the child is satisfied that the existing schema can explain the phenomena, a state of equilibrium is achieved, and the knowledge is assimilated. However, if existing schema cannot explain the new situation, concept or object, the schema needs to be altered to accommodate this new piece of information or disequilibrium exists. If accommodation occurs, this new knowledge becomes part of the child's growing schema and a state of equilibration is again achieved. Piaget proposes it is this theory of equilibrium that is important in human development and the ability of children to assimilate information and accommodate new schemas in this way occur in an age-related developmental pattern. Piaget's theory of thought has been applied to concepts of emotion, health and illness using the stages as a reference-point to explain the developmental trajectories of these phenomena (e.g., S.K. Donaldson & Westerman, 1986; Harter & Buddin, 1987; Natapoff, 1982).

Development of conceptions of emotions and Piagetian stages

The Piagetian developmental stages of interest in the current study are pre-operational, concrete operational and formal operational. At the 'pre-operational stage' occurring generally between 2-7 years old, the child relies on symbols (e.g., recognition of facial expressions), but has difficulty in manipulating thoughts and struggles to see other's

perspectives. This pre-operational Piagetian developmental stage has been supported in studies of emotional understanding (S.K. Donaldson & Westerman, 1986; Harter & Buddin, 1987). For example, in Harter and Buddin's (1987) study of the development of simultaneous emotions, younger children (aged around 4 years old) generated 'basic' emotion labels (i.e., happy, sad, mad, scared), were ego-centric in their approach to emotions and were mostly unable to conceive of concurrent emotions (i.e., unable to mentally manipulate complex concepts of mixed or co-occurring emotions).

More recently, Pons et al.'s (2004) utilised a Piagetian developmental framework in a study of emotions, emotional understanding and emotional regulation. Their examination of emotional comprehension was precluded on a set of nine theoretically and empirically informed age-related components (i.e., recognition, external cause, desire, belief, reminder, regulation, hiding, mixed, morality). Three hierarchical developmental phases were proposed (i.e., external, mentalistic and reflective appraisal) within which the nine components are integrated. Each stage requires acquisition of the components of emotional comprehension before the next stage is reached. The first level of emotional development proposed by Pons et al. incorporates 'recognition' and is aligned with the preoperational stage. It is proposed that emotional development begins at around 3-4 years old when basic emotions can be described and are recognised.

The second component 'external cause' is evident at around age 5-7 years old when children understand emotions of others via external cues (i.e., facial expression) and personal emotions via transactional, of the moment, external causes (e.g., losing or finding a beloved toy would cause a child to be sad or happy respectively). This second level of emotional understanding proposed by Pons et al. (2004) aligns with the next Piagetian stage (i.e., the 'concrete operational stage') which generally occurs in the pre-pubertal phase during middle childhood (e.g., 7-11 years old). In the concrete operational stage, the child begins to think

logically and can evaluate information based on concrete events. This concrete knowledge is utilised in a trial and error methodology to determine outcomes in novel, albeit similar circumstances (e.g., inductive reasoning). Thoughts tend to be of the moment, and abstract concepts are difficult to accommodate. In prior studies, evidence of this Piagetian stage appear to be encompassed in a level of emotional development where children aged approximately 5-7 years old were found to conceive of external concrete causes of emotions and expressed a lack of autonomous control over their emotions (S.K. Donaldson & Westerman, 1986; Harter & Buddin, 1987).

The three hierarchical stages of development of emotional understanding proposed by Pons et al. (2004) are also compatible with Piaget's theory of equilibrium. The external appraisal phase being the first level proposed, which is a pre-requisite for the next stage of emotional development. As such, the external appraisal schema need to exist to facilitate accommodation of the next level emotional development, or sequential schema, in which awareness of psychological components of emotions is evident at around age 7-9 years. During this mental appraisal level, children comprehend that emotions can be hidden, and they also understand the role of desires and of beliefs on emotions. However, at this level, children are not yet able to fully reflect on or self-regulate emotions.

'Formal operational' is the next stage in cognitive development according to Piaget, this generally occurs at age 12 years plus. During this stage, the cognitive ability of the child has moved beyond inductive logic to deductive process, hypothetical situations can be manipulated mentally, causation and possible outcomes are considered, and problem-solving skills are developed, enabling future planning and complex abstract thinking. Children aged around 11 years in Harter and Buddin's (1987) study characterise formal operational development as they used more differentiated terms [e.g., excited, joyful, and proud (for the positive emotions) and disappointed, depressed, disgusted, worried, frustrated, and guilty (for

the negative emotions)] than the younger participants. Similarly, Donaldson and Westerman (1986) reported children over 11 years were aware of more complex abstract concepts as they understood thoughts and memories influenced emotions. However, in Pons and colleagues' study, children aged approximately 9-11 years were reportedly able to reflect on emotions and to regulate their emotional responses. Furthermore, these 9-11-year old children could comprehend that emotions can be mixed, can also be internally felt yet externally expressed differently and simultaneous emotions were acknowledged.

The final component of emotional development according to Pons et al. (2004) is comprehension of the effect of morality on emotions. This finding is suggestive of a more eudaimonic perspective of well-being, with the understanding of moral choices on behaviour and affective response aligning with the concept of the virtuous life. Development of eudaimonic perspectives will be discussed in more detail later in this chapter. The tri-stage developmental hierarchy of emotions hypothesised by Pons et al. was confirmed in a recent study by Sagone and De Caroli (2014) with 6-7-, 8-9- and 10-11-year-old children. The study also found a significant reciprocal relationship between the three stages of emotional development and Piagetian cognitive developmental stages (Sagone & De Caroli, 2014).

Piagetian Developmental stages and concepts of health and illness

Several studies of children's concepts of health and illness have also found evidence to support a developmental pattern in these conceptualizations relating to cognitive developmental stages (Gobbo & Raccanello, 2011; Natapoff, 1982; Normandeau et al., 1998; Perrin & Gerrity, 1981). These studies suggest that aged under 7 years old children's conceptions of health are examples of the preoperational cognitive development stage. At around this age, children struggle to conceptualise health, have difficulty reversing concepts such as being healthy means not being sick, they generally rely on adults to inform them they are ill and see health as being linked to the ability to do activities in the present moment

(Natapoff, 1982; Normandeau, et al., 1998; Perrin & Gerrity, 1981). The findings of these studies demonstrate children tending toward a positive hedonistic view of health rather than a deficit focused view of health (i.e., the absence of disease). Further, the under seven-year-olds did not readily associate compromised mental health as part of illness.

From around 8 years old children demonstrate a conceptualisation of health defined as a concrete operational perspective, where health is still viewed as being able to perform desired activities and is still very much in the present but learned information is integrated into ideas of health (e.g., eating fruit is healthy) (Gobbo & Raccanello, 2011). Children begin to consider cause and effect and can reverse ideas of health and illness, their concepts now can include mental health however, external appearance determines to them if someone is unwell (Normandeau et al., 1998). The formal operational stage of understanding concepts of health and illness is internal, future-focused, self-regulated and abstract. Generally, in studies, findings suggested children of around 11 years have reached this stage of cognitive development where health is conceived as an enduring future-oriented state and illness is perceived to be a temporary condition (Gobbo & Raccanello, 2011; Natapoff, 1982; Normandeau et al., 1998; Perrin & Gerrity, 1981).

By 13-14 years old adolescents were aware of causes of illness and they understood their bodies and minds were active hosts (rather than passive recipients) of illness (Perrin & Gerrity, 1981). Adolescents understood illness as the body's response to infection and they were able to describe illness using names of body parts, systems and organs, they were also able to describe externally apparent symptoms and had awareness of mental health. Perceptions of illness in Perrin and Gerrity's study were generally in line with expected cognitive developmental stages. It is perhaps unsurprising that as children moved into adolescence, they become more aware of physical and mental health as their bodies and psyche go through biological changes.

The effect of the pubertal phase on development of emotions and cognitions

The onset and duration of the pubertal phase has also been identified as an important factor in cognitive and emotional development of adolescents (Keulers et al., 2010; Steinberg, 2008). Keulers et al. (2010) found evidence of incremental age-related development of emotions and cognitions in 13, 15, 17 and 19-year olds in a test of mentalizing capacity. Adolescents were presented with hypothetical first-person and third-person events and they had to consider the emotional response and consequences of planned behaviours. In the study pubertal phase was found associated with improved emotional decision-making in late stage- and post-pubertal boys but girls in the study had already begun puberty and as such the effects of this phase were not able to be examined. However, it can be speculated that similar improvements in emotional decision-making processes will be found in girls. Indeed, in studies of coping, a slight decline in problem-solving coping around 14-15 years may be associated with pubertal changes in adolescence (Donaldson, Prinstein, Danovsky, & Spirito, 2000). Further, developmental cognitive changes enabling abstract thought and the ability to be future-focused can have both positive (e.g., planning) and negative (e.g., worrying) consequences for adolescents in terms of coping (Zimmer-Gembeck & Skinner, 2011). The cognitive abilities of adolescents may also have important implications for young people's well- and ill-being especially in respect of eudaimonic well-being which is dependent on goal-setting in the pursuit of personal improvement (Sheldon & Kasser, 2001).

The development of eudaimonic perspectives

This relationship between personally meaningful self-development and personal growth goals were studied via young people's narratives to help explain longitudinal differentiation in eudaimonic well-being (Bauer & McAdams, 2010). In a prospective developmental study, qualitative methods were used to identify developmental trajectories in

well-being of young people through late adolescence into emerging adulthood (Bauer & McAdams, 2010). In this study Bauer and McAdams define eudaimonic well-being as "… not only how good one feels about one's life (i.e., SWB) but also how complexly and integratively one thinks about one's life (i.e., psychosocial maturity)" (2010, p.761).

Bauer and McAdams found SWB was associated with goals incorporating socioemotional growth (e.g., personal relationship goals) whereas, intellectual growth goals (e.g., plans to achieve qualifications) were linked to maturity and thus eudaimonic well-being. Similarly, in an earlier study concerning goal striving and well-being, Emmons (1986) found everyday goals routinely pursued by people were linked to personal ratings of subjective well-being. More specifically, goal attainment was related to positive affect. Further, fulfilment of personally meaningful goals was positively related to life satisfaction. Of note in the Bauer and McAdams study is the finding concerning gender in which eudaimonic growth had a normative trajectory in males but not females. However, the metric used was the measure of maturity which female students scored higher at time one than males when the participants were freshmen, three years later the male students' ratings of maturity showed a significant increase whereas the women's maturity ratings did not. This is to be expected considering sex differences in pubertal status and brain development which suggest females' emotional development peaks in mid-adolescence whereas with males development continues into adulthood (Simmonds, Hallquist, Asato, & Luna, 2014).

It follows that the developmental pattern of eudaimonic growth reported by Bauer and McAdams in older adolescents to young adults is suggestive of a similar path of eudaimonic well-being in younger to older adolescence. To the knowledge of this author, eudaimonic well-being has not been examined from a developmental perspective in middle childhood and early adolescence. However, studies have reported on eudaimonic well-being of children. For example, in a recent study, 3-5-year-old children's well-being experiences are scrutinised via

narrative interpretation of environments purported to imbue hedonic and eudaimonic well-being (Estola, Farquhar, & Puroila, 2014). Evidence of the adult care-givers providing an autonomy supportive motivational climate was equated with the child's eudaimonic well-being (Estola, et al., 2014). Whilst these claims are attractive in that empowering a child whilst also providing love and safety is intuitively likely to improve the well-being of children. However, it is quite a leap to assume this care and support will result in the child experiencing eudaimonia. Furthermore, the findings reported in chapter two of this thesis concerning the invariance of subjective vitality scale (SVS; Ryan & Frederick, 1997) scores across ages suggested mean differences in child and adolescent scores were indicative of differences in human flourishing. However, the SVS was designed as an indicator of eudaimonic well-being in adults, using adult-derived descriptors. The concept of vitality has yet to be examined in terms of children's conceptualisation of eudaimonia. Further investigation of the conceptual clarity of the SVS items with both boys and girls from a broader age-range of children and adolescents was called for in chapter two. Thus, in the second study in this thesis, in the current chapter (chapter three), children's and adolescents' understanding of hedonic and eudaimonic well- and ill-being will be examined.

The Present Study

This study proposes to ask the young people to provide descriptors for well- and ill-being in their own words. In addition, participants will have the opportunity to add pre-determined words thought to describe children's and adolescent's concepts of well- and ill-being to their personal constructions. Participants will be asked to evaluate (in terms of their understanding and the appropriateness) of construct-derived descriptors (i.e., theoretically derived wording and items from existing measures, see Table 3.1). The pool of construct-derived descriptors was compiled in collaboration with other academics who had experience in well-being research. Asking children and adolescents to talk through their choices and also

explain and react to the words and phrases commonly used in wellness and illness assessment tools will contribute evidence of content validity of these personally-derived and construct-derived descriptors with the target populations. These discussions will also reveal similarities and differences in adolescent and child understanding.

The findings concerning developmental trajectories in cognition, emotion, health and illness concepts explored above, suggest that similar patterns will be observed in regard to the concepts of well- and ill-being held by children and adolescents in the present study. It is expected that children will be aware of emotional manifestations of well- and ill- being,

Table 3.1

Pool of construct-derived descriptors which reflect children and adolescent concepts of well- and ill-being

Well-Being	Ill-Being
Pleasant	Unpleasant
Contented	Upset
Delighted	Depressed
Calm	Angry
Ecstatic	Distraught
Alert	Tense
Excited	Nervous
Eager	Indifferent
Still	Fatigued
Engrossed	Bored
Energized	Sluggish
Vigorous	Hyper(-active)
Relaxed	Listless
Feeling alive and vital	Feeling fed-up and lifeless
Ready to burst	Feeling flat
High spirited	Down-in-the-dumps
Looking forward to each new day	Nothing to look forward to
Feeling alert and awake	Feeling tired and bored
Feeling energized	No energy
Full-of-beans	Feeling under-the-weather
Get-up-and-go	Can't be bothered

they will also be able to provide descriptors for the concepts but may not perceive that the constructs of well- and ill-being are related. On the other hand, adolescents are likely to conceptualise well- and ill-being as distinct but related concepts. Furthermore, the level of complexity of the concepts (in terms of underlying dimensions) are likely to increase linearly with age. Levels of mental synthesis are likely to be reciprocally related to young peoples' conceptualisations of well- and ill-being. In other words, youngsters' ideas and understanding of well- and ill-being are expected to develop concurrently and in stages similar to the levels of emotional development found in prior research (Harter & Buddin, 1987; Pons, et al., 2004).

The aim for this study therefore is to investigate the rationales underlying children's and adolescents' explanations of well- and ill-being from a developmental perspective drawing from a Piagetian framework. More specifically, this study set out to consider the following research questions using one-to-one interviews:

1. Can children and adolescents understand the overall construct and describe the states of well- and ill-being?
2. Can developmental trajectories in concepts of well- and ill-being be distinguished, across child and adolescent groups?
3. Are current descriptors (item content) used in existing measures appropriate for the targeted populations (i.e., children and adolescents)?

The broader purpose of this study is to expand current knowledge by contributing to theoretical understanding of the constructs and structure of well- and ill-being as conceived and offered by young people. In consideration of the potential developmental nature of these constructs, participants were divided by age into 2 groups; 'children' (aged 7-11 years old) and 'adolescents' (12-18 years old). This decision was guided by the research findings presented above concerning human development (of emotions, cognitions and concepts of health etc.) and the age at which the pubertal phase influences major changes in cognitive, emotional and physical development (i.e., age 11-12 years) (Steinberg, 2010). All results will be reported for 'child' and 'adolescent' groups separately. However, when describing participants overall and population groups broadly, the terms 'young people', 'youngsters' will be used interchangeably to describe non-adult populations (i.e., children and/or adolescents inclusively).

Methodology

Participants and Procedures

Following approval from the ethical review committee of a large UK university, school children in the Midlands were invited to take part in the study. The participants (N= 50, 25 female) were children (age 7-11 years, N=23) and adolescents (age 12-18 years, N= 27). Detailed information regarding the purpose and procedures of the study were provided to head teachers, parents and children (see Appendix A). Children were provided with age appropriate information sheets and consent forms [one for primary school age children (7-11 years) and one for secondary school age children (11-18 years)]. The children and adolescents were from average and above-average socio-economic status, 90% were white British and the remaining participants were from black and minority ethnic backgrounds. Parents, teachers and children were informed that involvement in the study was entirely volitional and participants' anonymity would be assured. Consent was obtained from the Head Teachers of the participating schools. Parental (in addition to child) consent was also obtained prior to the start of the study. A stratified sample (based on age and gender) was then selected from those who returned signed consent forms indicating their willingness to participate. This was to ensure that an equal number of boys and girls and a range of ages were represented in the study.

Protocol.

Prior to commencing each interview, the researcher confirmed and clarified understanding of the purpose and procedure of the study with the participant and obtained verbal consent to proceed (in addition to written consent). It was next important to establish a rapport with the child to ensure he/she was comfortable with the research process and the researcher. The approach taken by the researcher has implications for the quality of data generated, particularly when working with children. An autonomy-supportive style which

empowers the participants by giving choice and encourages freedom of expression has been recommended (Gurland & Grolnick, 2008) and was adopted in this study. For example, at this stage of the interview the researcher emphasized that the child's perceptions were important (e.g., Remember *this is about what **you** think, **your** ideas, and there are no right or wrong answers*).

The researcher first asked participants to talk about the activities and school subjects they enjoyed. These ice-breaker questions were designed to establish rapport and also help a transition to the subject of well-being. The researcher explained how, using interview boards, a '*thought map*' or '*word picture'* of the participant's ideas concerning well-being (and ill-being) would be created using the child's own words. The construct was next introduced to the participant via an explanation and the interview board: "*We have here a picture of a' stick-person' and we are going to make a kind of 'word picture' or 'thought map' of your ideas about well-being."* Then the participant was asked "*… to think about that and what that means and feels like to kids like you…how would you describe it? What words would you use?".* The researcher then explained that she would write the child's words and ideas on cards for the young person to place on the *thought map*. When the children were unable to generate any more descriptors the lead researcher asked them to think about where the participants felt these states: "*Now can you think about <u>where</u> you <u>feel</u> these feelings; Is it in your head (i.e., something to do with how you are thinking…how your brain seems to be working!), your body (i.e., what your body is feeling) or your heart (i.e. to do with your emotions)? Is it felt in one of those areas, more than one of those areas or all three?".* The children were then invited to choose to place the descriptors/cards on the interview boards on the representations of the physical, emotions, and cognitions where they felt it fit best. If the participant believed the state co-occurred in two or all three aspects, the researcher would write out duplicate cards.

After this categorizing process was completed the researcher offered the *construct derived descriptors* (see Table 3.1) to the participant who chose to add these pre-determined words and phrases to the picture if they thought they fitted or discard them if they did not. Then the process was repeated in the same way with ill-being. Finally, the young person was asked if they could provide a definition for the constructs of interest. The researcher repeated each definition to confirm the participant was happy with the recorded descriptions. The researcher asked the participant if they wanted to add anything else to the thought maps and closed the interviews by thanking them for their contribution to the study.

Data Analysis

Interviews were transcribed verbatim creating 724 pages of data (transcriptions were formatted using Times New Roman 12-point font, lines were single-spaced). Data management was conducted using computer-assisted qualitative data analysis software (CAQDAS), specifically, NVivo 10 (QSR International, 2012). The analytic method chosen for this study relied on thematic analysis (Braun & Clarke, 2006). When employing thematic analysis, one of two (or both) complementary research processes can be adopted to suit the purposes of the study. In this chapter the discourse concerning well- and ill-being experiences and perceptions of the participants is examined in consideration of underlying concepts. Therefore, a latent thematic analysis approach in which meaning groups are identified is most suitable for this aspect of the investigation. Phase two of the study is described in chapter four where a semantic approach was employed to identify patterns in these data and examine the content in terms of descriptors of well- and ill-being.

The current analysis employed a combination of inductive, 'data-driven' (i.e., guided by the content of these data) and deductive, 'theory-driven' (i.e., influenced by a priori expectations derived from relevant literature and existing knowledge-base of the researcher) methods. A six-step systematic approach to thematic analysis recommended by Braun and

Clarke (2006) was adopted (see Table 3.2). This served as a guide to the different phases of the research process and helped to provide a framework for the analysis and dissemination of these data. In the first phase, the researcher familiarizes herself with the data. An iterative immersive approach was followed; transcripts were read and re-read by the thesis author. In addition, video footage, audio recordings and research notes were also used in a recursive (as opposed to linear) approach to inform the analysis. This step began with reflection during the interviews, continued via transcribing of the data and was on-going and throughout analysis and up to the writing-up of the study. The next three phases involved initial coding at a specific level, searching for themes at a broader level and reviewing themes across the data-sets. The fifth phase involved defining and naming themes. The final phase of analysis being the production of the academic article.

Table 3.2
Guide to phases of thematic analysis reproduced from Braun and Clarke (2006, p.87)

Phase	Description of the process
1. Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis

Results and Discussion

The purpose in this section is to report the findings in the children's and adolescents' own words and offer theoretical interpretation. Two thematic maps were developed to explain the patterns in these data. Proposed developmental levels in conceptualizations of well- and ill-being are presented in Table 3.3 and in Table 3.4 and the multiple dimensions of children's and adolescents' well- and ill-being are described. Instances or patterns will not be quantified in this research study per se, as the aim is to explicate the content and complexity of these data to demonstrate the richness of the source material and the conceptions of the constructs. Frequencies of these data are presented in chapter four. The results in the current chapter are presented to provide the reader with a richer feel for these data and the extracts are used to bring to life the proposed underlying patterns in the participants' dialogues.

Can children and adolescents perceive and describe well- and ill-being?

All participants were able to talk about their ideas concerning well- and ill-being after the initial definition(s) were introduced to them. Each participant provided descriptors of components of the constructs of well- and ill-being (details of the semantics are provided in chapter four of this thesis). Basic descriptors (e.g., happy, sad) which were mainly limited to one dimension (e.g., emotional) were prevalent with the children. This finding is reflective of findings in Harter and Buddin's (1987) study where the younger children supplied singular, simplistic descriptors of emotions. A typical example in the current study is this ten-year-old girl's response that well-being *"...makes you happy",* when prompted to explain further she responds that happy is "…*Erm, erm when you're having fun, when you're having fun and you're laughing".* She proceeded to classify 'happy' as an emotion. This type of response was common with the under 11-year-olds and it was clear that well-being was conceived by the children as a hedonic positive affective state. Another example of children positioning well-being as an emotional positive manifestation is this nine-year-old-girl's definition of well-

Table 3.3

Thematic developmental levels of concepts of well- and ill-being

Developmental level	Description	Examples
Pre-operational hedonic	• Unidimensional understanding of well- and ill-being. Difficulty providing descriptors • Rationales rooted in symbolic experience (e.g., external appearance) • Definitions limited to basic bipolar states (e.g., good/bad) • Passive, external	*(What about 'chuffed'?)* *P4: There [P4 positions 'chuffed' in the cognitions, on the lips of the head] because that's your mouth* *(chuffed is to do with your mouth is it?)* *P4 Yes, it's smiling* *(It's smiling? Ok but what about, is it to do with what you are thinking though?)* *P4: No, it's to do with that bit [points to his mouth]*
Concrete hedonic	• Some understanding of well- and ill-being as distinct constructs. Provides basic descriptors (e.g., happy, sad) which are mainly limited to one dimension (e.g., emotional). • Rationales are grounded in prior experience • Definitions of well- and ill-being are rooted in simple bipolar explanations, expressed in general global hedonic terms which of are of the moment • Difficulty in distinguishing multiple components of well- and ill-being, rather express temporally as one at a time as experienced individually • Use of circular reasoning	*P3: I think, it [angry]goes on there [body of ill-being]* *(Do you need another one?)* *P3: I think it will just do with the one because* *(Is it how you feel inside your body is it?)* *P3: Yeah* *(What happens in your body when you are angry?)* *P3: You're just red faced, erm and I don't know now, you're just red faced.* *(You get red faced?)* *P3: And upset sometimes, say if I was shouting at my sisters and they were both shouting at me back or hit me, that could make me cry (P3 laughs), that's all I think.*

Table 3.3 continued

Abstract hedonic	• Understanding of well- and ill-being as distinct constructs, beginning to express facets of well- and ill-being using more complex language and in multi-dimensions • Transition from rationales grounded in experience to abstract deductive logic. Aware of multiple concurrent manifestations • Definitions of well- and ill-being are still rooted in hedonic terms but beginning to be future-focused • Descriptors are complex. Some attempts to explain mechanistic underpinning of constructs	*P10: Erm, I think depressed would be emotional and mental* *(Emotional and mental? And why do you say that?)* *P10: Erm, I just think that sometimes you can think that you're like upset and depressed, you just think you are but really when it comes down to it inside, you're not upset, and you can easily overcome it. Yeah, like sometimes when I feel upset, I think that I'll never get over it but then like all it takes is my friend to start talking to me or something and then I'll maybe start talking, laughing again* *(Ok I see, so but sometimes you feel it [depressed] is an emotional response?)* *P10: Sometimes it is but most of the time you just think that you are*
Transitional	• Well- and ill-being understood as distinct constructs that are related. • Descriptors are more complex and draw on personal schemata/knowledge. • Rationales rely on abstract reasoning. • Definitions are multidimensional and point to more enduring eudaimonic understanding of well- and ill-being.	*P17: Oh, and I think guilty is that [emotions, ill-being] because if you really regret something you've done, you keep thinking about it, and I know that's more of the brain but it's a deep thing. And [pause] well I think nervous goes there because you could be nervous about something which is going to be scary or you could be nervous about like exams, which are scary but like, our brains are programmed to be nervous about some things. I don't know, if you're walking in to a cave where there are bears, you'd be scared – probably wouldn't do that but. Then kind of feeling bad nervous is more thinking about it being bad when it might not actually be. And then looking forward to something would [pause] I think it would probably go in the mental with not being happy with who you are because maybe you don't think – you're either not looking forward to it because you might just think you might not enjoy it and you might feel bad about having to go when you might not make anyone happy. It also might be that you think you're going to be bad at it. So, then you feel bad because you think you're going to be bad at it.*
Abstract eudaimonic	• Well- and ill-being understood as distinct constructs that are related. • Descriptors are more complex and draw on personal schemata/knowledge including explanations concerning the underlying mechanisms. • Rationales rely on abstract reasoning and hypotheses which look to the future. • Definitions are multidimensional, offering explanations which include aspects of eudaimonic growth (e.g., descriptions of 'living well' involving benefiting others, striving to achieve goals).	*I think it [ill-being]is not being, not being like the best you could be. For instance, when you're really happy and stuff most people see the best in you because that's probably what you would like to be, normally, but then when you're feeling bad people see the worst of you because like it's [well- and ill-being] two extremes…*

being *"...happy, smiley, great and it was just really good fun*". Moreover, the children did not refer to physical health as part of their definitions and often their definitions of well-being were grounded in prior experience. For example, the following discussion about well-being illustrates aspects of concrete cognitive development, circular reasoning and hedonic experience. The seven-year-old male participant was asked to describe what well-being was to him:

> *P4: Having a barbecue. About being outside and playing until my Dad does the barbecue. Well me and my brother… we always feel really excited and [my brother] is always sitting at the table pretending to Dad and then every time my Dad looks away, he tries to sneak up and steal the food.*

The youngest children also had difficulty in distinguishing multiple components of well- and ill-being, rather they expressed components temporally divided, in other words, one at a time as though experienced discretely. Here the 7-year-old boy (P4) appeared to need to contextualise well-being in a moment in time. It was evident that P4 struggled with abstract concepts, he also perceived of well- and ill-being as related to concrete events (e.g., family barbecue). Similarly, an eight-year-old girl's description of well-being drew on a concrete personal experience. She framed well-being in the near past and/or near future to express her understanding of the construct:

> *P3: Like it's a sunny day today (P3 laughs) [so I'd be] excited when I get home. I would either go in my paddling pool that's still out or and maybe have ice-cream (P3 laughs).*

However, when asked to explain how that may make her feel she was unable to provide an answer: *P3: Erm (pauses) erm, it's hard.* Thus, demonstrating her difficulty in moving from a specific thought to a more general abstract concept. When explaining her conception of well-being, another child, a nine-year-old girl also seems to need to contextualise her description of well-being in a concrete event:

> *P24: Erm maybe being happy or doing like excitement or something like that. Maybe you know when something's special and you just like can't imagine how it's going to be and you're just like so kind of like joyful. Maybe because it's your birthday soon or you just can't wait for something to happen.*

Although this statement appears to be more generalised whereas, the two previous participants used specific examples to describe a general concept. The children's definitions of well- and ill-being are rooted in simple bipolar explanations, expressed in general global hedonic terms. This current finding aligns with similar results of prior research exploring emotions where children used temporal division, basic simple descriptors and struggled to consider emotional experience in abstract contexts (S.K. Donaldson & Westerman, 1986; Harter & Buddin, 1987; Pons et al., 2004; Sagone & De Caroli, 2014). An older child of eleven still draws on concrete experience to help explain her concept of well-being but the description appears to move from a generalisation to a specific example, demonstrating a transitional developmental level of understanding of well-being (i.e., between concrete and abstract):

> *P14: like enthusiastic because I've had a good day. Quite excited and lively. You're just sat there really, really, happy and just more want to do, say if you're doing maths and you've had a really bad day so far you wouldn't be wanting to do it as much as if you'd had a good day.*

This explanation of well-being is also interesting as the definition points to more than hedonic well-being with the reference to schoolwork suggesting a possible consideration of personal striving. Furthermore, there are suggestions of a multidimensional perception of well-being (i.e., emotions e.g. happiness, and; cognitions e.g., wanting to do maths) incorporated in this description. In the following excerpt an eleven-year-old boy tries to make sense of his awareness of the different manifestations of well-being for distinct components (i.e., 'excited', 'amazing', 'nice feelings' and 'feeling good'):

> *P6: So 'excited' would be in the head wouldn't it?*
>
> [why would it be in the head?]
>
> *P6: Because your brain like wants to do whatever you're doing or is (laughs) I can't explain. Er, amazing. In there* [emotions]
>
> [And why are you putting it in the emotions?]
>
> *P6: Because you're <u>feeling</u> amazing yourself when you've done something good. Nice feelings, it's a <u>feeling</u> so (laughs)* [places in the emotions]. *Er, if you're feeling*

> *good it might be on the stick person* [physical well-being]. *Like, you feel that your physical strength is good.*

Though this child's reasoning is incomplete here in respect of the emotional facets of well-being (i.e., you're *feeling* amazing, nice *feelings* so they are *feelings*), there is evidence of a clear understanding of the complexity of well-being as a construct. Furthermore, in the explanations there is a coherent logic apparent concerning the cognitive and physical components described in the dialogue. The two previous excerpts from 11-year-olds suggest the concepts of well-being are aligned with abstract thought and as such would be categorised as formal operational in respect of Piagetian stages (Piaget, 1961; Sagone & De Caroli, 2014). There is still a hint of some disequilibrium in their definitions as the logic is not yet complete, but they are both able to draw on prior schema to help build their rationales. Definitions of well- and ill-being are still rooted in bipolar, hedonic terms. The proposed developmental levels of well- and ill-being drawn from a Piagetian framework are presented in Table 3.3.

In this study, the child participants demonstrated some understanding of well- and ill-being as distinct constructs. However, there were also descriptors that generated discussion of whether some states were manifest as well- or ill-being or both. For example, many children found it difficult to distinguish whether 'relaxed', 'nervous' 'tense' were positive or negative. This excerpt from an 9-year-old girl demonstrates the conflicting thoughts (or disequilibrium) experienced by many children:

> P24: "*…because you could feel good tense and you could feel bad tense but mainly when you feel tense you feel bad… sometimes you can be tense because you think something good is going to happen and you're like excited"*

The adolescent participants had similar concerns with distinguishing between positive and negative states in some cases and these concerns encompassed different descriptors such as 'calm', 'engrossed' and 'angry'. Here a 17-year-old boy explains his thinking regarding angry:

P48:*"[angry is]…probably both I suppose because if you're angry like there's bad angry but if you're angry at something bad that's happened to you, that you feel angry about and you want to express it, you say it for the good of things, so it like gets out in the open and makes you feel more comfortable and you look better on the whole situation…".*

Both of the previous examples demonstrate complex cognitive processes (e.g., simultaneous conflicting emotions) comparable to levels of emotional development previously identified to be associated with abstract thinking (i.e., Piagetian formal operational stage) (i.e., the fourth level of emotional development; S.K. Donaldson, & Westerman, 1986; Harter & Buddin, 1987). The next definition of well-being comes from a 12-year-old adolescent girl. Her description of well-being is less reliant on one at a time descriptor rather than multiple co-occurring manifestations of well-being. Well- and ill-being appear to be understood as distinct constructs that are related. Descriptors used are more complex and draw on personal schemata/knowledge. Rationales rely on abstract reasoning.

P12: *it's [well-being] like when something good has happened and it makes you feel good about yourself and what you've done and stuff like that. Erm, when you're healthy, when you're feeling good, when your life is going good and everything is well, nothing's going wrong and you're happy and you like, when life's quite easy as well. When you feel like your life is quite easy to control.*

Multidimensional facets of well-being are apparent as this adolescent refers to aspects of self-worth and feelings of achievement impacting on her well-being (i.e., *it makes you feel good about yourself and what you've done*). Then the interviewee states physical health and life satisfaction impact her well-being (i.e., *when you're healthy… your life is going good*) but this is also balanced to an extent with *…nothing is going wrong* implying perhaps a sense of hedonia. Next, she refers to positive affect (i.e., *you're happy*) and finally she seems to infer the importance of a sense of agency (i.e., *you feel like your life is quite easy to control*). This depiction infers well-being is viewed by this 12-year-old as hedonic state although a complex understanding of well-being is represented in this definition. Indeed, all the components of subjective well-being are present (i.e., positive and negative affect and life satisfaction; SWB, Diener, et al., 1985). The hedonic tone is replicated in these explanations

of well-being from two 13-year-old boys, however the rationales are less complex:

> P33: *I just feel good, and I would be happy. I wouldn't feel down or anything, I'd stay positive.*
>
> P36: *well-being is like the opposite of that[ill-being], it's like when you're all active and energetic.*

Well- and ill-being are understood by these young adolescents as distinct constructs that are related: The first boy (P33) seems to construe well-being as hedonic and largely comprised of emotional facets, in the second excerpt from P36, well and ill-being are referred to largely in respect of being active and inactive. In contrast in this portrayal of well-being from a 14-year-old girl, the descriptors are more complex and draw on personal schemata/knowledge including explanations concerning the underlying mechanisms of well-being: "*it's like having nothing to worry about, well you might worry, but you don't <u>really</u> worry and erm, being able to do what you want, like concentrate when you want to, but also have fun*". There is evidence of awareness of cognitive aspects of well-being, a sense of autonomous actions and a hint of something more than hedonic pleasure as she distinguishes being able to *concentrate* from having *fun*. The apparent difference in complexity in conceptualizations of well- and ill-being between young adolescent boys and girls seen here (e.g., less nuanced complexity within the boys' concepts) may be to do with the pubertal phase these youngsters are in. Although pubertal information was not collected in this study, generally, boys reach puberty later than girls and the biological changes found to influence cognitive and emotional development in prior research (Keulers et al., 2010) are likely to have affected the adolescents in this study similarly. This excerpt from a 16-year-old boy demonstrates a higher level of understanding linked with formal operational cognitive development.

> P45: *well-being that would basically be the opposite of ill-being, you'd be happy, you'd be healthy as well and you'd be content with what you're doing or the way you live your life. Which could have an effect of having a positive attitude and generally just being positive and happy*.

The rationale P45 uses, relies on abstract reasoning and an explanation of well-being which is more enduring (i.e., "…*content with what you're doing or the way you live your life")*. This

developmental level of understanding appears to characterise the reflective appraisal stage of emotional understanding proposed by Pons, Harris and de Rosnay (2004). In addition, with the reference to moral reasoning (e.g., descriptions of 'living well') and striving to do well, the words of P45 suggest a level of maturity implying a eudaimonic perspective (Bauer & McAdams, 2010; Bauer, McAdams, & Pals, 2008; Ryan et al., 2008).

Are current terms used in existing measures appropriate for the targeted populations (i.e., children and adolescents)?

One sub-aim of the current study was to investigate children's and adolescents' understanding of and indication of the relevance of words and phrases commonly used by adults (are captured in item content) in wellness and illness assessments that have been employed with young people (e.g., SVS; Ryan & Frederick, 1997). The present findings revealed issues with the content and comprehension of some terms. For example, 'alert' generated some unexpected discussion as did 'alert and awake'. In the following excerpts, a 9-year-old girl, an 11-year-old girl and a 13-year-old boy explain how these terms can be problematic:

> P24: *I can't tell. Sometimes it can be a bad thing feeling alert and awake because something bad could happen and you're like, like worried and sometimes you're like waiting for something to happen.*
>
> P32: *Well I don't know if it would be ill-being or well-being because alert makes you think ill-being but awake makes you think well-being.*
>
> P36: *Alert… it's a bit like excited again because you could be like scared alert or you could be all hyper and energetic. Like if you're home alone and you're all alert of what's happening kind of thing.*

The logic applied in all these accounts is sound and does bring to bear questions concerning the suitability of wording used in the Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) with children and adolescents. Further, other terminology used in the SVS also caused concern. For example, 'ready to burst' was inferred as depicting anger by several participants including the following interpretation from a 16-year-old boy:

P45: *that would be negative ill-being and mostly emotion. Like if you're angry about something all feelings build up your negative feelings build up and you'd be tense, you'd want to let it all out.*

Another aspect where some participants' concepts of vitality seemed to challenge the academic interpretation of subjective vitality (as reflected in item content of the SVS) was a tendency to associate hyperactivity with a positive energized state. Contrary to a conceptualization of personally available energy which is associated with eudaimonic well-being, some participants perceived this energy to lack agentic control. Here a 9-year-old boy considers the concept of vitality and explains how he believes it to manifest physically:

P25: *It would go in both [brain and emotions] again. No, no, it would go in this one [body]I think because you feel energetic, but you don't think about it.*

Here again the discussion, this time with an 8-year-old boy, about the concept of vitality infers a lack of volitional control:

(… so, it fits in the body and in the brain ok why's that?)
P28: *Erm because in the body if you're jumping and jumping it's your feet that make you jump. And with jumpy in your brain you're also thinking, and you just start going mad and start doing things you wouldn't normally do…Because you can just go crazy and go hyper*

In other cases participants suggest that the causes of vitality are external; for example a 10-year-old girl recounts times when she felt full of energy and excitement " *erm, on Christmas, (pause) erm, when I got my first dog*" but when asked to explain further in terms of how she experienced this state she was unable to "*Erm, not really sure*". The suggestion here is that children's interpretation of energy is different to the theoretical conceptualization of subjective vitality. It would seem as though children cannot conceive of internal available energy, they see it as a resource that is acquired externally and is influenced or replenished from external sources.

The next excerpt from a 14-year-old girl suggests a deeper understanding of energy from the views of children presented earlier. She explains how there are different types of energy and goes on to distinguish calorific energy from an external source to a type of internal agentic energy akin to subjective vitality:

> P17: *I know this sound really weird, but if you ate a load of sugar or something, then you would just go hyper, and I know you'd feel good and you would be laughing a lot but I think that to actually feel really good you have to have worked at something to feel good.*

In the next extract a 17-year-old-boy discusses his complex ideas concerning personal energy. The energy he describes is viewed as being an innate trait, but he also proposes a mid-point of energy, or balance in well-being that can be influenced by external factors:

> P48: *I think it can be in your personality you can just have it from day one. Just feeling lively, yeah, I think just generally feeling good about yourself and feeling lively, erm yeah that's about it. But then again, you can improve, or like we said before something can happen to you that makes you feel bad or you're eating badly, or something puts you in a good mood and you're eating healthily which reflects positively on your body which then makes your head think more. I don't think it can be changed, I think it can be altered slightly so say like it's there, you can either affect it to go above, or affect it to go below but you've always got a middle point that it comes down to.*

There is a sense here that this boy is drawing on knowledge of personality and psychology acquired through his studies, which he is then using to assimilate with this newly gained insight into well- and ill-being gained during his construction of the concepts. This is similar to findings in prior studies of concepts of health and illness in which the adolescents applied existing knowledge to their understanding and expression of these constructs (Natapoff, 1982). This participant demonstrates abstract, deductive reasoning reflective of a formal operative cognitive development in line with expectations for his age.

Multidimensions of children's and adolescents' concepts of well- and ill-being

In the final section of this chapter, the suggested multidimensionality of well- and ill-being will be discussed. Table 3.4 displays the thematic map for the dimensions. The intension is to utilise these themes to help inform the semantic analysis in chapter four. The participants conceived of multiple dimensions in the constructs of well- and ill-being. The child and adolescent interviewees viewed well- and ill-being as comprising interrelated cognitions, emotions and physical factors (a caveat being, the youngest children who were more likely to view the manifestations as occurring independently). They also proposed

Table 3.4
Thematic map of well- and ill-being dimensions

High-order theme	Sub-theme	Definition	Examples
Well-Being	Vitality	A positive state of activation marked by dynamic liveliness and energy.	*Erm, like embracing life and something that is good. And erm, being up for anything. [14-year-old girl]*
	Serenity	A positive state of deactivation marked by composed tranquillity and inner peace.	*Peace, I think if you're at peace with what's going on around you, you'll feel much better in a way [17-year-old girl]*
	Positive affect	General emotional states which have a positive valence and content.	*OK I think feeling good inside is very, a nice feeling because it's nice and happy [9-year-old boy]*
	Social well-being	Positive states which are other referenced or dependent on others.	*...because its its like when I'm playing with my friends, I feel happy inside [8-year-old-girl]*
	Physical well-being	Positive somatic states.	*Because I think to live a good life and feeling good, it's good to be healthy because you don't want any diseases and illnesses and things like that [14-year-old girl]*
Ill-Being	Lethargy	A negative state of deactivation marked by apathetic lethargy and ennui.	*Sluggish is probably physical because like you might be feeling tired and not want to do anything. [15-year-old boy]*
	Hyperactivity	A negative state of activation marked by extreme liveliness, energy and lack of agency.	*Hyper, erm that means you're sort of crazy, crazy cos you're full of energy [10-year-old boy]*
	Negative affect	General emotional states which have a negative valence and content.	*when you're feeling under the weather your emotions tend to drop and you feel low and sad and ill, really, it's not a good thing [12-year-old girl]*
	Social ill-being	Negative states which are other referenced or dependent on others.	*Well it's where you don't feel nice inside and you feel sometimes when something's bad's happened, you just feel like it's your fault and everything's your fault. [11-year-old boy]*
	Physical ill-being	Negative somatic states.	*Probably in your body, you just feel all floppy and drained[11-year-old-girl]*

complex rationales to explain the mechanistic principles of well- and ill-being. For example, this 16-year-old boy defines ill-being and his explanation points to thoughts and emotions reciprocally affecting one's health, attitude to life and vice versa:

> *P45: So, ill-being or feeling bad inside would be like having a negative attitude or you wouldn't be in a positive state inside, you wouldn't feel like erm you wouldn't feel happy and you wouldn't be thinking happy. You'd be negative which could have an effect on your health, or it could be that health has an effect on it. Or something like that… Maybe with your body or the way you look or your health or something like a general thing because generally you're not happy with yourself basically*
>
> *SB: OK and that would have a bad effect you said?*
>
> *P45: Yeah, it could have a bad effect on you as a person*

This multidimensional perspective concerning the composition of ill-being is echoed in the following description of the conceptualization provided by a 12-year-old girl:

> *P12: I think it [ill-being] means when you're sad, when you feel ill, erm and you're not well and when generally your feelings aren't good or alive…yeah and things in your life aren't really going great*
>
> *SB: Ok so could you be well physically but still be in a state of ill being?*
>
> *P12: Yeah in your emotions.*

In both of these definitions of ill-being, the descriptions provided by Kagan (2014) suggest ill-being is seen as representing a life not going well. There is also a sense that the experience of ill-being could be sustained, although no time-frame is applied by the adolescents. In this definition provided by a 10-year-old girl, similar complexity of sub-dimensions (i.e., health, emotions and thoughts) are proposed to comprise the construct. However, there is more of a sense that this child sees the manifestations of ill-being to be temporally divided rather than the concurrent explanations provided by the adolescents: *P24: erm, yeah it [ill-being], to me, it's either, I didn't feel well, or something was upsetting me, or I was worried.* These results are similar to findings in prior research concerning the development of emotions (Susan Harter & Buddin, 1987b; Lagattuta, 2014) and concepts of wellness and suffering (Gobbo & Raccanello, 2011) where younger children relied on sectional timing of components, as opposed to simultaneous timing or occurrence of such experiences of ill being.

Conclusions and future directions

The findings in the current study demonstrate similarities and differences in how adolescents and children experience and conceptualize well- and ill-being. Children tended to view well- and ill-being in distinct bi-polar terms (e.g., happy/sad), their concepts comprised basic descriptors (e.g., short words, one or few syllables; fun, sad) which were premised on concrete external factors (e.g., birthdays make you happy) largely emanating as emotional positive and negative valenced states. In contrast, the adolescents viewed well- and ill-being as inversely interrelated multifaceted constructs, their conceptions contained complex descriptors (e.g., longer words with multiple syllables; optimistic, depressed), which manifest in multiple domains (e.g., emotions, cognitions, physical). Across both groups well- and ill-being were perceived as distinct, multidimensional concepts however, the concept of well-being had greater nuances in the adolescent as compared to child concept of well-being.

The observed developmental trajectory in concepts of well- and ill-being requires further examination. The developmental distinctions between children's and adolescents' well- and ill-being concepts reported in this study have implications in terms of how young people's well- and ill-being is assessed in future. The overarching aim of the next chapter in this thesis is to further investigate youngster's well- and ill-being descriptions to generate item content suitable to be utilized in developmentally appropriate scales to assess children and adolescent well- and ill-being in future work.

CHILDREN'S AND ADOLESCENTS' WELL- AND ILL-BEING:

INITIAL DEVELOPMENT OF A NEW ASSESSMENT TOOL.

Abstract

The overriding aim of this two-phased study was to develop a measure of well- and ill-being using the young people's own words; i.e., personal expressions or characteristics building on the study presented in chapter three in which in-depth latent analyses provided evidence of the developmental nature of well- and ill-being. In the present chapter, in study one 50 young people aged 7-18 years old took part in one-to-one semi structured interviews in which their ideas concerning well- and ill-being were explored. The children and adolescents generated descriptors of the constructs which were examined using thematic semantic analysis. A developmental approach was applied to these data exploring commonalities and differences between children's and adolescents' concepts of well- and ill-being. Construct-derived descriptors (i.e., words and phrases generated by adult academics and used in existing measures) were offered to the interviewees to check content validity with this population. The young people's constructions shared similarities with theoretical models of the constructs of well-and ill-being. Two higher order dimensions, comprising sub-dimensions, were revealed. In the second study, the items proposed to characterize children's and adolescents' well- and ill-being were subjected to a determination of face validity. The participants (N = 9), all experts in scale development, psychology and research on well-being and optimal functioning, evaluated the proposed items resulting in an initial 70 item questionnaire.
Keywords: assessment of well-being, ill-being, children, adolescents, development

Children's and Adolescents' Well- and Ill-Being: Initial development of a new assessment tool.

'Well-being' has become a popular term among economists, philosophers, politicians, health and social scientists and others interested in the construct at both an individual and societal level. Examination at national and international levels (e.g., (Beardsmore & Siegler, 2014; Land et al., 2011) is evidence of the increasing importance globally of children's and adolescents' well-being to governments when they are considered the 'state of the people'. League tables of child well-being statistics distinguish nations (UNICEF, 2007) which indirectly provides encouragement for poorly performing countries to actively improve well-being in young people. Aside from any institutional aspirations to rise up the rankings, an intuitive desire to foster children's well-being appears hardwired into humanity and with good reason. Positive outcomes in achievement settings (Marsh, 2006), health and relationships (Lyubomirsky, King, & Diener, 2005) have all been related to higher indices of well-being. The experience of well-being seemingly offers a developmental advantage (Moore, Murphey, & Bandy 2012).

Such reported concomitants of well-being have recently prompted the design of programmes to promote children's well-being (e.g., The WHO Health Promoting School framework; Langford et al., 2014). The challenge for researchers is to demonstrate the benefits of these schemes for young people's wellness. Such benefits are difficult to evaluate, however, as extant measures have limited capacity to capture the nuanced complexity of children and adolescents' experiences of well-being (Rees, Bradshaw, Goswami, & Keung, 2010) and ill-being (Doyle, Murphy, & Shevlin, 2016). Fernandes and colleagues (2012) and Casas (2011) propose child perspectives are critical in the assessment of children's well-being. Furthermore, these researchers argue that new measures are needed to better assess young people's subjective well- and ill- being as existing measures are 'imperfect'. In

consideration of the findings presented in chapter three (i.e., suggestions of a developmental trajectory in eudaimoinic well-being), there is also a need for assessment tools which can determine aspects of perceived hedonic and eudaimonic well-being in children and adolescents. Thus, the overarching aim of this chapter therefore is to present the initial development and validation of a new measure of children's and adolescents' well- and ill-being.

Composition of Well- and Ill-Being

Psychological conceptualizations of well-being are generally presented either as hedonic (i.e., a pleasure-seeking, pain-averse, state) or eudaimonic (i.e., virtue-seeking, challenge-tolerant, state) (Deci & Ryan, 2008; Ryan, Huta, & Deci, 2008; Waterman, 1993). Very little attention has been afforded to whether children and adolescents view well-being from either or both divergent perspectives on well-being. However, in the study presented in chapter three, both children and adolescents were observed to express their understanding of well-being in hedonic terms. On the other hand, only adolescents' explanations of well-being demonstrated a comprehension of goal-directed striving, a work ethic and altruistic action impacting well-being in a way that inferred understanding the experience of well-being from a eudaimonic perspective. According to a New Economics Foundation (nef) report, children's well-being is a "…*dynamic state* … emerging from the interaction between their external circumstances, inner resources and their capabilities and interactions with the world around them" (Aked, Steuer, Lawlor, & Spratt, 2009, p.29). This definition differentiates the antecedents of well-being from the concept itself and points to the importance of the individual's personal experience in shaping well-being. It also implies that a more valid approach to assessment of well-being would stem from the child's (or adolescent's) perspective. An individual's experiences and understanding in childhood are different to how one's life is interpreted in adolescence.

Additionally, the definition above is in line with an ecological developmental perspective which suggests development is a dynamic and inter-related process in which over time, the child's meaning-making and broader understanding are influenced by (and in turn influence) the community around them (Bronfenbrenner, 1977). Young people's discourse presented in chapter three adds further support to this premise in that there were differences in the way that children and adolescents conceived of well- and ill-being. This was particularly in respect to concepts of well-being. Well-being was described as a more unidimensional conceptualization by children (i.e., positioned as a global hedonic state, largely characterized by positive emotions). Whereas, adolescents' concepts of well-being were more complex, multifaceted and integrated (i.e., understanding of reciprocal effect of cognitions, emotions, physical health on well-being overall). The premise that children's and adolescents' well-being results from the interrelation between the person and their experience also underlines the importance of a developmental perspective in well- (and ill-) being research. Moreover, such considerations are pertinent to the metrics used to assess these constructs amongst young populations.

How Children's Well-Being is Currently Measured

Typically, in the literature, two types of assessment are used to assess children's well-being: objective measures (e.g., low birth weight, average literacy rates (OECD, 2009); and subjective measures (e.g., perceived physical symptoms, life satisfaction (HBSC; Currie et al., 2004). Indirect indicators such as parental income or child obesity rates are most commonly relied on to provide information at a societal level on the well-being of children (Beardsmore & Siegler, 2014). Whilst these indices can influence policy decisions, a child's weight or family financial status does not capture the individual's experiences of well- or ill-being. In contrast, subjective personal assessments of well-being states could be considered most valid in reflecting well-being status of individuals (Rees, Bradshaw, et al., 2010).

However, in research on pre-adolescents' well-being, assessments are frequently made by proxy, with adults (e.g., parents) reporting on their children's well-being (Ben-Arieh, 2005; Davis et al., 2007; Varni, Seid, & Kurtin, 2001). It is questionable whether data derived from these types of assessments can be relied upon to represent the children's personal experiences or understanding of well-being (Casas, 2011; Eiser & Morse, 2001). This assertion is echoed by Fernandes et al. (2012), who attest that in most studies of children's well-being, the children are neither the respondents or the unit of measurement. Fernandes and colleagues indicate that aggregated data from larger extant datasets are typically used to provide information on child populations rather than individual children reflecting on their own well-being. In addition, they identify a number of other limitations with currently available self-report measurement tools. They posit differences in the composition of well-being models used to assess the construct (i.e., domain-based models incorporating different aspects of children's life and well- and ill-being outcomes) and divergence in the respective contribution of different domains to well-being assessments, render meta-analysis impossible and information on convergent validity unreliable. It would appear that current well-being measures, in operationalizing various antecedents and consequences of well- and ill-being, rather than assessing the constructs per se, add ambiguity rather than clarity to the discourse on youngster's well-being.

When studying children's well-being, Ben-Arieh (2005) recommends an active role for young people in the research process. However, few measures exist where children were involved in some way in the scale development process (Ben-Arieh & Frones, 2011; Eiser & Morse, 2001). Psychological assessment tools originally designed for use with adults are often applied with children with little or no modification, e.g., Short-Form Health Survey (SF-36; Ware & Sherbourne, 1992). Notable exceptions regarding active involvement of young people in the research process include the Multidimensional Students Life Satisfaction

Scale (MSLSS; Huebner, 1994), KIDSCREEN (Ravens-Sieberer, et al., 2010) and the Children's Society's index of children's subjective well-being (Rees, Bradshaw, et al., 2010; Rees, Goswami, & Bradshaw, 2010). In the development of these measures, young people were canvassed via surveys and/or interviews to verify the content and the wording of items included in the scales. Nevertheless, the words used in these scales did not originate from the children's own descriptions and definitions of well-being which could mean the concepts being measured are deficient or discrepant from how young people view their own well-being. Studies (as previously mentioned) examining adult proxy and child self-reported well-being found scores to be divergent (De Civita, 2005; Casas, 2011). Such findings suggest content validity of the scales could be questionable where the source of item wording is derived solely from adult academics.

Disparity in taxonomies between assessment tools are compounded further, in psychometric terms, by the extent to which current scales measure correlates of well-being as opposed to directly assessing children's well-being per se. In currently employed measures, items chosen to measure well-being contain what others (e.g., Deci & Ryan, 2000) argue to be antecedents of the construct (e.g., autonomy, competence). For example, the Multidimensional Students Life Satisfaction Scale (MSLSS; Huebner, 1994) asks children to rate satisfaction with their school/family situation as a means to provide an indication of well-being. The author argues that these types of ratings do not assess the constructs of well- and ill-being but rather assess external and potentially causal factors. As items from the MSLSS are included in composite measures of child well-being (e.g., the index of child well-being (Bradshaw, Hoelscher, & Richardson, 2007) the controversial tapping of antecedents of youngster's well-being is becoming more widespread with the increased interest in and assessment of well-being using these type of combined indicator methods. Indeed, Bradshaw and Keung's (2011) examination of theoretically predicted causal relationships with child

well-being (e.g., high/low socio-economic status and higher/lower well-being, high/low academic achievement and higher/lower well-being) found measures of well-being used in combination in large-scale surveys (e.g., The British Youth Panel Survey (BYPS); The Children's Society survey; HBSC) were largely redundant in identifying significant variability in children's well-being scores (Bradshaw & Keung, 2011). The inconsistent and inconclusive findings regarding analyses of children's well-being described by Bradshaw and Keung (2011) point to a lack of clarity and coherence in the assessment of children's well- (and ill-) being.

A further key issue is that the prevailing measures of well-being in children and adolescents do not distinguish the concept of ill- being which has been found to be divergent in terms of young people's ratings. Children's positive and negative affect have been found to be negatively related (Crook, Beaver, & Bell, 1998). However, assumptions that ill-being scores can be accurately captured by reversed levels of perceived well-being are ill-judged as prior research has also demonstrated that low positive affective state scores are not necessarily equivalent to reported negative emotional states (Jacques & Mash, 2004; Ryff et al., 2006). This equivocality reinforces a need for valid measures which directly tap children's and adolescents' well- *and* ill-being (rather than antecedents and correlates of either of these constructs, as conceptualized by young people in their own words.

The Present Studies

The purpose of the two studies comprising this chapter is to present the initial development of a multidimensional scale that assesses young people's experienced well- *and* ill-being states. These studies build on the work presented in chapter three in which the latent themes in children's and adolescent's conceptualizations of well- and ill-being were explored. An important objective of chapter three was to investigate whether well- and ill-being were conceived as two distinct constructs or as a unidimensional continuum (i.e., with well-being

at one end and ill-being at the other). Then to explore whether children and adolescents perceived multiple sub-dimensions within well-being *and* ill-being and in each case explore the constituents as conceived by young people themselves. Findings reported in the third chapter of the present thesis suggested children and adolescents conceived of over-arching higher order themes and sub-themes (i.e., distinguished concepts of well- and ill-being incorporating emotional, cognitive, somatic aspects). Moreover, children perceived of well- and ill-being in simpler terms and aligned to a global hedonic perspective of well-being. In contrast, adolescents' expressions of well- and ill-being were more complex and, in some cases, framed in eudaimonic terms.

Study One (Item generation)

Findings from chapter three suggested concepts of well- and ill-being were related to cognitive developmental stages. Thus, in the current chapter, descriptors of well- and ill-being derived from young people themselves will be examined via a semantic thematic approach to determine an item-pool for an initial assessment tool, which captures the complexity of the concepts of well- and ill-being in the children's *and* adolescents' own words. An additional aim of study one is to investigate content validity of construct-derived descriptors taken from existing measures and generated by adults in respect of the meaning of these descriptors for youngsters.

In an attempt to bring some clarity to the conceptualisation and measurement of well- and ill-being, a further key aim of the research was to try to capture well- and ill-being states themselves, rather than consider their antecedents or consequences in children's lives. For the purposes of the present studies, the concept of well-being adopted is aligned to Ryan and Deci's description of well-being as "…optimal psychological functioning and experience" (2001, p.142) and a 'life going well'. As noted previously, well-developed definitions of ill-being are absent from the literature, accordingly, ill-being is depicted as 'compromised

psychological functioning and experience' as commensurate with a life not going so well (Kagan, 2014).

Paramount in the development of the present measure was that the items were derived from the children's and adolescents' own words. The main aim of the work described in this chapter was therefore to construct an initial questionnaire using descriptors of well- and ill-being generated by children and adolescents themselves. This approach is also in line with recommendations for developing new assessment tools to capture differences in reported well- *and* ill-being (Ben-Arieh, 2008; Diener, 2006; van der Kaap-Deeder et al., 2017)

Based on previous research with children and adolescents concerning components of well- and ill-being (e.g., cognitions and emotions (Keulers et al., 2010; Pons, et al., 2004); health (Natapoff, 1982)) it is expected the young people's perspectives will point to a multi-faceted hierarchical construction which encompasses positive and negative high-order themes (i.e., well- and ill-being). Furthermore, it expected that developmental differences in the children and adolescents' concepts of well- and ill-being will be apparent in terms of content and complexity of the constructs described.

Method

Participants

Children (*N*=23, age 7-11 years) and adolescents (*N*= 27, age 12-18 years) comprised the participants (*N*= 50, 25 female). The participants were all British, with most being white, approximately 10% comprised other ethnicities. All participants were from average to above-average socio-economic family backgrounds.

Research Design

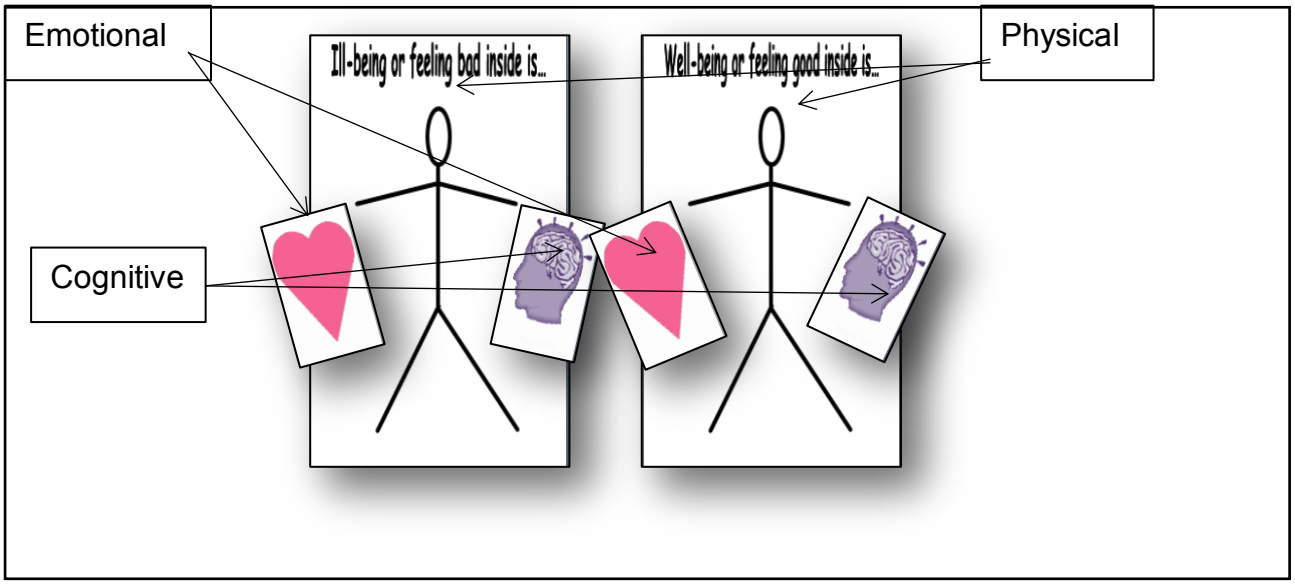
Guided by recommendations concerning well-being research with children from Ben-Arieh (2005) and criteria advocated in the UN Convention on the Rights of the Child (CRC;

UNICEF, 1989), it was deemed essential for children to have an active role in the research process. A qualitative methodology, specifically one to one interview, was chosen as an appropriate way to garner in-depth data regarding children's perceptions of well- and ill-being (Morgan, Gibbs, Maxwell, & Britten, 2002; Gibson, 2007).

Protocol development. The protocol developed for use in the present study was informed by Scanlan's Collaborative Interview Method (SCIM; Scanlan, et al. 2003a). This method has been shown to be effective both in theory development and the elaboration of psychological constructs (Scanlan, Russell, Beals, & Scanlan, 2003b; Scanlan, Russell, Magyar, & Scanlan, 2009). Applying the SCIM protocol, participants are initially provided with a formal description of the construct under investigation before generating participant-derived descriptors. In the present study the term '*feeling good inside*', a phrase used to define emotional well-being in a national public health campaign for children in the UK (Small steps 4 life; Department of Health, 2010) was chosen as appropriate for children and adapted for this study (i.e., *well-being or feeling good inside is…*, ill-*being or feeling bad inside is…*).

In their work, Scanlan and colleagues (Scanlan, et al., 2003b; Scanlan, et al., 2009) effectively employed interview boards to help adults illustrate their ideas concerning the concept of sport commitment. The method has also been effective in teasing out sources of commitment to lifestyle change with obese and formerly obese adolescents (Caraher & Kirschenbaum, 2014; Gierut, Pecora, & Kirschenbaum, 2012). In the present study, interactive 'child-friendly' interview boards were designed to facilitate a fun, interactive and developmentally appropriate way for children to express their views and perceptions concerning well- and ill-being (Figure 4.1).

Figure 4.1: Example of an interview board used to create participant 'thought maps'.



All procedures, research design and protocols are as detailed in study one in chapter three. In brief, exploratory, semi-structured purposive interviews were used to garner in depth data concerning children's and adolescent's concepts of well- and ill-being. All interviews were audio and video recorded and the completed interview boards were photographed. The approach was designed to engage and involve participants at the heart of the research process (for an example of the interview guide see Appendix B). The intention was to enable children and adolescents to express personal knowledge and ideas about well- and ill-being and then introduce pre-determined construct-derived descriptors to check the content validity of these words and phrases with participants (see Table 4.1).

Data Analysis

The study protocol generated different sources of data available for analyses (i.e., completed thought maps, participant-derived descriptors, participant-derived definitions of the targeted constructs and interview transcripts). All data were analysed using an adaptive theoretical approach (Layder, 1998). In other words, analysis was both data-driven, thus allowing inductive analyses of data sets, whilst also being guided by prior theoretical

knowledge, thus also applying a deductive approach. A thematic analytic methodology was adopted to identify themes and descriptors within these data. Braun and Clarke (2006) suggest thematic analysis can be employed in two different methods (i.e., semantic and latent) depending on the research aims. Patterns are extracted from data and content

Table 4.1

Pool of construct-derived descriptors which reflect states of children's and adolescents' well- and ill-being.

Well-Being	Ill-Being
Pleasant	Unpleasant
Contented	Upset
Delighted	Depressed
Calm	Angry
Ecstatic	Distraught
Alert	Tense
Excited	Nervous
Eager	Indifferent
Still	Fatigued
Engrossed	Bored
Energized	Sluggish
Vigorous	Hyper(-active)
Relaxed	Listless
Feeling alive and vital	Feeling fed-up and lifeless
Ready to burst	Feeling flat
High spirited	Down-in-the-dumps
Looking forward to each new day	Nothing to look forward to
Feeling alert and awake	Feeling tired and bored
Feeling energized	No energy
Full-of-beans	Feeling under-the-weather
Get-up-and-go	Can't be bothered

thematic analysis, whereas, underlying meaning is identified using a latent thematic approach (Braun & Clarke, 2006). For this phase of the measurement development process, a semantic thematic approach was therefore required to extract themes and descriptors from the thought maps. In depth latent analysis of the interview transcriptions is reported in chapter three of this thesis.

Although a structure was imposed on these data by the design of the thought maps and in turn by the participants, a predetermined structure was not imposed by the researcher

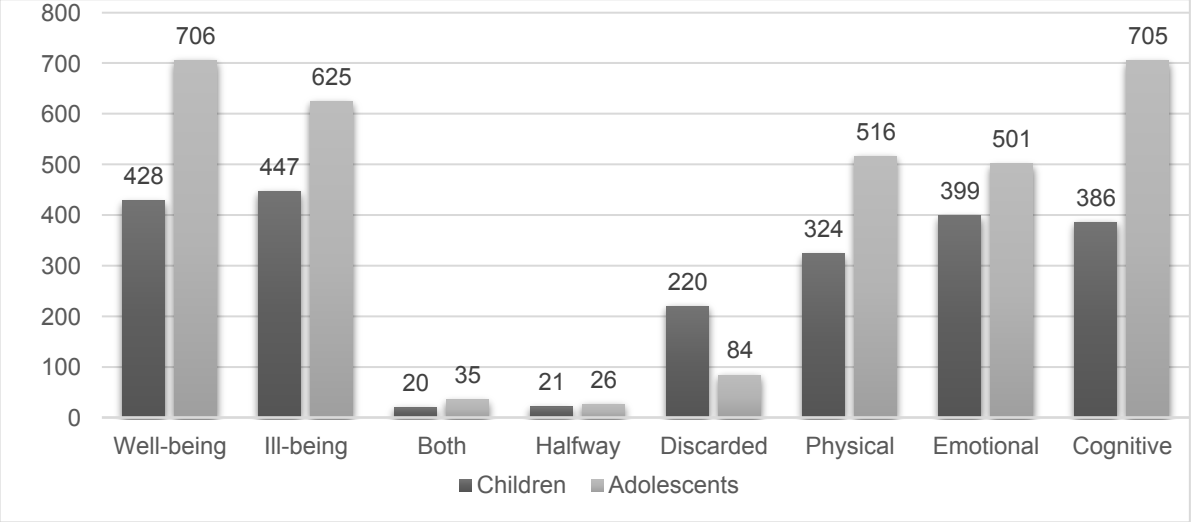
on these data during analysis. Therefore, recommendations for handling unstructured qualitative data were followed. The process of thematic analysis is divided into steps (for a detailed description see Braun & Clarke, 2006): In step one, the researcher familiarizes themselves with the data which in this instance involved transcribing, reading, re-reading data in addition to watching/listening to recordings of the interviews and scrutinizing photographs of the thought maps. The next three steps involve coding data, collecting codes into themes then reviewing themes to create a 'thematic map' of the data. The research protocol aided this process as organizing and reducing data began during the interviews. For example, the thought maps generated pre-sorted data in respect of a hierarchical model (i.e., well-/ill-being). In addition, concepts elicited from the children/adolescents were reduced by the participants themselves during the interviews into suitable words/phrases. The process of choosing to include or discard the construct-derived descriptors is another example of the participants' involvement in the analysis. Furthermore, the participants were also actively engaged in cataloguing data into different dimensions (i.e., cognitive, somatic, affective). The participants were involved throughout through a systematic form of 'member checking' whereby interviewees were encouraged to add to the thought maps and explanations, asked to confirm (or refute) the researcher's interpretation of what they had meant and to clarify personal meanings and understanding (Birt, Scott, Cavers, Campbell, & Walter, 2016; Rajmil et al., 2004). In essence, through use of the interview boards the participants began the systematic process of creating 'thematic maps' thereby enhancing validity of these data and initial analyses. The fifth step involved further refinement of the themes and sub-themes by the researcher. In conjunction with the thesis supervisors, names for the themes and clear definitions representing the multi-dimensions of well- and ill-being were generated. After all data were coded, collated and a thematic map produced the dataset was divided into child (age 7-11 years, N=23) and adolescent (age 12-18 years, N= 27) subgroups. Data concerning

the frequency and distribution of descriptor generation and classification was also recorded. This enabled an examination of findings from a developmental perspective.

Results

Overall (including participant-derived and construct-derived descriptors), the children and adolescents placed 896 and 1392 descriptors respectively onto thought maps including descriptors deemed to be *both* or *halfway* between ill-and well-being (see figure 4.2). In total, the children discarded 220 construct-derived descriptors and the adolescents chose to reject 84 overall. It is important to note that often descriptors were perceived to reflect multiple dimensions and the total occurrences are reported here in Figure 4.2.

Figure 4.2 *Frequency and distribution of descriptors differentiated by age group and dimensions.*



All participants conceptualized well- and ill-being as distinct but interrelated and multidimensional constructs. The adolescent participants conceived well-and ill-being as complex co-occurring constructs with an emphasis on cognitions. In other words, adolescents perceived most components of well- and ill-being to manifest concurrently in their cognitions, emotions and/or physically within their bodies and in the majority of cases the facets of well- and ill-being were viewed by adolescents as something to do with how they were thinking. In contrast, the children were more likely to perceive descriptors of

well- and ill-being as occurring as independent, singular rather than simultaneously occurring states. When the children determined the dimensionality of the well- and ill-being components they perceived to comprise well- and ill-being, the distribution (i.e., between emotions, cognitions, and physical) was fairly evenly spread. In total 1134 descriptors were categorized as well-being (children 37.74%; adolescents 62.26%) and 1072 were classified as ill-being (41.7% children; 58.3% adolescents). Mann-Whitney *U* tests revealed significant differences between children and adolescents in terms of the frequency of well- and ill-being descriptors, and in respect of the number of discarded and included construct-derived descriptors (see Table 4.2).

Table 4.2
Mann-Whitney U Test to determine differences in child and adolescent groups

	Md	***U***	***z***	***p***	***r***
Well-being	c = 20.00 a = 27.00	71.000	-4.672	.000*	.66
Ill-being	c = 20.00 a = 23.00	165.000	-2.843	.004*	.40
Construct-derived- discarded	c = 9.00 a = 1.00	91.000	-4.302	.000*	.61
Construct-derived -used	c = 28.00 a = 31.00	169.500	-2.752	.006*	.39
Differentiation	c = 47.00 a = 60.00	115.500	-3.797	.000*	.54

* significance is reported at p≤ 0.001 (c = children (*N* =23), a = adolescents (N = 27))

The first step in the questionnaire development process was to quantitatively transform these qualitative data, reducing the descriptors to a more practicable number of items for use in a future assessment tool. The 312 descriptors were systematically examined in terms of the frequency in which they were revealed in this sample of 50 young people. This analysis was informed by examining the entire dataset and then both subgroups (i.e., children and adolescents). The author conducted the systematic analysis and then confirmed

the initial item pool via discussion with the thesis supervisors until a consensus was achieved (Dawis, 2000).

Table 4.3
Most popular descriptors revealed by ≥50% of child and ≥50% of adolescent participants

	Well-Being Descriptors	**Ill-Being Descriptors**
Descriptors generated by children	'excited'*, 'feeling alive', 'Happy'	'angry'*, 'annoyed', 'sad'*, 'unhappy', 'upset'*
Descriptors generated by adolescents	'active', 'confident', 'energetic', 'enthusiastic', 'excited'*, 'fit', 'happy with yourself', 'having fun', 'having friends', 'healthy', 'not worrying about anything', 'positive', 'ready to go'	'angry'*, 'depressed', 'don't want to do anything', 'down', 'feeling tired', 'ill', 'lively', 'nervous', 'sad'*, 'scared', 'sick', 'upset'*

* Descriptors common to both groups

In the first instance, the descriptors were examined in terms of frequency. Descriptors were retained if indicated by a majority (i.e., ≥50%) of the children and/or adolescents (see table 4.3). This resulted in 29 descriptors including 4 common to both children and adolescents (i.e., *'angry', 'excited', 'sad' and 'upset'*). Next, content validity of the remaining 283 descriptors was considered. Descriptors which seemed to best capture and provide greater breadth in operationalizing the constructs of well- and ill-being, although not mentioned by the majority of participants, were also retained for subsequent analyses/further study. 103 items, which became the preliminary item pool for phase two of the questionnaire development, were retained as the most appropriate to describe the multi-dimensions of well- and ill-being suggested (Table 4.4). For example: serenity (e.g. 'calm', 'uplifted'), positive affect (e.g. 'jolly', 'happy'), physical well-being (e.g. 'healthy', 'fit'), lethargy (e.g. 'couldn't be bothered'), negative affect (e.g. 'sad', 'angry').

Table 4.4:

Thematic map of children's and adolescents' perceptions of well- and ill-being

High-order theme	Sub-theme	Definition
Well-Being	Vitality	*A positive state of activation marked by dynamic liveliness and energy.*
	Serenity	*A positive state of deactivation marked by composed tranquillity and inner peace.*
	Positive affect	*General emotional states which have a positive valence and content.*
	Social well-being	*Positive states which are other referenced or dependent on others.*
	Physical well-being	*Positive somatic states.*
Ill-Being	Lethargy	*A negative state of deactivation marked by apathetic lethargy and ennui.*
	Hyperactivity	*A negative state of activation marked by extreme liveliness, energy and lack of agency.*
	Negative affect	*General emotional states which have a negative valence and content.*
	Social ill-being	*Negative states which are other referenced or dependent on others.*
	Physical ill-being	*Negative somatic states.*

Discussion

At this preliminary stage in the scale development process, it was important to retain a large number of items to ensure all facets of the children's and adolescents' verbal expressions of the constructs were encompassed. However, though readily understood by the contemporary target population, Dawis (2000) advises caution in using colloquialisms in scales as there is a risk that the meaning can change over time and be misconstrued. Cognizant of this issue, words such as *chilled* were not included in the initial item pool. Prior to conducting the second phase of the questionnaire development, the intention was to produce one pool of items for both children and adolescents for an expert panel to evaluate in terms of face validity (i.e., does the proposed assessment tool appear to be a viable way to measure children's and adolescents' well- and ill-being?).

These descriptors were classified by the participants and confirmed by the researcher in terms of 2 high-order themes (i.e., 'well-being'; 'ill-being') using the participants' classifications. These high order themes were examined further and divided into 10 sub-themes or dimensions (i.e., *'vitality', 'serenity', 'positive affect', 'social well-being', 'physical well-being', 'lethargy', 'hyperactivity', 'negative affect', 'social ill-being', 'physical ill-being'*; see table 4.3) to create a thematic map. These sub-dimensions were guided in the first instance by the young people's explanations of why they placed descriptors next to each other. For example, participants placed *calm* and *relaxed* together in emotional well-being because "…*they are the same*"[1]. The taxonomy of the sub-dimensions was also informed by the well-being model illustrated in figure 1.1. Consideration was given to the level of arousal described, the positive or negative valence and the degree of engagement. During the data analysis, care was also taken to include descriptors that described each of the sub-dimensions and were identified as meaningful descriptions of children and adolescents' experienced well- and ill-being by the young people themselves (see table 4.3).

In line with similar response scales used in extant measures validated with the targeted age range (i.e., 8-18 years) (e.g., KIDSCREEN-10; Ravens-Sieberer, et al., 2010) a 5-point response scale was chosen. A standard stem was designed for the questionnaire i.e., "*Here are some ways that children can feel. Please read each one and think about how often you have felt this way in the last month, then colour in the number that fits best*". At this exploratory stage in scale construction, the aim was to retain a large item pool reflective of both children's and adolescents' conceptions *and* the theoretical constructs of well- and ill-being. In other words, the aim was to retain key items in terms of the young people's views on their well-being in conjunction with knowledge of extant theory and previous research.

[1] This rationale concerning the dimensions is provided here in brief to help the reader understand the analysis process was not based on a priori theory alone. Full disclosure of latent thematic analysis is beyond the scope of this chapter. Excerpts of transcripts and in depth analyses are provided in chapter 3.

Study two

The purpose of the second study in this chapter was to consult a panel of experts (in well-being research) regarding the content, structure and design of the new questionnaire. This study will further ensure psychometric rigor, as recommended by Dunn, Bouffard, and Rogers (1999). That is, the experts will judge whether the wording of items adequately described the targeted constructs, and if stems and answer scales were appropriate for 7-18-year-olds. Seeking expert opinion of the suitability of the design of the measure further verifies the content relevance of the items and provides an evaluation of the face validity of the evolving assessment tool. An additional purpose of consulting the experts was to reduce the item pool to a practical number that can be subsequently psychometrically tested in the case of children and adolescents.

Method

Procedure and Participants

Academics ($N = 9$) from the discipline of psychology, who were experts in well-being research and/or scale development, were invited to examine and evaluate the content-relevance of the 103 items and face validity of the new measure. Detailed item-evaluation instructions were provided to the expert judges (Appendix C) along with definitions of the targeted constructs (see table 4.2). The panel of experts was asked to judge each item's content-relevance in terms of the 10 themes (revealed in phase 1) using the definitions provided. The panel were asked to classify each item and then rate the extent to which they perceived the item tapped the identified construct using a 5-point scale (i.e., *1 = very poor match, 2 = poor match, 3 = good match, 4 = very good match, 5 = excellent match*) (Lynn, 1986). In addition, the expert judges were encouraged to provide qualitative feedback on the items and the suitability of the questionnaire for the targeted population (i.e., children aged 7-

18 years) drawing on their own knowledge and understanding of the constructs of well- and ill-being (Dunn et al., 1999; Polit, Beck, & Owen, 2007).

Data Analysis

The decision to retain or discard items at this preliminary stage of analysis was based on whether the experts agreed on classification terms. Content validity index scores (CVIs; Lynn, 1986) were generated for all items. A score of .74 is the recommended cut off criterion for retention of items. However, not wishing to remove items based solely on statistical grounds, items with a CVI below the recommended .74 were evaluated in terms of the content relevance for each dimension. Comments made by the experts and the number of items in the proposed sub-scales were additional criteria employed in decisions to retain or remove items. An overall mean score for each item was also calculated in respect of the extent to which the items were perceived to describe the identified construct. If the mean score was ≥ 3, the item was judged to adequately represent the targeted construct (a score of 3 represented a "*good match*") and the item was included in the item pool for the preliminary questionnaire.

When designing self-report questionnaires for use with young people it is particularly important to ensure the wording is appropriate for the targeted population in terms of reading ability (Jensen, Fabiano, Lopez-Williams, & Chacko, 2006; McHugh & Behar, 2009; Schinka, 2012). Therefore, in addition to feedback from the panel regarding the wording, the resultant questionnaire was also tested to ensure the items, instructions and stem are readable for the intended populations using an online readability calculator ("Readability Score," 2017). Eight of the most common readability formulae were employed (see Table 4.5). Word length, vocabulary, syntax and syllables are considered in calculations. The Flesch Reading Ease test scores range from 0 to 100, the higher the score, the easier the text is to read, and the remaining tests calculate grade level reading ability, scores range from 1 to 12

(numbers are equivalent to estimated school grade). In evaluation of questionnaires it is recommended that several tests are utilized to determine an average rather than relying on one or other of the readability scores (Jensen, et al., 2006; McHugh & Behar, 2009). This is because readability formulas were originally designed to assess passages of text of around one hundred words, rather than short pieces of text common to survey questions (Lenzner, 2013).

Results

A majority (i.e., ≥7/9) consensus resulted in CVIs of .78 – 1.0 for 58 items which is proposed as excellent by Polit, Beck and Owen (2007) with a panel of 9 experts. During the process descriptors which were revealed as meaningful for the children or adolescents in phase 1 were prioritized. For example, '*excited*' generated a CVI of .67 which would suggest removal of the item. However, all experts proposed '*excited*' was relevant to 'vitality' and/or 'positive affect' which was consistent with findings in phase 1 where all the children perceived '*excited*' as a manifestation of well-being. Thus '*excited*' was retained. All items were evaluated in this way and where necessary, modified based on recommendations by the experts (e.g., '*tired*' was judged to be too vague and was changed to '*tired in my body'*) and reinstated in the item pool if appropriate. Analysis culminated in a 70-item measure (32 items representing the experience of well-being, e.g., '*full of energy', 'joyful'*; 38 items representing the experience of ill-being, e.g., *'dreary' 'grumpy';* see Appendix D).

In Table 4.5 results of the eight readability formulas applied to the stem, instructions and items to assess the suitability of the questionnaire are provided (Jensen et al., 2006; McHugh & Behar, 2009). The suggested reading levels for the proposed 70 item measure ranged from preschool to fourth grade (i.e., between 3-5 and 9-10 years). The readability calculation average across the 8 indices was identified as: Grade Level: 2; Reading Level: very easy to read; Reader's Age: 6-8 yrs. old (First and Second graders). The results of the readability

analyses therefore suggest the questionnaire is valid for use with the intended population according to reading ability.

Further evidence of the face and content validity of the measure was provided by the panel of experts: all agreed that the design and content of the questionnaire was appropriate for the targeted population. It was anticipated that a read-aloud process would alleviate any potential difficulties with the youngest children or those with special educational needs (Eiser & Morse, 2001), albeit this will need to be determined in future research. The estimated read-aloud reading time was 2.36 minutes based on 125 words per minute. However, this does not calculate any time for the respondent to answer the questions. The estimated completion time for the questionnaire was therefore 15-20 minutes.

Table 4.5
Readability scores for the proposed 70 item measure including items, instructions and stem

Readability formula	**Score**	**Suggested level/grade**
Flesch Reading ease score	92.1	Very easy to read
Gunning Fog	4.6	Easy to read
Flesch-Kincaid Grade level	1.5	Second grade (7-8)
The Coleman-Liau Index	4	Fourth grade (9-10)
The SMOG Index	3.7	Fourth grade (9-10)
Automated Readability index	-1.8	3-5 years old (preschool)
Linsear Write Formula	1.5	Second grade (7-8)
ATOS Level	1.5	Second grade (7-8)

Readability scores were calculated at https://readability-score.com/

Discussion

The two studies presented here detailed the initial development phases of the new 70 item multidimensional measure of children's and adolescents' well- and ill-being. Little evidence exists regarding the content and composition of children's and adolescents' concepts of well- and ill-being. Furthermore, extant knowledge concerning whether the constructs of well- and ill-being are perceived by adults and younger people with equality is scant (Fernandes et al., 2012). People develop their understanding of psychological concepts via their interactions with the world, their cognitive ability and their maturity. Hence it is unsurprising that adults and young people will have amassed differing knowledge and understanding of their well- and ill-being experiences. To address these issues, the constructs were examined from a developmental perspective via comparison of child (7-11 years old) and adolescent (12-18 years old) descriptors of well- and ill-being generated during semi-structured interviews. Construct-derived descriptors were also presented to the participants to test whether these words and phrases had the same meaning for children and adolescents as the descriptors had for adults. First, results related to the distinction or relatedness of the constructs of well- and ill-being in respect of young people's conceptualizations will be discussed. Second, the multidimensional composition and content of well- and ill-being will be considered. Thirdly, evidence in study one of this chapter concerning potential developmental differences in conceptions of well- and ill-being will be addressed. Next, issues concerning the assessment of well- and ill-being will be explored. Finally, implications of the current study for future research and practice will be outlined.

Well-being and Ill-being as Distinct constructs

The structure of well- and ill-being was a key aspect explored in the current research. Of particular interest was whether well- and ill-being are bi-polar opposites on a continuum or seen as separate albeit related constructs (Headey et al., 1984; Kagan, 2014), according to

young people's ideas about the constructs. Findings from the current study are inconclusive in addressing this issue. Though the youngest to the eldest participants generated and categorized descriptors into both well- and ill-being (see Figure 4.2) this merely demonstrates that the participants were able to distinguish the concepts. Further examination of participants' explanations of their thoughts and actions in relation to well- and ill-being is needed to contribute to our understanding of young people's concepts of the constructs. However, the current results are in line with findings from prior research (Natapoff, 1982; Normandeau et al., 1998) where children and adolescents differentiated concepts such as health and illness, for example. In addition, there is some evidence that for some participants, well- and ill-being were perceived as interrelated as certain descriptors (e.g., 'nervous' and 'alert'), were described as being 'both' or 'half-way' between the two constructs. This finding leads to tentative implications that the present results are in concordance with Gobbo and Raccanello's (2011) finding that well- and ill-being are not seen as two ends of a continuum by children; in that one could be generally healthy yet sustain an injury or be in a bad mood thus experience well-being and suffering concomitantly. It was also evident, in the results presented in chapter three that the level of complexity of the latent concepts of well- and ill-being underpinning young people's perceptions are related to cognitive developmental levels. With younger children expressing bipolar hedonic perceptions of well- and ill-being and older adolescents describing multifaceted a highly integrated depiction of well- and ill-being. Some adolescents inferring a eudaimonic conception of well-being which is enduring and involves aspiration and striving for a better life. This points to the importance of assessing both well- *and* ill-being to gain a more comprehensive assessment of how young people are doing.

Multi-dimensions

A further aim of the current study was to gain a better understanding of children's and adolescents' conceptions of well- and ill-being both in terms of the content, composition and dimensionality of these constructs. In articulating their ideas concerning the two constructs, the young people provided evidence of two higher order themes (i.e., well- and ill-being) comprising lower order positive and negative sub-dimensions associated with affective, cognitive and somatic states. The observed multidimensionality of the concepts of well- and ill-being described by the youngsters shared similarities with adult conceptions of the constructs as proposed in various theoretical conceptualizations of well- and ill-being (e.g., Diener, 1984; Headey et al., 1984; Kagan, 2014; McDowell, 2010; Ryan & Deci, 2001; Ryff et al., 2006; Waterman, 1993). That is, it was also observed that the emergent descriptors were founded on appraisals of personal experience and included positive and negative affect. Children's concepts were more simplistic than adolescent (and adult) conceptualizations of well- and ill-being in that children for the most part conceived of a bipolar dichotomous understanding of the constructs. Children mainly saw well-being in positive emotional terms, and they associated well-being more with being active (e.g., playful, excited, bouncy) but often did not relate this to physical well-being. In contrast, Ill-being was considered by children more in respect of physical rather than psychological states and associated with being inactive. Adolescents, on the other hand, perceived of well- and ill-being in more nuanced, complex, interrelated terms.

In the current study an attempt was also made to contribute to the theoretical debate concerning the hedonic and eudaimonic well-being paradigms. Evidence of both hedonic and eudaimonic expressions of well-being were apparent in the descriptors produced by the young people. For example, *happy*, and *happy with yourself* could refer respectively to hedonic and eudemonic perspectives, however, the meaning of these terms would need to be

further clarified before any conclusions could be offered. The sub-dimensions (see Table 4.3) would also appear to represent aspects of both hedonia (e.g., *positive affect'*) and eudaimonic well-being (e.g., *'vitality', 'serenity'*) within the constructions of well- and ill-being. Future research which addresses whether eudaimonic well-being is a state which requires a certain degree of cognitive and emotional understanding to appreciate is needed. Moreover, consideration of ill-being should also be further examined in terms of these perspectives.

Developmental differences

An important principle of the current study was for the children and adolescents to be at the centre of the research process (Ben-Arieh, 2005). This was in order to ensure the conceptualizations of well- and ill-being were reflective of potential developmental differences (De Civita et al., 2005; Eccles, 1999) as they are captured in the own words of children and adolescents. During the interviews, the generation, then delineation of descriptors into emotional, physical and cognitive aspects of well- and ill-being by the youngsters showed that they were active agents in the study and creation of the concepts of well- and ill-being. Furthermore, the children's and adolescents' own words were converted into items for the questionnaire, ensuring content validity with the targeted populations. This was deemed crucial as developmental differences have emerged in research with younger populations when investigating concepts associated with well- and ill-being (e.g., self-esteem; Harter, 1982; Marsh, 1989). Moreover, observations from study one in chapter three supported the premise that conceptualizations of well- and ill-being do exhibit developmental distinctions.

Children provided fewer descriptors and discarded more of the construct-derived descriptors than adolescent participants. This is in line with prior research concerning age-related developmental differences in cognitive, language and emotions (e.g., Eccles, 1999; Steinberg, 2005). Notwithstanding, the descriptors of well-being generated by the adolescents

tended to be more complex, broader explanations of well-being than those offered by the children which were more likely to be related to moments of pleasure that could be interpreted as purely hedonic. Furthermore, the discarding of the construct-derived descriptors demonstrates the divergence of children's conceptualizations of well- and ill-being from adolescent concepts. In addition, this finding demonstrates the increased nuance in the conceptualizations as young people move from childhood to adolescence. Indeed, the differences found in the current study between children's and adolescents' descriptions of well- and ill-being were expected based on prior research concerning the development of emotions and neural processing (Burnett, Bird, Moll, Frith, & Blakemore, 2008), and cognitions and emotions (Keulers et al., 2010) which found increasingly complex descriptions and awareness of emotions were associated with age-related incremental cognitive trajectories.

Suitability of existent measures. A sub-aim of the current research was to examine the suitability of current measures to provide valid and reliable assessments of children and adolescents' well- and ill-being. The extent to which the youngsters' ideas concerning well- and ill-being converged with and deviated from an adult view can be discerned in the current results by the number of construct-derived descriptors incorporated into the thought maps by the children and adolescents (see Figure 4.2). The subtlety of meanings and nuances within these descriptors expressed by the children are explored in more detail in chapter three. It could be argued that the reported developmental differences help to explain the significant differences in the median number of descriptors discarded, differentiated, and generated for well- and ill-being between children and adolescents (see Table 4.3). The observed divergence in child and adolescent concepts have implications for subsequent development of assessments of well- and ill-being in younger populations.

The results of study one of the current chapters, demonstrate that, though similar, well- and ill-being are not understood in the same way by children and adolescents (and indeed adults). This was especially apparent when looking at the number of construct-derived descriptors the children chose to discard as compared to the adolescents. In the present study, children directly challenged adult concepts/descriptors as being inappropriate, inadequate or misconstrued characterizations of their well- and ill-being. These findings align with previous claims that proxy well-being scores provided by adults cannot be relied on to meaningfully represent children's perceived well-being (Eiser & Morse, 2001). Consequently, practitioners should be mindful of inherent threats to validity if continuing to apply scales with adult derived item content to assess children's well- and ill-being in future.

Conclusions and Future directions

The overall purpose of the two studies reported in this chapter was to gain further insight into children's definitions and illustrations of well- and ill-being building on the work presented in chapter three. Extending this knowledge in this chapter and with a view of creating a developmentally appropriate (i.e., a child and an adolescent version) assessment tools derived from the children's and adolescents' own words. It is also critical to aim to measure the '*dynamic state*' itself (i.e., the concepts of well-being and ill-being) as perceived by children and adolescents, as opposed to the factors that contribute or detract from well- and ill-being. In the present work, children's and adolescents' descriptors of well- *and* ill-being were tapped to reflect children's and adolescents' experiences of these states. A rigorous programme of psychometric testing is now required to further examine the dimensionality and validity and reliability of the evolving assessment tool. It is anticipated that the emergent and psychometrically tested questionnaire will enable researchers and practitioners to assess children's and adolescents' well- and ill-being in a valid and reliable manner, and ultimately contribute to the evidence-base in research on children's and

adolescents' well- and ill-being. The psychometric testing of the 70-item scale emerging from research described in this chapter is presented in chapter five of this thesis.

AN INITIAL TEST OF THE VALIDITY AND RELIABILITY OF THE MULTIDIMENSIONAL MEASURE(S) OF WELL- AND ILL-BEING (CHILD AND ADOLESCENT VERSIONS) (MMWIB-C/MMWIB-A).

Abstract

In this chapter, a series of studies are presented which build on the initial development of the multi-dimensional measure of well- and ill-being (MMWIB) (see chapters three and four). More specifically, four scale development studies are described. The overall aim is to produce two developmentally appropriate measures; one for children and one for adolescents. The factorial validity of the MMWIB-C/MMWIB-A and reliability of the sub-scales comprising each measure were examined via structural equation modelling. Exploratory factor analyses (EFA) were employed initially to identify the number of factors for each measure and to further reduce the number of items required to depict the child and adolescent well- and ill-being dimensions. Next, confirmatory factor analyses (CFA), employing both Independent Cluster Models (ICM) and Exploratory Structural Equation Modelling (ESEM) (Asparouhov & Muthén, 2009) were conducted to determine the best representation of the two questionnaires' factor structure. A series of competing ICM and ESEM models were tested. The findings revealed that exploratory structural equation modelling (ESEM) provided a better fit of these data to the hypothesised models of child and adolescent well- and ill-being than CFA solutions. A five- and seven-factor model, for child and adolescent well- and ill-being respectively, emerged through EFA and were confirmed via ESEM. Specifically, the bi-factor ESEM provided the best fit for both the child and adolescent measures. The psychometric properties of these five- and seven-factor models were tested in the final two studies presented in this chapter. Findings supported concurrent and predictive validity of the multidimensional measure(s). Though further development work is needed, initial evidence suggests the MMWIB-C/MMWIB-A are valid and reliable measures of children and adolescents' well- and ill-being perceptions.

Keywords: Scale development, EFA, CFA, ESEM, well- and ill-being, children, adolescents.

An Initial Test of the validity and reliability of the multidimensional measures of well- and ill-being (child and adolescent versions MMWIB-C/ MMWIB-A).

Well- and ill-being are postulated to be multi-dimensional, comprising cognitive (e.g., personal evaluations of levels of satisfaction with life), as well as emotional and physical well(ill)ness components (Diener, Emmons, Larsen, & Griffin, 1985; Ryan & Deci, 2001; Ryff & Keyes, 1995). In the research presented in chapter three, the complex composition of the constructs was corroborated by the children and adolescents. A hierarchical structure of well- and ill-being was elicited from the children's and adolescents' descriptions. Two higher order dimensions (i.e., well- and ill-being) consisting of 10 sub-dimensions (see table 4.3, chapter four) comprising affective, physical and cognitive elements were revealed. The young peoples' explanations of well- and ill-being concurred with McDowell's (2010) depiction of well-being (Figure 1.1) as both positively and negatively toned descriptors of the constructs were generated. These descriptors were classified with varying activation or arousal levels for each of the targeted constructs (i.e., well- and ill-being). Evidence of developmental differences in younger and older children's constructs of well- and ill-being were also presented in the prior empirical chapters in this thesis and have begun to address a gap in the literature that is worthy of further investigation. Specifically, the evidence from chapters two, three and four in this thesis suggest a developmental trajectory in concepts of well- and ill-being including personally available energy or subjective vitality. These findings and prior research offer an imperative to provide researchers and practitioners with valid and reliable assessment tools of children's and adolescents' well-being (Fernandes et al., 2012; Jiang, Kosher, Ben-Arieh, & Huebner, 2014).

Therefore, the overarching aim of this chapter is to develop and psychometrically test the initial validity and reliability of two multi-dimensional measures of well- and ill-being

(MMWIB): one version for children and one for adolescents. Building on the scale development work described in chapter four, the factor structure of the MMWIB will be tested using structural equation modelling. A further aim is, based on the analyses conducted, to reduce the number of items (from 70) comprising the measure(s).

The proposed development of concepts of well- and ill-being

In the initial measure development phase reported in chapter four, a key finding suggesting developmental differences in the understanding of well- and ill-being was the extent to which adolescents (aged ≥ 12 years) during the classification process identified manifestations of the constructs as capturing something to do with their thinking (i.e., 41% cognitive, with physical explanations accounting for 30 % and emotional 29%). The children (aged 7-11 years old), in comparison, tended to distribute the descriptors fairly evenly between cognitions, physical and emotional dimensions (i.e., 35%, 29 % and 36% respectively). This was in line with prior developmental research centered on construct which are relevant to experienced well- and ill-being. For example, the level of cognitive development of children has been a key determinant of reported differentiation between children's and adolescents' emotional understanding (Lagattuta, 2014), concepts of health (Natapoff, 1982) and perceptions of illness (Forsner, 2005). These reported developmental trajectories in components of well- and ill-being concepts of young people is further supported by findings presented in chapters three and four of the current thesis concerning the key mechanistic role of cognitive development in the perception, expression, and conceptualization of children's and adolescents' well- and ill-being. Furthermore, the evidence of a developmental pattern in concepts of well- and ill-being between children's and adolescents' perceptions of the constructs underlies the importance of the need of separate assessment tools for child and adolescent populations.

A critique of current measures of child and adolescent well- and ill-being

In line with the theoretical and conceptual advances outlined above, current measurement models of well-being generally incorporate cognitive evaluations of happiness and life satisfaction and subjective judgements on emotional experience (Jiang et al., 2014). However, though measures of young peoples' well- (and ill-) being are available in the literature, most are derived from adult conceptions which cannot be assumed to adequately capture child and adolescent concepts of these complex constructs (Ben-Arieh, 2005; Fernandes et al., 2012).

The degree to which the items of current measures represent the construct being assessed in the views of the intended population is fundamental to a valid assessment of young people's well- and ill-being. The multidimensional students' life satisfaction scale (MSLSS; Huebner, 1994) is a well-established measure of young people's subjective well-being, incorporating global life satisfaction with positive and negative affect. Items in the MSLSS were pilot tested with children but are adult-derived, based on theoretical constructs. Thus, it is unclear if the conceptions operationalized in the MSLSS fully represent children's ideas as they did not originate from the children themselves. The good childhood index (GCI) is another measure of children's welfare (Rees, Goswami, et al., 2010). During scale development of the GCI, similar to the development of the MSLSS, young people were consulted concerning the content of the questionnaire (Rees, Goswami, et al., 2010). However, again the item content was not generated by the youngsters themselves. Rather, items were comprised of adult-derived concepts from existing measures. In the current study the intention was to ensure item content employed in the development of the MMWIB-C/MMWIB-A, captured well- and ill-being as conceptualized by the children and adolescents themselves.

As with many of the multi-dimensional assessment models, the MSLSS and GCI contain items which are designed to capture a persons' well-being via their personal evaluations of how happy they are with different domains of life. One key issue with these types of assessment approaches is that the understood antecedents of the construct are operationalized as part of the construct that one is intending to measure. The MSLSS incorporates five aspects of life (i.e., self, family, friends, school and living environment) to provide scores for each domain and a global life satisfaction score (Huebner, 1994). To capture children's (aged 8-18 years) ratings of their personal well-being, the GCI is made up of items from existing instruments (including items from the MSLSS) to represent 10 domains of childhood (i.e., Family, Friends, Health, Appearance, Time use, The future, Home, Money and possessions, School, Amount of choice) (Rees, Goswami, et al., 2010). These ratings when averaged are proposed to indicate overall well-being. However, within the content of other theories of human development and well-being, satisfaction with particular life contexts in these questionnaires are perhaps better descriptors of *correlates* or indeed potential *determinants* of well-being rather than being manifestations of the construct itself. For example, a conceptualization of the distinction between constructs and correlates of well- and ill-being is stipulated in the basic psychological needs theory (BPNT; Ryan & Deci, 2000), which is a sub-theory of self-determination theory (SDT; Deci & Ryan, 1985, 2000). BPNT describes the psychological nutrients which contribute to human flourishing or well-being. Ryan and Deci (2000) propose that in order to flourish, humans require fulfillment of three basic psychological needs (i.e., competence, relatedness and autonomy). Competence refers to the need of individuals to feel capable and efficacious in their lives (White, 1959). Relatedness refers to a sense of interpersonal belonging, a social closeness and being valued and cared for by others (Baumeister & Leary, 1995). Autonomy refers to personal choice, the ability to act volitionally without coercion or external threat. Interpretating the MSLSS and

GCI within BPNT leads to the conclusion that many of the items from both scales appear to ask respondents to rate factors which support, or thwart personal well-being rather than directly assess the constructs of well- and ill-being. For example, the 'self' domain in the MSLSS whilst being akin to self-esteem (a known correlate of well-being e.g., Deci & Ryan, 2000) is also indicative of competence satisfaction as individuals are required to rate their personal effectiveness (e.g., '*There are lots of things I can do well'*). Another example from the MSLSS is the 'family and friends' scale which is a likely indicator of relatedness (as people are essentially rating satisfaction with interpersonal relationships). Moreover, further to the items derived from the MSLSS, other items used in the GCI appear to refer to autonomy (i.e., *how happy are you about the amount of choice in your life?*). Here again, though relatedness and autonomy satisfaction scores of young people have been positively associated with well-(and negatively with ill-) being outcomes they are not direct indicators of well- and ill-being (Adie et al., 2012; Milyavskaya et al., 2009; Quested & Duda, 2010; Sheldon, 2011). As such, these types of indicators captured by a number of well-established measures of children's and adolescent's WB and IB can be considered to be exogenous to well- and ill-being (i.e., cause variations in well- and ill-being scores and are therefore external factors) as opposed to endogenous or internal aspects of well- and ill-being. Guided by the tenets of BPNT, the intention in the development of the MMWIB-C/MMWIB-A was to avoid the merging of causal, reflective and direct indicators of well- and ill-being and, as a result, bring more conceptual clarity to the assessment of these complex constructs (i.e., well- and ill-being).

Another issue that is yet to be addressed is the ability of current psychological tools to assess the eudaimonic well-being of young people. An example of a recently developed measure which attempts to address this is The EPOCH multidimensional measure of adolescent well-being (Kern, Benson, Steinberg, & Steinberg, 2016) for 10-18 year olds.

Kern et al.'s EPOCH measure differs from the domain based scales as it is designed to assess adolescent psychological thriving via five psychological characteristics; Engagement (e.g., *I get completely absorbed in what I am doing*), Perseverance (e.g., *I finish whatever I begin*), Optimism (e.g., *I am optimistic about my future*), Connectedness (e.g., *I have friends that I really care about*), and Happiness (e.g., *I am a cheerful person*) based on Seligman's conceptualization of well-being (Seligman, 2012). The measure goes beyond indices of happiness focusing on psychological strengths, but it is firmly grounded in the positive psychology tradition (Seligman & Csikszentmihalyi, 2000) and therefore does not have any items which directly tap ill-being.

In addition, it can be argued that the EPOCH items as well are designed to capture psychological characteristics that contribute to well-being rather than characterize the construct itself. For example, content items appear to depict personality traits known to be related to well-being outcomes (e.g., optimism; González-Carrasco et al., 2017). Therefore, it is argued that this measure captures antecedents of rather than facets of the construct of Eudaimonia. Further, the psychological aspects tapped by the EPOCH are said to be important because they lead to adult flourishing. The purpose of the EPOCH measure therefore appears to assess the future adult or 'well-becoming' rather than the present well-being of adolescents. Another limitation, (though the authors cite it as a strength) is the decision to make the measure "…deliberately nondevelopmental [sic], such that normative immaturity is not spuriously associated with lower well-being" (Kern, et al., 2016, p.587). This decision seems incongruous in consideration of the age range that the measure was designed for use with (i.e., 10-18 years). Prior developmental studies have suggested changes in children's cognitions, and experiences of moving from childhood to adolescence result in differential comprehension of well-being factors such as health (e.g., Natapoff et al., 1997) and emotional understanding (e.g., Harter & Buddin, 1987). Indeed, findings presented in the

present thesis in chapters three and four further suggest the understanding and characterization of well-being varies developmentally. Additionally, the EPOCH questionnaire (similar to other current measures of children's well-being, e.g., the MSLSS described above) utilizes adult-derived (as opposed to child-derived) items which as discussed above could be a threat to the validity of the measure. Notwithstanding, most existent well-being assessment tools (see chapter four for a more detailed examination of current modes of assessment) employed with pre- and post-pubescent populations pay little attention to potential developmental variance (albeit with adapted response scales, e.g., 1-4 for children and 1-7 for adolescents). Hence, there is a need for measures of well-being to be appropriately worded for children (and adolescents) to ensure risks to content and construct validity are minimized.

In sum, the following imperatives underscored the development of the MMWIB as presented in this and prior chapters in this thesis. The first is the need for developmentally appropriate tools to assess young people's well- and ill-being based on evidence that children and adolescents conceive of, and experience, well- and ill-being differently. Secondly, to ensure content items are appropriate and capture the constructs in the views of young people, the items should be derived from the children's and adolescents' own words. Finally, to improve clarity of measurement, the constructs rather than correlates of well- and ill-being should be assessed.

The present studies

In addition to confirmation of theoretical principles, Røysamb (cited in Holte et al., 2014) opines that valid measures and measurement development processes have and will continue to make critical contributions to well-being theory. The group of studies being presented here therefore had the joint purpose of simultaneously developing knowledge concerning child and adolescent well- and ill-being *with* a method of assessment. Mindful of

this, at the core of this scale development process was due consideration of the conceptualizations of well- and ill-being from the perspective of both children and adolescents. Building on the study of children's and adolescents' descriptors of well- and ill-being in chapter four and the preliminary scale development work detailed therein, the aim of this chapter is to develop and provide evidence regarding the construct validity, predictive validity and internal reliability of two self-report questionnaires for use in the assessment of child and adolescent well- and ill-being. Consequently, the structure of the targeted constructs derived through the earlier studies (i.e., the scale development work presented in chapter four) in this thesis were the foundation for this ongoing work.

The first aim is to explore the factor structure of the retained 70 items from the two studies presented in chapter four of this thesis, in respect of child and adolescent models of well- and ill-being. In chapter four, two overarching factors (i.e., well- and ill-being) comprising ten sub-dimensions were identified. These previously identified latent factors and associated variables retained in the 70-item pool, were tentative at this early stage of scale development. Additionally, it was felt that 70 items were too many for use in most research projects where associations between numerous variables and predicted outcomes are usually tested in a battery of measures. Accordingly, reducing the item pool to a more practical number for use in future research was an aim of this study. In keeping with these aims, Byrne's (2005) recommendation for the application of exploratory factor analysis (EFA) were followed in the first study. Internal validity and scale reliabilities were also explored.

The second study in this chapter will further investigate the proposed factor structure and items for the child and adolescent measures of well- and ill-being emerging from study one (this chapter). The factorial structure of the models of child and adolescent well- and ill-being resulting from the EFA will be examined using exploratory structural equation modelling (ESEM; Asparouhov & Muthen, 2009) and confirmatory factor analysis (CFA).

The results of both approaches will be compared in terms of the most suitable solutions as recommended for this type of complex psychological model (Marsh et al., 2014; Marsh, et al., 2009; Myers, Chase, Pierce, & Martin, 2011).

Next, in study three, the concurrent validity of the MMWIB-(C/MMWIB-A) will be investigated via comparison with health-related quality of life (QoL) measures, life satisfaction scales (LSS) and psychological well-being scales (PWB). These constructs are expected to positively correlate to the well-being scales and be inversely related to the ill-being scales.

The final (fourth) study presented in this chapter will examine the predicted validity of the MMWIB-(C/MMWIB-A) based on expected theoretical relationships with the well- and ill-being scales (e.g., high self-worth scores are expected to be positively related to well-being and negatively related to ill-being). Exploration of these correlations separately for children and adolescents will also allow the examination of potential developmental similarities and differences in such associations.

Overall Method

Schools and sports clubs in the UK invited to participate in the research were provided with detailed study information. Written approval of Head Teachers, teachers and coaches from each of the participating organizations was obtained. Parents and guardians were provided with information about the purposes and procedures of the study and were asked to complete an 'opt out' form, prior to questionnaire completion if they did not agree for their child(ren) to take part. All participants completed informed consent forms. The children were assured their answers would remain confidential, their participation was entirely volitional, and they could withdraw from the study at any time without penalty.

Participants

The overall sample comprised children aged 7-11 years (N = 870, 62.1 % male) and adolescents aged 12-18 years (N = 703, 71.4 % male). The young people came from a range of ethnic and socioeconomic backgrounds. For example, just over half of the adolescent respondents (57.1 %) self-reported family wealth as '*average*', or below average, the remainder perceived family wealth to be above average. The majority of child (N = 567, 73%) and adolescent (N = 427, 60.7%) participants self-reported as '*British*', 11 (1.4%) children and 12 (1.7%) adolescents failed to answer, the remaining children (N = 199, 25.6%) and adolescents (N = 264, 37.6%) declared a variety of ethnicities. The overall sample was divided into independent samples for use in the factor analyses (exploratory and confirmatory) and correlational studies.

Procedures and Measure

Administration of questionnaires was conducted either by the thesis author, trained researchers (RAs) or by class teachers who had been provided with detailed written instructions. In total 531 questionnaires were administered by the thesis author and RAs with the remaining 204 administered by teachers.

Firstly, the purpose and procedures of the study were explained to the children and adolescents; if they wished to participate, they were asked to complete consent forms. Some young people chose not to participate and were provided with alternate activities. The children were encouraged to ask questions about the study prior to and during questionnaire completion. However, the participants were asked not to discuss their answers with each other to encourage honest personal appraisals. It was explained that there were no right or wrong answers and the questionnaire was not a test. Next, the participants were assisted in providing maturation and demographic information where appropriate.

In some cases, a read aloud approach was adopted with the RA, teacher or thesis author reciting each question to the group or class. In addition, to assist in completion of the questionnaire, some children who had special educational needs (SENs) were provided with individual support[2]. Most participants completed the questionnaires without support working through the questions at their own pace. In all cases children responded individually, answering each question independently. The questionnaires took on average 15 minutes to complete.

[2] Information on the number of children with SENs who participated in the study was not collected. All participating schools however were mainstream schools and as such, the expectation is that the number of young people with SENs across the dataset were in line with the national average.

Study One

The aim of the first study presented in this chapter was to examine the underlying dimensionality of children's and adolescents well- and ill-being. One challenge researchers face when assessing well- and ill-being and other similar concepts is that they are unseen, internal, individualized perceptions or inferred factors and as such are difficult to measure (Little, Lindenberger, & Nesselroade, 1999). In addressing this issue, researchers tend to incorporate descriptors of the constructs into a set of questions or items to create an assessment scale either by drawing on previously validated questionnaires or (as in this case) deriving items from the targeted population in their own words (Dawis, 2000).

Next, it is imperative to determine whether the chosen set of items adequately specify the latent constructs (i.e., well- and ill-being in children and adolescents). Item selection can be conducted by tests of internal criteria (e.g., identifying items which correlate strongly with the overall scale), external criteria (e.g., items are selected based on degree of correlation with a pre-determined outcome variable) or both (Little et al., 1999). When an item pool exists, it is then necessary to explore the factor structure within the group of variables to find the most appropriate method of characterizing and quantifying the latent construct or constructs of interest (i.e., well- and ill-being) (Cudeck, 2000; Dawis, 2000).

In the first study presented in chapter four, an attempt was made to characterize different dimensions of the constructs using a thematic semantic method, creating a ten-dimensional model. This was in line with a conservative approach to the hypothesized model during preliminary analyses. However, the most parsimonious solution in the present case is unlikely to be coherently represented by so many subscales and further refinement is recommended (Byrne, 2013). Factor analysis, internal coefficient analysis, inter-item correlations and test re-test reliability with independent samples are commonly used methods of item-selection (and elimination) and scale evaluation (Little et al., 1999). Factor analysis is

a process which helps to identify the number of latent influences in a set of variables and the degree to which each item is associated with an overriding factor (Cudeck, 2000). When the interrelated variables representing latent constructs are unclear or not 'definitively' known (as is the case here), exploratory factor analysis (EFA) is the preferred method for identifying patterns in data as it is data-driven (Byrne, 2005). It was envisaged that, via EFA, further clarity and guidance would be provided in determining the multidimensions in each group (i.e., children and adolescents) in regard to their conceptions of well- and ill-being.

Method

Participants

Sample 1 comprised 350 children aged 7-11 years (*M* age = 9.37, SD 1.10), 162 of which were girls, and 7 failed to disclose gender. The second sample consisted of 361 adolescents aged 12-18 years (*M age* = 13.83, SD 1.52), 102 were female, 5 participants did not report gender.

Measure

The 70 items retained following the face validity exercise presented in chapter four comprised the questionnaire in this study. Items were preceded with the stem: "Here are some ways that children can feel. Please read each one and think about how often *you* have felt that way in the last month then answer by coloring in the number that fits best". A 5-point response scale was used (i.e., 1 = *never*, 2 = *hardly ever*, 3 = *sometimes*, 4 = *quite a lot*, 5 = *always*). The reading age for the items and questionnaire stem and instructions were calculated in chapter four, study two and were found to be appropriate for first and second graders (i.e., aged 6-8-years old).

Data analysis

An exploratory factor analysis (EFA) was conducted using principal axis factoring (PAF) with direct oblimin rotation using SPSS 19. A missing values analysis suggested a randomized pattern in these data, thus missing values were excluded pairwise. Tabachnick and Fidell (2007) recommend the use of factor analysis as opposed to principal component analysis (PCA) when a theoretical solution which examines the underlying mechanisms of the construct is the goal. Furthermore, based on the non-normal distribution of the current data, a principal factor method (i.e., principal axis factoring (PAF)) was chosen as the most appropriate method to identify factors in the scale development process (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Osborne & Costello, 2009). Direct oblimin rotation is preferred to oblique rotations where some inter-factor correlation is expected (Fabrigar et al., 1999).

Selection of items

Well- and ill-being are complex and multifaceted constructs, and we would expect factors and items to be correlated. At this stage in the development of the scales therefore, a cautious approach was applied with items which cross-loaded on non-target factors. In terms of factor loading, Stevens (2002) recommends interpreting loadings of ≥ .4 as significant whereas, Tabachnick and Fidell (2007) suggest loadings of ≥ .32 are acceptable. However, Stevens (2002) also comments on the influence of sample size on factor loading values; suggesting as sample sizes increase, significant factor loadings decrease with .298 suggested to be significant if the sample $N = 300$ (as was the case with both the child and adolescent samples). In this study, the items with the highest factor loadings for each dimension were scrutinised in terms of construct validity to ascertain if the predicted factors were appropriately described. Items with a factor loading < .32 and items with a high secondary loading > .3 were removed providing their removal did not detract from the number of items loading on specific factors (Tabachnick & Fidell, 2007).

Identifying factors

All emerging factors were examined in terms of content validity and scale proportions (i.e., a minimum of 3 items are required to adequately describe a factor) (Dawis, 2000). According to Bollen (1989), if an oblique solution is used where correlation of factors is permitted a minimum of 2 variables for each factor is adequate to enable identification of a CFA model. However, 4-5 are usually necessary to achieve good internal reliability with Cronbach's alphas exceeding .7 (Cudek, 2000; De Vellis, 2016). In all circumstances, removal of items with high factor loading values on multiple factors was considered to try to avoid correlated error terms and misspecification of the model. Based on these recommendations, the following criteria was applied in determining which items best characterised the factors: Items were retained with factor loadings $\geq .4$ (in the first instance). The resulting factors were examined in terms of the number of indicators and where few variables had factor loadings exceeding .4, consideration was also given to items with factor loading values $\approx .298$ or above (Stevens, 2002). During this process, item retention was carefully considered in terms of empirical evidence but also in respect to theory. Items with similar meanings were also considered for removal. In addition, items for which the meaning was often queried by questionnaire participants (i.e., the item was not clear or readily understandable) were considered for removal.

Determining the number of factors

Decisions concerning the number of factors identified in EFA can be guided by Eigen values greater than 1 (Tabachnick & Fidell, 2007). Scree plots representing the Eigen values can also be a useful indicator of the number of factors to retain. However, as arguably Eigen values tend to over represent the number of factors (Fabrigar et al., 1999), parallel analysis should also be used to guide decisions concerning factors. Parallel analysis tests the probability of factors occurring by chance through comparison of randomly generated

datasets with the same number of variables and observations as the empirical dataset. Eigenvalues are calculated for the random data, if values from the factor analysis are larger than the eigenvalues randomly generated the factors are retained. In the current study, Monte Carlo PCA for parallel analysis was employed (Watkins, 2000). When the subscales have been determined, checks of internal consistency using Cronbach's alpha provide further evidence that the items in each scale are measuring the same underlying construct. Values range from 0-1 and scores > 0.70 considered good with > 0.80 said to be excellent, with a caveat that smaller subscales (e.g., 3 items or fewer) tend to result in smaller coefficient scores (DeVellis, 2016).

Finally, in addition to being guided by statistical findings, it is recommended when conducting factor analysis that researchers are also directed by conceptual clarity (Cudeck, 2000; De Vellis, 2016; Fabrigar et al., 1999; Tabachnick & Fidell, 2007). In other words, the proposed item groupings should be suitable in terms of capturing meaningful characterizations for each factor. Identification of factors was also guided by the children's responses during the interviews, reported in chapters three and four (i.e., items which participants consistently grouped together (e.g., relaxed and calm)), helped to inform factor identification.

Results

The 70 items for both groups were subjected to Kaiser Meyer Olkin's tests. Results were above the recommended .60 (i.e., .91 and .92, child and adolescent samples respectively) demonstrating the samples were adequate for factor analysis. Bartlett's test of sphericity was significant providing further support for the adequacy of the samples. Examination of the covariance matrices revealed a large number of items with a score ≥ .30 suggesting factor analysis was appropriate (Tabachnick & Fidell, 2007). The number of factors with Eigen values > 1 was 12 for both samples. Examination of the scree plots was

inconclusive with breaks after the 3rd, 6th and 10th factors. Parallel analysis suggested a 6-factor solution would appropriately describe children's well- and ill-being. EFA was repeated forcing a 6-factor solution, however this solution was unsatisfactory as factors lacked clarity; Only the first two factors were adequately identified with multiple items loading significantly and above 0.4 but the other four factors were not clearly represented in the 6-factor solution. Therefore, several solutions were tested (i.e., 5, 6, 7 factor solutions). A 5-factor solution was revealed as the best fit for the data in terms of clearly defined factors, higher factor loadings (i.e., ≥ 0.40), and conceptual clarity for the younger age group.

Further analysis revealed a 31item, 5-dimensional model adequately represented the younger children's (7-11 years) well- and ill-being. This solution accounted for 39.5% of the variance. Internal consistency was good to excellent for all the scales with Cronbach alpha coefficients ranging from .74 to .89 (see Table 5.1). The 5 factors were comprised of 3 ill-being subscales (i.e., *depressive, physical ill-health, inertia*) and 2 well-being subscales (i.e., *positive high energy, secure/content*). Details of factors, items and factor loadings can be seen in Table 5.1.

The same process was repeated with the adolescent data set. Parallel analysis suggested a 4-5 factor solution; 4, 5, and 6 factor solutions were tested in SPSS using PAF and oblique rotation (direct oblimin) excluding missing cases pairwise. All solutions were unsupported (i.e., lacked clear factors). After further examination employing the same EFA approach described above, a 7-factor coherent solution (i.e., clarity of factors with fewer cross-loading items and a better balance in the ratio of items to factors than previous solutions) which explained 41.1% of the variance was produced.

The proposed 7 factor solution had 36 items. The factors were examined and all items loading ≥ .4 were retained. However, fewer than 3 items met this criterion for the seventh

factor therefore an item loading above .32 (i.e., ‘restless’) was retained to comprise a 3-item scale. On adolescent factor two, 3 items which loaded above .32 (i.e., ‘thrilled’, ‘excited’ and ’playful’) were judged to describe the factor well and were thus also retained. Internal

Table 5.1:

Proposed 5 factor solution of children's well- and ill-being presenting items factor loadings (31 items) and reliability scores for each scale.

Factors	F1 Positive high-energy		F2: Depressive		F3: Ill health		F4: Inertia		F5: Secure/content	
Items and factor loading	Playful	0.658*	worried	0.744*	sick	0.800*	Can't be bothered	0.584*	good mood	0.520*
	Excited	0.611*	alone	0.706*	ill	0.791*	fed-up	0.493*	good	0.520*
	Jolly	0.581*	deflated	0.688*	poorly	0.518*	annoyed	0.463*	relaxed	0.432*
	Thrilled	0.589*	blue	0.666*	pain	0.356*	tired in my body	0.363*	calm	0.428*
	Energized	0.579*	lonely	0.637*			bored	0.350*	loved	0.413*
	Couldn't stop smiling	0.565*	upset	0.637*						
	Joyful	0.546*	Felt like crying	.576*						
	Lively	0.559*	scared	0.571*						
			low	0.570*						
Cronbach's Alpha (N of items)		0.88 (8)		0.89 (9)		0.74 (4)		0.78 (5)		0.74 (5)

Note. *p < 0.05

Table 5.2

Proposed 7 factor 36 item solution conducted in SPSS using PAF and direct oblimin rotation, presenting items and factor loadings (adolescents).

Factors	F1 Depressive		F2 Positive high-energy		F3 Ill-health		F4 Secure/ content		F5 Inertia		F6 Engaged/ inspired		F7 Available energy	
Items and factor loadings	Alone	.712	Lively	.559	Ill	-.946	Calm	.662	Annoyed	-.649	Bright	.747	Full of energy	.563
	Scared	.617	Fit	.547	Sick	-.762	Relaxed	.589	Can't be bothered	-.629	Pleased	.620	*Not lively	-.482
	Upset	.613	Uplifted	.531	Poorly	-.722	Loved	.501	Bored	-.544	Bouncy	.484	*Restless	-.381
	Deflated	.603	Jolly	.488	Pain	-.521			Fed-up	-.508	Couldn't stop smiling	.416		
	Like crying	.543	Joyful	.462	Gloomy	-.403					Wanted to do more of what I was doing	.375		
	Blue	.523	Thrilled	.396										
	Sad	.437	Excited	.387										
	Worried	.433	Playful	.326										
Cronbach's Alpha (N of items)	0.87 (8)		0.82 (8)		0.81 (5)		0.64 (3)		0.81 (4)		0.69 (5)		0.62 (3)	

* NB these items were reversed in the CFA and ESEM

consistency was adequate to excellent for most of the scales with Cronbach alpha coefficients ranging from .62 to .87 (see table 5.2). The 7 factors were comprised of 3 ill-being subscales (i.e., *depressive, physical ill-health, inertia*) and 4 well-being subscales (i.e., *positive high energy, secure/content, engaged/inspired, available energy*) (see, table 5.2 for details of factors, items and factor loadings).

Discussion

The purpose of the first study in the current chapter was to test the initial factor structure of the two multidimensional well- and ill-being questionnaires (MMWIB-C/MMWIB-A). A key consideration was to reduce the number of items to a practicable number (approximately half of the 70 items derived from the second study of the thesis presented in chapter four) whilst ensuring statistical solutions did not undermine the content and meaning of the scales. The child MMWIB-C comprised three ill-being (i.e., depressive, ill-health, inertia) and two well-being (i.e., positive high energy, secure/content) scales, and the adolescent MMWIB-A comprised three ill-being (i.e., depressive, ill-health, inertia) and four well-being (i.e., positive high energy, secure/content, engaged/inspired and available energy) scales. The two solutions revealed apparent developmental differences between children and adolescents' experienced well- and ill-being with 2 fewer factors contributing to the child model of well- and ill-being. This finding is consistent with Marsh (1989) and Harter (1984) who found adolescents' self-concept was more differentiated than the children's solution.

In the present study there was more confluence between the child and adolescent solutions concerning the ill-being scales than the well-being scales. Both children and adolescent models comprised three negative or ill-being factors (i.e., 'depressive', 'ill-health' and 'inertia'). Ill-health was replicated in both solutions and was the third most important factor in both. Both the adolescent and child ill-health factor contained 'pain'. This item

loaded relatively weakly in the child solution and was considered for removal. When pain was removed from the scale, the internal consistency also improved from 0.79 to 0.82. However, this item was retained in the child model as the item intuitively appears to be linked to physical ill-health. Further, pain could be interpreted as emotional as well as physical which may account for the weaker loading on the child ill-health factor. In previous studies, children have had difficulty conceptualizing mental facets of being unwell (Gobbo & Raccanello, 2011; Perrin & Gerrity, 1981). One further difference with the adolescent scale was the inclusion of 'gloomy' which speaks of mental ill-health being part of this factor in the adolescent representation of ill-health (but not in the child solution).

The fourth child factor and fifth adolescent factor described a negative low activation, low engagement state termed 'inertia'. This factor once again was replicated across groups with one exception being the inclusion of 'tired in my body' in the child depiction. Here it would seem as though physical tiredness is more influential on the level of engagement and mood of children but not necessarily adolescents where cognitions seem to prevail over emotion (i.e., "annoyed", "can't be bothered" and "bored" were the higher factor loadings with "fed-up" the lowest loading item). The depressive factor was also prominent in both solutions, being first in the adolescent and second in the child pattern matrices respectively. This negative emotional factor contained nine items in the child and eight indicators in the adolescent solution.

In the present study, the positive aspects of well-being represented more divergence across the two age groups than the ill-being factors. In the child model, only two well-being factors emerged compared to four distinct facets of well-being in the adolescent model. In the children's solution, well-being was divided into two positive dimensions which appear to characterize high and low activation. Interestingly, both the child and adolescent solutions provided a 'secure/content' factor which shared three items (i.e., relaxed, calm and loved). A

difference with the child content/secure subscale was the highest loading items 'good mood' and 'good' were needed to identify this factor with the younger sample. Feeling 'good' and in a 'good mood' seem to share a rather generic meaning of positivity but both were the strongest loading items on the factor. Furthermore, when tested, removal of either items from the scale reduced reliability (i.e., from 0.73 to 0.64 if good mood was removed and from .73 to 0.65 if good was removed). These findings suggest that although the children have a narrower view of well-being, their concept of well-being shares commonality with the adolescent conceptualization. The key difference in the two shared well-being factors was the need for extra items to capture the concept of 'secure/content' with children which may be indicative of children's level of cognitive development in respect to their comprehension of a more generalized hedonic or pleasurable manifestation of feeling safe and happy. This is consistent with prior research concerning emotional development, where children aged under 11 years used basic descriptors and conceived of manifestations of emotions in less complex terms (Harter & Buddin, 1987).

The strongest factor for the children was positive high-energy which was the leading factor in the pattern matrix. This first factor shared similarities and items with the adolescent second factor; both contained items describing positive emotions (i.e., 'excited', 'playful', 'thrilled', 'jolly' and 'joyful') and items indicative of up-tempo energy (i.e., 'lively'). The adolescent solution also included 'fit' and 'uplifted' which loaded strongly on the factor and point to aspects of physical and spiritual health. Neither of these aspects were captured explicitly in the child solution of well- and ill-being. Instead the child factor incorporated 'couldn't stop smiling' (which was a key loading on the adolescent fourth factor (i.e., engaged/inspired)) and 'energized' (which did not load in the adolescent solution). Indeed, the positive high-energy factor was differentiated into three distinct well-being factors in the adolescent sample (i.e., positive high-energy, engaged/inspired and available energy)

suggesting children do not readily distinguish well-being manifestations in such nuanced terms. There is an indication here with the positive high energy factor, and in the emergence of the sixth and seventh adolescent factors, that energy has multiple facets in adolescent conceptions of well-being.

Previously the concept of feeling really alive or 'full of pep' has been depicted as linked to eudaimonic well-being in adult populations (Ryan & Fredrick,1997). However, based on findings reported in chapter three of this thesis, it may be that children cannot conceptualize personally available energy in this way. In chapter three, children appear to articulate energy with having had enough sleep, not being hungry and/or having had too much sugar or fizzy drinks rather than necessarily feeling energized by engagement in particular tasks which would be more associated with a eudaimonic experience of feeling inspired, engaged and with a boost to energy supplies. The divergence between the child and adolescent models was more apparent in the positive aspects of well-being. An explanation for this difference may be that certain aspects of well-being, such as the engaged/inspired and the available energy factors, are developmental in nature and are not part of younger children's epistemology of well-being (but are for adolescents). This was the case with respect to findings of the qualitative studies presented in chapter three and four of this thesis. The divergence in factors can also be explained in consideration of the known association of energy (e.g., Ryan and Frederick, 1997) and aspirations and goals (e.g., Bauer & McAdams, 2010; Sheldon & Kasser, 2001) with eudaimonic well-being. It follows that a person would be required to have the capacity to plan and think in the abstract in order to experience eudaimonia associated with being engaged, for example. This capability is apparent at around age 12 continuing into the early twenties (Keverne, 2004). Thus, the additional well-being factors in the adolescent model could be explained by differences in cognitive and emotional development between middle childhood and adolescence. This is also supported by what is

known concerning physical markers in the brain which are stimulated in puberty and account for changing emotional and cognitive capabilities (Berridge & Kringelbach, 2015). The implications of the findings in the current study tentatively point to evidence of a developmental trajectory in understanding of eudaimonic well-being.

Study Two

Having arrived at feasible well- and ill-being solutions for children and adolescents in the first study of this chapter, the next step was to examine the factor structure of both models. Traditionally in scale development studies confirmatory factor analysis (CFA) has followed EFA in a systemic process of determining the most parsimonious factor structure of a proposed measure (e.g., Briggs & Cheek, 1986; Ebesutani, Okamura, Higa-McMillan, & Chorpita, 2011). The key difference between EFA and CFA is the free estimation of all cross-loadings (Morin, Marsh, & Nagengast, 2013), and this flexibility lends itself as an exploratory method to identify latent factors, particularly when theoretical frameworks are unclear. With CFA, cross-loadings are not permitted in the independent clusters model (ICM) (Marsh, et al., 2009). Thus, CFA can produce biased parameter estimates which restrict the solution. In the present study, both ESEM and CFA will be employed to determine the most appropriate solution. Advances in statistical theory and computer software have enabled researchers to apply ever more complex techniques to provide increasingly extensive evidence of validity and reliability of proposed measures (Byrne, 2013). One such advance is the ESEM method which has been shown to better represent factor structure than CFA, particularly in multidimensional models (Marsh, et al., 2009; Marsh et al., 2014; Marsh et al., 2011; Appleton, Ntoumanis, Quested, Viladrich, & Duda, 2016; Myers, 2013; Myers et al., 2011). The ESEM approach is not limited by constraints of ICM as it integrates CFA with the more flexible EFA which allows items to cross-load onto non-intended factors within SEM (Asparouhov & Muthen, 2009; Marsh, et al., 2009).

Furthermore, the ESEM method can handle substantive and psychometric multidimensionality, often resulting in a better model fit (Marsh et al., 2014; Morin, Arens, & Marsh, 2016). For example, Marsh et al. (2009) re-examined a multidimensional instrument designed to assess Students' Evaluations of Educational Quality (SEEQ). The SEEQ had been found to have a strong replicable factor structure in many EFA studies yet in CFA studies, the SEEQ representative factors have been found to be inconsistent. Marsh and colleagues proposed that the variability in results could be explained by the highly correlated items within the different dimensions of the measurement model. Within a CFA, the framework was too restrictive (i.e., cross-loadings were not permitted) and thus produced a poor fitting model. In contrast, the structure better represented the data via an ESEM and the latent factors of the proposed model of teaching effectiveness. Based on prior research, it is expected that the ESEM approach will be more suitable in confirming the underlying factors in the two MMWIB(C/A) hypothesized models due to the complex, interrelated nature of the constructs of well- and ill-being. The highest loading items deemed to characterise well- and ill-being in the first study (see tables 5.1 and 5.2) were subjected to ESEM and CFA using Mplus version 19 (Asparouhov & Muthén, 2009).

One approach developed to enable further examination of factor structure is a bi-factor method which refers to two levels of common factors; general and group factors (Holzinger & Swineford, 1937). The bi-factor approach is particularly useful when exploring multidimensional models (Morin et al., 2016) as general or global factors (i.e., well- and ill-being) and group or specific factors (i.e., depressive, ill-health, inertia, positive high energy, secure/content, engaged/inspired, available energy) are represented in a reflective measurement model.

A bifactor specified model allows division of the total item covariance matrix into one or more global factors underlying responses to all items. Items are also enabled to load on

specific factors comprising subsets of items not explained by the global component. Items are therefore permitted to load on specific *and* global factors in a bi-factor model thereby enabling researchers to determine the independent influence of global (G) and specific (S) factors on associated correlates (Gignac, 2016; Morin et al., 2016). Bi-factor modelling is available in both ESEM and CFA. However, in practice, only one method is usually employed; the first order models produced in ESEM and CFA should be compared to determine which approach more clearly defines the factor structure (in this case, the two MMWIB-C/A), then the analysis is advanced to the bi-factor model using the superior approach (Gignac, 2016; Morin, et al., 2016). In the present study, it is possible that constructs have high and low ordered, interrelated factors, and as such it is important that cross-loadings (i.e., EFA) and global factors (i.e., bifactor) are enabled in the representative models. B-ESEM offers a flexible analytic solution which has been applied recently in the development of multidimensional scales (Appleton et al., 2016; Wiesner & Schanding, 2013) and examination of the factor structure of complex psychological constructs (Howard, Gagné, Morin, & Forest, 2016; Litalien et al., 2017; Sanchez-Oliva et al., 2017).

Methods

Participants. Independent samples from those included in the first study in this chapter were employed in the second study. Sample 3 comprised 377 children aged 7-11 years (*M* age = 9.54, SD 1.26), 150 of which were girls, and 7 failed to disclose gender. The fourth sample consisted of 347 adolescents aged 12-18 years (*M age* = 13.57, SD 1.35), 100 were female and 14 participants did not disclose gender. Procedures are as described in the overall method.

Data Analysis

In Mplus, a robust weighted least squares estimator (WLSMV) using a diagonal weight matrix was used in the analyses and data were treated as categorical. In the ESEM, a

target rotation which allowed intended factor loadings to be freely estimated but which ‘targets’ cross-loadings ~ zero was used (Howard, et al., 2016; Morin, et al. 2016).

Assessment of Model fit indices

The Chi-square (χ^2) statistic is often used to assess model fit, however, there are well reported issues: The effect of sample size and non-normal data which are not Chi-squared distributed often resulting in rejection of well-fitting models when assessing models according to the χ^2 test (Byrne, 2012; Marsh, 2004; Marsh, Hau, & Grayson, 2005). Due to the nature of the distribution, sample size and estimation technique used in the present study, the χ^2 value was not used to assess model fit. Structural equation models were evaluated using common comparative fit indices produced in Mplus (i.e., the comparative fit index (CFI) Bentler, 1990; and the Tucker-Lewis index (TLI) Tucker & Lewis, 1973). The root mean square error of approximation (RMSEA; Steiger, 1990) based on analysis of residuals, was also employed to assess model fit. The ESEM and Bi-ESEM approaches are relatively new and as such, experts recommend that standard model fit criteria established for CFA are used as guidance to determine best fitting models (Gignac, 2016; Marsh, Liem, Martin, Morin, & Nagengast, 2011). Therefore, in the current study CFI and TLI values > 0.90 and RMSEA <0.08 were employed to indicate acceptable fit (Marsh, 2004) and CFI and TLI values > 0.95 and RMSEA values < 0.06 were used to identify excellent fit (Hu & Bentler, 1998). Mplus also produces the weighted root mean square residual (WRMR) value. The WRMR has been suggested as an experimental statistic due to erratic results but a value of .90 or below is considered to represent a good fit with lower values indicative of better fitting models (L. K. Muthén & B. O. Muthén, 2012). Recently, the WRMR was proposed as an additional indicator of model fit with the value of 1.0 or below suggested to represent correctly or mildly mis-specified models estimated with WMLSV using categorical data with five ordered categories (as in the current study) (DiStefano, Liu, Jiang, & Shi, 2018). Based on this recent examination, the WRMR was also used to interpret model fit. Consideration of the standardised factor loadings and unique variance were additional criteria employed to

evaluate models (Gignac, 2016; Marsh, et al., 2011). It was important for items to load strongly on targeted factors and lower on non-intended factors, and for inter-item and inter-factor correlations to be appropriate conceptually in determining suitable models. Further, in comparison of ESEM and CFA models, lower standardised correlations between factors are indicative of a better representation of the data.

Results

The ESEM for both child and adolescent models of well- and ill-being were examined in comparison to the CFA solutions. Model fit statistics are presented for all models in Table 5.3. Morin et al (2016) recommends comparison of ESEM vs CFA models to ascertain best-fitting model. Overall, the ESEM solutions for both the child and adolescent models were a slightly better fit to the data than the CFA solutions. In the child ESEM solution, model fit indices demonstrated an excellent (CFI = 0.955; RMSEA = 0.057) and an acceptable fit to the data (TLI = 0.935). The adolescent ESEM solution produced an excellent (RMSEA = 0.047, CFI = 0.966) and good fit (TLI = 0.947) to the data. Results of the two CFAs were less promising; although the RMSEA for both CFA models was good (i.e., 0.053 child, 0.063 adolescent), other indices provided an adequate degree of fit to the data in respect of the child (CFI = 0.948; TLI = 0.943) and in the case of the adolescent (CFI = 0.917; TLI = 0.909) models of well- and ill-being. However, the WRMR values for both CFA models were above the recommended cut-off of 1.0, whereas the ESEM models produced WRMR values below 1.0. Based on the recent recommendations of DiStefano et al. (2018), these WRMR values support the interpretation that both ESEM solutions were a good fit to the data and the CFA models were mis-specified. Following Morin et al.'s (2016) advice, in addition to review of the model fit indices, a priori assumptions concerning the factor structure and examination of the parameter estimates and standardized factor correlations helped to determine the better

fitting models. As items are not permitted to cross-load on non-intended factors in a CFA solution, factor correlations are generally inflated in comparison to ESEM solutions where

Table 5.3

Goodness of fit statistics and information criteria for the models estimated on the MMWIB-Child/Adolescent

	CFI	TLI	RMSEA	RMSEA 90% CI	WRMR	χ^2	*Df*
Child model							
CFA	0.948	0.943	0.053	0.042-0.052	1.198	884.105*	424
ESEM	0.955	0.935	0.057	0.051-0.063	0.801	718.543*	320
B	0.959	0.934	0.057	0.052-0.063	0.750	655.276*	290
Adolescent model							
CFA	0.917	0.909	0.063	0.059-0.067	1.449	1359.296*	573
ESEM	0.966	0.947	0.480	0.042-0.054	0.659	718.989*	399
B	0.968	0.944	0.049	0.043-0.055	0.625	668.602*	364

Note. CFA = Confirmatory factor analysis; ESEM = Exploratory structural equation modelling; B= Bifactor model; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation; CI = Confidence interval; WRMR = weighted root mean square residual ESEM were estimated with target oblique rotation; bifactor-ESEM were estimated with bifactor orthogonal target rotation.

cross-loadings are allowed (Morin et al.,2016). Table 5.4 presents the standardized factor correlations for the CFA and ESEM MMWIB models. In the child models, the CFA produced higher factor correlations (r = -0.263 to r = 0.857) than the ESEM (r = -0.093 to r = 0.612). The highest factor correlations in both CFA and ESEM were between the three ill-being factors, though these correlations were substantially reduced in the ESEM. For the adolescent models, a similar pattern in the comparison between CFA and ESEM to the child findings was evident, with the ESEM resulting in lower factor correlations overall (r = -0.119 to r = 0.595) than the CFA (r = -0.108 to r = 0.833). In the adolescent models (as in the child models), the highest correlating factors in the ESEM and CFA were the three ill-being factors (though again these were considerably lower in the ESEM). For the adolescent factors not present in the child model, the CFA resulted in high positive and negative factor correlations for the seventh factor with all other factors (r = -0.845 to r = 0.674), whereas these correlations were relatively low in the ESEM (r = -0.282 to r = 0.277). The sixth factor correlations with all other factors were also inflated in the CFA (r = -0.323 to r = 0.833) in comparison with the ESEM (r = -0.201 to r = 0.525) in the adolescent sample.

In addition, parameter estimates were examined for both child and adolescent ESEM solutions. On examination of the standardized factor loadings (see Table 5.5 and 5.6), the first two factors in both groups loaded strongly and were well-defined (i.e., child ESEM; F1 = positive high energy varying from λ 0.528 to 0.771, F2 = depressive varying from λ 0.538 to 0.776; adolescent ESEM; F1= depressive varying from λ 0.633 to 0.790, F2 = positive high energy varying from λ 0.360 to 0.731). However, there were also strong cross-loadings (i.e., >0.3) on non-target factors. The remaining factors were less clearly defined across child and adolescent models. Although key items generally loaded strongly (e.g., >0.4) on target factor (i.e., 'ill-health') had higher cross-loadings on the first factor (i.e., 'depressive'). Correspondingly, though items loaded on intended factors with the unique adolescent factors

Table 5.4

Standardized Factor Correlations for the CFA and ESEM child and adolescent solutions for the MMWIB-C/A

	F1		F2		F3		F4		F5		F6	F7
F1			C -0.372**	A -0.376**	C -0.263**	A 0.793**	C -0.492**	A -0.206**	C 0.811**	A 0.760**	A -0.323**	A -0.845**
F2	C -0.298**	A -0.195**			C 0.789**	A -0.366**	C 0.857**	A -0.583**	C -0.425**	A -0.479**	A 0.833**	A 0.674**
F3	C -0.150**	A 0.595**	C 0.612**	A -0.186**			C 0.708**	A -0.108**	C -0.317**	A 0.690**	A -0.334**	A -0.835**
F4	C -0.221**	A -0.202**	C 0.520**	A 0.252**	C 0.364**	A -0.148**			C -0.449**	A -0.181**	A 0.577**	A 0.507**
F5	C 0.554**	A 0.551**	C -0.296**	A -0.179**	C -0.093*	A 0.419**	C -0.243**	A -0.146**			A -0.430**	A -0.786**
F6		A -0.119*		A 0.525**		A -0.201**		A 0.228**		A -0.122*		A 0.655**
F7		A -0.221**		A 0.217**		A -0.282**		A 0.277**		A -0.144**	A 0.174**	

Note. CFA correlations (above the diagonal) and ESEM correlations (below the diagonal). *p < 0.05, **p < 0.01; C= Child; A = Adolescent;
Child factors; F1 = positive high energy; F2 = depressive; F3 = Ill-health; F4 = inertia; F5 = secure/content;
Adolescent factors; F1 = depressive; F2 = positive high energy; F3 = Ill-health; F4 = secure/content; F5 = inertia; F6 = engaged/inspired; F7 = available energy.

(i.e., engaged/inspired and available energy) there were high cross-loadings; One of the five items comprising the sixth factor loaded higher on the second factor, high positive energy ('couldn't stop smiling'). This cross-loading could be expected as this item loaded on the positive high energy factor in the child model. The seventh adolescent factor was more problematic, in that the three target loadings were low and there were higher loadings on nontarget factors for all three items.

Despite the non-perfect fit and evidence of cross-loading items, the decision to move on to the bifactor model was judged to be an appropriate way to further test the models. Given the fit was better and the factor correlations were lower for the ESEM over the CFA, the former approach was chosen as the superior representation of a multidimensional model (Marsh et al., 2009; Morin et al., 2013). A bifactor model within an ESEM framework was therefore tested next in examination of the multidimensionality of the constructs (Morin, et al., 2016).

The target and non-target loadings and cross-loadings produced in ESEM were used to define the five and seven S factors respectively of the child (i.e., positive high-energy, depressive, ill-health, inertia, and secure/content) and adolescent (i.e., depressive, positive high energy, ill-health, secure/content, inertia, engaged/inspired and available energy) well- and ill-being models estimated in B-ESEM. An orthogonal target rotation was chosen to best represent the proposed hybrid structure of the model. In the B-ESEM, items were additionally permitted to load on the appropriate global factor: The depressive, ill-health and inertia items defined the ill-being G factor in the child and adolescent models. The well-being G factors were defined by the positive high energy and secure/content items in both child and adolescent models and with the addition of the engaged/inspired and available energy items in the adolescent model. Review of the model fit indices suggests the child B-ESEM model provides an adequate (TLI = 0.934) to excellent (CFI = 0.959; RMSEA = 0.057) degree of fit

Table 5.5:

Standardized factor loadings and unique variance statistics for the child ESEM model.

	F1	F2	F3	F4	F5	uniqueness
playful	**0.545****	-0.155**	0.142**	-0.036	0.294**	0.571**
excited	**0.715****	-0.141**	0.024	-0.047	0.332**	0.356**
thrilled	**0.528****	-0.074	-0.015	-0.096**	0.137**	0.688**
jolly	**0.771****	-0.068	0.026	-0.167**	0.164**	0.346**
energized	**0.773****	-0.160**	-0.229**	0.057	-0.043	0.319**
lively	**0.675****	-0.112**	-0.217**	-0.140**	0.106**	0.454**
Couldn't stop smiling	**0.572****	-0.044	0.046	-0.125*	0.143**	0.632**
joyful	**0.715****	-0.190**	0.063	-0.161**	0.357**	0.296**
worried	-0.142**	**0.644****	0.224**	0.248**	-0.173**	0.424**
alone	-0.197**	**0.776****	0.126**	-0.047	0.038	0.336**
deflated	0.012	**0.570****	0.068	0.311**	-0.148**	0.551**
blue	-0.095*	**0.538****	0.234**	0.137**	-0.211**	0.584**
lonely	-0.120**	**0.769****	0.126**	0.052	-0.038	0.374**
upset	-0.171**	**0.645****	0.119**	0.233**	0.053	0.484**
Felt like crying	-0.012	**0.707****	0.201**	0.210**	0.005	0.416**
scared	-0.103**	**0.578****	0.275**	0.178**	-0.063	0.544**
low	-0.142**	**0.551****	0.086	0.361**	-0.045	0.537**

Bold signifies items on their intended factor.

Note. *p < 0.05, **p < 0.01; F1 = positive high energy; F2 = depressive; F3 = Ill-health; F4 = inertia; F5 = secure/content.

Table 5.5 continued

	F1	F2	F3	F4	F5	uniqueness
sick	-0.072	0.486**	**0.639****	0.141**	-0.014	0.330**
ill	-0.097**	0.395**	**0.754****	0.258**	-0.013	0.200**
poorly	-0.097*	0.555**	**0.507****	0.014	-0.160**	0.401**
pain	0.111*	0.037**	**0.176****	0.339**	-0.143*	0.769**
Can't be bothered	-0.192**	0.230**	0.078	**0.420****	-0.073	0.649**
fed-up	-0.245**	0.355**	0.212**	**0.596****	0.004	0.319**
annoyed	-0.233**	0.470**	0.204**	**0.563****	0.020	0.405**
tired in my body	-0.033	0.427**	0.179**	**0.290****	-0.128**	0.651**
bored	-0.286**	0.463**	0.070	**0.354****	-0.118**	0.486**
good mood	0.503**	-0.265**	-0.144**	0.043	**0.539****	0.363**
good	0.486**	-0.263**	-0.070	-0.043	**0.485****	0.452**
relaxed	0.355**	-0.069	-0.001	-0.110	**0.498****	0.609**
calm	0.275**	-0.093	-0.087	-0.013	**0.613****	0.532**
loved	0.270**	0.065	0.091	-0.081	**0.442****	0.713**

Bold signifies items on their intended factor.
Note. *p < 0.05, **p < 0.01; F1 = positive high energy; F2 = depressive; F3 = Ill-health; F4 = inertia; F5 = secure/content.

Table 5.6

Standardized factor loadings and unique variance statistics for the adolescent ESEM model.

	F1	F2	F3	F4	F5	F6	F7	uniqueness
Alone	**0.696****	-0.075	0.129**	0.047	0.182**	-0.124*	0.075	0.437**
Scared	**0.641****	0.062	0.176**	-0.120*	0.002	-0.037	0.098	0.529**
Upset	**0.633****	-0.182**	0.168**	-0.098	0.105*	0.135**	-0.098*	0.490**
Deflated	**0.790****	-0.142**	0.256**	0.009	0.226**	0.033	-0.048	0.235**
Like crying	**0.747****	-0.101*	0.288**	-0.021	0.060	-0.059	0.021	0.341**
Blue	**0.656****	-0.090	0.059**	0.215**	0.236**	-0.058	-0.167**	0.426**
Sad	**0.701****	-0.078	0.314**	-0.165**	0.159**	-0.143**	-0.166**	0.303**
Worried	**0.686****	-0.054	0.142**	-0.090*	0.245**	0.044	-0.019	0.436**
Lively	-0.151**	**0.698****	-0.016	0.017	-0.103*	0.166**	-0.002	0.451**
Fit	-0.262**	**0.456****	-0.135**	0.041	0.041	0.227**	0.004	0.650**
Uplifted	-0.066	**0.731****	0.047	0.049	-0.119*	0.058	-0.355**	0.313**
Jolly	-0.111**	**0.659****	-0.087*	0.185**	-0.179**	0.144**	0.220**	0.411**
Joyful	-0.090**	**0.611****	-0.225**	0.262**	-0.129**	0.191**	0.312**	0.349**
Thrilled	-0.088*	**0.625****	0.070	-0.044	-0.135**	0.231**	-0.068	0.518**
Excited	-0.156**	**0.524****	0.046	0.044	-0.175**	0.389**	0.507**	0.258**
Playful	-0.026	**0.360****	-0.197**	0.106	0.132*	0.218**	0.284**	0.674**
Ill	0.316**	-0.118**	**0.746****	0.088*	0.149**	-0.154**	-0.027	0.275**
Sick	0.338**	-0.090*	**0.687****	-0.005	0.226**	-0.006	0.018	0.354**
Poorly	0.443**	-0.078	**0.641****	0.164**	0.069	-0.108*	0.050	0.342**
Pain	0.447**	-0.068	**0.410****	-0.212**	0.199**	-0.024	-0.149*	0.521**
Gloomy	0.464**	-0.101*	**0.319****	-0.040	0.119*	0.087	-0.437**	0.458**

Bold signifies items on their intended factor. Note. *p < 0.05, **p < 0.01; F1 = depressive; F2 = positive high energy; F3 = Ill-health; F4 = secure/content; F5 = inertia; F6 = engaged/inspired; F7 = available energy.

Table 5.6
continued

	F1	F2	F3	F4	F5	F6	F7	uniqueness
Calm	-0.105*	0.147**	0.058	**0.635****	0.067	0.114**	0.058	0.539**
Relaxed	-0.080	0.326**	0.034	**0.484****	-0.020	0.181**	0.127**	0.603**
Loved	-0.108*	0.253**	0.035	**0.425****	0.057	0.221**	0.091	0.682**
Annoyed	0.444**	-0.195**	0.207**	-0.051	**0.498****	-0.071	-0.063	0.462**
Can't be bothered	0.313**	-0.194**	0.202**	0.090*	**0.646****	-0.097*	-0.009	0.389**
Bored	0.375**	-0.112**	0.134**	0.093*	**0.568****	-0.243**	-0.054	0.435**
Fed-up	0.427**	-0.176**	0.240**	-0.057	**0.503****	0.054	-0.087	0.463**
Bright	-0.147**	0.384**	-0.007	0.242**	-0.136*	**0.530****	0.129**	0.456**
Pleased	-0.225**	0.390**	-0.051	0.103*	-0.068	**0.521****	0.136**	0.489**
Bouncy	0.020	0.205**	-0.069	0.169**	-0.220**	**0.640****	-0.022	0.466**
Couldn't stop smiling	0.021	0.394**	-0.222**	0.020	0.042	**0.277****	0.070	0.711**
Wanted to do more of what I was doing	0.065	0.122**	-0.088	-0.107*	0.070	**0.396****	-0.016	0.800**
Full of energy	-0.110*	0.449*	-0.174**	0.181**	0.024	0.342**	**0.293****	0.521**
Not lively	-0.531**	0.090	-0.344**	0.148**	-0.232**	0.175**	**0.203****	0.444**
Restless	-0.356**	-0.071	-0.297**	0.288**	-0.380**	0.015	**0.188***	0.517

Bold signifies items on their intended factor. Note. *p < 0.05, **p < 0.01; F1 = depressive; F2 = positive high energy; F3 = Ill-health; F4 = secure/content; F5 = inertia; F6 = engaged/inspired; F7 = available energy.

to the data. The CFI had improved, RMSEA was slightly improved in respect of the confidence intervals, and the WRMR was also slightly improved from the ESEM (0.801) to B-ESEM (0.750). The model fit was similar for the adolescent from ESEM to B-ESEM which provided an excellent (CFI = 0.968, RMSEA = 0.049), adequate (TLI = 0.944) and improved WRMR (ESEM = 0.659, B-ESEM = 0.625). Overall, the B-ESEM solution was a slightly better fit to the data in both the child and adolescent models. Examination of the factor loadings for the child (see Table 5.7) and adolescent (see Table 5.8) B-ESEM, however, revealed mixed results in respect of the G-factors (i.e., well- and ill-being) for the child and adolescent bifactor models. On the child model there were significant and moderate loadings on the ill-being G-factor for 11 of the 18 items, ranging from λ 0.220 to 0.365 accommodating all depressive S-factor items and the two lowest loading inertia S-factor items (which both cross-loaded on F2). However, none of the well-being items loaded significantly on the G-factor except for joyful (λ = .220). These findings suggest that, although the S-factors tap into specific facets or dimensions of well- and ill-being, only the depressive S-factor adds information to the G-factor.

In contrast, for the adolescent bifactor solution, there were significant loadings on both G-factors. More specifically, there were low to moderate significant loadings on the well-being G-factor representing 14 of 19 items from all four well-being factors (ranging from λ 0.154 to 0.412), in addition to five non-significant loadings. Likewise, with the 9 of 17 ill-being items, there were also significant but lower loadings on the G-factor (ranging from λ 0.104 to 0.195). The key loadings comprised of seven depressive factor items with one item each from the two other ill-being S-factors also represented. Further examination of the B-ESEM solutions revealed that all S-factors in both models were defined with significant moderate to strongly loading items (ranging from λ > 0.3 to > 0.7) on their

targeted S-factors, although factor 7 only had one significant loading. Assessment of the five common factors across the child and adolescent solutions revealed the three most prominent factors were well defined. Positive high energy (i.e., child F1, adolescent F2) had strong significant loadings (ranging from λ 0.360 to 0.731) as did the depressive factor (i.e., child F2, adolescent F1; ranging from λ 0.538 to 0.790). In the third factor, F3 for both groups, the key highest loading items (i.e., sick, ill and poorly) depicting ill-health, loaded strongly (ranging from λ 0.507 to 0.754). The other contributory items to the ill-health scale (i.e., 'pain' in the child, and 'gloomy' and 'pain' in the adolescent) had slightly higher loadings on the intended factor than in the ESEM, however, there were again high cross-loadings on the depressive factor. The remaining common items (i.e., comprising inertia and secure/content) had a significant loading on their respective intended S-factors (ranging from λ 0.325 to 0.613). As in the ESEM, there were also multiple high cross-loadings on non-intended (though not unexpected) factors (i.e., secure/content items positively cross-loaded on other well-being S-factors and negatively on ill-being S-factors with inertia items cross-loaded positively on other ill-being S-factors and negatively on well-being S-factors). Concerning the two unique adolescent factors (i.e., F6, engaged/inspired; F7, available energy), the F6 items loaded significantly on the intended S-factor, but there were multiple high cross-loadings (e.g., λ 0.273) on non-intended factors and one item, 'couldn't stop smiling', had a higher loading on the second factor (i.e., λ 0.394 on positive high energy). The last aspect of well-being, F7, had one item loading significantly (i.e., full of energy λ 0.300). This was not unexpected as, of the three items in this factor, two items were reversed and it was these items which failed to load (but loaded significantly (negatively) on F1 and F5). With only three items, the factor was also not surprisingly weaker in respect of internal consistency (i.e., 0.56) compared to the other factors. These findings for the adolescent B-ESEM solution provide some support of the S-factors informing the G-factors and suggest the S-factors

depict distinctive facets of well- and ill-being. However, even though cross-loadings are acceptable in ESEM solutions there is still a degree of ambiguity affecting the adolescent solution due to multiple non-intended cross-loadings higher than on the targeted factors.

To summarize, the ESEM solutions for the child and adolescent MMWIB provide a better fit to these data than the CFA for both groups. In turn, the B-ESEM provides a slightly better fit according to the overall model fit indices (i.e., improved CFI and WRMR values). Despite producing the best fit, further examination of bi-factor model parameters reveals the child solution is problematic with only depressive items being representative of the ill-being G-factor. In contrast, many of the items in the adolescent B-ESEM, inform S-factors and both G-factors. Further, though the adolescent S-factors demonstrate relevant specificity, the multiple cross-loadings challenge the clarity and 'cleanness' of the solution due to the higher loadings on non-intended factors.

Discussion

The purpose of the second study in this chapter was to build on the exploratory factor analysis completed in study one to further examine the psychometric properties of the two proposed multidimensional measures of child and adolescent well- and ill-being (MMWIB-C/A). Employing independent samples from the exploratory studies, the two solutions, one for the children and one for adolescents, were examined. Overall, the 31 items retained captured the facets of well- and ill-being as proposed in the EFA child solution provided in study one of the current chapter. However, the 7 factor 36 item adolescent model was inconclusive, particularly in respect of the seventh factor 'available energy.' However, the cross-loadings made conceptual sense. Further explanation of these findings in respect of the supplementary adolescent well-being factors could be to do with the well-being developmental and/or pubertal level of the adolescents involved in the study. The mean age of adolescent participants in this sample was 13.57 years suggesting these participants may

well not have reached the pubertal stage or developmental levels associated with these two factors which are assumed to characterize eudaimonic well-being. Nevertheless, as expected,

Table 5.7
Standardized factor loadings and unique variance statistics for the child B-ESEM model.

	F1	F2	F3	F4	F5	WB	IB	uniqueness
playful	**0.343****	-0.158**	0.076	-0.032	0.393**	**1.000**		-0.304
excited	**0.687****	-0.100**	0.006	-0.087	0.363**	**0.129**		0.362**
thrilled	**0.504****	-0.085	0.020	-0.097*	0.154**	**0.126**		0.690**
jolly	**0.763****	-0.019	0.036	-0.196**	0.188**	**0.105**		0.332**
energized	**0.808****	-0.158**	-0.201**	0.057	-0.048	**0.076**		0.271**
lively	**0.668****	-0.092	-0.183**	-0.146**	0.115**	**0.105**		0.466**
Couldn't stop smiling	**0.551****	-0.093*	0.129**	-0.120*	0.159**	**0.101**		0.621**
joyful	**0.664****	-0.092	-0.041	-0.211**	0.386**	**0.220***		0.307**
worried	-0.245**	**0.005**	0.564**	0.185	-0.212**		**1.000**	-0.458
alone	-0.198**	**0.692****	0.167**	-0.018	-0.018		**0.340****	0.338**
deflated	-0.001	**0.378****	0.172**	0.351**	-0.164**		**0.335****	0.565**
blue	-0.102*	**0.435****	0.291**	0.179**	-0.227**		**0.221****	0.584**
lonely	-0.116**	**0.695****	0.153*	0.133**	-0.084*		**0.339****	0.340**
upset	-0.171**	**0.494****	0.199**	0.292**	-0.001		**0.323****	0.498**
Felt like crying	-0.039	**0.515****	0.309**	0.269**	-0.010		**0.365****	0.433**
scared	-0.136**	**0.425****	0.349**	0.220**	-0.060		**0.275****	0.552**
low	-0.096**	**0.380****	0.175	0.408**	-0.079		**0.291****	0.545**

Bold signifies items on their intended factor.
Note. *p < 0.05, **p < 0.01; F1 = positive high energy; F2 = depressive; F3 = Ill-health; F4 = inertia; F5 = secure/content; WB = well-being; IB = ill-being.

Table 5.7 *continued*

	F1	F2	F3	F4	F5	WB	IB	uniqueness
sick	-0.096*	0.451**	**0.644****	0.173**	-0.002		**0.076**	0.336**
ill	-0.109**	0.415**	**0.728****	0.288**	0.002		**-0.058**	0.199**
poorly	-0.100*	0.468**	**0.564****	0.062	-0.172**		**0.150**	0.397**
pain	0.111*	0.142	**0.224****	0.353**	-0.137**		**0.090**	0.766**
Can't be bothered	-0.193**	0.283**	0.095	**0.455****	-0.088		**0.131**	0.641**
fed-up	-0.249**	0.378**	0.228**	**0.642****	-0.014		**0.155**	0.307**
annoyed	-0.249**	0.307**	0.227**	**0.588****	0.009		**0.192**	0.410**
tired in my body	-0.057	0.320**	0.249**	**0.325****	-0.121**		**0.229***	0.660**
bored	-0.279**	0.463**	0.077	**0.411****	-0.157**		**0.220***	0.460**
good mood	0.506**	-0.321**	-0.082	0.021	**0.565****	**-0.050**		0.312**
good	0.468**	-0.244**	-0.094	-0.087	**0.500****	**0.063**		0.451**
relaxed	0.343**	0.075	-0.113	-0.144	**0.518****	**0.060**		0.518**
calm	0.290**	-0.061	-0.081	-0.031	**0.613****	**-0.098**		0.571**
loved	0.253**	0.019	0.168	-0.052	**0.441****	**0.012**		0.711**

Bold signifies items on their intended factor.
Note. *p < 0.05, **p < 0.01; F1 = positive high energy; F2 = depressive; F3 = Ill-health; F4 = inertia; F5 = secure/content; WB = well-being; IB = ill-being.

Table 5.8

Standardized factor loadings and unique variance statistics for the adolescent B-ESEM model.

B-ESEM	F1	F2	F3	F4	F5	F6	F7			uniqueness
Alone	**0.450****	-0.065	0.140	-0.010	0.416**	-0.106	0.059		**1.000**	-0.415
Scared	**0.622****	0.106	0.183**	-0.111	-0.006	-0.046	0.090		**0.161****	0.520**
Upset	**0.645****	-0.168**	0.159**	-0.082	0.087	0.101	-0.092*		**0.102**	0.487**
Deflated	**0.794****	-0.138**	0.255**	0.025	0.207**	0.017	-0.023		**0.131****	0.224**
Like crying	**0.703****	-0.097*	0.300**	-0.030	0.078	-0.055	0.031		**0.195****	0.357**
Blue	**0.615****	-0.080	0.080	0.201**	0.260**	-0.049	-0.182**		**0.164****	0.439**
Sad	**0.695****	-0.097	0.328**	-0.161**	0.141**	-0.144**	-0.120*		**0.104****	0.309**
Worried	**0.654****	-0.015	0.180**	-0.110*	0.259**	0.053	-0.021		**0.130****	0.440**
Lively	-0.162**	**0.216**	-0.113	0.043	-0.209**	-0.067	0.079	**1.000**		-0.142
Fit	-0.307**	**0.365****	-0.101*	0.006	0.050	0.226	-0.002	**0.284****		0.628**
Uplifted	-0.097	**0.645****	0.086	0.033	-0.146*	0.030	-0.398**	**0.387****		0.235**
Jolly	-0.113**	**0.498****	-0.122**	0.213**	-0.224**	0.121*	0.223**	**0.367****		0.429**
Joyful	-0.072	**0.608****	-0.255**	0.285**	-0.166**	0.164**	0.280**	**0.234**		0.291**
Thrilled	-0.099*	**0.443****	0.055	-0.020	-0.176**	0.195**	-0.047	**0.412****		0.550**
Excited	-0.155**	**0.467****	0.025	0.065	-0.218**	0.369**	0.491**	**0.263***		0.259**
Playful	-0.058	**0.410****	-0.162**	0.072	0.153**	0.224**	0.240**	**0.126**		0.650**
Ill	0.324**	-0.133**	**0.737****	0.117**	0.113**	-0.181**	0.005		**0.030**	0.274**
Sick	0.358**	-0.101*	**0.679****	0.030	0.177**	-0.034	0.059		**0.012**	0.364**
Poorly	0.397**	-0.087	**0.641****	0.179**	0.073	-0.108*	0.046		**0.175****	0.342**
Pain	0.408**	-0.031	**0.471****	-0.256**	0.219**	-0.003	-0.136		**0.076**	0.473**
Gloomy	0.459**	-0.076	**0.348****	-0.050	0.116	0.071	-0.437**		**0.070**	0.446**

Bold signifies items on their intended factor. Note. *p < 0.05, **p < 0.01; F1 = depressive; F2 = positive high energy; F3 = Ill-health; F4 = secure/content; F5 = inertia; F6 = engaged/inspired; F7 = available energy; WB = well-being; IB = ill-being.

Table 5.8 *continued*

	F1	F2	F3	F4	F5	F6	F7			uniqueness
Calm	-0.147**	0.158**	0.079	**0.589****	0.112*	0.132**	0.043	**0.063**		0.564**
Relaxed	-0.125**	0.283**	0.050	**0.454****	0.013	0.193**	0.115**	**0.178***		0.614**
Loved	-0.103	0.259**	0.035	**0.429****	0.033	0.217**	0.066	**0.105**		0.674**
Annoyed	0.428**	-0.190**	0.233**	-0.060	**0.510****	-0.078	-0.060		**0.038**	0.451**
Can't be bothered	0.403**	-0.201**	0.178**	0.124**	**0.576****	-0.136**	0.038		**-0.156****	0.374**
Bored	0.422**	-0.118*	0.122**	0.118**	**0.519****	-0.267**	-0.032		**-0.051**	0.434**
Fed-up	0.475**	-0.164**	0.239**	-0.036	**0.456****	0.019	-0.064		**-0.051**	0.475**
Bright	-0.135**	0.235**	-0.044	0.273**	-0.183**	**0.487****	0.145**	**0.327****		0.451**
Pleased	-0.237**	0.272**	-0.056	0.107*	-0.094*	**0.503****	0.142**	**0.300****		0.423**
Bouncy	0.061	0.060	-0.126**	0.214**	-0.275**	**0.598****	-0.008	**0.273****		0.688**
Couldn't stop smiling	0.018	0.405**	-0.206**	0.008	0.031	**0.268****	0.029	**0.177***		0.711**
Wanted to do more of what I was doing	0.027	0.073	-0.054	-0.142**	0.108	**0.413****	-0.021	**0.154***		0.764**
Full of energy	-0.165**	0.324**	-0.161**	0.158**	0.058	0.344**	**0.300****	**0.321****		0.502**
Not lively	-0.560**	0.153**	-0.340**	0.125*	-0.187**	0.193**	**0.149***	**-0.047**		0.435**
Restless	-0.367**	-0.009	-0.325**	0.289**	-0.330**	0.032	**0.135**	**0.063**		0.531**

Bold signifies items on their intended factor. Note. *p < 0.05, **p < 0.01; F1 = depressive; F2 = positive high energy; F3 = Ill-health; F4 = secure/content; F5 = inertia; F6 = engaged/inspired; F7 = available energy; WB = well-being; IB = ill-being.

the ESEM models for both child and adolescent well- and ill-being fitted these data better than the CFA solutions for both groups. Therefore, the B-ESEM was the chosen approach to further test the MMWIB-C and in particular the unique adolescent sixth and seventh factors in the MMWIB-A.

The B-ESEM showed a slightly better fit according to the model fit indices, albeit the child model failed to adequately represent the G-factors. However, the G-factors (i.e., well- and ill-being) were informed by items in the adolescent model, with most of the F1 and F2 items loading significantly (on ill- and well-being, respectively). It is unsurprising that the two prominent factors in the adolescent model (i.e., F1; depressive and F2; positive high energy) are key informants of well- and ill-being due to the emotional content of each, which are similarly represented by positive and negative affect in subjective well-being (Diener, 1984). Interestingly, items strongly informing the third S-factor (i.e., ill-health) for both child and adolescent groups demonstrated little to no influence on the global ill-being factor. Specifically, no ill-health items loaded significantly in the child sample and one item loaded weakly (0.175) (albeit significantly) in the adolescent sample on the ill-being G-factor in the bifactor solution. Further, there were some issues with the lower loading ill-health items (i.e., 'pain' and 'gloomy') having higher loadings on the non-intended depressive factor in respect of the adolescents whereas in the child ESEM and B-ESEM 'pain' loaded more strongly on the 'inertia' factor. The inconsistency revealed in distinguishing possible mental from physical factors of ill-health (i.e., 'pain' and 'gloomy') may be attributable to the age and developmental level of participants involved in the current research. These two items seem to refer to emotional facets of health: for example, pain could also be emotional pain and gloomy could characterise low mood and indeed both items cross-loaded on the depressive factor in this study. In contrast, the children appear to associate pain with negative inactivity more than with emotional manifestations. Prior research has found younger children often do

not consider mental health in their conceptions of illness (Gobbo & Raccanello, 2011; Perrin & Gerrity, 1981) which may explain the difficulties in capturing these aspects of ill-being in the current findings.

In respect to ESEM representations of multidimensional models, cross-loading items are not only expected but provide a better depiction than 'clean' items which do not reflect the inter-related nature of the constructs of interest (Morin et al., 2016). Indeed, when children and adolescents discussed their concepts of well- and ill-being in chapter three, often participants struggled to tease apart perceived states of well and/or ill-being. However, younger children in the study tended to be more distinct in their categorisation of the constructs in chapter three and in the current findings the items were strongly related to intended factors aligned with previous studies of wellness. For example, children have expressed emotions as occurring singularly and were only able to conceive of multiply occurring wellness states with greater cognitive and emotional maturity (Harter & Buddin, 1987; Pons et al., 2004). Moreover, the older participants in the study in chapter three were able to articulate complex associations between aspects of well- and ill-being and discussed the influence of thoughts on emotions, actions and physical health and vice-versa. It is therefore not unreasonable that multiple cross-loadings were present in the ESEM and B-ESEM solutions of the MMWIB-C/A. It also follows that the CFA solution was inferior to the ESEM models as has been supported in many recent studies of multidimensional constructs that have employed these analytic techniques (Appleton, et al., 2016; Howard, et al., 2016; Marsh et al., 2009; Morin et al., 2016).

In the current study, items did for the most part load significantly on their intended factors as is expected in ESEM solutions (Marsh et al., 2013). However, there were some high non-intended loadings with items from the unique adolescent factors of well-being (i.e., factor 6; engaged/inspired and factor 7; available energy). In the current sample of adolescent

participants, the majority were male and the mean age was 13-years, which may mean that many participants were in a pre-pubertal phase. Assuming this was the case, many more adolescent participants in the current study had not reached the developmental stage which may be necessary to conceive the aspects of well-being characterised by the available energy and engaged/inspired factors proposed to be associated with eudaimonic well-being. Therefore, although the solutions were not perfect the present findings were promising. Thus, the decision was made to subject the current MMWIB-C/A questionnaires to further psychometric tests to better understand the child and adolescent models of well- and ill-being in the next study.

Study Three

The purpose of study three was to further assess the psychometric properties of the MMWIB-C/MMWIB-A. The aim was to examine the concurrent validity of these two questionnaires and provide further support for the proposed multidimensional structure of children's and adolescents' conceptualisations of well- and ill-being. Correlational analyses were conducted to test the extent that scores of the MMWIB-C/MMWIB-A (and well- and ill-being subscales) are related in an expected manner with extant scales. Some of the most popular and commonly used scales currently employed to assess young people's wellness were selected for this third study. If MMWIB-C/MMWIB-A subscale scores are in concordance with these currently validated scales, it is assumed the MMWIB is measuring the intended constructs (De Vellis, 2016).

An additional aim was to examine children's and adolescents' results in relation to the existing measures to determine potential developmental patterns in these data. Specifically, strength and direction of correlations with well-being and ill-being (sub-scales and total scales) and the validated scales of interest in this study were examined for similarities and differences across the two groups. Finally, of particular interest in this study are findings

relating to adolescent factors 6 and 7 to determine if these scales offer any evidence of concurrent validity of adolescents' well-being states.

Method

Participants and procedure. The fifth sample comprised children (N = 679, 320 girls with 17 participants failing to disclose gender) aged 7-11 years old, and the sixth sample, adolescents aged 12-16 years old (N = 309, 130 girls, 21 participants did not disclose gender). Both samples were recruited from schools (based in the Midlands, East and South West of England) took part in the study. In this study, 3 questionnaire packs were created which all contained the MMWIB along with a selection of extant previously validated measures. The questionnaire packs were divided into 3 samples and then randomly allocated within school year groups to achieve a representative age-range of respondents across the measures. The purpose of sampling in this way was to reduce the number of items overall to an acceptable quantity for children to answer (i.e., 98, 94 and 110 items in pack 1, 2 and 3 respectively). Research protocols for questionnaire administration are described above in the overall method. The timeframe remained consistent throughout the different scales used in each questionnaire pack (i.e., over the past month).

Measures. The MMWIB-C/MMWIB-A in the present study used the same stem and response scale as described above in study one of this chapter.

The Multidimensional Students Life Satisfaction Scale. The Multidimensional Students Life Satisfaction Scale (MSLSS; Huebner, 1994) is a 40 item scale which encompasses 5 specific domains considered important to children's life satisfaction (i.e., family (e.g., 'my family is better than most'); friends (e.g., I have enough friends'); school (e.g., 'I like being in school'); living environment (e.g., 'I like my neighborhood'); self (e.g., 'I think I am good looking')). The MSLSS enables differentiated assessment of satisfaction in each specific area in addition to an overall assessment. In the present study, a 6-point response range (1 = strongly disagree, 2 = moderately disagree, 3 = mildly disagree, 4 = mildly agree, 5 = moderately agree, 6 = strongly disagree) was chosen as the most

appropriate across the targeted age range (7 -17 years). This format has been previously used with middle and high school students (Huebner, Laughlin, Ash, & Gilman, 1998). According to Gilman, Huebner, and Laughlin (2000), the MSLSS has good internal consistency with Cronbach alpha coefficients of 0.91 reported for the total scale score. In the current study, children aged 7-11 years (N = 189, M age = 9.62 years (SD = 1.14)) adolescents aged 12- 16 years (N = 128, M age = 13.21 (SD = 0.90)) completed the MSLSS.

The Brief Multidimensional Students Life Satisfaction scale. The Brief Multidimensional Students Life Satisfaction Scale (BMSLSS: Seligson, Huebner, & Valois, 2003) is a 5-item scale derived from the 5 domains of the MSLSS (i.e., 'I would describe my satisfaction with my …family, friends, school, living environment, self, as…'). The 'terrible-delighted' 7-point response scale is used (i.e., 1 = Terrible, 2 = Unhappy, 3 = Mostly Dissatisfied, 4 = Mixed, 5 = Mostly Satisfied, 6 = Pleased, 7 = Delighted). Seligson et al. (2003) report that the BMSLSS has acceptable internal consistency with Cronbach's alpha coefficients of 0.75 reported for the total scale score. In the current study, children aged 7-11 years (N = 218, M age = 8.93 years (SD = 1.11)) and adolescents aged 12-14 years (N = 107, M age = 13.26 years (SD = 0.80)) completed the BMSLSS.

KIDSCREEN-10. The KIDSCREEN-10 health related quality of life scale (HRQoL) was derived from KIDSCREEN-27 which itself was derived from KIDSCREEN-52 (Ravens-Sieberer, et al., 2010; Ravens-Sieberer, et al., 2005). It is a brief scale developed to assess children's HRQoL. KIDSCREEN-10 measures children's life satisfaction in 6 domains using the stem "Have you…" [i.e., physical fitness/energy (e.g., '… felt full of energy?'); emotions (e.g.,'… felt sad?'-reverse-scored); social activities (e.g.,'…had enough time for yourself?'); family (e.g., '…parents treated you fairly?'); friends (e.g., '…had fun with your friends?'); school (e.g., '…got on well at school?')]. A 5-point response scale is used (most items use: 1 = never, 2 = seldom, 3 = quite often, 4 = very often, 5 = always; items 1

and 9 use: 1 = not at all, 2 = slightly, 3 = moderately, 4 = very, 5 = extremely). According to Ravens-Sieberer et al. (2010), the KIDSCREEN-10 has good internal consistency with Cronbach's alpha coefficients of 0.82 reported for the total scale score (8–11-year olds: 0.79; 12–18-year olds: 0.81). In the current study children aged 7-11 years (N = 262, M age = 9.47 years (SD = 1.05)) and adolescents aged 12-14 years (N = 74, M age = 12.77 years (SD = 0.80)) completed KIDSCREEN-10.

The Paediatric Quality of Life Inventory (PedsQL 4.0™). PedsQL 4.0™ (Varni et al., 2001) is a 23-item scale developed to assess health-related quality of life (HRQoL) in children assessing problems with; physical, emotional, social and school functioning (e.g., It is hard for me to run; I feel angry; Other kids tease me; I forget things). Varni et al. (2001) specify a 0-4 scale but to maintain continuity with the well-being questions in this study a 1-5 scale was used (1 = *Never*, 2 = *Almost Never*, 3 = *Sometimes*, 4 = *Often*, 5 = *Almost Always*). According to Varni et al. (2001), PedsQl 4.0™ has good internal consistency with Cronbach alpha coefficients of 0.88 reported for the total scale score. Children aged 5-18 years (N = 963) completed PedsQl 4.0™ in Varni et al.'s (2001) study. In the current study children aged 7-11 years (N = 218, M age = 8.93 years (SD = 1.11)) and adolescents aged 12-14 years (N = 107, M age = 13.26 years (SD = 0.80)) completed the PedsQl 4.0™.

The Warwick-Edinburgh Mental Well-being Scale. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Clarke et al., 2011) is a 14-item scale designed to measure mental well-being which encompasses psychological functioning and subjective well-being. All items in the WEMWBS are positively worded and couched in a positivist tradition (e.g., 'I've been feeling…cheerful, relaxed, loved'). A 5-point response scale is used (i.e., 1 = None of the time, 2 = Rarely, 3 = Some of the time, 4 = Often, 5 = All of the time). According to Clarke et al. (2011), in a recent study with teenagers aged 13-16 years (N = 1,650), the WEMWBS demonstrated good internal consistency with Cronbach's alpha

of 0.87. In the present study children aged 7-11 years (N = 262, M age = 9.47 years (SD = 1.05)) and adolescents aged 12-14 years (N = 74, M age = 12.77 years (SD = 0.80)) completed the WEMWBS.

Data analysis. Internal consistency for all scales were tested, including sub-scales for each group. Cronbach alpha coefficient scores of > .7 indicated good internal reliability. All analyses were conducted using SPSS 19 and missing data were excluded pairwise. Correlation analysis was conducted to explore the relationship between the well-/ill-being scales of MMWIB-C/MMWIB-A and the five measures detailed previously. The Pearson correlation coefficients scores range from -1.00 to 1.00 with the strength of association interpreted based on Cohen's (1988) guidance (i.e., large; r = 0.50 to 1.0; medium; r = 0.30 to 0.49; small; r = 0.10 to 0.29).

It was hypothesised that the well-being scales of the MMWIB-C/MMWIB-A would be positively related to the other measures due to associations with health, environment, social, achievement and emotional factors captured within these various measures. Conversely, it was expected that the ill-being scales of the MMWIB-C/MMWIB-A would be negatively related to the 5 extant scales. More specifically, the WEMWBS was expected to be strongly positively associated with the child and adolescent positive high energy scale scores and with the other well-being sub-scale scores and total well-being score and negatively related to ill-being total scale scores. The relationship with WEMWBS and physical ill-health was not expected to be strong as the measure assesses psychological well-being. Furthermore, the WEMWBS was designed for use with adolescents and as such was likely to have stronger relationships with the adolescent MMWIB-A than the child version. The child MMWIB-C was expected to be strongly related to the PedsQL™, life satisfaction measures (i.e., MSLSS and BMSLSS) and KIDSCREEN-10 as these measures were developed for the age range in the present study and contain items which are capturing

presumed antecedents of well- and ill-being (e.g., perceptions of social-cognitive environment, self-esteem). In particular the physical ill-health sub-scale was expected to be strongly related to the PedsQL™ health scale across both groups (i.e., child and adolescent). Further, the depressive sub-scale of the MMWIB-C/MMWIB-A was predicted to correlate with the emotional sub-scale of PedsQL™. The unique adolescent MMWIB-A scales (i.e., engaged/inspired and available energy) were expected to be strongly correlated with all PedsQL™ sub-scales as they appear to tap aspects of motivation and energy which are predicted to be related to these facets of adolescent well-being.

Results

Data were distributed non-normally and missing data were treated as random. Missing cases were excluded pairwise from the analyses. Results of the correlational analyses are presented in full in Table 5.9, providing correlation coefficients for both child and adolescent groups and all MMWIB-C/A subscales with all measures detailed above. The direction of relationships between the QoL, LS, PWB scales and the MMWIB-C/A were largely as expected. Results are reported in the following sections in respect of each measure.

MSLSS and BMSLSS. There were strong negative correlations between adolescent ill-being and the MSLSS (r = -.62, p < .001) and BMSLSS (r = -.50, p < .001) and positive strong and moderate relationships between adolescent well-being MSLSS (r = .53, p < .001) and BMSLSS (r = .40, p < .001). Weak albeit significant relationships were found between child well-being and MSLSS (r = .21, p < .05) and ill-being (r = -.21, p < .05). However, no significant correlations were found between child well- and ill-being and the BMSLSS. Internal reliabilities for the scales were good for the MSLSS (i.e., Child 0.91; Adolescent 0.92) for both groups and the BMSLSS, though lower in this scale with the child sample (i.e., Child 0.68; Adolescent 0.86).

KIDSCREEN-10. Strong associations were found between KIDSCREEN-10 and the child well- and ill-being scales resulting in significant negative ($r = -.59$, $p < .001$) and

Table 5.9.

Pearson Product-Moment Correlations between measures of QoL, LS, PWB and MMWIB-C/A

	PedsQL™ Health		PedsQL™ Emotion		PedsQL™ Social		PedsQL™ School		PedsQL™ Psychosocial		PedsQL™ Total	
	C	A	C	A	C	A	C	A	C	A	C	A
Depressive	-.45**	-.68**	-66**	-.77**	-.45**	-.68**	-.36**	-.52**	-.58**	-.73**	-.63**	-.75**
Ill-health	-.23**	-.57**	-.28**	-.66**	-.21**	-.49**	-.21**	-.57**	-.27**	-.66**	-.28**	-.66**
Inertia	-.35**	-.43**	-.42**	-.53**	-.33**	-.40**	-.41**	-.47**	-.46**	-.54**	-.49**	-.52**
Positive high energy	.20**	.44**	.07	.44**	.03	.40**	.12	.34**	.08	.44**	.14	.46**
Secure-content	.22**	.44**	.26**	.52**	.25**	.50**	.30**	.31**	.36**	.49**	.37**	.50**
Engaged-inspired	NA	.41**	NA	.32**	NA	.32**	NA	.31**	NA	.49**	NA	.50**
Available energy	NA	-.05	NA	-.10	NA	.04	NA	-.06	NA	-.05	NA	-.05
Ill-Being	-.43**	-.70**	-.62**	-.79**	-.44**	-.66**	-.41**	-.56**	-.59**	-.75**	-.62**	-.76**
Well-Being	.22**	.59**	.15*	.58**	.12	.54**	.22**	.42**	.21**	.58**	.26**	.60**

Note *p < .05, **p < .001 (2-tailed) C = children, A = adolescents, NA = not applicable

Table 5.9
continued

	MSLSS Family		MSLSS Friends		MSLSS School		MSLSS Living		MSLSS Self		MSLSS Total	
	C	A	C	A	C	A	C	A	C	A	C	A
Depressive	.08	-.41**	-.14	-.30**	-.02	-.22*	-.01	-.31**	.09	-.35**	-.21*	-.45**
Ill-health	-.01	-.23*	-.13	-.13	-.07	-.28**	.14	-.23*	.08	-.28**	-.16	-.34**
Inertia	.00	-.35**	-.15	-.27**	.02	-.48**	.00	-.46**	-.02	-.27**	-.15	-.54**
Positive high energy	.07	.14	.14	.31**	.11	.25**	.04	.08	.08	.35**	.18*	.32**
Secure-content	.08	.41**	.04	.45**	.11	.46**	.16*	.26**	.09	.28**	.24**	.53**
Engaged-inspired	NA	.11	NA	.21*	NA	.37**	NA	.09	NA	.31**	NA	.42**
Available energy	NA	.27**	NA	-.02	NA	.20*	NA	.17	NA	.26**	NA	.42**
Ill-Being	.06	-.48**	-.15	-.35**	-.02	-.45**	.03	-.39**	.10	-.40**	-.21*	-.62**
Well-Being	.09	.25**	.10	.39**	.10	.44**	.08	.13	.08	.41**	.21*	.53**

Note *p < .05, **p < .001 (2-tailed) C = children, A = adolescents, NA = not applicable

Table 5.9

continued

	BMSLSS		KIDSCREEN-10		WEMWBS	
	C	A	C	A	C	A
Depressive	-.06	-.51**	-58**	-.45**	-.36**	-.68**
Ill-health	.00	-.40**	-.42**	-.47**	-.31**	-.49**
Inertia	.03	-.34**	-.53**	-.67**	-.40**	-.56**
Positive high energy	-.09	.21*	.55**	.36**	.63**	.65**
Secure-content	-.04	.48**	.63**	.52**	.73**	.63**
Engaged-inspired	NA	.20*	NA	.41**	NA	.62**
Available energy	NA	.07	NA	.14	NA	.15
Ill-Being	-.03	-.50**	-.59**	-.64**	-.46**	-.51**
Well-Being	-.07	.40**	.66**	.24*	.80**	.40**

Note *p < .05, **p < .001 (2-tailed) C = children, A = adolescents, NA = not applicable

positive (r = .66, p < .001) correlations with child ill- and well-being. Similarly, a strong inverse relationship was found between KIDSCREEN-10 and the adolescent total ill-being scales (r = -.64, p < .001), the strongest inverse correlation emerging with the adolescent inertia sub-scale (r = -.67, p < .001). In contrast, a small positive relationship was found with adolescent well-being (r = .24, p < .05). The KIDSCREEN-10 appeared to have good internal consistency with both groups (i.e., Child 0.75; Adolescent 0.82).

PedsQL™. Strong significant negative associations were evident between the total PedsQL™ scale and the total subscale scores for child ill-being (r = - .62, p < .001), adolescent ill-being (r = -.76, p < .001), and strong positive associations with adolescent well-being (r =.60, p < .001) were also found. The relationship between PedsQL™ and the child well-being total scale score, though significant and positive, was small (r = .26, p < .001). Reliability alphas of the total PedsQL™ scale were very good (i.e., Child 0.88, Adolescent 0.95).

WEMWBS. Finally, the measure of psychological well-being (i.e., WEMWBS) was found to be moderately (r = -.46, p < .001) to strongly (r = -.51, p < .001) negatively related to child and adolescent ill-being respectively. Moreover, the WEMWBS was highly correlated with child well-being (r = .80, p < .001) and moderately associated with adolescent well-being (r = .40, p < .001). This finding is particularly interesting as three of the well-being subscales were strongly correlated as expected across the adolescent group, but no significant relationships were found between available energy and mental well-being. This suggests that this aspect of adolescent well-being is not captured in the WEMWBS. In addition, the adolescent ill-being sub-scales were strongly inversely related (i.e., r =- .68 depressive, -.49 ill-health, -.56 inertia, p < .001), but when combined as the total ill-being scale, the strength of the relationship was reduced when contrasted with two of the subscales (i.e., r = -.51, p < .001). In contrast, in the child sample, the total ill-being scale was more

strongly negatively correlated with WEMWBS than with the ill-being subscales independently. Internal reliability for the WEMWBS was found to be acceptable in the case of both groups (i.e., Child 0.89, Adolescent 0.88).

The internal reliabilities for the MMWIB-C and MMWIB-A were also tested and the Cronbach coefficient scores for total ill-being and total well-being scales in all six groups (i.e., three for children and three for adolescents) ranged from .70 to .81. Internal consistency for all subscales are reported in Table 5.10. Of note are the reliability scores for the unique adolescent well-being scales (i.e. available energy and engaged/inspired) which were acceptable to good ranging from .50 to .71 suggesting these scales are reliable. Both scales have three items and as noted above, when scales are comprised of three items or fewer this can have an effect on reducing the observed alpha coefficient (DeVellis, 2016). However, it is important to note that the reliability scores were .7 for both scales in two of the groups and .5 in group 3. Furthermore, the reliabilities of the overall well- and ill-being scales were good (i.e., ranging from .70 to .81).

Table 5.10
Internal consistency of the MMWIB sub-scales and total well- and ill-being scales by all groups in study three.

	Group 1		Group 2		Group 3	
Scale	Child	Adolescent	Child	Adolescent	Child	Adolescent
Depressive	0.90	0.89	0.85	0.81	0.90	0.86
Ill-health	0.78	0.83	0.78	0.84	0.78	0.81
Inertia	0.74	0.80	0.71	0.81	0.72	0.78
Positive high energy	0.83	0.86	0.83	0.84	0.85	0.80
Secure-content	0.75	0.62	0.71	0.43	0.72	0.60
Engaged-inspired		0.71		0.69		0.54
Available energy		0.70		0.70		0.50
Ill-Being	0.73	0.81	0.71	0.76	0.73	0.76
Well-Being	0.73	0.77	0.71	0.70	0.75	0.70

Discussion

The purpose of the third study in this chapter was to examine the concurrent validity of the MMWIB-C/MMWIB-A via a priori associations with extant measures of young peoples' well-being. As predicted, the relationships between scores in the MMWIB-C/MMWIB-A were largely in the expected directions with the extant measures. That is, ill-being (total score) was negatively and well-being (total score) positively related to the health-related quality of life scales, student life satisfaction scales and psychological well-being scale except with MMWIB-C and the BMSLSS. Examination of the correlations between the MMWIB-C/MMWIB-A total well- and ill-being scale scores and the PedsQL™ total scale scores revealed that the strongest relationships were with the total ill-being scales for both the child (i.e., -0.62) and adolescent (i.e., -0.76) groups. A strong positive relationship was also found with the total adolescent well-being score (i.e., 0.60). However, only a small association was found with the total child well-being score (i.e., 0.26) Further exploration of the results shows the 'secure/content' child subscale of the MMWIB had small to moderate associations with all the PedsQL™ subscales and total scale score. Conversely, the 'positive high energy' child subscale from the MMWIB had a small correlation with the health subscale and was unrelated to the remaining subscales and total scale score of the PedsQL™. This result is particularly surprising given the child and adolescent positive high energy scales share the majority of items. In comparison, the adolescent 'positive high energy' scale correlated significantly and positively with all the PedsQL™ subscales and total scale score, albeit moderately. The lack of significant association with PedsQL™ and child well-being suggests that the quality of life scale has more relevance with the low activation child well-being subscale and, excepting health, has little correspondence with what is captured in the high energy facet of child well-being as assessed via the positive high energy scale in the MMWIB-C. Indeed, the total well-being scale demonstrated less association with the total

PedsQL™ scale score (i.e., .26 <.001) than the secure/content scale correlation coefficient (i.e., .37 <.001) in the child sample. Interestingly, the adolescent available energy scale was also unrelated to PedsQL™ subscales or total scales. However, when tested as part of the total well-being scale, the overall strength of the relationship increases in comparison to the available energy subscale scores (i.e., increasing from .5 to .6). These correlations even though relatively high represent only 25% to 36% of shared variance. Hence, these findings suggest that although related, PedsQL™ is measuring different constructs to the MMWIB-C/ MMWIB-A. Specifically, with reference to well-being, the MMWIB may capture nuanced aspects of liveliness or energy that the quality of life measure does not tap.

The strongest association found was between the child well-being total score and the WEMWBS (i.e., 0.80). This is unsurprising due to the nature of the items in the WEMWBS scale which emphasize positive aspects associated with psychological well-being (e.g., feeling optimistic, relaxed, cheerful) and even share items with some of the well-being scales in the MMWIB. However, the adolescent well-being scores as tapped via the were only moderately related to the WEMWBS which is unexpected, especially as the WEMWBS was developed for use with adolescents. Inverse relationships with WEMWBS and the ill-being scales of the MMWIB were stronger for the subscales in the case of the adolescents (i.e., -.49 to -.68) than when considering the association with the total ill-being scale score (i.e., -.51). A moderate negative relationship was found between WEMWBS with the child ill-being subscales (i.e., -.31 to -.40) and this association became stronger with the total ill-being scale score for children (i.e., -.46). These findings point to a potential difference in the constructs being assessed both in terms of child and adolescent well- (and ill-) being and the MMWIB and WEMWBS. The inverse associations found between WEMWBS and the MMWIB ill-being scales, further highlight that high scores on positive well-being measures cannot adequately indicate the absence (or otherwise) of ill-being or the complexity of these negative

states in child and adolescent populations. Though inverse relationships were moderate to strong with ill-being, it was clear that WEMWBS did not capture all aspects of ill-being characterised in the child and adolescent MMWIB conceptualization as the correlations represented approximately 25% of shared variance. Within the WEMWBS scale some items (e.g., I have been feeling close to other people, I've been able to make up my own mind about things) represent antecedents of Eudaimonia rather than operationalizing construct itself and therefore it is questionable whether the scale adequately captures aspects of eudaimonic well-being in adolescents. Further, as WEMWBS is presented as an assessment of both hedonic *and* eudaimonic well-being, the current findings (especially with respect to the adolescent sample) suggest that aspects of eudaimonic well-being conceptualised in the MMWIB-A are not captured in this measurement tool as evidenced with the lack of association with the unique adolescent subscales of the MMWIB. This explanation is offered with caution however due to the previously identified problematic adolescent factor (i.e., F7; available energy) which is uncorrelated with the WEMWBS.

In contrast, the other three well-being subscales of the MMWIB-A were positively and significantly related (range from .62 to .65, >.001) to WEMWBS in the adolescent sample. Furthermore, F7 was not associated with any of the extant scales employed in this study other than the MSLSS. Specifically, small significant relationships with three MSLSS subscales (i.e., family =.27 self = .26, >.001 and school = .20 >.05) and F7 were found in the adolescent sample, as well as a moderate correlation (.42, >.001) with the overall MSLSS score. This may be evidence of concurrent validity of the F7 available energy scale but may also be an indication of the unsuitability of the MSLSS as a measure of well-being as discussed in the introduction of this chapter. It would appear that the item content of the MSLSS is not assessing well-being as conceptualised by adolescents, or children (i.e., based on the lack of correlates with the child MMWIB-C sub-scales and total scales). The MSLSS

was also found to be unrelated to two of the three adolescent ill-being subscales (i.e., ill-health and inertia). Nevertheless, a small significant negative relationship was evident with the adolescent 'depressive' scale (-.21) along with small significant associations with the two child well-being subscales (i.e., positive high energy, .24; content/secure, .18).

Having established weak albeit significant associations with the MMWIB child and adolescent scales and the MSLSS, there was an expectation for the brief version of the scale to be similarly correlated. Largely as predicted, all adolescent well- and ill-being subscales, except F7 which had no association at all, were related to the BMSLSS. On the other hand, the child MMWIB-C subscales, in addition to total well- and ill-being scores, were entirely unrelated to the brief multidimensional measure of student's life satisfaction scale (BMSLSS). This suggests there may be a problem with the MSLSS and BMSLSS in terms of assessing well-being in children (aged 8-11 years) or at the very least, life satisfaction cannot be equated to reported well-being in children. To iterate the proposal set out in the introduction of this chapter; measures which purport to assess children's and adolescents' well-being seem to be measuring factors which can influence well- and ill-being rather than capturing defining features of the constructs themselves. This is of some concern in light of the broad application of the MSLSS and the use of MSLSS items in national well-being measures.

In sum, support for the concurrent validity of the MMWIB-C/MMWIB-A, in consideration of the findings as a whole, was demonstrated in the current study. In general, the relationships were as expected in terms of direction. Of note is that the strength of correlations with the MMWIB child and adolescent well- and ill-being scores demonstrate that though the MMWIB scales are related to the scale content of the well-established measures, they do not assess the same constructs as the previously validated scales targeted in this study. Further, the extant measures chosen were inversely related to the ill-being scales

but again the strength of relationships indicated these other scales do not adequately capture important aspects of ill-being as per the MMWIB solutions. This is important as often low or high well-being scores are used to represent the presence or absence of ill-being. The present findings suggest that high scores on these positively toned scales (i.e., the MSLSS, PedsQL, KIDSCREEN-10, WEMWBS) cannot be interpreted to reflect low ill-being scores. The results also highlighted some key differences in the child and adolescent constructs of well- and ill-being. In particular, differences were identified with well-being concerning the positive high energy child and adolescent scales and also the 'available energy' scale. These findings are perhaps suggestive of developmental divergence in conceptions of well-being, though could also be indicative of measurement issues with the scales.

Study Four

Extending the examination of the concurrent validity of the MMWIB-C and MMWIB-A described in study three, the purpose of study four was to further test the psychometric properties of the two measures. In particular, the main aim was to test the predictive validity of the MMWIB-C/MMWIB-A via a determination of expected theoretical associations within a particular domain (namely, the sporting context). The internal reliability of the measures were also once again tested in a specific sub-sample of children and adolescents.

Sporting environments have been a rich domain for the study of children's motivation, self-worth and well-being for over thirty years (Duda, 2013). Providing a robust, evidence-base relating to theoretical frameworks to inform further research in this area, more specifically study four in this chapter. Sport is an arena where children and adolescents regularly invest time, energy and effort in their practice. Evidence suggests participation rates in England have remained consistently high for the past nine years, with around 70% of 5-10-year-olds taking part in some sporting activity for 30 minutes or more, outside of school, each

week (*Taking Part Survey: England Child Report 2016-17.*, 2017). When sport in school is also considered the figures are even higher with 86.7% of adolescents (i.e., 11-15-year-olds) in 2016-17, reportedly doing at least 30 minutes of sport per week. It would seem that young people highly value their engagement in sport, often choosing to partake outside of school and other organised settings, to enjoy a 'kick-about' or 'shooting hoops' with friends. Indeed, there is a wealth of research to explain the effects of different types of encouragement, rewards, camaraderie, and competency validation, in sporting settings on youngsters' healthful or health compromised outcomes: For example, participation in sport is thought to promote children's well-being via associations with physical health (WHO, 2010), psychological, social and personal development benefits (Conroy & Coatsworth, 2006; S. J., Donaldson & Ronan, 2006; Eime, Young, Harvey, Charity, & Payne, 2013; Findlay & Coplan, 2008; Taliaferro, Rienzo, Miller, Pigg, & Dodd, 2008). As such, sport gives youngsters an outlet for their creativity and enthusiasm and is an ideal setting in which to satisfy their desire to learn, achieve and thrive. However, it is also a setting where children can experience injury (Collard, Verhagen, Paw, & van Mechelen, 2008), anxiety (R.E. Smith, Smoll, Cumming, & Grossbard, 2006), burnout (E. P. Smith, Hill, & Hall, 2018), and other negative health consequences such as eating disorders (de Bruin, Bakker, & Oudejans, 2009) which can lead to attenuation of experienced well-being and increased ill-being. Hence why a sports setting was chosen as a suitable context in which to further test validity (i.e., predictive and criterion-based validity) of the conceptualisations of well- *and* ill-being, captured by the MMWIB-C/MMWIB-A.

Method

Participants and procedure. Youth sport participants ($N = 636$; children $N = 245$ and adolescents $N = 391$) comprised samples seven and eight. Sample seven ($N = 245$) included $N = 233$ boys and $N = 12$ girls aged between aged between 7-11 years old ($M =$

9.70, *SD* = 1.35). Sample eight was made up of *N* = 391 12 -18 years old (*N* = 45 females, three participants did not disclose gender, *M* = 13.96; *SD* = 1.34). All participants were engaged in community team sports (66.2% football, 6.4% netball, 9.1% rugby, 6.1% field hockey, 12.2% basketball). Experience with the current team ranged from 0-10 seasons (*M* =2.54; *SD* = 1.91). The time spent playing and training with this team ranged from 30 minutes to 9 hours per week (*M* = 3 hrs; *SD* = 1.25).

Measures. MMWIB-C/A. The stem and instructions remained the same as previous versions. Procedures replicated previous studies reported in this chapter with questionnaires being completed by children engaged in organised team sports. All questionnaires were administered by trained researchers.

All measures (with the exception of the physical symptoms checklist and Cantrill's ladder) used a five-point response scale ranging from "strongly agree" to "strongly disagree".

Sport Anxiety Scale. The five-item worry subscale of Smith et al.'s (2006) sport anxiety scale (SAS-2; 2006) was employed to assess players feelings of cognitive worry whilst playing sport. It was expected that SAS scores would have a moderate positive relationship with the ill-being scales. Conversely, scores on the well-being scales were expected to have a negative relationship with anxiety ratings. The relationships were not expected to be strong due to well-/ill-being assessments being related to everyday life and anxiety ratings being sport specific.

Enjoyment. Participants' sport enjoyment was measured using an adapted four-item enjoyment subscale of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989). Players were asked to rate their agreement with four sentences relating to their experiences in sport during the past month (e.g., "I had fun when playing my sport"). High scores on the enjoyment scale were expected to have a positive association with

the well-being scales and negative with ill-being scales. Again, the correlations were not expected to be strong due to the different assessment contexts.

Subjective vitality scale. A shortened version of the Subjective Vitality Scale (SVS; Bostic et al., 2000; Ryan & Frederick, 1997) was used to assess players perceived positive energy over the past month in their everyday lives. This scale was the same version as the SVS employed in the first study in this thesis, in chapter two. Players were asked to rate their agreement with 5 statements regarding their available positive energy over the past month (e.g., 'I felt I had a lot of energy'). It was hypothesised that vitality scores would be highly positively correlated with well-being scores and particularly with the 'high positive energy' and 'available energy' scales. Furthermore, a strong negative relationship between vitality and the 'inertia' was predicted due to a lack of available energy described by the items in this ill-being subscale.

General Self-Esteem. Five items from the Self-description Questionnaire-II (SDQ II; Marsh, Ellis, Parada, Richards, & Heubeck, 2005) were used to evaluate participants feelings of general self-worth (e.g., "Overall, I have a lot to be proud of"). It was expected that self-worth would be highly negatively related to the 'depressive' subscale of ill-being. The literature suggests a close association with low self-worth and experience of negative emotions (Baumeister, Campbell, Krueger, & Vohs, 2003).

Life Satisfaction. Cantril's (1965) ladder is a single item life satisfaction scale commonly used with children. Participants were asked to judge where they felt they were on the ladder currently in respect of their life generally. A ten-point scale was used with "10" at the top representing "I have the best possible life for me at the moment" and "0" being "the worst possible life for me at the moment". A positive association was expected with life satisfaction scores and well-being with an inverse relationship predicted with ill-being scores.

However, this relationship was not expected to be strong due to the inappropriateness of a single-item scale to represent a multidimensional concept.

Physical health. Participants' subjective physical health was assessed via a physical symptom checklist (Ravens-Sieberer et al., 2008; Torsheim, Välimaa, & Danielson, 2004). Players were asked to consider over the past six months how often they had experienced eight different conditions (e.g., headache, irritability or bad temper, feeling dizzy) using a five-point scale ranging from "rarely or never" to "about every day". High scores on this measure thus relate to poor health, therefore it was expected that the physical ill-health subscale of ill-being would be highly correlated with high physical symptom scores. The symptoms in the checklist are also related to emotional difficulties (e.g., "feeling nervous", "difficulties in getting to sleep" and "feeling low") and thus it was predicted that the 'depressive' and 'inertia' scale scores would be strongly positively correlated. This measure was not included in the child questionnaire pack at the time of the sample 7 data collection.

Moderate-to-vigorous physical activity (MVPA). Participants were asked to self-report how many times per week they became out of breath or sweated due to exercise in their free time on a 6-point scale (i.e., Never, Less than once a month, Once a month, Once a week, 2 to 3 times a week, 4 to 6 times a week, Everyday) (Currie et al., 2012). Being physically active is positively associated with improved well-being and reduced ill-being (Landry & Driscoll, 2012; Lubans, Morgan, Cliff, Barnett, & Okely, 2010). Guidance published by the World Health Organisation suggests to gain health benefits children need to be moderately to vigorously active for at least 60 minutes per day (WHO, 2010). It is expected that the MVPA score will be negatively related to ill-being, ill-health and inertia and positively related to positive high energy and well-being in the adolescent sample. The

child sample were not asked to respond to this question as it was not included in the questionnaire pack at the time of data collection.

Data analysis. Correlational analyses were conducted to explore the hypothesised relationships using Pearson product-moment correlation coefficients. Procedures replicated those applied in study three.

Results

Data were distributed non-normally. Scale internal consistency was acceptable to good for all subscales and total scale scores for child and adolescent samples (see Table 5.11). Scale scores for MMWIB-C/MMWIB-A total scales and subscales are presented in Table 5.12.

Examination of the correlational analyses, (presented in Table 5.13) show that total well-being scores for child and adolescent groups were positively related to all measures except the moderate to vigorous physical activity score (MVPA) which was unrelated to total adolescent well-being and was not measured in the child sample. Subjective vitality demonstrated moderate relationships with child (.40) and with adolescent well-being (.49) and was inversely related to child (-.48) and adolescent ill-being (-.27, <.001). However, the strongest relationship with the subjective vitality scale (SVS) was the 'positive high energy' scale for both children (.75) and adolescents (.45).

Table 5.11

Internal consistency for all MMWIB-C/A total scale and subscales

Scale	Child	Adolescent
Depressive	.81 (9)	.87 (8)
Positive High Energy	.83 (8)	.81 (8)
Ill-Health	.67 (4)	.81
Secure/Content	.63	.67
Inertia	.80 (5)	.81
Engaged-Inspired		.73
Available energy		.49

Ill-Being	.73	.78
Well-Being	.69	.66

Table 5.12

Means and standard deviation for MMWIB-A and MMWIB-C well- and ill-being sub-scales and total scale: total, school and sport samples by child and adolescent groups and by gender.

	Adolescent scale scores Minimum - Maximum	Adolescent Sample			Child scale scores Minimum - Maximum	Child Sample		
		Total sample M (SD)	*School Sample M (SD)*	*Sport Sample M (SD)*		*Total Sample M (SD)*	*School Sample M (SD)*	*Sport Sample M (SD)*
Depressive	8.00- 40.00	15.54 (5.67)			9.00 – 45.00	18.79 (6.81)		
male		15.12 (0.27)	14.74 (0.48)	15.26 (0.32)		17.39 (0.33)	17.39 (0.33)	15.03 (0.48)*
female		16.94 (0.49)*	17.24 (0.62)	16.29 (0.80)		20.68 (0.44)*	20.68 (0.44)	13.83 (1.12)*
Positive High Energy	8.00 – 40.00	27.97 (5.42)			8.00 – 40.00	29.37 (6.03)		
male		27.99 (0.26)	27.24 (0.52)	28.30 (0.30)		28.69 (0.30)	28.69 (0.30)	30.13 (0.39)*
female		27.57 (0.41)	27.06 (0.49)	28.88 (0.70)		29.43 (0.36)	29.43 (0.36)	28.58 (1.69)*
Ill-Health	5.00 – 25.00	10.00 (3.59)			4.00 – 20.00	8.77 (3.26)		
male		9.89 (0.16)	9.97 (0.30)	9.85 (0.20)		8.65 (0.16)	8.65 (0.16)	7.41 (0.17)*
female		10.41 (0.28)	10.70 (0.35)	9.59 (0.40)		9.58 (0.19)*	9.58 (0.19)	6.50 (0.62)*
Content/secure	3.00 – 15.00	10.81 (2.36)			5.00 – 25.00	18.53 (3.86)		
male		10.79 (0.11)	11.06 (0.17)*	10.66 (0.14)		18.24 (0.20)	18.24 (0.20)	18.50 (0.26)
female		10.79 (0.17)	11.24 (0.18)*	9.50 (0.31)		18.78 (0.22)	18.78 (0.22)	17.58 (0.82)*
Inertia	4.00 – 20.00	10.24 (3.41)			5.00 – 25.00	12.52 (4.15)		
male		9.96 (0.15)	10.59 (0.27)	9.66 (0.19)*		12.82 (0.21)	12.82 (0.21)	10.27 (0.26)*
female		11.04 (0.26)*	11.59 (0.29)	9.52 (0.48)*		13.08 (0.23)	13.08 (0.23)	10.33 (1.16)*
Engaged/inspired	5.00 – 25.00	16.79 (3.52)						
male		16.61(0.16)	16.33 (0.28)	16.72 (0.20)				
female		17.01 (0.28)	16.99 (0.33)	17.05 (0.52)				
Available energy	3.00 – 15.00	10.13 (1.51)						
male		10.15(0.07)	10.24 (0.13)	11.60 (0.11)*				
female		9.97 (0.12)	9.86 (0.13)	11.27 (0.30)*				

Table 5.12
continued

	Adolescent Sample				Child Sample			
	Adolescent Scale scores Minimum Maximum	Total Sample *M (SD)*	School Sample *M (SD)*	Sport Sample *M (SD)*	Child scale scores Minimum Maximum	Total Sample *M (SD)*	School Sample *M (SD)*	Sport Sample *M (SD)*
Well-Being	19.00 – 95.00	65.79 (9.94)			13.00 – 65.00	47.96 (8.83)		
male		65.70(0.49)	64.87 (0.94)	67.55 (0.58)		46.99 (0.45)	46.99 (0.45)	48.71 (0.59)*
female		65.14 (0.77)	65.01 (1.00)	66.45 (1.18)		48.17 (0.54)	48.17 (0.54)	46.17 (2.14)*
Ill-Being	17.00 – 85.00	35.74 (10.80)			18.00 – 90.00	40.45 (12.00)		
male		34.98(0.52)	35.36 (0.96)*	34.90 (0.62)		38.57 (0.60)	38.57 (0.60)*	33.70 (0.91)
female		38.23 (0.96)*	39.70 (1.20)*	35.24 (1.47)		43.03 (0.82)*	43.03 (0.82)*	30.67 (2.43)

Note * $p < .05$

Table 5.13

Pearson Product-Moment Correlations between the MMWIB-C/A and predictors or well- and ill-being in general and sporting contexts.

	Subjective Vitality		General Self Worth		Life Satisfaction		Sport Anxiety		Sport enjoy		MVPA	Perceived health
	C	A	C	A	C	A	C	A	C	A	A	A
Depressive	-.40**	-.24**	-.22*	-.21*	-.01	-.15**	.39**	.22**	-.17	-.25**	-.31**	-.35**
Ill-health	-.20*	-.15*	-.04	.05	-.01	-.12*	.23*	.26**	-.10	-.15**	-.23*	-.28**
Inertia	-.50**	-.30**	-.14	.04	-.13	-.21**	.26**	.26**	-.31**	-.08	-.46**	-.27**
Positive high energy	.75**	.45**	.37**	.04	.17*	.20**	-.28**	.05	.36**	.19*	.08	.35**
Secure-content	.37*	.28**	.30*	.15**	.07	.16**	-.21*	-.11*	.34**	.22**	.26**	.28**
Engaged-inspired	NA	.23**	NA	.10	NA	.10	NA	.03	NA	.08	.09	.31**
Available energy	NA	.26**	NA	-.04	NA	.24**	NA	-.28**	NA	.11*	.17	.26**
Ill-Being	-.48**	-.27**	-.17	.04	-.01	-.17**	.40**	.28**	-.23*	-.20**	-.39**	-.40**
Well-Being	.40**	.45**	.40**	.24**	.15*	.23**	-.27**	-.11	.36**	.20**	.13	.41**

Note C = children A= adolescents. Children did not complete moderate physical activity or perceived health questionnaires; *$p < .05$, **$p < .001$.

Significant small to medium positive correlations were found between general self-worth and total well-being of both groups (i.e., child .40; adolescent, .24). General self-worth scores were unrelated to total child and total adolescent ill-being. Similar relationships were found between life satisfaction and the total well-being scales for both children (.15) and adolescents (.23). Further, as with the SVS, a small negative relationship was found between adolescent ill-being and life satisfaction (-.17). adolescents (.23). Further, as with the subjective vitality scale, a small negative relationship was found between adolescent ill-being and life satisfaction (-.17) adolescents (.23).

Next, examination of the sport anxiety scale correlations revealed small significant positive relationships with the adolescent ill-being subscales ranging from (.22 - .26) and total ill-being scale. In addition, small negative associations with adolescent 'available energy' (-.28 <.001) 'secure/content' (-11 <.05) were found but no relationship with total well-being was apparent. The associations were stronger with total child ill-being (.40, <.001) and ill-being subscales (ranging from .23 to .39). The negative relationships were also a little stronger with the child well-being scales (ranging from -.21 to -.28). Sport enjoyment was found to have moderate positive correlations with the child well-being scales (ranging from .34 to .36) but only 'inertia' (-.31) and the total ill- being scale (-.23) demonstrated a significant negative relationship with sport enjoyment. Once again, the associations with the adolescent scales were weaker than with the child scales resulting in small significant correlations in the expected directions. Excepting the 'inertia' and 'engaged/inspired' subscales which bore no significant relationship with enjoyment.

Perceived physical health was moderately positively associated with total adolescent well-being (.41) and inversely moderately related to total adolescent ill-being (-.40). Perceived health was also significantly correlated with all adolescent well- and ill-being subscales (ranging from -.27 to .35). MVPA demonstrated significant negative relationships

with the three adolescent ill-being subscales (ranging from -.23 to -.46). In addition, the adolescent 'secure/content' well-being subscale demonstrated a positive moderate correlation with MVPA (.26).

Discussion

The purpose of the final study in the present chapter was to contribute further evidence of the psychometric qualities of the MMWIB-C/A in terms of assessing well- and ill-being in child and adolescent populations. In particular, it is worth noting that the participants in the current study were all drawn from a sports-based population. Specifically, theoretically predicted relationships with well- and ill-being were tested with the MMWIB to determine if the child and adolescent scales had utility in predicting criterion related outcomes (i.e., context- specific and general/global well- and ill-being scores). Overall, the findings provided additional support for the MMWIB in measuring the intended constructs of well- and ill-being in child and adolescent populations.

The MMWIB scales performed as expected, albeit with smaller effects than predicted. The reason for the lack of strength in the correlations, particularly in respect of the two sport specific scales, may be that the participants were asked to respond to the MMWIB in respect of their 'everyday lives' and the SAS and enjoyment IMI scale in respect of their 'sporting experiences'. In future studies, the stem of the MMWIB-C/A could be amended in line with all measures in the pack to ameliorate participant confusion concerning the milieu in which to consider their well- and ill-being.

General limitations and future recommendations

The purpose of the collection of studies presented in this chapter was to develop and psychometrically evaluate two developmentally appropriate questionnaires designed to assess well- and ill-being in children and adolescents. The series of four studies provided initial

support for the reliability and validity of the scores of both the child and adolescent versions of the MMWIB in the assessment of well- and ill-being (total scores and in terms of sub-dimensions). The factor structure of the two models was established in Study one via EFA and confirmed via ESEM and B-ESEM in Study two. However, the models were not without issues with items cross-loading on non-intended factors. The adolescent model contained one particularly weak factor (i.e., F7; 'available energy') which needs further investigation. This problematic factor has shown significant associations with relevant criterion (i.e., with the MSLSS in Study three and life satisfaction, perceived health, sport anxiety and sport enjoyment in Study four). However, further development work is needed to ensure the MMWIB-A operates as a valid and reliable measure of well- and ill-being as conceptualised by adolescents.

The concepts of well- and ill-being as captured by the MMWIB comprised three ill-being dimensions (i.e., 'depressive', 'ill-health', 'inertia') with mutual items across child and adolescent solutions and two common well-being dimensions (i.e., 'positive high energy', 'content/secure'). In addition, the adolescent model contained two further distinct dimensions of well-being (i.e., 'engaged/inspired' and 'available energy'). These supplementary sub-dimensions of well-being suggest differences in how human flourishing is perceived and experienced from childhood into adolescence. Nevertheless, both child and adolescent models of well- and ill-being were multidimensional and shared common facets of optimal and diminished human functioning in line with the rich descriptions of well- and ill-being garnered in the qualitative study presented in Chapter three. Furthermore, prior theoretical representations of well-being were also reflected in aspects of the MMWIB model. For example, facets of subjective well-being via positive and negative affect (Diener, 1984; Watson, Clark, & Tellegen, 1988) are captured as part of the 'positive high energy' and 'depressive' scales. Further, the 'engaged/inspired' and 'available energy' adolescent well-

being scales point to aspects of eudaimonic well-being (e.g., personal growth; Ryff & Keyes, 1995; subjective vitality; Ryan & Frederick, 1997).

The MMWIB models of youngsters' well- and ill-being, move beyond prior assessment tools in terms of the nuanced nature of the constructs captured by the questionnaires. Firstly, the items were generated via words of children and adolescents, not derived from content-items generated by adults. By distinguishing different facets of both well- and ill-being, it will be possible to examine potential differential antecedents and consequences of the different sub-dimensions. Moreover, the divergence in the child and adolescent models of well- and ill-being point to a developmental trajectory in the constructs, which has previously overlooked in the assessment of WB and IB in young people. Extending the present work, it would be interesting to discern whether present findings for adolescents held up in a larger sample of older adolescent populations (e.g., 14-18-year olds). This population was not well represented in the current studies and may help to explain some of the issues encountered with factor 7. Further testing is needed, but findings from the present series of studies suggest the MMWIB-C/MMWIB-A offers researchers a viable and promising tool to assess children's and adolescents' well- and ill-being.

GENERAL DISCUSSION

The importance of nurturing our children, fostering their happiness and flourishing (Ryan & Deci, 2001) and optimizing their potential cannot be overstated. Indeed, how well we as a community care for, teach, and inspire our youngsters to be the best that they can be will determine what sort of future world we live in. Of no less importance however, is what we do currently to determine and potentially impact the quality of life and the well- and ill-being experiences right *now,* for our young people. The body of work represented in the studies in this thesis are in response to an imperative to advance current knowledge concerning well- and ill-being. A key aim of this thesis was to enhance understanding of young people's perceived well-being, offering an insight into how youngsters describe and evaluate their well-and ill-being experiences.

In the past, the state of children's well-being tended to be studied in terms of implications for their future adult lives rather than in regard to the present experiences of the child (Ben-Arieh & Goerge, 2001; Ruck et al., 2016). This future-biased or 'well-becoming' model in child well-being research has been surpassed by a contemporary 'rights-based' approaches which focuses on children and the quality of their childhood (Casas, 1997; Ruck et al., 2016). The paradigm shift in the study of children's wellness (i.e., in terms of studying well-*being* rather than well-*becoming*) is particularly important in consideration of the personalized context and subjective nature of well-being (Waterman, 1993). However, to date, there is a paucity of evidence in the literature concerning the content and composition of children's and adolescents' concepts of well- and ill-being. Furthering the understanding and assessment of individualized personal expressions of children's and adolescents well- (and ill-) being constituted the overall foci of this thesis. More specifically, to address the void in the literature, a key over-arching aim of the research comprising this thesis was to provide an empirical base from which to better understand how these complex constructs, crucial to optimal functioning, are conceptualized by children and adolescents in their own words.

The rights-based approach employed in this thesis not only placed young people at the core of the research process but ensured their voices were integral to the conceptualization of well- and ill-being captured in the MMWIB-C and MMWIB-A, which is the major contribution of this thesis to the knowledge-base. Moreover, as it is through their individual experiences that children acquire and develop knowledge and construct their understanding of the world as they grow older (Piaget, 1961; Vergnaud, 1996), a developmental approach was also crucial to examine and assess well- and ill-being of young people. Certainly, during childhood and the transition to adolescence and adulthood, age-related developmental differences are evident in the psychological, emotional and cognitive intelligence of young people (Erwin & Kuhn, 1979; Harter, 1982; Marsh & Shavelson, 1985; Steinberg, 2005). In addition to the impact of their psycho-social experience on their well- (and ill-) being, a child's development is further influenced by biological, physiological and chemical processes in reciprocal relationships which can prompt (or stunt) optimal development of young people (Eccles, 1999; Keverne, 2004). Indeed, the most dramatic period of change, challenge and opportunity for growth in the human lifespan (after the rapid changes in the first two years of life) occurs during middle childhood and adolescence (i.e., 7-11 years and 12-18 years) (Guyer et al., 2018). Therefore, the population of interest studied in this thesis were children and adolescents (i.e., aged 7-18-years-old) as they represent two key developmental stages in the life span.

Eudiamonic well-being and young people

The theory of eudaimonic well-being (regardless of its composition) has not been investigated from a developmental viewpoint in terms of children's and adolescents' concepts, prior to the studies presented in this thesis. As noted throughout this thesis, optimal well-being is associated from an Aristotelian or Eudaimonic perspective with individuals living their best life possible. Waterman proposed eudaimonic well-being is manifest through

execution of intrinsically motivated tasks which are personally meaningful and purposeful, termed 'personal expressiveness' (Waterman, 1990, 1993, 2008). This characterization of well-being as more than hedonic happiness is also encompassed in key tenets of self-determination theory (SDT; Deci and Ryan, 1985, 2000, 2001, 2008). In that, the external conditions related to psychological wellbeing are highlighted in SDT; As an organismic theory of human motivation, optimal human functioning and well-being are achieved via fulfilment of three fundamental psychological needs (i.e., autonomy, relatedness, competence) (Deci and Ryan, 2000). Basic Psychological Need Theory (BPNT; Deci & Ryan, 2008) proposes three basic psychological needs of autonomy (feeling in control of one's actions (Charms, 1968)); competence (feeling effective and capable (White, 1959)) and relatedness (feeling valued by others (Baumeister & Leary, 1995)) and assumes these three needs are crucial to perceived well-being and human thriving. Although SDT is not a developmental theory, rather an organismic metatheory which holds that basic psychological needs are innate and universal. As such, regardless of developmental stage, psychological needs will be present and the characteristics will be the same even if the individual is unaware of the needs (Deci and Ryan, 2000). Ryff's description of eudaimonia (i.e., psychological well-being (PWB)) concurs generally with Waterman's and Deci and Ryan's proposition of 'living a best life'. In Ryff's view, however, living well involves a person having self-acceptance, a purpose in life, environmental mastery, positive relationships, striving for personal growth and autonomy (PWB; Ryff, 1989). Conversely, it is argued in this thesis that 'environmental mastery', 'positive relationships' and 'autonomy' equate to the three basic psychological needs making these dimensions antecedents of well-being rather than characterizing the positive state in and of itself.

Though the philosophical debate concerning the composition of well-being is unresolved in this thesis (and in the literature more broadly), findings presented throughout

this thesis provide evidence of the multidimensionality of the construct of well-being. For example, in the descriptions of well-being elicited from the young people in Chapter 3 emotional, physical and psychological components were evident. The structure of well- and ill-being was further elaborated via factor analyses conducted in Chapter 5 where well- and ill-being were found to comprise of five and seven factors in the child and adolescent versions of the MMWIB with the two unique facets derived in the adolescent MMWIB characterized energy and engagement respectively, pointing to eudaimonic aspects of well-being. However, the initial study reported in this manuscript, began the exploration of children's and adolescents' well-being by examining a well-known indicator of eudaimonia (i.e., subjective vitality).

Subjective vitality. The initial empirical study, presented in Chapter 2 of the thesis explored the Subjective Vitality Scale (SVS; Bostic et al., 2000; Ryan & Frederick, 1997) in terms of measurement invariance and factorial validity across SVS scores of child and adolescent groups (i.e., 7-11-years and 12-14-years). The SVS is a well-established scale used to measure eudaimonic well-being via ratings of personally available energy with adults (Bostic et al., 2000; Kawabata et al., 2016). However, though utilised with young people (Papaioannou et al., 2013), prior to this thesis, the scale had yet to be tested in terms of measurement invariance and whether the assumed unidimensional structure is supported across child and adolescent populations. Tests of measurement invariance across divergent populations of assessment tools adds to the robustness of the psychometric properties of the scale. Findings of the study presented in chapter two contributed to the burgeoning evidence base regarding the psychometric robustness of the 5-item SVS and further suggest the SVS can be used to reliably compare mean scores of children and adolescents. Support was also found for the unidimensional structure of the SVS in children and adolescents. The key finding of this study however, that is evidence for the strict measurement invariance (i.e.,

measurement and structural equivalence), suggests the SVS mean scale scores can be meaningfully used to examine potential age group differences in reported vitality.

In Chapter two, differential SVS scores between child and adolescent populations were observed with children's scores significantly higher than adolescents. Moreover, this difference could not be explained further as all participants were drawn from samples expected to score relatively highly on the SVS due to the known positive relationship with engagement in regular physical activity. Taken in their totality, the results pointed to a potential developmental difference in eudaimonic well-being. However, the majority of participants were male and the age range only covered 10-14-year-olds meaning results cannot be generalised to child and adolescent populations more broadly. Further limitations are the nature of the measure; as a unidimensional indicator of ratings of positive well-being, the SVS cannot offer insight into potential multidimensional conceptions of well-being in young people, nor indeed does this scale provide an assessment of ill-being in children and adolescents. Moreover, misunderstanding could have occurred with the use of multiple descriptors in items employed (i.e., 'alert and awake') (De Vellis 2016). Finally, and perhaps most pertinent to the current thesis, the wording of the items in the scale were derived from adult-generated content which may be misconstrued by younger respondents.

Can children and adolescents conceptualize eudaimonic well-being?

In the literature, scant attention has been given to whether children and adolescents conceive well-being in terms of Eudaimonia. Moreover, the literature to date does not address whether it is possible to measure eudaimonic well-being in younger populations. Empirical findings presented in this thesis offer evidence, albeit tentatively, of a developmental trajectory in well-being constructs, including in conceptualizations of eudaimonic well-being. In Chapter three, interviews with 50 young people aged 7-18-years old revealed age-related differences in the descriptions of well- and ill-being concepts between children and

adolescents. After being provided with a simple explanation (i.e., *well-being or feeling good inside is…; ill-being or feeling bad inside is…*) children from age 7-years old were able to provide words to describe different aspects of well- and ill-being in their own words. Nevertheless, the children's descriptions were largely rooted in basic terms such as 'happy' and 'sad'. These results were in concordance with prior research with children, in which their ideas about health and emotions were also rooted in simplistic language and bipolar hedonic tones (Harter & Buddin, 1987; Gobbo & Racanello, 2011; Natapoff, et al., 1992; Perrin & Gerrity, 1986).

Adolescents in these studies (Chapter three and Study one, Chapter four) offered conceptualisations of well-being which were more nuanced than the children's, including reference to aspects of well-being which pointed to Eudaimonia (e.g., they related to aspirations to achieve personally meaningful goals, or of doing good deeds for the benefit to others). There is a confluence between these results and findings of Bauer and colleagues (Bauer & McAdams, 2004; Bauer & McAdams, 2010; Bauer, McAdams, & Pals, 2008). The adolescents also related perspectives on feeling energetic with complex ideas about energy being an innate trait or deriving from inner satisfaction of personal goals which again suggests a burgeoning understanding of Eudaimonia. In contrast the children in the study in Chapter three tended to have a much more transactional view of energy which became depleted, for example, if they had run around too much, they would be tired. Interestingly, the children also often conceived of hyperactivity as a positive experience, despite having a total lack of agency. This was in contrast to the adolescent's discourse concerning energy. These findings concerning available personal energy provide a possible explanation for the differences in SVS scores between child and adolescent participants reported in Chapter two.

The developmental trajectory that was observed in the findings in Chapters three and four were echoed in terms of the dimensionality revealed in Study one and confirmed in

Study two of Chapter five. The similarities between the two groups (i.e., children and adolescents), in terms of the conceptualization of well- and ill-being was shared across the three ill-being subscales (i.e., depressive, ill-health, inertia) and two well-being subscales (i.e., positive high energy, secure/content). Moreover, most items were common between the groups and the dimensions/subscales were conceptually similar. Reliability was also good for these five factors across both groups. However, where the conceptualisations and the measures differed between the child and adolescent MMWIB was in terms of well-being. The adolescent model of well-being comprised four scales positive high energy, secure/content (the two previously mentioned) and two unique scales to the adolescent measure; one which represented being engaged/inspired and one which captured available energy. The other interesting difference was in the structure of the MMWIB-C and MMWIB-A tested via a bifactor model in study two of chapter five. This showed that only 11 of the 18 ill-being subscale items informed the global factor of ill-being which were mainly 'depressive' ill-being items with the children. However, the well-being items did not load on their respective global factor except for joyful, suggesting the proposed hierarchical structure does not hold with the children.

In the findings of the adolescent B-ESEM both well- and ill-being global factors were informed by items from the respective subscales, though evidence in support of the two unique eudaimonic-associated well-being scales was less conclusive as multiple cross-loadings were observed on non-intended items. An explanation of the inconclusive results concerning the adolescent MMWIB scale validity is the restricted age range of adolescent participants in the present studies, being comprised of mainly 12-year olds. This limited population was due in part to exclusion of older pupils in Years 10 to 11 - for pupils aged between 15 and 16 years old, and Years 12 to 13 - for pupils aged between 17 and 18 years old by head-teachers who did not want lesson time to be missed by pupils completing

coursework and preparing for exams. At age 12 children are still very much within the pubertal phase and considered to be transitioning between childhood and adolescence (Kringelbach & Berridge, 2009). However, the results presented in Chapter five of construct validity, internal reliabilities (Study three) and criterion-related validity, predictive validity (Study four) offered some promise as the correlations were as expected with some well-established assessment tools. Future research should further examine the validity of the MMWIB-A, particularly with older adolescents (i.e., 14-18-year-olds) to establish additional evidence of stability of the measure with this age range.

The major contribution of this thesis to the literature are the findings relating to the conceptualizations of eudaimonic well-being from a developmental perspective. Future investigation offers interesting opportunities to advance knowledge further in terms of qualitative studies in which the children's and adolescents' views on the concept of vitality/energy could be further explored (e.g., the transactional external view of energy of child and the internal eudaimonic view of energy of adolescents). There has also been limited understanding or investigation of the concept of ill-being. The findings of this thesis to date offers a rarified deeper look into the conceptualization of 'not being your best self' particularly in terms of the views of children and adolescents. It would be interesting to examine if there is potential to discern a difference in the way child and adolescent conceive this concept of ill-being related to their views of how they acquire and use energy i.e., inertia for children is related to depleted physical energy, if they eat = energy restored, and low activity negative state is reversed. In addition, the concept of ill-being being part of a continuum with well-being at the other end could also provide explanation of developmental differences where children tended to have distinct views on ill-being as separate. There are also opportunities to explore conceptions of children from different ethnic backgrounds, cultures; or their conceptions as experienced within different contexts (e.g., family life,

school, sport, friendship group, clinical populations). Advancing the work of Estola, et al. (2014) also offers an interesting area for investigating well- and ill-being concepts of even younger children (e.g., under 7-year-olds). This could be approached via a pictorial or narrative methodology similar to approaches employed for example, by Harter and Pike (1984). Different transitional periods in the life span, particularly moving from childhood into young adulthood also warrant future exploration to determine the development of eudaimonic well-being through the life course. Further areas of interest for the MMWIB-C and MMWIB-A would be to test the measures longitudinally to assess reliability over time. In particular the effect of pubertal phase on variance in well-being concepts and experience should be examined over time.

Children's and adolescents' concepts of well- and ill-being

Children's and adolescents' conceptions of well- and ill-being were central to this thesis, comprising studies in Chapters three and four in which the views of the young people themselves were garnered and the descriptors then informed the content of the scales of the MMWIB. Furthermore, in the qualitative studies presented in Chapters three and four, the young participants were also asked to evaluate the content of wording used in existing measures to test existent theoretical conceptualizations of well- and ill-being alongside the child- and adolescent-generated descriptors of the constructs. Finally, via the studies conducted within the thesis, the intent was to contribute two valid and reliable psychometric tools (namely, the MMWIB-C for children and the MMWIB-A for adolescents) to enable the meaningful assessment of youngsters' well and ill-being states in future research.

The study presented in Chapter three attempts to extend the work examining children's and adolescents' well-being in Chapter two and, address a void in the literature concerning young people's perceived well- *and* ill-being. An objective of this work was to advance previous studies of children's concepts of well-being (Fattore, Mason, & Watson,

2007; Gabhainn & Sixsmith, 2005; Rees, Goswami, et al., 2010), via a qualitative approach. With a view to developing indicators of well- and ill-being for use in subsequent assessment tools appropriate for young people in the targeted age groups, the three interrelated key aims of this study were to determine;

- Whether children and adolescents were able to understand and describe well- and ill-being;
- If developmental patterns were evident in these conceptions, and;
- If current descriptors marking existing measure of young people's well- and ill-being were understandable and had saliency with this population.

Children and adolescents were invited to contribute their ideas concerning concepts of well- and ill-being. The conceptualizations of the children and adolescents were explored, and a developmental trajectory was observed. More specifically, child and adolescent concepts differed in terms of complexity of the descriptors they generated (i.e., children provided a more simplistic conceptualizations, while the adolescents generated more complex descriptors). They also differed in the explanations of the underlying manifestations of well- and ill-being states [e.g., for the children, states of well- and ill-being were based on real, remembered concrete events (e.g., birthdays, school days) which were tied in their overall affective responses (i.e., either positive or negative emotional states) whereas, the adolescents would mentally manipulate prior experiences to give examples of hypothetical abstract future events]. These findings complemented prior research concerning development of psychological constructs (e.g., emotions (Pons, Harris & de Rosnay, 2004), concepts of health and illness (Natapoff, 1982)). Thematic maps of the child and adolescent constructions of well- and ill-being were created which informed the selection of items for a proposed multidimensional measure of well- and ill-being in Study one of Chapter four.

The two studies in chapter four focused on the development of measures of well- and ill-being which could meaningfully (and in a psychometrically sound way) assess these constructs in child and adolescent populations. The items selected to be tested in the first study in Chapter four comprised the descriptors provided by the youngsters, in their own words, including some terms already used as item content in existing measures. All the descriptors chosen as appropriate descriptors of well- and ill-being states, by the children and adolescents participating in Chapter three, were compiled into an item pool in terms of meaning groups or categories. The content validity of these items was thus first established by the participants themselves during the research process. However, the quantity of descriptors gathered from participants exceeded practicality in terms of creating a questionnaire of feasible length in future research. Items and categories were then further scrutinised by the thesis author in regard to the multidimensionality revealed in Chapter three. After consultation and discussion with the thesis supervisors, the item pool was reduced from 344 potential items to 103.

An initial questionnaire was designed based on the proposed multi-dimensional model of well- and ill-being comprising the retained items. The key aims of Study in Chapter four were to: (a) confirm the face validity of the questionnaire and, (b) further reduce the number of items from 103 to a more manageable size for use in research with children and adolescents. The experts consulted in this study, who were all experienced in well-being research and scale-development, evaluated the items in terms of their content relevance and face validity, and a final item pool of 70 items was retained. As a result, a preliminary version of a multidimensional measure of well- and ill-being (MMWIB) tailored for children and adolescents was generated for testing in the next chapter (see Appendix D).

Measurement of well- and ill-being

In the final empirical Chapter of the thesis, a series of four studies are presented in which the validity and reliability of the MMWIB are tested. The purpose of Study one of Chapter five was to explore the underlying factor structure (identified dimensions) of the MMWIB across child and adolescent samples using exploratory factor analysis (EFA). A secondary purpose was to further reduce the items from 70 to hopefully a measure constituting between 30-40 items maximum. EFA was used to select the items to retain which best characterized the emerging dimensions. Two measurement models of well- and ill-being were revealed in the EFA; a 5-factor, 31-item version for children and a 7-factor, 36-item version for adolescents. The factors in each measure were confirmed in Study two (i.e., 3 ill-being sub-dimensions for each group; depressive, ill-health and inertia, and; 4 well-being dimensions, 2 common to both child and adolescent models; positive high energy and secure/content, and; a further 2 unique adolescent well-being sub-dimensions, engaged/inspired and available energy).

The final two studies presented in Chapter five aimed to provide further evidence of the validity and reliability of the child and adolescent versions of the MMWIB. In the first of these studies, concurrent validity was partially supported for both the child and adolescent versions of the MMWIB. More specifically, the MMWIB-C well-being scales (total and subscales) were significantly positively associated with existing measures of quality of life, mental well-being and the MMWIB-C ill-being scales (total and subscales) inversely related in most cases, except with the multidimensional and brief version of the student life satisfaction scale. In the adolescent sample, MMWIB-A scores were associated with the existing measures of young people's well-being in the expected direction for well- and ill-being scales. However, the two unique adolescent well-being subscales did not significantly correlate with any of the scales.

To provide further insight into the psychometric properties of the MMWIB-C/MMWIB-A, the predictive validity of the measures was tested in a sample of youth sport participants. The scales were correlated in expected directions, with the MMWIB-C/MMWIB-A well-being scales positively- and ill-being scales negatively- associated with self-worth, subjective vitality, life satisfaction, sport enjoyment and moderate-to-vigorous physical activity (MVPA). The reverse was found for the MMWIB-C/MMWIB-A with the negative outcome indicators; sport anxiety, perceived physical symptoms, well-being scales showed negative and ill-being scales positive relationships.

The findings in Chapter five provide preliminary support for the initial validity and reliability of the MMWIB-C and MMWIB-A. These assessment tools can help researchers assess young people's well- and ill-being and investigate the causes and consequences of these important concomitants of optimal human functioning in future research. However, in terms of limitations, it should also be pointed out that the participants in Study four (Chapter five) were all involved in grassroots community team sports and the majority of the participants were males. As a result, the generalizability of the findings regarding predictive validity in terms of other more heterogenous young populations (e.g., those who engage in extra-curricular activities such as music; those who do not participate in sport) and females in particular should be examined.

Future studies should examine the predictive validity of female athlete's scores of MMWIB and investigate other sporting contexts (e.g., individual sports, elite academies). A further limitation marking Study four, Chapter five is the age range of participants. Though spread between 7 and 18 years, respondents were mainly comprised of 10-14-year olds with a mean age of 12 years. In future, to extend the developmental work on the measure with children and adolescents, it is recommended that the MMWIB-C/A is tested with a purposeful sample of 7-18-year-olds to provide further information on the consistency and

validity of the measure, specifically with 8-9-year-old and with 15-18-year-old respondents as these age groups were limited in the present samples.

Child and adolescent well- and ill-being in their own words

A key strength of this thesis is that children's and adolescents' voices are clearly articulated in their own words. Though recommended by many proponents of a rights-based approach, amplification of youngster's views in this way is rare in the well-being literature. There are instead, studies in which researchers as advocates of the children participating in studies, assess and then interpret young people's ideas. For example, in their investigation of children's conceptualizations of well-being, Fattore and colleagues (Fattore et al., 2007) conducted focus groups, interviews and activities with children aged 8-15-years old in Australia. They then presented the findings as their interpretation of the children's views. Indeed, their initial results were replicated to an extent in this thesis. For example, the description of children's well-being as comprising mostly positive emotions "…happiness, excitement and peacefulness or calm" (Fattore et al., 2007, p. 16), resonated with descriptions provided by children in Chapter three of this thesis. Further, the complexity and contradiction concerning 'negative aspects of well-being' such as anger, reported by these researchers was also evident in some of the children's discourse surrounding aspects of ill-being reported in Chapter three. However, in contrast to the present thesis, the Fattore et al. study presented seven themes (i.e., defining well-being, autonomy and agency, keeping safe and feeling secure, material resources, environment and home, activities and being active, and self) but only one theme directly relates to a key construct of interest in this thesis; that is the theme they termed 'defining well-being'. This theme comprised the researcher's interpretations concerning the children's perspectives on well-being. All the other themes generated were described as domains of well-being. As pointed out in this chapter and in Chapters three and four, it is argued that such themes appear to capture the antecedents of

well-being rather than the construct itself. For example, the 'self' domain was said to include feeling valued by others which appears to tap BPNS (i.e., relatedness).

Fattore and colleagues (2007) acknowledge the importance of a child's development in their understanding and experience of well-being. However, and contrary to what was found in this thesis, they suggest that indicators of child well-being need to be meaningful to children but should *not* be restricted by age even though concepts of children's well-being is likely to be developmentally different:

> For example, the needs for autonomy and security may be experienced in different ways by different children at different times in their lives but nevertheless may be universal throughout lifetimes. The ambiguity resulting from this situation points to an ongoing challenge for those of us developing indicators to develop a framework meaningful to children generally but allowing for flexibility in application. (Fattore, et al., 2007, p.25).

Interestingly, Fattore et al.'s conclusion concerning the needs as specified, conform to the SDT principles of universality and innateness of basic psychological needs (deci and Ryan, 2000). The ambiguity in conceptualising and subsequent assessment of children's and adolescents' well-being referred to by Fattore et al. derives from the thematic framework applied in their analysis (i.e., defining well-being, autonomy and agency, keeping safe and feeling secure, material resources, environment and home, activities and being active, and self) as this includes correlates of the construct. In short, the initial 'defining well-being' theme identified in the research by Fattore and colleagues was promising. However, their decision to describe the children's views rather than use their words verbatim, and to operationalize the children's concepts of well-being as comprising antecedents of the constructs limited the overall potential of their work. This is where the current thesis adds to understanding of how young people conceive of well-being as attempts were made to

differentiate children and adolescents developmentally and then capture their understanding and conceptualisations. Further, the children's own words were presented as part of the results. In addition, in this thesis, children's and adolescents' descriptions of well- (and ill-) being are not only provided as evidence but also inform the content of the MMWIB-C and MMWIB-A.

In other cases where again, children's concepts of well-being were cited as the focus of the study, the research also centred on the antecedents of well-being, rather than children's and young people's personal perceptions of the construct of well-being itself. For example, children's perceptions of well-being in respect of what 'makes them happy' was the focus of two studies with young people from Ireland (aged 8-19-years) and the UK (aged 8-15-years) (Gabhainn & Sixsmith, 2005; Rees, Goswami, et al., 2010). Unsurprisingly, as they were investigating the causes of happiness, the findings of the Irish and UK study supported those of Fattore and colleagues. More specifically, they found that antecedents were conceptualised as components of the construct (e.g., family and friends were found to be key factors to affect children's well-being, having agency, material goods, achieving at school etc.) (Gabhainn & Sixsmith, 2005; Rees, Goswami, et al., 2010). These findings align with a Self- Determination Theory (SDT; Deci, & Ryan, 1985) approach in which *antecedents* of well-being such as the social-cognitive contexts (e.g., families, friendships) referred to have been found to mediate experiences of well-being (Milyavskaya et al., 2009; Muraven, Gagne, & Rosman, 2008). Notwithstanding the importance of family and friends to young people around the world, arguments made in this thesis emphasise that these are *external* factors which i*nfluence* well- and ill-being and are *not* the internal personal factors underlying the constructs of well- and ill-being per se.

According to Deci and Ryan (Deci & Ryan, 2008; Ryan & Deci, 2000), optimal functioning and consequently well-being, are dependent on fulfillment of three psychological

nutriments (i.e., Basic Psychological Need Satisfaction (BPNS); Deci & Ryan, 2008). BPNT assumes that the social environments created by significant others impact whether individuals perceive their psychological needs are being nourished, not met, or stifled (Deci & Ryan, 2008; DeHaan, Hirai, & Ryan, 2016; Ryan & Deci, 2008).

Key to the characterization of well-being via an SDT perspective is that well-being is viewed as resulting from a life 'well-lived' (Ryan, Huta & Deci, 2008). In the sense of an honourable, worthy life spent in pursuit of achievement of personally meaningful goals which emphasise a eudaimonic conceptualisation of well-being, rather than attributes of externally derived pleasure which emphasise hedonic concepts of well-being (Waterman, 1993).

Finally, the last section of this chapter will discuss the potential practical implications of the MMWIB in terms of being an outcome in interventions focused on enhancing young people's well and/or reducing ill being in children and adolescents.

Well- and ill-being interventions with children and adolescents

Promoting and protecting children and adolescent's well-being has seemingly moved up the political agenda globally over the past several years (Fernandes et al., 2012; Muntarbhorn, 2017). However, despite this increase in government attention, it would appear little has changed for children. There is some controversy concerning the results of bespoke school-based interventions designed to foster well-being, improve health and positive outcomes (e.g., improved academic performance) for adolescents and children, indeed recent reports suggest youngsters' well-being is compromised when delivery is inconsistent and/or lacks a theoretical framework to underpin the programmes (Durlak et al., 2011). There have even been suggestions that 'happiness lessons' can lead to harmful outcomes for vulnerable youngsters and more broadly can encourage all children to worry that the usual occurrence of emotions including negative affect means they have a mental health condition (Patalay & Fitzsimons, 2017). This is where findings from this thesis concerning understanding of well-

and ill-being, can contribute to healthier perspectives associated with wellness, optimal functioning and Eudaimonia. If 'happiness lessons' were positioned as well-being lessons with a focus on a more Aristotelian approach to wellness and a better understanding of ill-being, young people would be better served. In addition, if youngsters' well- and ill-being scores were assessed pre- and post- educational interventions or wellness promotion programmes a clearer picture of the impact of such schemes may emerge. A report on the National Social and Emotional Aspects of Learning (SEAL) Programme in the UK suggested the scheme failed to achieve significant improvements in the key areas targeted (i.e., social and emotional skills, general mental health difficulties, pro-social behaviour, behaviour problems) (Humphrey, Lendrum, & Wigelsworth, 2010). The report cited insufficient evidence-based practice in addition to inconsistent implementation and evaluation of programmes as likely causes of the failure.

Similar concerns have been raised in recent literature reviews on the impact of universal school-based mental health promotion programmes, although the interventions reviewed were seen as 'promising'(Barry, Clarke, & Dowling, 2017; O'Connor et al., 2018). The recommendations stemming from the SEAL report echoed the findings of Durlak et al. (2011) with respect to the need for robust, systemic, theoretically grounded, evidence-based interventions in future. Most pertinent to this thesis, these studies highlight the difficulties in evaluating such schemes, as inconsistency existed not only in terms of the implementation but also the assessment. It was argued that such limitations contributed to the lack of effectiveness of the SEAL programme. It is also argued that current measures used in the evaluations do not adequately capture the nuanced conceptualisations of well- and ill-being as perceived by young people themselves. The MMWIB-C/A may offer an improved way of evaluating well- and ill-being outcomes of participants in these well-being promotion

schemes as the measures target the constructs as distinct from correlates of well- and ill-being.

As was noted in Chapter five of this thesis, tools used to measure children's and adolescents' well- and ill-being outcomes employ composite measures of known correlates and indicators of well-being (i.e., the indicators employed in study four of chapter five). As was seen in the findings in Chapter five (Study four), these indicators were not derived from children's words and they may lack a meaningful interpretation of facets of well-being for young populations. A valid and reliable developmentally appropriate measure would enable improved interpretation of the mediating factors which are known to compromise well-being (e.g., BNST) and this is what this thesis offers.

Limitations and future directions

Throughout this final chapter limitations of the studies presented in this thesis are described. In summary, the key limitations in the methods employed in this thesis are associated with the number and demographic scope of participants in the studies.

In the qualitative work presented in Chapters three and four, 50 young people, 25 females, contributed to the discourse concerning well- and ill-being. With qualitative work, 50 is a relatively large number of participants due to the quantity of data generated, however, in general terms this number of participants is small and by nature cannot fully represent population diversity. Future studies could extend this exploratory work with participants from a broader range of educational, socioeconomic and ethnic backgrounds for example. In addition, the important physiological changes which occur throughout the pubertal phase in conjunction with well- and ill-being concepts warrants investigation to provide information concerning the impact of puberty on development of well- and ill-being concepts. Nevertheless, the depictions of well-and ill-being generated by the young participants are

assumed to be universal and the extent of an individual's optimal functioning is thought be determined by external conditions and contexts.

In respect of the quantitative analyses conducted in this thesis, again the number and range of participants, particularly in respect of the disproportionate ratio of younger adolescents who completed questionnaires, was a noteworthy limitation. Ongoing scale development work should include samples representative of all age groups, backgrounds and gender to help provide further evidence of the psychometric properties of the MMWIB. More specifically the MMWIB-A to ensure the adolescent version of the measure and in particular the two unique adolescent well-being scales (i.e., available energy and inspired/engaged) are robust.

Conclusions

The need for promoting well-being in young people is clear. Recent reports of increased negative outcomes for young people further emphasise the need for programmes to be effective(Patalay & Fitzsimons, 2017). In all good practice reccommendations, theory-based interventions are critical but overiding implementation is the need to be able to assess the success or otherwise of such initiatives(Durlak et al., 2011). Evaluation is key to an understanding of what is working and why. Of pertinence to the current thesis is the need for meaningful, valid and reliable measures which are appropriate for the targeted age group. Furthermore, to be able to deliver genuine improvements for our young people, their personal well- and ill-being needs to be measured in a valid, reliable and meaningful way. The MMWIB-C and MMWIB-A it is hoped will provide researchers and practitioners with the tools to reliably report on children's and adolescents well- and ill-being and in a small way contribute to improved outcomes for future generations.

References

Adie, J. W., Duda, J. L., & Ntoumanis, N. (2008). Autonomy support, basic need satisfaction and the optimal functioning of adult male and female sport participants: A test of basic needs theory. *Motivation and Emotion, 32*(3), 189-199. doi:DOI 10.1007/s11031-008-9095-z

Adie, J. W., Duda, J. L., & Ntoumanis, N. (2012). Perceived coach-autonomy support, basic need satisfaction and the well- and ill-being of elite youth soccer players: A longitudinal investigation. *Psychology of Sport and Exercise, 13*(1), 51-59. doi:10.1016/j.psychsport.2011.07.008

Aked, J., Steuer, N., Lawlor, E., & Spratt, S. (2009). *Backing the future: Why investing in children is good for us all.* Retrieved from London:

American Psychological, A. (2010). Publication manual of the American Psychological Association. In *American Psychological Association* (6th ed. ed.). Washington, D.C.: American Psychological Association.

Ames, C., & Ames, R. (1984). Goal Structures and Motivation. *Elementary School Journal, 85*(1), 39-52.

Appleton, P. R., Ntoumanis, N., Quested, E., Viladrich, C., & Duda, J. L. (2016). Initial validation of the coach-created Empowering and Disempowering Motivational Climate Questionnaire (EDMCQ-C). *Psychology of Sport and Exercise, 22*, 53-65. doi:10.1016/j.psychsport.2015.05.008

Arbuckle, J. (2013). IBM SPSS Statistics for Windows (Version 22). Armonk, NY: IBM Corporation.

Asparouhov, T., & Muthen, B. (2009). Exploratory Structural Equation Modeling. *Structural Equation Modeling-a Multidisciplinary Journal, 16*(3), 397-438. doi:10.1080/10705510903008204

Bajgar, J., Ciarrochi, J., Lane, R., & Deane, F. P. (2005). Development of the Levels of Emotional Awareness Scale for Children (LEAS-C). *British Journal of Developmental Psychology, 23*, 569-586. doi:10.1348/026151005x35417

Barry, M. M., Clarke, A. M., & Dowling, K. (2017). Promoting social and emotional well-being in schools. *Health Education, 117*(5), 434-451. doi:10.1108/he-11-2016-0057

Bartholomew, K. J., Ntoumanis, N., Ryan, R. M., Bosch, J. A., & Thøgersen-Ntoumani, C. (2011). Self-Determination Theory and Diminished Functioning: The Role of Interpersonal Control and Psychological Need Thwarting. *Personality and Social Psychology Bulletin, 37*(11), 1459-1473. doi:10.1177/0146167211413125

Bauer, J. J., & McAdams, D. P. (2010). Eudaimonic Growth: Narrative Growth Goals Predict Increases in Ego Development and Subjective Well-Being 3 Years Later. *Developmental Psychology, 46*(4), 761-772. doi:10.1037/a0019654

Bauer, J. J., McAdams, D. P., & Pals, J. L. (2008). Narrative identity and eudaimonic well-being. *Journal of Happiness Studies, 9*(1), 81-104. doi:10.1007/s10902-006-9021-6

Bauer, J., & McAdams, D. (2004). Growth Goals, Maturity, and Well-Being. *Developmental Psychology, 40*(1), 114-127.

Bauer, J., & McAdams, D. (2010). Eudaimonic Growth: Narrative Growth Goals Predict Increases in Ego Development and Subjective Well-Being 3 Years Later. *Developmental Psychology, 46*(4), 761-772.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin, 117*(3), 497.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science*, 1-44.

Beardsmore, R., & Siegler, V. (2014). *Measuring National Well-being - Exploring the Well-being of Children in the UK: 2014*. London: Office for National Statistics

Bech, P., Olsen, L. R., Kjoller, M., & Rasmussen, N. K. (2003). Measuring well-being rather than the absence of distress symptoms: A comparison of the SF-36 mental health subscale and the WHO-Five well-being scale. *International Journal of Methods in Psychiatric Research, 12*(2), 85-91. doi:10.1002/mpr.145

Ben-Arieh, A. (2005). Where are the Children? Children's Role in Measuring and Monitoring Their Well-Being. *Social Indicators Research, 74*(3), 573-596.

Ben-Arieh, A. (2008). The Child Indicators Movement: Past, Present, and Future. *Child Indicators Research, 1*(1), 3-16. doi:10.1007/s12187-007-9003-1

Ben-Arieh, A., & Frones, I. (2011). Taxonomy for child well-being indicators: A framework for the analysis of the well-being of children. *Childhood-a Global Journal of Child Research, 18*(4), 460-476. doi:10.1177/0907568211398159

Ben-Arieh, A., & Goerge, R. (2001). Beyond the numbers: How do we monitor the state of our children? *Children and Youth Services Review, 23*(8), 603-631. doi:10.1016/s0190-7409(01)00150-5

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin, 107*(2), 238.

Berridge, Kent C., & Kringelbach, Morten L. (2015). Pleasure Systems in the Brain. *Neuron, 86*(3), 646-664. doi:https://doi.org/10.1016/j.neuron.2015.02.018

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research, 26*(13), 1802-1811.

Blumenthal, H., Ham, L. S., Cloutier, R. M., Bacon, A. K., & Douglas, M. E. (2016). Social anxiety, disengagement coping, and alcohol-use behaviors among adolescents. *Anxiety, Stress, & Coping, 29*(4), 432-446. doi:10.1080/10615806.2015.1058366

Bostic, T. J., Rubio, D. M., & Hood, M. (2000). A validation of the subjective vitality scale using structural equation modeling. *Social Indicators Research, 52*(3), 313-324.

Bradshaw, J., & Keung, A. (2011). Subjective well-being and mental health. In J. Bradshaw (Ed.), *The Well-Being of Children in the UK.* (Third ed.). Bristol, UK: The Policy Press.

Bradshaw, J., & Richardson, D. (2009). An Index of Child Well-Being in Europe. *Child Indicators Research, 2*(3), 319-351. doi:DOI 10.1007/s12187-009-9037-7

Bradshaw, J., Hoelscher, P., & Richardson, D. (2007). An index of child well-being in the European Union. *Social Indicators Research, 80*(1), 133-177. doi:DOI 10.1007/s11205-006-9024-z

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi:10.1191/1478088706qp063oa

Briggs, S. R., & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality, 54*(1), 106-148. doi:10.1111/j.1467-6494.1986.tb00391.x

Bronfenbrenner, U. (1977). Toward an Experimental Ecology of Human-Development. *American Psychologist, 32*(7), 513-531.

Burnett, S., Bird, G., Moll, J., Frith, C., & Blakemore, S.-J. (2008). Development during Adolescence of the Neural Processing of Social Emotion. *Journal of Cognitive Neuroscience, 21*(9), 1736-1750. doi:10.1162/jocn.2009.21121

Byrne, B. M. (2005). Factor analytic models viewing the structure of an assessment instrument from three perspectives. *Journal of Personality Assessment, 85*(1), 17-32. doi:10.1207/s15327752jpa8501_02

Byrne, B. M. (2013). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*: Routledge.

Cantril, H. (1965). *The Pattern of Human Concerns*. New Jersey: Rutgers University Press.

Caraher, K. J., & Kirschenbaum, D. S. (2014). "I See Inspiration Everywhere": Potential Keys to Nurturing Healthy Obsessions by Very Successful Young Weight Controllers. *Childhood Obesity, 10*(6), 518-532. doi:10.1089/chi.2014.0001

Casas, F. (1997). Children's rights and children's quality of life: Conceptual and practical issues. *Social Indicators Research, 42*(3), 283-298. doi:10.1023/a:1006836909395

Casas, F. (2011). Subjective Social Indicators and Child and Adolescent Well-being. *Child Indicators Research, 4*(4), 555-575. doi:10.1007/s12187-010-9093-z

Castillo, I., Tomas, I., & Balaguer, I. (2017). The Spanish-Version of the Subjective Vitality Scale: Psychometric Properties and Evidence of Validity. *Spanish Journal of Psychology, 20*. doi:10.1017/sjp.2017.22

Charms, R. d. (1968). Personal causation. *New York*.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233-255. doi:10.1207/s15328007sem0902_5

Christie, D., & Viner, R. (2005). ABC of adolescence: Adolescent development. *BMJ: British Medical Journal, 330*(7486), 301.

Clarke, A., Friede, T., Putz, R., Ashdown, J., Martin, S., Blake, A., . . . Stewart-Brown, S. (2011). Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Validated for teenage school students in England and Scotland. A mixed methods assessment. *Bmc Public Health, 11*. doi:10.1186/1471-2458-11-487

Cohen, J. (1988). Statistical power analysis for the behavioral sciences . Hilsdale. *NJ: Lawrence Earlbaum Associates, 2*.

Collard, D. C. M., Verhagen, E. A. L. M., Paw, M. J. M. C. A., & van Mechelen, W. (2008). Acute physical activity and sports injuries in children. *Applied Physiology Nutrition and Metabolism-Physiologie Appliquee Nutrition Et Metabolisme, 33*(2), 393-401. doi:10.1139/h07-182

Compas, B. E., Jaser, S. S., Dunbar, J. P., Watson, K. H., Bettis, A. H., Gruhn, M. A., & Williams, E. K. (2014). Coping and emotion regulation from childhood to early adulthood: Points of convergence and divergence. *Australian Journal of Psychology, 66*(2), 71-81. doi:10.1111/ajpy.12043

Conroy, D. E., & Coatsworth, J. D. (2006, 2003). *Coach training as a strategy for promoting youth social development.* Paper presented at the Gobal Coach Conference and General Assembly of the International-Council-for-Coach-Education, Minenpolis, MN.

Cowburn, A., Blow, M., Moss, D., Bush, M., Ellison, R., Madders, T., & Brennan, S. (2018). *Wise Up: Prioritising wellbeing in schools* Retrieved from London:

Crook, K., Beaver, B. R., & Bell, M. (1998). Anxiety and depression in children: A preliminary examination of the utility of the PANAS-C. *Journal of Psychopathology and Behavioral Assessment, 20*(4), 333-350.

Cudeck, R. (2000). Exploratory Factor Analysis. In E. A. T. Howard & D. B. Steven (Eds.), *Handbook of Applied Multivariate Statistics and Mathematical Modeling* (pp. 265-296). San Diego: Academic Press.

Currie, C., Roberts, C., Morgan, A., Smith, R., Settertobulte, W., Samdal, O., & Barnekow Rasmussen, V. (2004). *'Young People's Health in Context'*. Health Behaviour in School-aged Children Study'(HBSC): International report from the 2001/2002 Study, (No. EUR/04/5048327). Copenhagen: WHO Regional Office for Europe.

Currie, C., Zanotti, C., Morgan, A., Currie, D., De Looze, M., Roberts, C., . . . Barnekow, V. (2012). *Social determinants of health and well-being among young people*. Health Behaviour in School-aged Children (HBSC) study: international report from the 2009/2010 survey. Health policy for children and adolescents, Vol. 6, Copenhagen: WHO Regional Office for Europe.

Davis, E., Nicolas, C., Waters, E., Cook, K., Gibbs, L., Gosch, A., & Ravens-Sieberer, U. (2007). Parent-proxy and child self-reported health-related quality of life: using qualitative methods to explain the discordance. *Quality of Life Research, 16*(5), 863-871. doi:10.1007/s11136-007-9187-3

Dawis, R. V. (2000). Scale construction and psychometric considerations. In H. E. A. Tinsley & S. D. Brown (Eds.), *Handbook of applied multivariate statistics and mathematical modelling* (pp. 65-95). San Diego, California: Academic Press.

de Bruin, A. P., Bakker, F. C., & Oudejans, R. R. D. (2009). Achievement goal theory and disordered eating: Relationships of disordered eating with goal orientations and motivational

climate in female gymnasts and dancers. *Psychology of Sport and Exercise, 10*(1), 72-79. doi:DOI 10.1016/j.psychsport.2008.07.002

De Civita, M., Regier, D., Alamgir, A. H., Anis, A. H., FitzGerald, M. J., & Marra, C. A. (2005). Evaluating health-related quality-of-life studies in paediatric populations - Some conceptual, methodological and developmental considerations and recent applications. *Pharmacoeconomics, 23*(7), 659-685.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self Determination in Human Behavior.* New York: Plenum Press.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human Needs and Self-Determination of Behavior. *Psychological Inquiry, 11*(4), 227-268.

Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies, 9*(1), 1-11. doi:10.1007/s10902-006-9018-1

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie canadienne, 49*(3), 182-185.

Deci, E. L., & Ryan, Richard M. (1985). *Intrinsic Motivation and Self Determination in Human Behavior.* New York: Plenum Press.

DeHaan, C. R., Hirai, T., & Ryan, R. M. (2016). Nussbaum's Capabilities and Self-Determination Theory's Basic Psychological Needs: Relating Some Fundamentals of Human Wellness. *Journal of Happiness Studies, 17*(5), 2037-2049. doi:10.1007/s10902-015-9684-y

Deleval, N. (1995). Scales of Depression, Ill-Being and the Quality of Life: Is There Any Difference? An Assay in Taxonomy. *Quality of Life Research, 4*(3), 259-269.

DeVellis, R. F. (2016). *Scale development: Theory and applications* (Vol. 26): Sage publications.

Diener, E. (1984). Subjective Well-being. *Psychological Bulletin, 95*(3), 542-575.

Diener, E. (2006). Guidelines for National Indicators of Subjective Well-Being and Ill-Being. *Applied Research in Quality of Life, 1*(2), 151-157. doi:10.1007/s11482-006-9007-x

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment, 49*(1), 71-75.

Dimitrov, D. M. (2010). Testing for Factorial Invariance in the Context of Construct Validation. *Measurement and Evaluation in Counseling and Development, 43*(2), 121-149. doi:10.1177/0748175610373459

DiStefano, C., Liu, J., Jiang, N., & Shi, D. X. (2018). Examination of the Weighted Root Mean Square Residual: Evidence for Trustworthiness? *Structural Equation Modeling-a Multidisciplinary Journal, 25*(3), 453-466. doi:10.1080/10705511.2017.1390394

Donaldson, D., Prinstein, M. J., Danovsky, M., & Spirito, A. (2000). Patterns of children's coping with life stress: Implications for clinicians. *American Journal of Orthopsychiatry, 70*(3), 351-359. doi:10.1037/h0087689

Donaldson, S. J., & Ronan, K. R. (2006). The effects of sports participation on young adolescents' emotional well-being. *Adolescence, 41*(162), 369-389.

Donaldson, S.K., & Westerman, M.A. (1986). Development of Children's Understanding of Ambivalence and Causal Theories of Emotions. *Developmental Psychology, 22*(5), 655-662.

Doyle, M. M., Murphy, J., & Shevlin, M. (2016). Competing Factor Models of Child and Adolescent Psychopathology. *Journal of Abnormal Child Psychology, 44*(8), 1559-1571. doi:10.1007/s10802-016-0129-9

Duda, J. L. (2013). The conceptual and empirical foundations of Empowering Coaching™: Setting the stage for the PAPA project. *International Journal of Sport and Exercise Psychology, 11*(4), 311-318. doi:10.1080/1612197X.2013.839414

Duda, J. L., Quested, E., Haug, E., Samdal, O., Wold, B., Balaguer, I., . . . Cruz, J. (2013). Promoting Adolescent health through an intervention aimed at improving the quality of their participation in Physical Activity (PAPA): Background to the project and main trial protocol. *International Journal of Sport and Exercise Psychology, 11*(4), 319-327. doi:10.1080/1612197X.2013.839413

Dunn, J. G. H., Bouffard, M., & Rogers, W. T. (1999). Assessing Item Content-Relevance in Sport Psychology Scale-Construction Research: Issues and Recommendations. *Measurement in Physical Education and Exercise Science, 3*(1), 15-36. doi:10.1207/s15327841mpee0301_2

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82*(1), 405-432. doi:10.1111/j.1467-8624.2010.01564.x

Ebesutani, C., Okamura, K., Higa-McMillan, C., & Chorpita, B. F. (2011). A psychometric analysis of the Positive and Negative Affect Schedule for Children–Parent Version in a school sample. *Psychological Assessment*. doi:10.1037/a0022057

Eccles, J. S. (1999). The development of children ages 6 to 14. *Future of Children, 9*(2), 30-44. doi:10.2307/1602703

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: informing development of a conceptual model of health through sport.

International Journal of Behavioral Nutrition and Physical Activity, 10. doi:10.1186/1479-5868-10-98

Eiser, C., & Morse, R. (2001). The measurement of quality of life in children: Past and future perspectives. *Journal of Developmental and Behavioral Pediatrics, 22*(4), 248-256.

Elliot, A. J., Sedikides, C., Murayama, K., Tanaka, A., Thrash, T. M., & Mapes, R. R. (2012). Cross-Cultural Generality and Specificity in Self-Regulation: Avoidance Personal Goals and Multiple Aspects of Well-Being in the United States and Japan. *Emotion, 12*(5), 1031-1040. doi:10.1037/a0027456

Erwin, J., & Kuhn, D. (1979). Development of children's understanding of the multiple determination underlying human behavior. *Dev Psychol, 15*(3), 352-353.

Estola, E., Farquhar, S., & Puroila, A. M. (2014). Well-Being Narratives and Young Children. *Educational Philosophy and Theory, 46*(8), 929-941. doi:10.1080/00131857.2013.785922

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272-299. doi:10.1037//1082-989x.4.3.272

Fattore, T., Mason, J., & Watson, E. (2007). Children's conceptualisation(s) of their well-being. *Social Indicators Research, 80*(1), 5-29. doi:10.1007/s11205-006-9019-9

Fayad, Y. I., & Kazarian, S. S. (2013). Subjective Vitality of Lebanese Adults in Lebanon: Validation of the Arabic Version of the Subjective Vitality Scale. *Social Indicators Research, 114*(2), 465-478. doi:10.1007/s11205-012-0156-z

Fernandes, L., Mendes, A., & Teixeira, A. A. C. (2012). A Review Essay on the Measurement of Child Well-Being. *Social Indicators Research, 106*(2), 239-257. doi:10.1007/s11205-011-9814-9

Findlay, L. C., & Coplan, R. J. (2008). Come out and Play: Shyness in Childhood and the Benefits of Organized Sports Participation. *Canadian Journal of Behavioural Science-Revue Canadienne Des Sciences Du Comportement, 40*(3), 153-161. doi:10.1037/0008-400x.40.3.153

Forsner, M., LilianSørlie, Venke. (2005/06/01). The experience of being ill as narrated by hospitalized children aged 7-10 years with short-term illness. *Journal of Child Health Care 9*(2), 153-165. doi:10.1177/1367493505051406

Fry, M. D., & Duda, J. L. (1997). A developmental examination of children's understanding of effort and ability in the physical and academic domains. *Research Quarterly for Exercise and Sport, 68*(4), 331-344.

Gabhainn, S. N., & Sixsmith, J. (2005). *Children's understanding of Well-Being*. Dublin, Ireland: Stationery Office.

Gagne, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., van den Broeck, A., Aspeli, A. K., . . . Westbye, C. (2015). The Multidimensional Work Motivation Scale: Validation evidence in seven languages and nine countries. *European Journal of Work and Organizational Psychology, 24*(2), 178-196. doi:10.1080/1359432x.2013.877892

Gierut, K. J., Pecora, K. M., & Kirschenbaum, D. S. (2012). Highly Successful Weight Control by Formerly Obese Adolescents: A Qualitative Test of the Healthy Obsession Model. *Childhood Obesity, 8*(5), 455-465. doi:10.1089/chi.2011.0101

Gignac, G. E. (2016). The higher-order model imposes a proportionality constraint: That is why the bifactor model tends to fit better. *Intelligence, 55*, 57-68. doi:https://doi.org/10.1016/j.intell.2016.01.006

Gilman, R., Huebner, E. S., & Laughlin, J. E. (2000). A first study of the multidimensional students' life satisfaction scale with adolescents. *Social Indicators Research, 52*(2). doi:10.1023/a:1007059227507

Gobbo, C., & Raccanello, D. (2011). Personal Narratives about States of Suffering and Wellbeing: Children's Conceptualization in Terms of Physical and Psychological Domain. *Applied Cognitive Psychology, 25*(3), 386-394. doi:10.1002/acp.1703

González-Carrasco, M., Casas, F., Viñas, F., Malo, S., Gras, M. E., & Bedin, L. (2017). What Leads Subjective Well-Being to Change Throughout Adolescence? An Exploration of Potential Factors. *Child Indicators Research, 10*(1), 33-56. doi:10.1007/s12187-015-9359-6

Gonzalez, L., Castillo, I., Garcia-Merita, M., & Balaguer, I. (2015). Autonomy support, psychological needs satisfaction and well-being: Invariance of a structural model in soccer players and dancers. *Revista De Psicologia Del Deporte, 24*(1), 121-129.

Grimm, K. J., Ram, N., & Estabrook, R. (2016). *Growth Modeling: Structural Equation and Multilevel Modeling Approaches*: Guilford Publications.

Gurland, S. T., & Grolnick, W. S. (2008). Building rapport with children: Effects of adults' expected, actual, and perceived behavior. *Journal of Social and Clinical Psychology, 27*(3), 226-253.

Guyer, A. E., Pérez-Edgar, K., & Crone, E. A. (2018). Opportunities for Neurodevelopmental Plasticity From Infancy Through Early Adulthood. *Child Development, 89*(3), 687-697. doi:10.1111/cdev.13073

Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development, 53*(1), 87-97.

Harter, S., & Buddin, B. (1987). Children's Understanding of the Simultaneity of Two Emotions: A Five-Stage Developmental Acquisition Sequence. *Developmental Psychology, 23*(3), 388-399.

Harter, S., & Pike, R. (1984). The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. *Child Development, 55*(6), 1969-1982.

Headey, B., Holmstrom, E., & Wearing, A. (1984). Well-being and ill-being: Different dimensions. *Social Indicators Research, 14*(2), 115-139. doi:10.1007/bf00293406

Headey, B., Muffels, R., & Wagner, G. G. (2010). Long-running German panel survey shows that personal and economic choices, not just genes, matter for happiness. *Proceedings of the National Academy of Sciences of the United States of America, 107*(42), 17922-17926. doi:10.1073/pnas.1008612107

Holte, A., Barry, M. M., Bekkhus, M., Borge, A. I. H., Bowes, L., Casas, F., . . . Zachrisson, H. D. (2014). Psychology of Child Well-Being. In A. Ben-Arieh, F. Casas, I. Frønes, & J. E. Korbin (Eds.), *Handbook of Child Well-Being: Theories, Methods and Policies in Global Perspective* (pp. 555-631). Dordrecht: Springer Netherlands.

Holzinger, K. J., & Swineford, F. (1937). The Bi-Factor Method. *Psychometrika, 2*(1), 41-54. doi:10.1007/bf02287965

Howard, J. L., Gagné, M., Morin, A. J. S., & Forest, J. (2016). Using Bifactor Exploratory Structural Equation Modeling to Test for a Continuum Structure of Motivation. *Journal of Management*, 0149206316645653. doi:10.1177/0149206316645653

Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*(4), 424-453. doi:10.1037//1082-989x.3.4.424

Huebner, E. S. (1994). Preliminary Development and Validation of a Multidimensional Life Satisfaction Scale for Children. *Psychological Assessment, 6*(2), 149-158.

Huebner, E. S., Laughlin, J. E., Ash, C., & Gilman, R. (1998). Further validation of the multidimensional students' life satisfaction scale. *Journal of Psychoeducational Assessment, 16*(2), 118-134. doi:10.1177/073428299801600202

Humphrey, N., Lendrum, A., & Wigelsworth, M. (2010). *Social and emotional aspects of learning (SEAL) programme in secondary schools: national evaluation.* London: Department for Education

Huta, V., & Hawley, L. (2010). Psychological Strengths and Cognitive Vulnerabilities: Are They Two Ends of the Same Continuum or Do They Have Independent Relationships with Well-being and Ill-being? *Journal of Happiness Studies, 11*(1), 71-93. doi:10.1007/s10902-008-9123-4

Huta, V., & Ryan, R. M. (2010). Pursuing Pleasure or Virtue: The Differential and Overlapping Well-Being Benefits of Hedonic and Eudaimonic Motives. *Journal of Happiness Studies, 11*(6), 735-762. doi:10.1007/s10902-009-9171-4

IBM Corporation (2010). IBM SPSS Statistics for Windows, Version 19.0. (Version 19). Armonk, NY: IBM Corp. .

Jacques, H. A. K., & Mash, E. J. (2004). A test of the tripartite model of anxiety and depression in elementary and high school boys and girls. *Journal of Abnormal Child Psychology, 32*(1), 13-25.

Jensen, S. A., Fabiano, G. A., Lopez-Williams, A., & Chacko, A. (2006). The reading grade level of common measures in child and adolescent clinical psychology. *Psychological Assessment, 18*(3), 346-352. doi:10.1037/1040-3590.18.3.346

Jiang, X., Kosher, H., Ben-Arieh, A., & Huebner, E. S. (2014). Children's Rights, School Psychology, and Well-Being Assessments. *Social Indicators Research, 117*(1), 179-193. doi:10.1007/s11205-013-0343-6

Jöreskog, K. G. (1971). Simultaneous factor analysis in several populations. *Psychometrika, 36*(4), 409-426. doi:10.1007/BF02291366

Kagan, S. (2014). *An Introduction to Ill- Being*: Oxford University Press.

Kawabata, M., Yamazaki, F., Guo, D. W., & Chatzisarantis, N. L. D. (2016). Advancement of the Subjective Vitality Scale: examination of alternative measurement models for Japanese and Singaporeans. *Scandinavian journal of medicine & science in sports*. doi:10.1111/sms.12760

Kenny, D. A., Kaniskan, B., & McCoach, D. B. (2015). The Performance of RMSEA in Models With Small Degrees of Freedom. *Sociological Methods & Research, 44*(3), 486-507. doi:10.1177/0049124114543236

Kern, M. L., Benson, L., Steinberg, E. A., & Steinberg, L. (2016). The EPOCH Measure of Adolescent Well-Being. *Psychological Assessment, 28*(5), 586-597. doi:10.1037/pas0000201

Keulers, E. H. H., Evers, E. A. T., Stiers, P., & Jolles, J. (2010). Age, Sex, and Pubertal Phase Influence Mentalizing About Emotions and Actions in Adolescents. *Developmental Neuropsychology, 35*(5), 555-569. doi:10.1080/875656412010494920

Keverne, E. B. (2004). Understanding well-being in the evolutionary context of brain development. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 359*(1449), 1349-1358. doi:10.1098/rstb.2004.1517

Kleinert, S., & Horton, R. (2016). Adolescent health and wellbeing: a key to a sustainable future. *Lancet, 387*(10036), 2355-2356. doi:10.1016/s0140-6736(16)30297-5

Knight, G., & Zerr, A. (2010). Introduction to the Special Section: Measurement Equivalence in Child Development Research. *Child Development Perspectives, 4*(1), 1-4. doi:10.1111/j.1750-8606.2009.00108.x

Kringelbach, M. L., & Berridge, K. C. (2009). Towards a functional neuroanatomy of pleasure and happiness. *Trends in Cognitive Sciences, 13*(11), 479-487. doi:10.1016/j.tics.2009.08.006

Ladd, G. W. (1999). Peer relationships and social competence during early and middle childhood. *Annual Review of Psychology, 50*, 333-359. doi:10.1146/annurev.psych.50.1.333

Lagattuta, K. H. (2014). Linking Past, Present, and Future: Children's Ability to Connect Mental States and Emotions Across Time. *Child Development Perspectives, 8*(2), 90-95. doi:10.1111/cdep.12065

Land, K. C., Lamb, V. L., & Zheng, H. (2011). How are the Kids Doing? How do We Know? Recent Trends in Child and Youth Well-Being in the United States and Some International Comparisons. *Social Indicators Research, 100*(3), 463-477. doi:10.1007/s11205-010-9624-5

Landry, B. W., & Driscoll, S. W. (2012). Physical Activity in Children and Adolescents. *Pm&R, 4*(11), 826-832. doi:10.1016/j.pmrj.2012.09.585

Laurent, J., Catanzaro, S. J., Joiner, T. E., Rudolph, K. D., Potter, K. I., Lambert, S., . . . Gathright, T. (1999). A measure of positive and negative affect for children: Scale development and preliminary validation. *Psychological Assessment, 11*(3), 326-338. doi:10.1037/1040-3590.11.3.326

Lenzner, T. (2013). Are Readability Formulas Valid Tools for Assessing Survey Question Difficulty? *Sociological Methods & Research, 43*(4), 677-698. doi:10.1177/0049124113513436

Linton, M. J., Dieppe, P., & Medina-Lara, A. (2016). Review of 99 self-report measures for assessing well-being in adults: exploring dimensions of well-being and developments over time. *Bmj Open, 6*(7). doi:10.1136/bmjopen-2015-010641

Litalien, D., Morin, A. J. S., Gagne, M., Vallerand, R. J., Losier, G. F., & Ryan, R. M. (2017). Evidence of a continuum structure of academic self-determination: A two-study test using a bifactor-ESEM representation of academic motivation. *Contemporary Educational Psychology, 51*, 67-82. doi:10.1016/j.cedpsych.2017.06.010

Little, T. D., Lindenberger, U., & Nesselroade, J. R. (1999). On selecting indicators for multivariate measurement and modeling with latent variables: When "good" indicators are bad and "bad" indicators are good. *Psychological Methods, 4*(2), 192-211. doi:10.1037/1082-989x.4.2.192

Liu, Y., Millsap, R. E., West, S. G., Tein, J.-Y., Tanaka, R., & Grimm, K. J. (2016). Testing Measurement Invariance in Longitudinal Data With Ordered-Categorical Measures. *Psychological methods*.

Lubans, D. R., Morgan, P. J., Cliff, D. P., Barnett, L. M., & Okely, A. D. (2010). Fundamental Movement Skills in Children and Adolescents Review of Associated Health Benefits. *Sports Medicine, 40*(12), 1019-1035. doi:10.2165/11536850-000000000-00000

Lynn, M. R. (1986). Determination and Quantification Of Content Validity. *Nursing Research November/December, 35*(6), 382-386.

Lyubomirsky, S., King, L., & Diener, E. (2005). The Benefits of Frequent Positive Affect: Does Happiness Lead to Success? *Psychological Bulletin, 131*(6), 803-855. doi:10.1037/0033-2909.131.6.803

Maciejewski, D. F., van Lier, P. A. C., Branje, S. J. T., Meeus, W. H. J., & Koot, H. M. (2017). A Daily Diary Study on Adolescent Emotional Experiences: Measurement Invariance and

Developmental Trajectories. *Psychological Assessment, 29*(1), 35-49. doi:10.1037/pas0000312

Marsh, H. W. (1986). Negative Item Bias in Ratings Scales for Preadolescent Children: A Cognitive Developmental Phenomenon. *Developmental Psychology, 22*(1), 37-49. doi:10.1037/0012-1649.22.1.37

Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology, 81*(3), 417-430. doi:10.1037/0022-0663.81.3.417

Marsh, H. W. (1994). Using the National Longitudinal Study of 1988 to evaluate theoretical models of self-concept: The self-description questionnaire. *Journal of Educational Psychology, 86*(3), 439-456. doi:10.1037/0022-0663.86.3.439

Marsh, H. W. (2004). In search of golden rules: Comment on hypothesis-testing approaches to setting cutoff values for fit indexes and dangers in overgeneralizing Hu and Bentler's (1999) findings. *Structural Equation Modeling-a Multidisciplinary Journal, 11*(3), 320-341. doi:10.1207/s15328007sem1103_2

Marsh, H. W. (2006). *Self-concept theory, measurement and research into practice : the role of self-concept in educational psychology*. Leicester: British Psychological Society.

Marsh, H. W., & Hau, K. T. (2007). Applications of latent-variable models in educational psychology: The need for methodological-substantive synergies. *Contemporary Educational Psychology, 32*(1), 151-170. doi:10.1016/j.cedpsych.2006.10.008

Marsh, H. W., & Shavelson, R. (1985). Self-Concept: Its Multifaceted, Hierarchical Structure. *Educational Psychologist, 20*(3), 107-123. doi:10.1207/s15326985ep2003_1

Marsh, H. W., Ellis, L. A., Parada, R. H., Richards, G., & Heubeck, B. G. (2005). A Short Version of the Self Description Questionnaire II: Operationalizing Criteria for Short-Form Evaluation With New Applications of Confirmatory Factor Analyses. *Psychological Assessment, 17*(1), 81-102. doi:10.1037/1040-3590.17.1.81

Marsh, H. W., Hau, K. T., & Grayson, D. (2005). Goodness of fit in structural equation models. In A. MaydeuOlivares & J. J. McArdle (Eds.), *Contemporary Psychometrics - a Festschrift for Roderick P. Mcdonald* (pp. 275-340).

Marsh, H. W., Liem, G. A. D., Martin, A. J., Morin, A. J. S., & Nagengast, B. (2011). Methodological Measurement Fruitfulness of Exploratory Structural Equation Modeling (ESEM): New Approaches to Key Substantive Issues in Motivation and Engagement. *Journal of Psychoeducational Assessment, 29*(4), 322-346. doi:10.1177/0734282911406657

Marsh, H. W., Ludtke, O., Robitzsch, A., Trautwein, U., Asparouhov, T., Muthen, B., & Nagengast, B. (2009). Doubly-Latent Models of School Contextual Effects: Integrating Multilevel and Structural Equation Approaches to Control Measurement and Sampling Error. *Multivariate Behavioral Research, 44*(6), 764-802. doi:10.1080/00273170903333665

Marsh, H. W., Morin, A. J. S., Parker, P. D., & Kaur, G. (2014). Exploratory Structural Equation Modeling: An Integration of the Best Features of Exploratory and Confirmatory Factor Analysis. *Annual Review of Clinical Psychology, Vol 10, 10*, 85-+. doi:10.1146/annurev-clinpsy-032813-153700

Marsh, H. W., Muthen, B., Asparouhov, T., Ludtke, O., Robitzsch, A., Morin, A. J. S., & Trautwein, U. (2009). Exploratory Structural Equation Modeling, Integrating CFA and EFA: Application to Students' Evaluations of University Teaching. *Structural Equation Modeling-a Multidisciplinary Journal, 16*(3), 439-476. doi:10.1080/10705510903008220

Marsh, H. W., Nagengast, B., Morin, A. J. S., Parada, R. H., Craven, R. G., & Hamilton, L. R. (2011). Construct Validity of the Multidimensional Structure of Bullying and Victimization: An Application of Exploratory Structural Equation Modeling. *Journal of Educational Psychology, 103*(3), 701-732. doi:10.1037/a0024122

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370-396. doi:10.1037/h0054346

McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory factor analysis.*, 60,*, 48-58.

McDowell, I. (2010). Measures of self-perceived well-being. *Journal of Psychosomatic Research, 69*(1), 69-79. doi:10.1016/j.jpsychores.2009.07.002

McHugh, R., & Behar, E. (2009). Readability of Self-Report Measures of Depression and Anxiety. *J Consult Clin Psychol, 77*(6), 1100-1112.

Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology, 93*(3), 568-592. doi:10.1037/0021-9010.93.3.568

Millsap, R. E., & Yun-Tein, J. (2004). Assessing factorial invariance in ordered-categorical measures. *Multivariate Behavioral Research, 39*(3), 479-515. doi:10.1207/s15327906mbr3903_4

Milyavskaya, M., Gingras, I., Mageau, G. A., Koestner, R., Gagnon, H., Fang, J. Q., & Boiche, J. (2009). Balance Across Contexts: Importance of Balanced Need Satisfaction Across Various Life Domains. *Personality and Social Psychology Bulletin, 35*(8), 1031-1045. doi:10.1177/0146167209337036

Moore, K. A., Murphey, D., & Bandy, T. (2012). Positive Child Well-Being: An Index Based on Data for Individual Children. *Maternal and Child Health Journal, 16*, S119-S128. doi:10.1007/s10995-012-1001-3

Morin, A. J. S., Arens, A. K., & Marsh, H. W. (2016). A Bifactor Exploratory Structural Equation Modeling Framework for the Identification of Distinct Sources of Construct-Relevant Psychometric Multidimensionality. *Structural Equation Modeling-a Multidisciplinary Journal, 23*(1), 116-139. doi:10.1080/10705511.2014.961800

Morin, A. J. S., Marsh, H. W., & Nagengast, B. (2013). Exploratory Structural Equation Modeling. *Structural Equation Modeling: a Second Course, Second Edition*, 395-436.

Moutao, J. M., Alves, S. M., & Cid, L. (2013). Translation and validation of the Subjective Vitality Scale in a portuguese sample of exercise participants. *Revista Latinoamericana De Psicologia, 45*(2), 223-230.

Muntarbhorn, V. (2017). The Convention on the Rights of the Child: 25 Years and Beyond. *United Nations Convention on the Rights of the Child: Taking Stock after 25 Years and Looking Ahead*, 17-30. doi:10.1163/9789004295056_003

Muraven, M., Gagne, M., & Rosman, H. (2008). Helpful self-control: Autonomy support, vitality, and depletion. *Journal of Experimental Social Psychology, 44*(3), 573-585. doi:10.1016/j.jesp.2007.10.008

Muthén, L. K., & Muthén, B. O. (2012). Mplus Version 7 user's guide. *Los Angeles, CA: Muthén & Muthén*.

Myers, N. D. (2013). Coaching competency and (exploratory) structural equation modeling: A substantive-methodological synergy. *Psychology of Sport and Exercise, 14*(5), 709-718. doi:10.1016/j.psychsport.2013.04.008

Myers, N. D., Chase, M. A., Pierce, S. W., & Martin, E. (2011). Coaching Efficacy and Exploratory Structural Equation Modeling: A Substantive-Methodological Synergy. *Journal of Sport & Exercise Psychology, 33*(6), 779-806.

Nakamura, J., & Csikszentmihalyi, M. (2014). The concept of flow. In *Flow and the foundations of positive psychology* (pp. 239-263): Springer.

Natapoff, J. N. (1982). A Developmental Analysis of Children's Ideas of Health. *Health Education Quarterly, 9*(2-3), 130-141.

Nicholls, J. G. (1978). Development of Concepts of Effort and Ability: Perception of Academic attainment, and Understanding that Difficult Tasks require more ability. *Child Development, 49*(3), 800-814.

Nicholls, J. G. (1989). *The Competitive Ethos and Democratic Education*: Harvard University Press.

Nix, G. A., Ryan, R. M., Manly, J. B., & Deci, E. L. (1999). Revitalization through self-regulation: The effects of autonomous and controlled motivation on happiness and vitality. *Journal of Experimental Social Psychology, 35*(3), 266-284.

Normandeau, S., Kalnins, I., Jutras, S., & Hanigan, D. (1998). A description of 5- to 12-year old children's conception of health within the context of their daily life. *Psychology & Health, 13*(5), 883-896. doi:10.1080/08870449808407438

O'Connor, C. A., Dyson, J., Cowdell, F., & Watson, R. (2018). Do universal school-based mental health promotion programmes improve the mental health and emotional wellbeing of young people? A literature review. *Journal of Clinical Nursing, 27*(3-4), e412-e426. doi:10.1111/jocn.14078

OECD. (2009). *Doing Better for Children*. In. Retrieved from *http://www.keepeek.com/Digital-Asset-Management/oecd/social-issues-migration-health/doing-better-for-children_9789264059344-en#page4* doi:DOI: http://dx.doi.org/10.1787/9789264059344-en

Osborne, J. W., & Costello, A. B. (2009). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Pan-Pacific Management Review, 12*(2), 131-146.

Papaioannou, A. G., Appleton, P. R., Torregrosa, M., Jowett, G. E., Bosselut, G., Gonzalez, L., . . . Zourbanos, N. (2013). Moderate-to-vigorous physical activity and personal well-being in European youth soccer players: Invariance of physical activity, global self-esteem and vitality across five countries. *International Journal of Sport and Exercise Psychology, 11*(4), 351-364. doi:10.1080/1612197X.2013.830429

Patalay, P., & Fitzsimons, E. (2017). *Mental ill-health among children of the new century: trends across childhood with a focus on age 14.* London: Centre for Longitudinal Studies.

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., . . . Viner, R. M. (2016). Our future: a Lancet commission on adolescent health and wellbeing. *Lancet, 387*(10036), 2423-2478. doi:10.1016/s0140-6736(16)00579-1

Pendergast, L. L., von der Embse, N., Kilgus, S. P., & Eklund, K. R. (2017). Measurement equivalence: A non-technical primer on categorical multi-group confirmatory factor analysis in school psychology. *Journal of school psychology, 60*, 65-82. doi:10.1016/j.jsp.2016.11.002

Perrin, E. C., & Gerrity, S. (1981). There's a Demon in your Belly: Children's Understanding of Illness. *Pediatrics, 67*(6), 841-849.

Piaget, J. (1961). The Genetic Approach to the Psychology of Thought. *Journal of Educational Psychology, 52*(6), 275-281. doi:10.1037/h0042963

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health, 30*(4), 459-467. doi:10.1002/nur.20199

Pons, F., Harris, P. L., & de Rosnay, M. (2004). Emotion comprehension between 3 and 11 years: Developmental periods and hierarchical organization. *European Journal of Developmental Psychology, 1*(2), 127-152. doi:10.1080/17405620344000022

QSR. (2012). NVivo (Version 10). Doncaster, Australia: QSR International.

Quested, E., & Duda, J. L. (2010). Exploring the Social-Environmental Determinants of Well- and Ill-Being in Dancers: A Test of Basic Needs Theory. *Journal of Sport & Exercise Psychology, 32*(1), 39-60.

Rajmil, L., Herdman, M., Fernandez de Sanmamed, M.-J., Detmar, S., Bruil, J., Ravens-Sieberer, U., . . . Auquier, P. (2004). Generic health-related quality of life instruments in children and adolescents: a qualitative analysis of content. *Journal of Adolescent Health, 34*(1), 37-45. doi:http://dx.doi.org/10.1016/S1054-139X(03)00249-0

Ravens-Sieberer, U., Erhart, M., Rajmil, L., Herdman, M., Auquier, P., Bruil, J., . . . European KIDSCREEN Group (2010). Reliability, construct and criterion validity of the KIDSCREEN-10 score: a short measure for children and adolescents' well-being and health-related quality of life. *Quality of Life Research, 19*(10), 1487-1500. doi:10.1007/s11136-010-9706-5

Ravens-Sieberer, U., Erhart, M., Rajmil, L., Herdman, M., Auquier, P., Bruil, J., . . . Kilroe, J. (2010). Reliability, construct and criterion validity of the KIDSCREEN-10 score: a short

measure for children and adolescents' well-being and health-related quality of life. *Quality of Life Research, 19*(10), 1487-1500. doi:10.1007/s11136-010-9706-5

Ravens-Sieberer, U., Erhart, M., Torsheim, T., Hetland, J., Freeman, J., Danielson, M., . . . KIDSCREEN Group (2008). An international scoring system for self-reported health complaints in adolescents. *European Journal of Public Health, 18*(3), 294-299. doi:10.1093/eurpub/ckn001

Ravens-Sieberer, U., Gosch, A., Rajmil, L., Erhart, M., Bruil, J., Duer, W., . . . European Kidscreen Group (2005). KIDSCREEN-52 quality-of-life measure for children and adolescents. *Expert review of pharmacoeconomics & outcomes research, 5*(3), 353-364. doi:10.1586/14737167.5.3.353

Readability Score. (2017). Retrieved from www.readability-score.com

Rees, G., Bradshaw, J., Goswami, H., & Keung, A. (2010). *Understanding Children's Well-being: A national survey of young people's well-being*. Retrieved from

Rees, G., Goswami, H., & Bradshaw, J. (2010). Developing an Index of Children's Subjective Well-being in England.

Rosen, L. D., Lim, A. F., Felt, J., Carrier, L. M., Cheever, N. A., Lara-Ruiz, J. M., . . . Rokkum, J. (2014). Media and technology use predicts ill-being among children, preteens and teenagers independent of the negative health impacts of exercise and eating habits. *Computers in Human Behavior, 35*, 364-375. doi:10.1016/j.chb.2014.01.036

Rouse, P. C., Van Zanten, J. J. J. C. S. V., Ntoumanis, N., Metsios, G. S., Yu, C.-a., Kitas, G. D., & Duda, J. L. (2015). Measuring the positive psychological wellbeing of people with rheumatoid arthritis: a cross-sectional validation of the subjective vitality scale. *Arthritis Research & Therapy, 17*. doi:10.1186/s13075-015-0827-7

Ruck, M. D., Keating, D. P., Saewyc, E. M., Earls, F., & Ben-Arieh, A. (2016). The United Nations Convention on the Rights of the Child: Its Relevance for Adolescents. *Journal of Research on Adolescence, 26*(1), 16-29. doi:10.1111/jora.12172

Russell, J. A. (1980). A Circumplex Model of Affect. *Journal of Personality and Social Psychology, 39*(6), 1161-1178.

Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist, 55*(1), 68-78.

Ryan, R. M., & Deci, E. L. (2000). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry, 11*(4), 319-338. doi:10.1207/s15327965pli1104_03

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141-166.

Ryan, R. M., & Deci, E. L. (2008). From Ego Depletion to Vitality: Theory and Findings Concerning the Facilitation of Energy Available to the Self. *Social and Personality Psychology Compass, 2*(2), 702-717.

Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65*(3), 529-565.

Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies, 9*(1), 139-170. doi:10.1007/s10902-006-9023-4

Ryff, C. D. (1989). Happiness is everything, or is it?: Explorations of the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*(6), 1069-1081.

Ryff, C. D., & Keyes, C. L. (1995). The structure of psychological well-being revisited. *Journal of Personality & Social Psychology, 69*(4), 719-727.

Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies, 9*(1), 13-39. doi:10.1007/s10902-006-9019-0

Ryff, C. D., Love, G. D., Urry, H. L., Muller, D., Rosenkranz, M. A., Friedman, E. M., . . . Singer, B. (2006). Psychological well-being and ill-being: Do they have distinct or mirrored biological correlates? *Psychotherapy and Psychosomatics, 75*(2), 85-95.

Sagone, E., & De Caroli, M. E. (2014). The relationship between emotion comprehension and mental synthesis in developmental age. *5th World Conference on Educational Sciences, 116*, 590-595. doi:10.1016/j.sbspro.2014.01.262

Sanchez-Oliva, D., Morin, A. J. S., Teixeira, P. J., Carraca, E. V., Palmeira, A. L., & Silva, M. N. (2017). A bifactor exploratory structural equation modeling representation of the structure of the basic psychological needs at work scale. *Journal of Vocational Behavior, 98*, 173-187. doi:10.1016/j.jvb.2016.12.001

Scanlan, T. K., Russell, D. G., Beals, K. P., & Scanlan, L. A. (2003). Project on elite athlete commitment (PEAK): II. A direct test and expansion of the Sport Commitment Model with elite amateur sportsmen. *Journal of Sport & Exercise Psychology, 25*(3), 377-401.

Scanlan, T. K., Russell, D. G., Magyar, T. M., & Scanlan, L. A. (2009). Project on Elite Athlete Commitment (PEAK): III. An Examination of the External Validity Across Gender, and the Expansion and Clarification of the Sport Commitment Model. *Journal of Sport & Exercise Psychology, 31*(6), 685-705.

Scanlan, T. K., Russell, D. G., Wilson, N. C., & Scanlan, L. A. (2003). Project on elite athlete commitment (PEAK): I. Introduction and methodology. *Journal of Sport & Exercise Psychology, 25*(3), 360-376.

Schellenberg Benjamin, J. I., Verner-Filion, J., Gaudreau, P., Bailis Daniel, S., Lafrenière Marc-André, K., & Vallerand Robert, J. (2018). Testing the dualistic model of passion using a novel quadripartite approach: A look at physical and psychological well-being. *Journal of Personality, 0*(0). doi:10.1111/jopy.12378

Schinka, J. (2012). Further Issues in Determining the Readability of Self-Report Items: Comment on McHugh and Behar (2009). *J Consult Clin Psychol, 80*(5), 952-955.

Schreuders, E., Braams, B. R., Blankenstein, N. E., Peper, J. S., Güroğlu, B., & Crone, E. A. (2018). Contributions of Reward Sensitivity to Ventral Striatum Activity Across Adolescence and Early Adulthood. *Child Development, 89*(3), 797-810. doi:10.1111/cdev.13056

Seligman, M. E. P. (2008). Positive health. *Applied Psychology-an International Review-Psychologie Appliquee-Revue Internationale, 57*, 3-18. doi:10.1111/j.1464-0597.2008.00351.x

Seligman, M. E. P. (2012). *Flourish: A Visionary New Understanding of Happiness and Well-being*: Atria Books.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology - An introduction. *American Psychologist, 55*(1), 5-14.

Seligson, J. L., Huebner, E. S., & Valois, R. F. (2003). Preliminary validation of the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS). *Social Indicators Research, 61*(2). doi:10.1023/a:1021326822957

Sheldon, K. M. (2011). Integrating Behavioral-Motive and Experiential-Requirement Perspectives on Psychological Needs: A Two Process Model. *Psychological Review, 118*(4), 552-569. doi:10.1037/a0024758

Sheldon, K. M., & Kasser, T. (2001). Goals, congruence, and positive well-being: New empirical support for humanistic theories. *Journal of Humanistic Psychology, 41*(1), 30-50.

Silk, J. S., Steinberg, L., & Morris, A. S. (2003). Adolescents' emotion regulation in daily life: Links to depressive symptoms and problem behavior. *Child Development, 74*(6), 1869-1880. doi:10.1046/j.1467-8624.2003.00643.x

Simmonds, D. J., Hallquist, M. N., Asato, M., & Luna, B. (2014). Developmental stages and sex differences of white matter and behavioral development through adolescence: A longitudinal diffusion tensor imaging (DTI) study. *Neuroimage, 92*, 356-368. doi:10.1016/j.neuroimage.2013.12.044

Skare, M., Hopkins, W. G., & Solberg, P. A. (2017). Determinants of Vitality During a Training Cycle in a Cohort of Special-Forces Operators. *Military Psychology, 29*(1), 1-10. doi:10.1037/mil0000129

Smith, A., Ntoumanis, N., & Duda, J. (2007). Goal striving, goal attainment, and well-being: Adapting and testing the self-concordance model in sport. *Journal of Sport & Exercise Psychology, 29*(6), 763-782.

Smith, E. P., Hill, A. P., & Hall, H. K. (2018). Perfectionism, Burnout, and Depression in Youth Soccer Players: A Longitudinal Study. *Journal of Clinical Sport Psychology, 12*(2), 179-200. doi:10.1123/jcsp.2017-0015

Smith, R. E., Smoll, F. L., Cumming, S. P., & Grossbard, J. R. (2006). Measurement of multidimensional sport performance anxiety in children and adults: The Sport Anxiety Scale-2. *Journal of Sport & Exercise Psychology, 28*(4), 479-501.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate behavioral research, 25*(2), 173-180.

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences, 9*(2), 69-74. doi:10.1016/j.tics.2004.12.005

Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review, 28*(1), 78-106. doi:10.1016/j.dr.2007.08.002

Steinberg, L. (2010). A behavioral scientist looks at the science of adolescent brain development. *Brain and Cognition, 72*(1), 160-164. doi:http://dx.doi.org/10.1016/j.bandc.2009.11.003

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*: Pearson/Allyn & Bacon.

Taking Part Survey: England Child Report 2016-17. (2017). London: Crown Copyright

Taliaferro, L. A., Rienzo, B. A., Miller, M. D., Pigg, R. M., Jr., & Dodd, V. J. (2008). High school youth and suicide risk: exploring protection afforded through physical activity and sport participation. *Journal of School Health, 78*(10), 545-553. doi:10.1111/j.1746-1561.2008.00342.x

Torsheim, T., Välimaa, R., & Danielson, M. (2004). *Health and well-being.* Retrieved from Edinburgh:

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*(1), 1-10.

UNICEF (2007). *Child poverty in perspective: an overview of child well-being in rich countries.* Innocenti Report Card No. 7. Florence, Italy: UNICEF Innocenti Research Centre.

United Nations (1989) The United Nations Convention on the Rights of the Child. Geneva: Office of the High Commissioner of Human Rights.

United Nations (2015). Transforming our world: The 2030 agenda for sustainable development. In. New York: United Nations General Assembly.

van der Kaap-Deeder, J., Vansteenkiste, M., Soenens, B., & Mabbe, E. (2017). Children's Daily Well-Being: The Role of Mothers', Teachers', and Siblings' Autonomy Support and Psychological Control. *Dev Psychol*.

Varni, J. W., Seid, M., & Kurtin, P. S. (2001). PedsQL (TM) 4.0: Reliability and validity of the pediatric quality of life Inventory (TM) Version 4.0 generic core scales in healthy and patient populations. *Medical Care, 39*(8), 800-812. doi:10.1097/00005650-200108000-00006

Vella, S. A., Swann, C., Allen, M. S., Schweickle, M. J., & Magee, C. A. (2017). Bidirectional associations between sport involvement and mental health in adolescence. *Medicine and Science in Sports & Exercise, 49*(4), 687-694.

Vergnaud, G. (1996). Education, the best portion of Piaget's heritage. *Swiss Journal of Psychology*, *55*(2-3), 112-118.

Vlachopoulos, S. P., Katartzi, E. S., Kontou, M. G., Moustaka, F. C., & Goudas, M. (2011). The revised perceived locus of causality in physical education scale: Psychometric evaluation among youth. *Psychology of Sport and Exercise, 12*(6), 583-592. doi:10.1016/j.psychsport.2011.07.003

Ware, J. E. J. P., & Sherbourne, C. D. P. (1992). The MOS 36-ltem Short-Form Health Survey (SF-36): I. Conceptual Framework and Item Selection. *Medical Care, 30*(6), 473-483.

Waterman, A. S. (1990). Personal Expressiveness: Philosophical and Psychological Foundations. *Journal of Mind and Behavior, 11*(1), 47-74.

Waterman, A. S. (1993). 2 conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology, 64*(4), 678-691.

Waterman, A. S., Schwartz, S. J., & Conti, R. (2008). The implications of two conceptions of happiness (hedonic enjoyment and eudaimonia) for the understanding of intrinsic motivation. *Journal of Happiness Studies, 9*(1), 41-79. doi:10.1007/s10902-006-9020-7

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070. doi:10.1037/0022-3514.54.6.1063

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological review, 66*(5), 297.

WHO. (2010). Global recommendations on physical activity for health. Retrieved from World Health Organisation website: http://whqlibdoc.who.int/publications/2010/9789241599979_eng.pdf

Wiesner, M., & Schanding, G. T. (2013). Exploratory structural equation modeling, bifactor models, and standard confirmatory factor analysis models: Application to the BASC-2 Behavioral and Emotional Screening System Teacher Form. *Journal of School Psychology, 51*(6), 751-763. doi:10.1016/j.jsp.2013.09.001

Woods, C. M. (2006). Careless responding to reverse-worded items: Implications for confirmatory factor analysis. *Journal of Psychopathology and Behavioral Assessment, 28*(3), 189-194. doi:10.1007/s10862-005-9004-7

Yoshikawa, H., Kalil, A., Weisner, T. S., & Way, N. (2008). Mixing qualitative and quantitative research in developmental science: Uses and methodological choices. *Developmental Psychology, 44*(2), 344-354. doi:10.1037/0012-1649.44.2.344

Zimmer-Gembeck, M. J., & Skinner, E. A. (2011). The development of coping across childhood and adolescence: An integrative review and critique of research. *International Journal of Behavioral Development, 35*(1), 1-17. doi:10.1177/0165025410384923

STUDY INFORMATION FOR STUDENTS AGED 7-11 YEARS
Children and Adolescents' Understanding of Well-Being

Dear Student,

We, a team of sport researchers from the University of Birmingham, are conducting a project on children's understanding of well-being and we would like to invite you to participate in this project.

About the project

We want to find out what 'well-being' or 'feeling good inside' (or not having these feelings) means to children like you.

How?

We will come to your school to talk with you and other children in your school

- *You will be asked to talk about what well-being means to you*
- *You will be interviewed on your own or in small groups with other children*

Why?

We hope this will help people in the future to:

- *find better ways of measuring children's well-being*
- *provide information on well-being to children in terms children can understand*

Before the interviews begin

- *It is **your** choice if **you** want to take part or not*
- *Your school and your parents have agreed that you can take part in the project if **you** want to*
- ***Before** you can take part, we need to have received the form signed by your parents that says they agree you can participate in the interviews*
- ***Before** you can take part, we need **you** to fill in the attached form so that we know that you want to take part. If you complete the form we will put your name in a draw to choose who will take part*

About the interviews

- *The group discussions and interviews will last about 30 minutes*
- *The group discussions and interviews will take place at your school*
- *All group discussions and interviews will be recorded so that your comments can be written down later*
- *It will help us if you answer all of our questions but if you do not want to answer any of the questions that is ok too*

- *If you decide you don't want to take part anymore, that is fine and you will not be in trouble with your teachers, your parents or the researcher*

- *If you want to stop during the interview you will be asked if you are happy for what you have said to be included in the study, anything you are **not** happy with we will **not** include*

- *If you or another child wants to leave the small group discussion this is fine too. The discussion will then end and we will **not** include anything that was said by **any** of the children in this discussion in the study.*

What will happen afterwards?

- *At the end of the interview or small group discussion, we will check that you are happy with what you have said, anything you are **not** happy with we will **not** include in the study*

- *We will then write up your comments and look at what you have said*

- *We will not tell anyone your name or the name of your school and we will not put your name next to any of your words and comments.*

STUDY INFORMATION FOR STUDENTS AGED 7-11 YEARS
Children and Adolescents' Understanding of Well-Being

Dear Student,

We, a team of sport researchers from the University of Birmingham, are conducting a project on children's understanding of well-being and we would like to invite you to participate in this project.

About the project

We want to find out what 'well-being' or 'feeling good inside' (or not having these feelings) means to children like you.

How?

We will come to your school to talk with you and other children in your school

- *You will be asked to talk about what well-being means to you*
- *You will be interviewed on your own or in small groups with other children*

Why?

We hope this will help people in the future to:

- *find better ways of measuring children's well-being*
- *provide information on well-being to children in terms children can understand*

Before the interviews begin

- *It is **your** choice if **you** want to take part or not*
- *Your school and your parents have agreed that you can take part in the project if **you** want to*
- ***Before** you can take part, we need to have received the form signed by your parents that says they agree you can participate in the interviews*
- ***Before** you can take part, we need **you** to fill in the attached form so that we know that you want to take part. If you complete the form we will put your name in a draw to choose who will take part*

- *Only people working on the study will see the recordings and we will not share them with anyone else including your teachers and parents. However, if the researcher thinks your (or another child's) safety and welfare is at risk because of something you have said, the person in charge of child protection at your school will be told*
- *We may publish the results of the project in a scientific journal but your name and the name of your school will not be used.*

Your participation in this study will be greatly appreciated. If you have any questions about the study, please feel free to contact Samantha Bracey whose contact details can be found below. Thank you kindly for taking the time to read this letter.
We hope you are willing to take part in this project.

Yours truly,

Samantha Bracey

Dr. Eleanor Quested
(Project Manager)

Professor Joan Duda
(Project Director)

PRIMARY SCHOOLSTUDENT AGREEMENT FORM

Study: Children and adolescent's perceptions of well-being

Investigator: Samantha Bracey

I, (full name) _____ want to take part in a study conducted by researchers from the University of Birmingham, UK.
I have read the information sheet and I understand what the study is about. I understand that I will be taking part in an interview /group discussion about well-being if my name is chosen from the draw.
I know that I will be asked to talk to the researcher (on my own or in a group) and I know that I can ask questions if I am not sure about anything to do with the interview/group discussion or the study.
I know that everything I say will be recorded but my name and the name of my school will not be used next to anything I say.
I know that if I change my mind I can stop taking part in the study at any time before or during the interview/group discussion, by telling the researcher or my school and I will not be in trouble with anyone if I do (including the researcher, my school and my parents).

Signed: _____
Date: _____

STUDY INFORMATION FOR STUDENTS AGED 11-18 years

Children's and Adolescents' Understanding of Well-Being

Dear Student,
We, a team of sport researchers from the University of Birmingham, are conducting a study on young people's understanding of well-being. The aim of this study is to find out what well-being ('feeling good inside') or not experiencing well-being means to children/teenagers like you. It is hoped this will help people in the future to improve the way children's well-being is measured. The information we get from the larger study should also help us to increase levels of well-being in boys and girls of different ages.
We would like to invite you to participate in this study by taking part in an interview or a group discussion. The interviews and group discussions will last approximately 30 minutes and they will take place at your school. Your school and your parents have given approval and consent for you to participate in this study but your participation in this study is entirely voluntary (it is *your* choice if *you* want to take part). You have the right to withdraw from the study at any time and you will not be in trouble with your parents, your school or the researcher if you do. Although it will help us if all questions are answered, you do not have to answer any question that you don't want to. Interviews will be recorded so the researcher can write down your comments at a later date and share them with her team at the University. We will not use your real name next to your comments and words and we will not use the name of your school either. We will also only show recordings to the people working on the study and not to anyone else (including your parents and teachers). However, should the researcher have concern for your (or another child's) safety and welfare because of something you have said, the person in charge of child protection at your school will be informed. If you or another young person wishes to leave the small group discussion this is fine. The discussion will end and we will *not* include this discussion in the study. At the end of the interview (or before the end if you chose to stop the interview) we will check that you are happy for what you have said to be included in the study. Anything you are *not* happy for us to include will *not* be included in the study.
For you to take part in this research, we must have your written agreement before we can start. If you would like to participate in this study, please complete and return the attached consent form. By agreeing to take part, you are agreeing that your comments can be used for scientific purposes and possibly published in a scientific journal. You can be assured, though, that we will never have your name next to something that you have said.

If you have any queries or would like to discuss this matter further, please feel free to contact Samantha Bracey whose contact details can be found below. Thank you kindly for taking the time to read this letter.

Your participation will be greatly appreciated.

Yours truly,

Samantha Bracey
[redacted]

Dr. Eleanor Quested
(Project Manager)
[redacted]

Professor Joan Duda
(Project Director)
[redacted]

SECONDARY SCHOOL STUDENT AGREEMENT FORM

Study: Children and adolescent's perceptions of well-being

Investigator: Samantha Bracey

I, (full name)_____ am willing to take part in a study conducted by researchers from the University of Birmingham, UK. I have read the information sheet and I understand the purpose of the study and that I will be asked to take part in an interview or group discussion. The procedure of the study has been explained to me and I know that I can ask questions if I am unsure about any aspect of the study. I understand that any information I provide will be held in the strictest confidence (meaning my name will not appear next to any of my comments and the name of my school will not be used). I understand that I have the right to withdraw from the study at any time without giving reason or penalty by informing the main investigator. In other words, if I change my mind before, or want to stop during the interview/group discussion I can. I understand that this will not cause any problems for me with the researcher, my school or my parents.

Signed: _____

Date: _____

STUDY INFORMATION

Children's and Adolescents' Understanding of Well-Being

Dear Parent,

We, a team of sport researchers from the University of Birmingham, are conducting research into developmental changes in children's and adolescents' definitions of well-being. The aim of this study is to gain an understanding of what well-being means to children. This will allow us to use the appropriate wording so that we can do a better job when measuring young people's experience of well-being in future studies. It is also hoped the results will assist those involved in enhancing and maintaining young people's well-being, as we expect to learn more about what are the determinants of well-being via the PAPA project.

We would like to invite your child to participate in this research study. Students' well-being perceptions will be examined via interviews and small group discussions. The interviews and small group discussions will last approximately 30 minutes. Your child's school has given approval and consent for students to participate in this study. The interviews and small group discussions will take place at your child's school. Interviews and small group discussions will be recorded to enable the researcher to write down your child's comments at a later date and share them with her research team. Participation in this study is entirely voluntary and your child will have the right to withdraw from the study at any time without penalty or prejudice. Although it will assist our research if all questions are answered, your child is under no obligation to answer any question that he or she chooses not to. During the small group discussion, should your child (or another in the group) wish to withdraw from the discussion the session will end and this discussion will *not* be included in the study. At the end of the interview or small group discussion we will check that your child is happy with what has been said, anything your child is *not* happy with we will *not* include in the study.

For your child to take part in this research it is essential that we have your consent prior to commencement of the interviews and/or small group discussions. If you agree to your child participating in this research please complete and return the attached consent form. Participants will be chosen by drawing names randomly from all those who have indicated their willingness to participate in the study. By agreeing to your child's participation in this research you are agreeing for their comments to be used for scientific purposes and possibly published in a scientific journal. The child protection policy of your child's school will be adhered to throughout the duration of this study. In the event that concerns about your child's (or another child's) safety or welfare arose during the study the person in charge of child protection at the school would be informed directly. You can be assured that any quotes taken from the interviews/small group discussions will *not* be linked to any identifiable information (e.g., name). Your child also has an information sheet to read and a consent form to complete. Please confirm with your child that he/she understands what his/her involvement in the study entails before he/she signs the consent form.

If you have any queries or would like to discuss this matter further, please feel free to contact Samantha Bracey whose contact details can be found below. Thank you kindly for taking the time to read this letter.

We hope you will support this worthwhile project.

Yours truly

Samantha Bracey

Dr. Eleanor Quested
(Project Manager)

Professor Joan Duda
(Project Director)

PARENT CONSENT FORM

Study: Children's and adolescent's perception of well-being
Investigator: Samantha Bracey
Child's Full Name: _____
Child's Age: _____
Child's Year(please circle): 3 4 5 6

_____

I,(full name) _____ have read the information sheet. I understand the purpose and design of the study. I hereby give permission for my child to take part in the above project, if he/she wishes to do so, and if he/she is randomly selected to participate with the knowledge that they may withdraw at any time without specific reason or penalty.

Signed: _____

Date: _____

Study information: Teacher

Dear XXXXX,

We, a team of sport researchers from the University of Birmingham, together with a group of researchers from five other European countries, are conducting a four year grassroots youth football study, entitled Project PAPA. The long term aim of Project PAPA is to improve the well-being of children and young people through a coach education intervention. Project PAPA is supported by a €3,000,000 grant received from the European Commission under the Framework 7 programme.

As part of Project PAPA, we are conducting research into developmental changes in children's and adolescents' definitions of well-being. We would like to invite your school to participate in this research study. The aim of this study is to gain a better awareness of children's understanding of what the term "well-being" means. This will allow us to use the appropriate wording so that we can do a better job when measuring young people's experience of well-being in future studies. Please find attached to this letter an information sheet that provides full details of the interview purpose and procedures.

The study has been approved by the Ethical Review Board at the University of Birmingham. The lead researcher (Samantha Bracey) has an up to date enhanced disclosure certificate issued through the Criminal Records Bureau as a doctoral researcher for the University of Birmingham. She has also attended an FA safeguarding children welfare officer workshop in conjunction with her work as a junior football coach/club official.

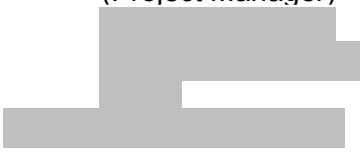
If you would like your school to participate in this important research please complete and return the attached consent form. If you have any queries regarding the study please contact Samantha Bracey whose details can be found below. Thank you kindly for taking the time to read this letter and thank you in advance for any assistance you can provide.

We hope you will support this worthwhile project.

Yours truly,

Samantha Bracey

Dr. Eleanor Quested
(Project Manager)



Professor Joan Duda
(Project Director)

Children's and adolescents' perceptions of well-being

What is the aim of this study?

The aim of this study is to provide an insight into children's and young people's understanding of well-being through individual and group interviews.

Why is this study important?

Enhancing and maintaining children's well-being is prioritized and promoted by the World Health Organisation (WHO), the European Union (EU) and the UK Government. Yet little is known of children's perceptions of well-being. Much of the previous research concerning well-being has been conducted with adult populations. The questionnaires currently used to measure well-being in children and young people have been developed with older populations. It is, however, unclear whether children perceive well-being in the same way that older adolescents and adults do.

How will participants be recruited?

Letters containing an invitation to participate and information about the research study will be sent to parents and students in participating schools.

How will parental and student consent be obtained?

The information letters will include informed consent forms for parents and students to sign. Students will not be permitted to participate in the interviews without prior written consent from the students and their parents.

How will data be collected?

Data will be collected via individual and group interviews. The interviews will be recorded using digital voice recording equipment.

Who will conduct the interviews?

All interviews will be conducted by Samantha Bracey (whose contact details can be found below).

How long will the interviews last?

The interviews will last approximately 20-30 minutes

Where will the interviews take place?

The interviews will take place on school premises at a mutually convenient prearranged time and date.

What will happen during the interviews/ what questions will be asked?

During the interviews and small group discussions students will be provided with simple definitions of well-being and ill-being. The students will then be asked to think of words that describe how well-being and ill-being feels. Next students will be asked to place these words on a well-being and an ill-being 'map'. These 'maps' will help students to define well-being and ill-being.

What will happen to the data?

The interviews will be transcribed for analysis. Transcripts and recordings will be coded (to protect participant confidentiality) and stored securely and separately at the University of Birmingham. These data will be used for scientific purposes and will potentially be published in a scientific journal (participants anonymity will be adhered to). A summary of the findings will be provided to all participating schools.

If you have any queries or wish to discuss any aspect of this research study further please contact Samantha Bracey on [redacted] or email: [redacted]

HEAD TEACHER CONSENT FORM

Study: Children's and adolescent's perception of well-being
Investigator: Samantha Bracey
School's Name: _____
Address:

_____

_____

_____

_____
Telephone: _____

_____

I, (full name)_____ have read the information sheet. I understand the purpose and design of the study. I hereby give permission for students of the above named school to take part in the above research study, Student's participation is dependent on parental consent and student assent. I understand that participation is entirely volitional and the school or students may withdraw at any time without specific reason or penalty.

Signed: _____
Date: _____

Please return completed consent forms to Samantha Bracey, School of Sport and Exercise Sciences, University of Birmingham, Edgbaston, Birmingham. B15 2TT

Interview Schedule

Section # 1: Introduction

*Hi, my name is **Samantha Bracey** and I am part of the team of researchers at the University of Birmingham working on the '**Children's and Adolescents' Perceptions of Well-being'*** project. *The purpose of this interview is to discuss what well-being means to you.*
The idea of interview is to allow you to share your views. There are no right or wrong answers. Your views are important to us. Of course, what to say, how to say it, and how much you want to say is up to you. You should not worry about what you are expected to say, or whether you are on the right track.
*So that we do not miss any of your comments, I would like record and film our discussion. I have asked your permission to do this, as it will make our research work much easier. I should point out that **only** members of the research team will see and hear our discussion. If anything you say **is** published in a scientific journal you can be assured, that we will **never** have your name next to something that you say. Can I just check that you are happy to go ahead with the interview and for our discussion to be recorded?*

(If participant agrees) TURN ON AUDIO & VIDEO RECORDERS

Our discussion will last for approximately **twenty to thirty minutes**. During this time, I would like to explore a number of issues on this topic and hear your responses. Before we begin, please make sure your mobile phone is turned completely off. Do you have any questions about what is going to happen?

Section 2: Interview Questions and Probes (Recorded)

Introductory questions: *Ok let's get started.*

1) *Please can you tell me your name, and how old you are?*

2) *Questions about school*

3) *Questions about out of school activities*

Transitional questions: *Moderator: We have been talking a bit about your daily life and some of the things you enjoy. We are now going to talk about well-being.*

Well-being refers to how people feel inside themselves. Sometimes people feel good inside (not good as in being good, they way people behave but in the way people feel), they feel great, which is well-being.

- *First I would like you to think about that and what that means and feels like to kids like you.*
- *Then I would like you to think of some words and phrases to describe what that state feels like.*
- *We have here a picture of a' stick-person' and we are going to make a kind of 'word picture' or 'thought map' of your ideas about well-being.*
- *When you have thought of a word or phrase, you can tell me and I will write it on one of these cards, then you can put the card on the map.*

*Prompts:*4)

  - *Why did you choose that word?*

- *What does that word mean to you?*

- *That's great. Now can you think about <u>where</u> you <u>feel</u> these feelings; Is it in your head (i.e., something to do with how you are thinking…how your brain seems to be working!), your body (i.e., what your body is feeling) or your heart (i.e. to do with your emotions)? Is it felt in one of those areas, more than one of those areas or all three?*
- *We have a picture of a head, a body and a heart. Can you take each of your well-being ideas and think about where you feel each feeling and then place the card where you think the word fits best? Remember this is about what **you** think, **your** ideas, and there are no right or wrong answers.*

We are now going to talk about ill-being.

Ill-being refers to how people feel inside themselves. Sometimes people feel bad inside (not as in being naughty, the way people behave but as in the way their body or thoughts or emotions are), they feel terrible, which is ill-being.

Transitional questions (continued)

8) Some of these words and phrases refer to having positive energy or being lively, this is **vitality.** I would like you to *think about that and what that means and feels like to kids like you.*

a) Can you think of some more words and phrases to describe what that state feels like?

<u>Key questions</u>:

9) We've talked about ill-being and you have made an ill-being word picture. Can you think about when you are having a really bad day or when your life has not been going so well? Could you talk about what that felt like?

10) We've talked about well- being and you have made a well-being word picture. Can you think about when you are having a really great day or when your life has been going really well? Could you talk about what that felt like?

a) *Thinking about what that felt like, do you think you could describe what you think ill-being/well-being means to you?*
b) *Do you think you could say what ill-being/well-being or 'feeling good/bad inside' is for you? Could you define it?*

At this point the researcher will write the participant derived definition on a card and place it on the well-being map.

QUESTIONS TO CAPTURE CONCEPTS AND DEFINITION OF VITALITY

11) We have also talked about vitality, how people feel energized… can you think of a time when you have felt 'full-of-beans', or experienced vitality? Thinking about what that felt like, how you experienced that, do you think you could describe what that meant to you?

a. *Do you think you could say what vitality or feeling energized is for you? Could you define it?*

At this point the researcher will write the participant derived definition on a card and will ask the participant to place it where they think that vitality should go, where they think it fits in the pictures.

Closing questions: this phase of the interview is designed to draw the interview to a close drawing out anything that the participant may wish to add.

At this point the moderator summarises the key points and the well-being and ill-being maps.

12) Do you think that sums up our discussion today? Do you have anything else you would like to add?

13) Looking at the well-being picture you have made, do you think there is anything missing?

14) Looking at the ill-being picture you have made, do you think there is anything missing?

15) Looking at your definition of vitality, can I just check, is that what you said and what you meant?

16) Can I check that you are happy with what you have said in the discussion today? Are you unhappy with anything?

17) Are you happy for the well-being picture and ill-being picture you created, and what you have said today, to be included in the study?

18) So that I can remember what words you used to create your two pictures…and where you placed those words, ok if I take a picture of each of your maps?

Thanks very much for taking part today! I really enjoyed speaking to and learning from you.

FINISH RECORDING

Multidimensional measure of children's well- and ill-being: Face Validity Exercise

Background

Our goal in developing these scales is to create a valid and reliable measure of children's well-being and ill-being that uses language that is both relevant and appropriate for use with 7-17 year olds. One-to-one interviews were conducted with young people in the targeted age range to explore their conceptualizations of well- and ill-being. The children created '*thought maps*' of their ideas by generating words and phrases associated with well-being, ill-being and vitality after being provided with the following simple definitions:

> ***Well-being*** *refers to how people feel inside themselves. Sometimes people feel good inside (not good as in being good, the way people behave but in the way their body or thoughts or emotions are)…*
>
> *…**Ill-being** refers to how people feel inside themselves. Sometimes people feel bad inside (not as in being naughty, the way people behave but as in the way their body or thoughts or emotions are)…*
>
> *…Some of these words and phrases refer to having positive energy or being lively, this is **vitality.***

Inductive analysis revealed emergent themes and meaning groups. Further analyses, drawing on the well-being literature, translated these data into 2 high order dimensions (well-being and ill-being) which were categorized into 10 sub-scales (see table 1 below).

The current measure is designed to be adaptable in capturing state, trait and situation specific assessments of children's well-and ill-being. Children are asked to indicate how often they have experienced each factor during specific time periods and/or whilst engaged in different domains (i.e. … in the past two weeks …generally … in your everyday life …when playing football …in school). The following stem and 5-point Likert scale will be used:

> Here are some ways that children can feel. Please read each one and think about how often *you* have felt that way in the last two weeks then answer by colouring in the number that fits best.

Never	**Hardly ever**	**Sometimes**	**Quite a lot**	**Always**
1	2	3	4	5

As part of the ongoing development process and to ensure psychometric rigor we would be grateful if you could assess the face validity of the measure. Please consider the following factors: Is it well designed?

Do you expect it to work reliably? Do you think it is a reasonable way to gather subjective well- and ill-being assessments from children?

Table 1: Operational definitions of the 10 subscales of well- and ill-being.

Dimension	Definition
Vitality	A positive state of activation marked by dynamic liveliness and energy.
Absence of vitality	A negative state of deactivation marked by apathetic lethargy and ennui.
Serenity	A positive state of deactivation marked by composed tranquillity and inner peace.
Hyperactivity	A negative state of activation marked by extreme liveliness and energy.
Positive affect	General emotional states which have a positive valence and content.
Negative affect	General emotional states which have a negative valence and content.
Social well-being	Positive states which are other referenced or dependant on others.
Social ill-being	Negative states which are other referenced or dependant on others.
Physical well-being	Positive somatic states.
Physical ill-being	Negative somatic states.

Using the definitions provided above and your own knowledge and experience please read through each item and indicate which category you feel the item fits into, then the extent to which you perceive the item to tap the identified construct using the following abbreviations and scale:

Vitality	Absence of Vitality	Serenity	Hyper-activity	Positive affect	Negative affect	Social well-being	Social ill-being	Physical well-being	Physical ill-being	Other *please qualify
V	AV	S	H	PA	NA	SWB	SIB	PWB	PIB	O

Very poor match	Poor match	Good match	Very good match	Excellent match
1	2	3	4	5

All comments and feedback provided on the measure and specific items will be gratefully received and much appreciated.

70-item measure

Please answer all the following questions as truthfully as you can, this is **not** a test and there are **no** right or wrong answers.

If you have any questions or need any help please ask.

Here are some ways that children can feel. Please read each one and think about how often *you* have felt this way in the last month, then colour in the number that fits best.

		Never	Hardly ever	Sometimes	Quite a lot	Always
1.	I felt bouncy	1	2	3	4	5
2.	I was in pain	1	2	3	4	5
3.	I felt low	1	2	3	4	5
4.	I was content	1	2	3	4	5
5.	I felt gloomy	1	2	3	4	5
6.	I was playful	1	2	3	4	5
7.	I was extremely excitable	1	2	3	4	5
8.	I felt sick	1	2	3	4	5
9.	I was active	1	2	3	4	5
10.	I was not worrying about anything	1	2	3	4	5
11.	I felt restless	1	2	3	4	5
12.	I couldn't be bothered	1	2	3	4	5
13.	I was fed-up	1	2	3	4	5
14.	I was annoyed	1	2	3	4	5
15.	I felt ready to go	1	2	3	4	5
16.	I felt dreary	1	2	3	4	5
17.	I felt nothing was holding me back	1	2	3	4	5
18.	I felt ill	1	2	3	4	5

Here are some ways that children can feel. Please read each one and think about how often *you* have felt this way in the last month, then colour in the number that fits best.

		Never	Hardly ever	Sometimes	Quite a lot	Always
19.	I was thrilled	1	2	3	4	5
20.	I was lonely	1	2	3	4	5
21.	I got over excited	1	2	3	4	5
22.	I felt bored	1	2	3	4	5
23.	I felt bright	1	2	3	4	5
24.	I was sad	1	2	3	4	5
25.	I couldn't stop smiling	1	2	3	4	5
26.	I was embarrassed	1	2	3	4	5
27.	I was happy	1	2	3	4	5
28.	I was grumpy	1	2	3	4	5
29.	I felt I could do anything	1	2	3	4	5
30.	I felt tired in my body	1	2	3	4	5
31.	I was unhappy	1	2	3	4	5
32.	I wanted to do more of what I was doing	1	2	3	4	5
33.	I felt upset	1	2	3	4	5
34.	I was pleased	1	2	3	4	5
35.	I was in a bad mood	1	2	3	4	5
36.	I was full of energy	1	2	3	4	5
37.	I felt like crying	1	2	3	4	5

Here are some ways that children can feel. Please read each one and think about how often *you* have felt this way in the last month, then colour in the number that fits best.

		Never	Hardly ever	Sometimes	Quite a lot	Always
38.	I felt deflated	1	2	3	4	5
39.	I felt joyful	1	2	3	4	5
40.	I felt healthy	1	2	3	4	5
41.	I felt everything was my fault	1	2	3	4	5
42.	I was excited	1	2	3	4	5
43.	I was jolly	1	2	3	4	5
44.	I felt lifeless	1	2	3	4	5
45.	I felt energized	1	2	3	4	5
46.	I was lively	1	2	3	4	5
47.	I felt distressed	1	2	3	4	5
48.	I didn't want to do anything	1	2	3	4	5
49.	I felt alone	1	2	3	4	5
50.	I felt poorly	1	2	3	4	5
51.	I felt wanted	1	2	3	4	5
52.	I was relaxed	1	2	3	4	5
53.	I felt blue	1	2	3	4	5
54.	I was not lively	1	2	3	4	5
55.	I wanted to do something	1	2	3	4	5

Here are some ways that children can feel. Please read each one and think about how often *you* have felt this way in the last month, then colour in the number that fits best.

		Never	Hardly ever	Sometimes	Quite a lot	Always
56.	I felt worried	1	2	3	4	5
57.	I felt twitchy	1	2	3	4	5
58.	I was positive	1	2	3	4	5
59.	I felt frustrated	1	2	3	4	5
60.	I felt loved	1	2	3	4	5
61.	I felt down	1	2	3	4	5
62.	I felt lit up	1	2	3	4	5
63.	I felt fit	1	2	3	4	5
64.	I was miserable	1	2	3	4	5
65.	I was calm	1	2	3	4	5
66.	I felt uplifted	1	2	3	4	5
67.	I felt unenthusiastic	1	2	3	4	5
68.	I was in a good mood	1	2	3	4	5
69.	I felt scared	1	2	3	4	5
70.	I felt good	1	2	3	4	5

This is the end of the questions thank you very much for all your help!