The impact of outdoor physical activity on adolescent wellbeing: Developing and validating a new measure of children's wellbeing

Eleanor Kay Gennings

ORCiD: 0000-0003-3500-1946

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Eleanor K Gennings

Abstract

Understanding adolescents' interpretation of the construct wellbeing is vital and an under-researched area (Dunlop-Bennett *et al*., 2019) particularly because adolescent wellbeing has been cited as 'elusive' (Bharara, Duncan, Jarden & Hinckson, 2019) and 'ill-defined' (Bourke & Geldens, 2007). Without understanding and defining adolescent wellbeing, it cannot be accurately measured or improved.

The support and improvement of adolescent wellbeing is needed now more than ever due to the Covid-19 pandemic exacerbating wellbeing and inequalities among young people (Chzhen, 2020). Physical activity and time spent in nature have been linked to positive psychological health benefits (Selhub & Logan, 2012; Donnelly & Macintyre, 2020). The Andrew Simpson Foundation is a not-for-profit charity which utilises both physical activity and nature by offering subsidised water sports programmes to all. This thesis developed a new definition and measure of adolescent wellbeing so the impact the Andrew Simpson Foundation has on children's lives could be understood. This has real-world impact as the charity has use the evidence documented in this thesis to support the application for further funding to support their work.

A person-centred approach was adopted for this thesis (Yardley *et al.,* 2015a) whereby children were included at all relevant stages of the research. The scale development process followed guidelines produced by MacKenzie and colleagues (2011) and both quantitative and qualitative research methodologies were used throughout the thesis to provide a balanced perspective on wellbeing as it is a broad and complex construct (Bryman, 2006; McKim, 2017).

This thesis was successful in the development of both a definition and measure of wellbeing and was able to highlight the importance of the Andrew Simpson Foundation in children's lives while returning back to normal after the national lockdown caused by the Covid-19 pandemic[1].

[1] This thesis was produced independently of the Andrew Simpson Foundation, who provided no funding, and did not influence outcomes.

Research Outputs

Publications

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Poster Presentations

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1.0 Introduction

Spending time outdoors is associated with greater mental health and wellbeing across the globe (Tester-Jones *et al*., 2020). These benefits often replicate those obtained by participating in physical activity (Mitchell, 2013) and the benefits of participating in a mixture of these, through outdoor physical activity, have been widely reported (Wray *et al*., 2020). These benefits include psychological (Nutsford *et al*., 2016; Grellier *et al*., 2017), physiological (MacKerron *et al*., 2013; White *et al*., 2015) and social (Nutsford *et al*., 2016; Grellier *et al*., 2017) aspects. Selhub and Logan (2012) labelled the blend of benefits from both physical activity and nature as 'exercise squared' as both facets heighten the other's impact. The focus of contemporary research is predominantly on physical activity in green spaces (i.e., green lands, forests, and parks). As such, blue spaces have not received the same levels of attention. Blue space is defined as:

> Outdoor environments - either natural or manmade - that prominently feature water and are accessible to humans either proximally (being in, on or near water) or distally/virtually (being able to see, hear or otherwise sense water) (Grellier *et al*., 2017: p.3).

Blue exercise includes physical activities in blue space, such as sailing, and around blue space, such as cycling (Völker & Kistemann, 2011; White *et al*., 2016). Numerous studies have reported that the health and wellbeing benefits of being in, and around, blue spaces may be even greater than those found in green spaces (White *et al*., 2015; Kelly 2018). These spaces are often free to access and therefore are a good place to host physical activity interventions to improve health and wellbeing.

The Covid-19 pandemic has escalated the declining mental health and wellbeing of children globally (Pouso *et al*., 2021). In the United Kingdom, children's wellbeing was already declining before the pandemic (NHS Digital, 2018; Chzhen, 2020) and, as a result, it was gaining increasing attention in research and improvement of children's wellbeing became part of the United Nations Sustainable Development Goals (United Nations, 2019 [online]). Blue exercise has been shown an impactful and accessible activity which improves the wellbeing of adolescents (Godfrey *et al*., 2015; Highnett *et al*., 2018). The focus of research relating to blue exercise is often on physical activities in blue space such as sailing or surfing with 'at risk' groups of adolescents (Grocott & Hunter., 2009; Hayhurst *et al*., 2015; Clapham *et al*., 2020; Cappelletti *et al*., 2020).

The reliability of studies which measure the impact of blue exercise on wellbeing is questionable. Studies have often used proxy indicators of wellbeing such as Cappelletti and colleagues (2020) using the British Panel Household Survey and Alveras, Balaguer and Castillo (2012) using the Subjective Vitality Scale. These proxy measures are essential to understand wellbeing however highlight that there is conceptual ambiguity surrounding wellbeing (Giles *et al*., 2020). The question regarding what adolescent wellbeing

actually is and how to measure it has had no conclusive answer from scientists or philosophers (Alexandrova, 2017), even though it is regarded as a fundamental measure of learning and growing as a human being (Stevens & Jarden, 2019). This gap in knowledge means that reliably and validly measuring the impact of blue exercise on adolescent wellbeing could be improved. Therefore, the creation of a validated scale is of the utmost importance.

MacKenzie and colleagues (2011) proposed a ten-step framework of scale development and validation. The first step in this framework is to develop a conceptual definition of the construct being measured. Conceptualisation's of adolescent wellbeing have been explored (Gillett-Swan., 2014; Thomas *et al*., 2016) but not applied in the context of scale development. Adolescents' conceptualisations of wellbeing are likely to differ to adults; this is a significant implication for the assessment of and interventions to improve wellbeing (Bharara *et al*. 2019). Therefore, understanding what wellbeing means to adolescents is vital and an under-researched area (Dunlop-Bennett *et al*., 2019). Once a measure of children's wellbeing is validated and reliable, the impact of an intervention to improve health and wellbeing through outdoor physical activity can be assessed.

This thesis was inspired by previous research conducted by the Director of Studies (Cotterill & Brown, 2018), which identified that there was no valid tool to measure the wellbeing of adolescents. This thesis is specific to adolescents aged between 11 and 16 years old. Mention of adolescents, children and young people herein refers to individuals aged 11 to 16. Although physical activity and exercise have differing definitions, the term 'blue exercise' is used to encapsulate any activity which is performed within or next to blue spaces including exercise, sport and physical activity (Donnelly & Macintyre, 2019). This thesis aims to;

- Develop a definition of young people's wellbeing (A1);
- Develop a scale to measure young people's wellbeing (A2);
- Validate the measure of young people's wellbeing (A3);
- Investigate the impact of blue exercise on the wellbeing of young people post national lockdown using the newly validated measure (A4).

2.0 Literature Review

The purpose of this chapter is to examine literature around blue spaces, physical activity, wellbeing, and scale development with a focus on children. The aim is to contribute to addressing gaps in literature and increase the body of knowledge around physical activity in blue spaces and the understanding and measurement of adolescent wellbeing.

2.1 Blue Space, Physical Activity and Young People.

2.1.1 Introduction

There is an established body of evidence that shows spending time outdoors in nature is valuable for both adults and young people's health and wellbeing (Mansfield *et al*., 2018; Vanaken & Danckaerts, 2018). These outdoor spaces are often labelled therapeutic landscapes which are described as healing, accessible and a free place for recreation, exercise, and relaxation (Gesler, 1992; Series, 2015). Therapeutic landscapes are made up of blue spaces, characterised by, for example, rivers lakes and ponds, and green spaces, such as trees and vegetation (Donnelly & Macintyre, 2020). Preserving therapeutic landscapes such as national parks and nature reserves, is imperative for the health and wellbeing of humans (Lockwood, Worboys & Kothari, 2012). The New Forest, for example, is a national park that consists of 193,000 acres of green space and a wealth of blue space, including rivers, ponds, lakes and over 40 miles of coastline (Go New Forest, 2018 [online]).

Research into green space has received extensive attention in comparison to blue space, and findings include the benefits of improved self-reported health, cardiovascular disease, wellbeing, and recovery from illness due to feelings of restoration for both adults and young people (Kaplan & Kaplan, 1989; Vanaken & Danckaerts, 2018). White *et al*. (2015) and Kelly (2018) suggest that the limited literature focused on blue space shows similar positive outcomes to those observed in green spaces, however with potential larger impact. Although the mechanisms of these health benefits are unclear, the positive outcomes have been widely demonstrated (Britton *et al*., 2020) and blue space is considered one of the most important elements of the natural landscape (Völker & Kistemann, 2013). Research focused on green spaces however has treated blue spaces as a subcategory to green for example, Bell *et al*. (2015) comment that:

> Areas considered more 'natural' by participants, such as countryside, woodlands, beaches, rivers and coastal paths (the latter three could also be characterised as 'blue' but are described as 'green space' in this paper for purposes of brevity (p. 89).

Völker and Kistemann (2011) argue that blue space is an analogy to green space, not a subcategory. Blue space has been included as a subcategory within some predominantly green space research, meaning the observed impacts/benefits cannot be reliably attributed to green or blue spaces (Völker & Kistemann, 2011; Foley & Kistemann, 2015;). With urbanisation and poor mental health increasing, the inclusion of blue space in nature-based solutions, in addition to green spaces, would contribute to tackling key public health challenges (Grellier *et al*., 2017). The aim of nature-based solutions is to develop sustainable socio-economic systems which benefit human wellbeing and biodiversity (Dick *et al*., 2019). This review of literature will focus on the impact of blue spaces on wellbeing.

2.1.2 Defining Blue Space

Blue space contains a visible surface of water, examples are rivers, lakes and coastlines (Foley & Kistemann, 2015; Gascon *et al*., 2015; White *et al*., 2015; Kelly, 2018). A universally adopted definition of blue space is not seen in literature as many researchers define these spaces in different ways. Table 2.1 shows a number of suggested definitions of blue space.

Table 2. 1: Suggested Definitions of Blue Space.

Author	Definition
Foley (2017)	Health-enabling places and spaces, where water is at the centre of a range of environments with identifiable potential for the promotion of human wellbeing (p. 43).
Finlay *et al*. (2015)	Aquatic environments, both in natural and urban areas, with standing or running water. Blue space encompasses oceans, lakes, and rivers, as well as smaller water features such as fountains and streams (p. 98).
Grellier *et al* (2017)	Outdoor environments - either natural or manmade - that prominently feature water and are accessible to humans either proximally (being in, on or near water) or distally/virtually (being able to see, hear or otherwise sense water [p.3]).

Foley's (2017) definition found in Table 2.1 is broad as it does not state what 'identifiable potential for the promotion of human wellbeing' means and is therefore open to the subjective interpretation by the reader. Finlay *et al*. (2015) comment more specifically on the water's characteristics, however, do not comment on the amount of water needed to qualify as a blue space. A positive to Grellier and colleagues (2017) definition of blue space is that it encompasses the environment, accessibility and amount of

water needed to be identified as a blue space. Because is it all encompassing, this thesis adopts Grellier and colleagues (2017) definition of blue space.

In addition to defining the term 'blue space' it is also important to report the characteristics of the blue space being researched. This is because the impact blue space has on individual's health and wellbeing is influenced by individual preferences (Gascon *et al*., 2015; Kelly, 2018). The colour, motion of the water, surrounding environment and the amount of water can vary and all of these characteristics will influence whether a blue space is perceived as therapeutic (White *et al*., 2010; Völker & Kistemann, 2011; Triguero-Mas *et al*., 2015; Nutsford *et al*., 2016; Pearson *et al*., 2017). The therapeutic potential of a body of water will also be affected by individual differences such as age, personal experiences, and knowledge (Völker & Kistemann, 2011). For example, blue space can have the opposing effect if individuals consider the risk of being in that space, for example drowning (Grellier *et al*., 2017). All individuals will have positive and/or negative anticipations about being immersed into blue space (Völker & Kistemann, 2013) and these individual anticipations are yet to be fully understood (White *et al*., 2013; Gascon *et al*., 2015).

Völker *et al* (2016) critiques existing studies for not detailing the specific characteristics of blue spaces. De Vries *et al*. (2016) for example, have not defined the term blue space further than 'water' whereas other studies have commented on the features (White *et al*., 2010; Nutsford *et al*., 2016; Pearson *et al*., 2017; Cotterill & Brown, 2018), accessibility (Völker & Kistemann, 2011; Gascon *et al*., 2017; Grellier *et al*., 2017) and location of blue space (Völker & Kistemann, 2011; Pearson *et al*., 2017; Kelly, 2018). Future research should define and detail the characteristics of a blue space so potential benefits can be understood, and conclusions accurately applied in other settings (Völker & Kistemann, 2011; Gascon *et al*., 2015).

2.1.3 Theory and Findings

There are three theories used to explain the therapeutic tendencies of blue space: Biophilia hypothesis, Attention Restoration Theory (ART) and Place Attachment Theory (PAT). The Biophilia hypothesis assumes there is an innate tendency for humans to connect to other forms of life, such as nature, due to the affiliation between humans and nature throughout evolutionary history (Wilson, 1984). While it cannot be directly tested, blue space is reportedly of preference through innate reasons to humans in comparison to green space (White *et al*., 2010; Völker & Kistemann, 2011; Fleming *et al*., 2014; Grellier *et al*., 2017), and especially when compared to grey spaces (urban areas) (Nutsford *et al*., 2016). The Biophilia hypothesis states this is because water holds evolutionary importance as a key resource and has religious and spiritual importance because it often forms an essential part of rituals (White *et al*., 2010; Völker & Kistemann, 2013; Humberstone, 2015). This hypothesis has been used as a catalyst for

research into the human-nature relationship, but some authors have challenged this hypothesis by arguing that humans' connections to nature are related to experiential leaning (Donnelly & MacIntyre., 2020). Positive psychological outcomes are linked to exposure to nature via ART (Kaplan & Kaplan, 1989) as nature has a restorative impact on humans. This is however dependent on individual's connectedness to nature (Roberts, Hinds & Camic, 2019). The concept of connectedness to nature is not explicitly conceptualised (Donnelly & MacIntyre., 2020) however it describes an individual's 'perceived and subjective connection to the non- human natural world' (Barrable & Booth, 2020, P1). Frequent visits to nature can also be explained through PAT as a bond between an individual and a place where the individual associate's significance or value with a physical place (Shumaker & Taylor, 1983).

The psychological, physiological, and sociological benefits to spending time in nature can all be explained using a combination of Biophilia hypothesis, ART and PAT. Sociological benefits for example, can be explained through PAT. Blue spaces provide opportunities for planned or unplanned social gatherings and activities (Wray *et al*., 2020), which have been associated with improved mood and social capital (Völker & Kistemann, 2011; Ashbullby *et al*., 2013; Nutsford *et al*., 2016; Grellier *et al*., 2017). An increase in social capital is linked with improved mental health, a sense of belonging and lower suicide rates (Nutsford *et al*., 2016; Dempsey *et al*., 2018). Pearson *et al*. (2017) comment that opportunities for young people to socialise in the calming and relaxing setting that blue space often creates could be salient to their mental health and development. With these places providing a calm space to socialise in, individuals are likely to associate value with them and therefore, more likely to return. The importance for young people to have access to natural spaces has been demonstrated by The Children's Society (2006) who surveyed young people about what makes a good life. Their sample identified that places to go, have fun, socialise, and participate in physical activity were important for their wellbeing. Children did not comment on the characteristics of these places, for example if they are in a green or blue space. What was important for their wellbeing was that this place was perceived as safe.

There are approximately, 271 million recreational visits to English coastal areas per annum, with recreational walking being the most popular activity (Elliot *et al*., 2018). There are also an additional 59 million visits for water based physical activity (e.g. swimming) in England (Ibid). Being in these blue spaces reportedly, improves happiness and reduces stress in young people (Wells & Evans, 2003; Ashbullby *et al*., 2013; Warber *et al*., 2015). However, playing with children in blue spaces only makes up 20 million of the leisure visits annually, and 'walking with a dog' is the most popular reason (Elliot *et al*., 2018). ART could explain these frequent visits to blue spaces as young people associate blue space with improvements in psychological health (Ashbullby *et al*., 2013; Kelly, 2018). Blue space has also been shown to positively influence mental health (MacKerron *et al*., 2013; Gascon *et al*., 2015; De Vries *et al*., 2016; Cotterill & Brown, 2018). Simply viewing a blue space can have stronger positive benefits than

physical activity at reducing depression and increasing self-esteem (Coleman & Kearns, 2015; Nutsford *et al*., 2016; Dempsey *et al*., 2018). Pearson *et al*. (2017) explains that blue space provides a calm setting for individuals which induces a feeling of flow, a healing atmosphere and reduces psychological distress (White *et al*., 2015; Nutsford *et al*., 2016; Kelly, 2018). The suggested reason for these mental health benefits are due to how a blue space can make an individual feel. Figure 2.1 is a summary of terms used in literature to describe blue spaces. These feelings are reportedly desired by humans (Völker & Kistemann, 2011).

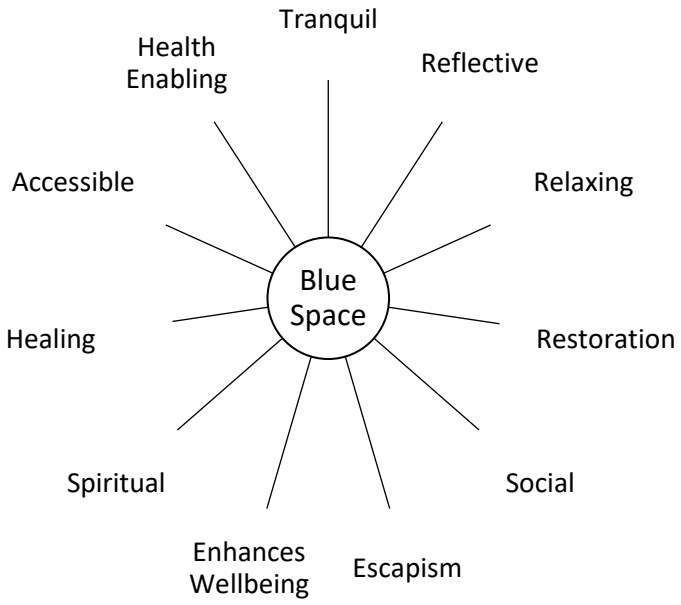


Figure 2. 1: Common Phrases Used to Describe the Effect of Blue Spaces. Created using findings from: Brereton *et al*. (2008); Fleming *et al*. (2014); White *et al*. (2015); Triguero-Mas *et al*. (2015); Humberstone, (2015); Pearson *et al*. (2017) and Mansfield *et al*. (2018).

More specifically, blue spaces have been used to reduce attention-deficit hyperactivity disorder (ADHD) symptoms within young people (Kuo & Taylor, 2004; Amoly *et al*., 2014) and improve the wellbeing of young people aged 8-18 with mental health issues who face social exclusion (Godfrey *et al*., 2015). This benefit can be explained through ART, whereby nature is having a restorative impact on young people with ADHD. Kuo and Taylor (2004) conclude that time in nature should be prescribed alongside medication as nature has shown to positivity impact individuals, is a free resource which is accessible, and nature has no adverse side effects. However, Tester-Jones *et al* (2020) identified that the impact of prescribing time in nature was associated with a limited impact on individuals' happiness and anxiety because motivations to visit nature were not intrinsic. They concluded that prescribing nature should avoid undermining intrinsically motivated time in nature.

Nature-based solutions are defined as 'Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously

providing human wellbeing and biodiversity benefits' (Cohen-Shacham *et al.,* 2016, p.2). Essentially both the natural environment and humans sustainably benefit from intervention programmes (International Union for Conservation of Nature, 2016). The inclusion of the public within planning and implementing these interventions could help increase individual's connection to nature. If individuals frequently visit blue spaces, connect with them, and increase their wellbeing (Kelly, 2018), they could develop an innate connection to nature, as per Place Attachment Theory, and are therefore more likely to contribute to nature-based solutions and protection programmes (Fleming *et al*., 2014; Grellier *et al*., 2017; White *et al*., 2017). Future research should seek to establish the benefits of interdisciplinary interventions (Kelly, 2018). One multi-disciplinary programme could help achieve goals set within the health, education and marine departments (Kelly, 2018). One type of intervention to promote this could be through physical activity.

Blue space promotes physical activity by providing the space for people to play, exercise and compete in sport (Völker & Kistemann, 2011; Pearson *et al*., 2017) which can reduce stress and improve health and wellbeing (Gascon *et al*., 2017; Pearson *et al*., 2017; Kelly, 2018). 'Blue Exercise' includes activities in and around blue space like boating, sailing, canoeing, swimming, running and cycling (Völker & Kistemann, 2011; 2013; White *et al*., 2016). Exercising in nature yields more than physical benefits as Hamilton (2017) comments that being in nature can be a transformative experience for individual's wellbeing. The amount that individuals participate in physical activity outside, unlike inside, can be influenced by meteorological conditions, as Elliott *et al*. (2019) found that higher air temperatures, more daylight hours and lower wind speeds were associated with greater levels of physical activity.

Individuals who live near the coastline are more likely to engage in physical activity and have a less sedentary lifestyle than those in grey spaces (White *et al*., 2013; White *et al*., 2015; Gascon *et al*., 2017; Dempsey *et al*., 2018). For young people, the frequency of their time spent in nature (doing physical activity or not) is highly dependent on their parents/caregiver (Ernst, 2018). Ashbullby *et al*. (2013) critiques research into young people and blue space for overlooking the key influence parents/caregivers have over young people's access to be active in blue spaces. Participating in physical activity and being in a blue space has great physiological and psychological benefits (Völker & Kistemann, 2011; Fleming *et al*., 2014; Gascon *et al*., 2017; Cotterill & Brown, 2018). This could be due to ART and/or Biophilia hypothesis. Selhub and Logan (2012) coined the phrase 'exercise^{2}' which refers to the 'blend of psychological, physiological and social benefits of exercise, mixed with those promoted by nature-based environments' (Rogerson *et al*., 2020).

Overall, these impacts on a young person's life will also promote place attachment. For example, Godfrey *et al* (2015) significantly improved the wellbeing, happiness and social connections of young

people diagnosed with depression after a six-week surfing intervention. This finding was poorly linked to the environment as measures of connectedness to nature were not assessed. In addition, the thematic analysis of qualitative data did not suggest the environment played an important role in increasing wellbeing. Future research should seek to understand the mechanisms of improvement in wellbeing as it is not clear from Godfrey and colleagues (2015) findings if improvement in wellbeing was due to being in nature, the physical activity or a mixture of both. This is important to assess as participation in blue exercise as a child could be a positive predictor for future participation in physical activity and nature connection (Calogiuri, 2016; Wray *et al*., 2020). Blue exercise should therefore be considered a potentially useful intervention.

2.1.4 The Problem

With the benefits of blue space on human's health and wellbeing evidenced, it is worth noting these spaces to socialise, play, and be physically active in, are declining due to rapid urbanisation (Lafortezza & Sanesi, 2019). Over half the world's population live in a grey space and are spending more time indoors (Barrable & Booth, 2020), and by 2050, 86% of the United Nations will live in proportionally more grey than green and blue space (Völker & Kistemann, 2013). The long-term impact this disconnect with nature has on human health needs to be explored as nature is where humans evolved physically and culturally (Gascon *et al*., 2015; White *et al*., 2017). The term 'nature deficit disorder' was coined by Louv (2008) and is:

> A label used to address the increasing cost to children as they are increasingly deprived of direct contact with nature and the experience of unstructured free play in the out-of-doors (Driessnack, 2009. p.73).

This definition suggests that nature deficit disorder is not a medical diagnosis, but a term used to describe the decline in time that young people spend outdoors (Charles & Louv, 2009; Louv, 2009). Louv (2008) describes exposure to nature as essential for children's physical and emotional health but Warber *et al*. (2015) states that elements of urbanised lifestyles, such as screen time and car-focused lifestyles may decrease individuals contact with nature which the urbanisation of the world is not helping to reduce.

Living in a grey space does provide access to health care facilities, growth of social capital and regeneration of cities (Gascon *et al*., 2015). However, Völker *et al*. (2013) conclude that grey spaces are associated with stress, drug use and low physical activity, which are all contributing factors to an unhealthy lifestyle and subsequent premature morbidity and mortality. As time spent in grey space increases, so does the importance of interventions to prevent reductions in both physical and mental health (Völker *et al*., 2011; 2013; Nutsford *et al*., 2016). The incorporation of blue space within town

planning has been shown to promote physical activity, increase restoration, sustainability and environment quality which are important factors for maintaining health and wellbeing (Foley & Kistemann, 2015; Völker *et al*., 2016). However, experience of the outdoors is being replaced by technology and indoor play (Louv, 2008) and children are reportedly spending more time indoors which has been linked to increases in screen time, a term used to describe 'time spent viewing or use of a device with a screen' (Hinkley, Brown, Carson & Teychenne, 2018. p.1). Screen time is associated with increased sedentary time and poorer wellbeing in individuals aged 2 – 9 years old (Hinkley *et al*., 2014) and something which the Covid-19 pandemic has increased. Schmidt *et al*. (2020) reported with their European sample of 4-17-year old's that during the pandemic children's' screen time for leisure activities increased by 36.2 minutes per day.

The role of nature is clearly imperative to optimise young people's psychological and physical health (Driessnack 2009; Louv, 2009). There is a positive link between psychological health, wellbeing and natural environments in both adults and young people (Brereton *et al*., 2008; Humberstone, 2015; Triguero-Mas *et al*., 2015; White *et al*., 2017) and a negative link between grey space and mental health (Nutsford *et al*., 2016; Kelly, 2018). Nature-based solutions, like exercise[2], which draw on this to benefit both nature and individual's health and wellbeing need to be explored and their impact evidenced (Donnelly & Macintyre, 2020). Physical activity interventions in nature to improve wellbeing will also address one of the key aims of the Public Health England Strategy for 2020-2025, to reduce childhood obesity and promote good mental health (Public Health England, 2019).

2.1.5 Blue Space and Physical Activity Interventions

Research which focused on the impact of physical activity in nature on young people initially focused on physiological measures of health, like body mass (Dyment & Bell, 2008). However, in Roberts and colleagues' (2019) review of nature activities as interventions for young people, it is highlighted that psychological measures, like wellbeing, are gaining interest. In a green space context, there is a wealth of information about outdoor physical activity interventions, such as high ropes, rock climbing and orienteering, with young people (Green, Kleiber & Tarrant, 2000; Cross, 2002; Bloemhoff, 2006). The most frequent setting used for physical activity interventions in nature with young people are schools, which is not surprising given advantages of an existing infrastructure and ease of recruitment (Biddle, Mutrie & Gorely, 2021). There are few studies which have focused specifically on blue space and physical activity as school's often do not have access to blue spaces. Physical activity interventions in blue spaces are often focused on swimming, surfing, and sailing. Table 2.2 shows blue space, physical activity interventions with young people from the past six years.

Table 2. 2: Methodology Overview of Studies Researching the Impact of Physical Activity in Blue Space on Young People's Wellbeing.

	Godfrey *et al* (2015)	**Hayhurst *et al* (2015)**	**Hignett *et al* (2018)**	**Cappelletti *et al* (2020)**	**Clapham *et al* (2020)**
Demographics					
Sample	123	126	58	58	91
Age	8 - 18	16	13 - 16	15	5 - 18
Clinical Population				✓	✓
Vulnerable Population	✓		✓		
Healthy Population		✓			
Intervention					
Length	6 Weeks	10 Days	12 Weeks: 1 session per week	1 Week	8 Weeks: 2 sessions per week
Surfing	✓		✓		✓
Sailing		✓		✓	
Measures					
Wellbeing	✓		✓		
Resilience		✓			
Connectedness to nature			✓		
Environmental Awareness			✓		
Quality of Life				✓	
Physiological Health			✓		✓
Self-Description					
Attendance / Retention	✓				
Behaviour				✓	
Methodologies					
Interviews with parents	✓				
Control Group		✓			

Although it is widely reported that outdoor physical activity is associated with positive physiological and psychological outcomes, it is unclear which aspects of nature are responsible for the benefits (Lubans *et al*., 2012; Britton *et al*., 2020). Measuring concepts like connectedness to nature and enjoyment of physical activity are imperative to identify what aspects of the interventions are benefiting individuals (Richardson *et al*., 2019). Hignett *et al.* (2018) was the only study in table 2.2 to measure connection to nature and found no significant difference between connectedness to nature pre- and post- a 12-week sailing intervention. In addition, no studies have been found to-date which measure enjoyment of the intervention. This is important because enjoyment could impact the measure of wellbeing. Godfrey *et al* (2015) did collate comments from participants and parents' post-intervention and identified 'Happiness, Fun and Excitement' as a theme. Attendance and retention data were also collected by Godfrey and colleagues as indicators of enjoyment. However, assuming attendance is a marker of enjoyment, is not reliable as parents are often the determinant to whether young people attend. Scales to measure connectedness and enjoyment exist, such as the Connectedness to Nature Scale (Pasca *et al*., 2017) and the Physical Activity Enjoyment Scale (Moore *et al*., 2009). The use of these measures is important to help distinguish precisely what aspects of the outdoor physical activity intervention individuals are gaining positive benefits from. In addition, these intervention studies are conducted with groups of individuals experiencing the same physical activity at the same time, therefore, including a measure of social connectedness could also be imperative, such as the MacArthur Scale of Subjective Social Status (Adler & Stewart, 2007).

Many studies using nature-based interventions with young people have focused on at-risk populations, defined as 'children and adolescents who live in a negative environment and/or do not possess the skills and values that assist them in becoming responsible members of society' (Lubans, Plotnikoff & Lubans., 2012). There is therefore a knowledge gap for research studies which focus on a general population (Roberts, 2019). This would be useful to explore so researchers can identify whether nature based physical activity interventions are particularly beneficial for specific groups (Roberts Hinds & Camic, 2020). One key difference between studies in table 2.2 which makes findings difficult to compare is the frequency of participation in the physical activity. For example, participants in Hignett and colleagues (2018) intervention attended one session per week and participants in Hayhurst and colleagues (2015) intervention, were on a voyage for 10 whole days.

Ekeland, Heian and Hagen (2005) reviewed studies which focused on the impact of exercise interventions on children, and Lubans *et al.* (2012) reviewed studies which utilised physical activity interventions to improve wellbeing of at-risk youth. Both review papers commented on poor methodological rigor of outdoor physical activity interventions. They also comment on the risk of bias

within outdoor physical activity intervention studies as few were comprised of randomised control trials, meaning that the causality of benefits cannot be reliably inferred. This methodological issue was also concluded by Roberts and colleagues (2019), who reviewed studies focused on nature activities as an enhancer of young people's wellbeing. Lubans *et al.* (2012) also report that none of the intervention studies they reviewed had conducted a power analysis for sample size and did not report on retention of participants to the study. Future studies should therefore conduct power analyses to ensure an adequate sample size and adopt a randomised control design to ensure methodological rigour.

Moreover, few papers within Lubans *et al.* (2012) and Roberts *et al.* (2019) reviews of the impact of physical activity and nature on children's wellbeing included a longitudinal follow up. This is something future research must include so changes or developments over time can be understood. This may also allow researchers to understand the minimum frequency of participation needed for maximal long-term benefits. Pearson *et al*. (2017) suggests that the effects blue space has on children is long lasting and future research should explore this. To maximise the long-lasting benefit, it is important for schools to engage with these interventions by creating ways for children to do blue exercise (Cotterill & Brown, 2018). If included in schools' policies, blue space programmes could help to break down barriers for children who have difficulties accessing blue spaces (Pearson *et al*., 2017). The development of fun, learning based, blue space programmes for children's wellbeing is currently under-researched but future research in this area could be used to inform policies and teaching practices (Kelly, 2018).

2.1.7 Conclusion

The value of blue space for health and wellbeing has been clearly identified within this chapter but the urbanisation of towns and cities has been a threat to the amount and quality of blue space accessible for all populations. As a result, nature deficit disorder is likely to impact individuals' lives, particularly those young people who have had urbanised lifestyles since birth (Louv, 2008). To overcome this, blue spaces should be included in town planning activities, similar to how green spaces are included in garden cities (Culpin & Ward, 2015). This would provide individuals with the chance to reconnect to nature and improve their wellbeing (Fleming *et al*., 2014; Foley & Kistemann, 2015; White *et al*., 2017). Open Space Masterplan (OSM) created by Glasgow City Council and the Green and Blue Space Adaptation in Urban Areas and Eco Towns (GRaBS) in Europe, are two examples of how blue space has been in incorporated into town planning. The aims of both these projects are not to improve wellbeing, but to address climate change, improve biodiversity and resident's health. Policy makers should use this information to improve access to, and the quality of, blue space in order to promote

public health and wellbeing through programmes and interventions, while recognising the need to continually manage the blue space due to the potential increases in visitor numbers (White *et al*., 2013; 2017; Gascon *et al*., 2017).

Studies which focus on blue spaces should receive equal consideration in research as green spaces (De Vries *et al*., 2016). Current literature predominantly focuses on coastal blue space and its effects on mental health (De Vries *et al*., 2016; Dempsey *et al*., 2018). Thus, little is known whether the findings apply to other blue spaces such as rivers (Gascon *et al*., 2017; Grellier *et al*., 2017). Future research should differentiate between visitors, residents and demographic groups so interdisciplinary policies and interventions can be established (Kelly, 2018). As well as informing town planning and policies, evidence from future research can be used by health care professionals to improve the wellbeing and health of their patients (Gascon *et al*., 2017). On this theme, Mansfield *et al*. (2018) comments that research into wellbeing needs to be supported by an agreed definition and a relevant evaluative tool. Health, education and marine departments all share similar goals in relation to blue space and health, and the education of individuals, their health and the sustainability of blue spaces can be maintained in one multi-disciplinary programme (Kelly, 2018). This thesis will explore whether an outdoor physical activity programme will support the wellbeing of children and increase their connection with nature.

2.2 Understanding the Broad Term 'Wellbeing'

The concept of wellbeing was first identified by the Ancient Greeks and the use of the word has become increasingly popular internationally, over the past few decades (Tennant *et al*., 2007; Rees *et al*., 2010; McLellan & Steward, 2015; Boyko *et al*., 2017). Psychologists, sociologists, and anthropologists have spent years developing theories to understand what a fulfilling life means. This has led to a proliferation of models and measures of wellbeing (Alexandrova, 2017; Goodman *et al*., 2017). Currently, the term 'wellbeing' brings up over six million entries into PubMed, (Alexandrova, 2017). However, the fundamental research question 'what is wellbeing?', remains largely unsolved as there is no universal agreement upon the definition of it (Rees *et al*., 2010; Manning-Morton, 2013; McLellan & Steward, 2015; Goodman *et al*., 2017; Boyko *et al*., 2017). This could be due to a neglect in research into positive psychology (Seligman, 2004).

There is a global shift towards valuing wellbeing (Stevens & Jarden, 2019). Steptoe, Deaton and Stone (2015) regard the improvement of wellbeing as a key societal aspiration. Similarly, Rees *et al*. (2010) and Dodge *et al*. (2012) argue that the promotion of wellbeing will create a flourishing, healthy and capable society, which is purported to be a fundamental concern for any government. New policies, aid and investment should be implemented to improve wellbeing (Lijadi, 2018; Tabor & Yull, 2018). Achieving good health and wellbeing is one of the United Nations Global Sustainable Development Goals (United Nations, 2019 [online]). How this goal is assessed for children is ambiguous as there is no current accepted definition or validated tool to measure it. This ambiguity is also reflected in the spelling of wellbeing/well-being (Dodge *et al*., 2012).

The development of a tool to measure wellbeing could be used to keep track of goals, encourage sustained attention, fuel advocacy, and provide warning of failure (Ben-Arieh, 2008). Since the 1950s, objective measures such as Gross Domestic Product (GDP) and crime rates have been used in the assessment of wellbeing, but Brown, Abdallah and Townsley (2018) argue that subjective measures more meaningfully reflect individual's level of wellbeing. Subjective measures are needed so policy goals, public support and interventions are based on what people actually want and need (Bowling, 2017).

2.2.1 What is Wellbeing?

There are two Greek philosophies which underpin wellbeing, hedonia, developed by Epicurus and Aristippus and eudaimonia, developed by Aristotle (Boyko *et al*., 2017). Some researchers argue that wellbeing is underpinned by hedonia, some by eudaimonia (Bolwing,

2017). Aristippus' philosophy, hedonia, relates to the pursuit of intrinsic pleasure which is often associated with happiness (Deci & Ryan, 2008; Smith & Reid, 2017). It refers to subjective experiences of pleasure, regardless of the source (Waterman *et al*., 2010) and is often closely associated with happiness (Waterman, 2008). Wellbeing is therefore maximised by controlling and adapting life to increase enjoyment (Boyko *et al*., 2017). Researchers who have the ontological belief that hedonia underpins wellbeing, have often used its conceptualisation to form measures of subjective wellbeing from satisfaction, presence of a positive mood and lack of a negative mood (Smith & Reid, 2017). Ryan *et al*. (2013) argue that hedonic pleasure is associated with selfishness and materialism, as it is a desire to have pleasure for pleasures sake. Epicurus's philosophy of hedonia suggests that wellbeing is obtained through finding and being content with pleasure in what is enough, not what is too much or too little (Boyko *et al*., 2017). Hedonia is not obtaining pleasure for pleasures sake.

Aristotle's philosophy of eudaimonia on the other hand, suggests that wellbeing comes from acts of kindness, personal growth and development of a person's best potentials while using them in the pursuit of achieving one's purpose in living (Waterman *et al*., 2010; Boyko *et al*., 2017). Individuals should do what is worth doing to validate their objective needs to live as one's true self, not attain extravagant desires but to enable meaning, self-fulfillment, and purpose (Waterman *et al*., 2010; Ryan & Deci, 2001; Smith & Reid, 2017). The emphasis with this philosophy is with human flourishing and attaining long-term life satisfaction (Smith & Reid, 2017). Waterman and colleagues (2010) suggest eudaimonia is a by-product of perusing activities and development of one's best potentials in the pursuit of goals. Several studies have also shown how life satisfaction increases with age (Ryff, Singer & Dienberg Love, 2004), this supports the notion of eudaimonia and finding life's purpose over time.

Wellbeing cannot be underpinned solely by hedonia. If an individual was starving and suffering from famine and disease but is made to feel well through mental conditioning (a hedonic philosophy), then that person would be doing well in this mental state and this occurrence would be immoral (Sen, 1985). Although a hedonic philosophy is of obvious and direct relevance to wellbeing, it is hard to conclude that it is an adequate representation of wellbeing (Ibid). Smith and Reid (2017) suggest that wellbeing is a mixture of both hedonia and eudaimonia. In contrast, Dodge *et al*. (2012) concludes eudaimonia is frequently translated as wellbeing. The philosophical debate between hedonia, eudaimonia and their links to wellbeing, however, should not and has not stopped the study of wellbeing (Alexandrova, 2017).

Many models of wellbeing have been developed and underpinned by either hedonia or eudaimonia, both or neither being used (Keyes, 2005; Dienet *et al*., 2010; Seligman, 2011; Huppert *et al*., 2013) These inconsistencies in wellbeing research further obscure what the term wellbeing actually means.

Different academic domains have used different underpinning theories and models to measure wellbeing. Alexandrova (2017) produced table 2.3 to give an overview of this.

Table 2. 3: Construct Pluralism (Alexandrova, 2017).

Domain	Theory	Construct	Measure
Psychological sciences	Hedonism	Average affect	Experience sampling; U-Index; Positive and Negative Affect Scale; SPANE; Subjective Happiness Scale; Affect Intensity measures
	Subjectivism	Subjective satisfaction	Satisfaction with Life Scale; Cantril Ladder; Domain Satisfaction
	Eudaimonism	Flourishing	PERMA; Psychological Wellbeing Index; Flourishing Scale; Warwick and Edinburgh Mental Wellbeing Scale
Economics	Subjectivism	Preference Satisfaction	GDP; GNP; household income and consumption
Development sciences	Objective list theory	Quality of Life	Human Development Index; Dasgupta's index
Policy sciences	Pragmatic Subjectivism	National Wellbeing	UK's Office of National Statistics Measure of National Wellbeing; Legatum Prosperity Index; Social Progress Inde; OECD Better Life Index
Medical Sciences		Quality of Life under various medical conditions	Nottingham Health Profile; Sickness Impact Profile; World Health Organization Quality of Life; Health-Related Quality of Life; QUALEFFO
Child sciences		Child wellbeing	US Department of Health and Human Services Children's Bureau Child Wellbeing Measure (3 domains of assessment – family, education, mental health and physical needs); UNICEF's State of the World's Children; Parental Evaluation; Stirling Children's Wellbeing Scale

Table 2.3 provides a concise overview of how different domains have most commonly understood wellbeing, the constructs they have used to measure wellbeing, and the scales developed from this. The vast differences in the underpinning theories and measures used, highlights further that there is no consensus on what wellbeing really means or how to measure it. In addition, Table 2.3 highlights that wellbeing is a broad construct. A single accepted definition of wellbeing could help focus all research related to wellbeing, which is currently needed. Within academic literature, wellbeing has been referred to as subjective (Diener *et al*., 1999), psychological (Keyes *et al*., 2002), mental (Tennant *et al*., 2007) and eudaimonic (Waterman *et al*., 2010) forms of wellbeing. The differences between these four constructs are questionable and it could even be argued that they are purely synonyms of wellbeing itself.

2.2.2 Frequently Cited Elements of Wellbeing

To fully understand the term wellbeing a review of descriptions and key terminology used to describe wellbeing is necessary. A sample of studies which aimed to conceptualise or explore wellbeing has been quantified in table 2.4. The table summarises key terminology used to describe wellbeing for the purpose of providing this section of the literature review with a framework.

Table 2. 4: A Review of Terminology Used to Describe Wellbeing.

Article	Physical	Psychological	Spiritual	Social	Basic Needs	Balance	Happiness	Economic	Satisfaction
Boyko *et al*. (2017)	✓			✓	✓		✓	✓	✓
Dodge *et al*. (2012)	✓	✓		✓	✓	✓	✓	✓	✓
Domínguez-Serrano & del Moral Espín (2018)	✓			✓			✓	✓	✓
Goodman *et al*. (2018)				✓	✓	✓	✓		
Herath *et al*. (2018)	✓	✓	✓	✓	✓		✓	✓	✓
Humberstone (2015)	✓	✓		✓			✓	✓	✓
Kelly (2018)	✓	✓	✓	✓	✓	✓	✓		✓
Lijadi (2018)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manning-Morton (2013)	✓	✓		✓					
Mclellan & Steward (2015)		✓		✓	✓		✓	✓	✓
Pouw & McGregor (2014)				✓	✓				✓
Rees *et al*. (2010)	✓	✓		✓					
Spence *et al*. (2011)				✓			✓	✓	✓
Tabor & Yull (2018)		✓					✓	✓	✓

Table 2.4 highlights that social needs are the most cited within the literature search. There is a universal association between wellbeing and the quality of relationships individuals have with each other (Ryan & Deci, 2001). Models of wellbeing such as PERMA (Seligman, 2004) and 5-Ways to

Wellbeing (Government Office for Science, 2008 [online]) have included connections and relationships as improvers of wellbeing. Social capital describes individuals who can co-operate with others enabling them to achieve mutually beneficial goals (Schulenkorf, 2013). Putnam (2001) suggests social capital to be the most important contribution towards a healthy society and it is influential on the overall balance of individual's wellbeing (Keyes, 1998; Dodge *et al*., 2012; Manning-Morton, 2013; Goodman *et al*., 2017). It is important to have meaningful relationships to fulfil an individual's competency, relatedness and autonomy, which Ryan and Deci (2001) suggests has a positive impact on wellbeing. Social capital and relatedness are especially important for children as they contribute to a high sense of wellbeing which facilitates development (Underdown, 2006). Some authors have included social relationships as a basic need for all humans (Ryan & Deci, 2001). The inclusion of social capital in a holistic definition and in the measurement of wellbeing for all populations therefore seems key (Lijadi, 2018).

Happiness and life satisfaction are the second most cited elements of wellbeing in Table 2.4, 78% of the sampled studies have cited both the phrases. The two constructs are sometimes used interchangeably with wellbeing (Dodge *et al*., 2012; Bowling, 2017; Goodman *et al*., 2017; Kelly, 2018). National and international surveys have included happiness as a dimension to measure wellbeing as they are regarded as similar constructs (Humberstone, 2015). Hedonia is often linked to happiness as it focuses on attainment of pleasure and preferences of the body and mind (Ryan & Deci, 2001). Life satisfaction is regarded as a reflection on an individual's life as a whole (Alexandrova, 2017). All three constructs have been used interchangeably with each other and been described as conceptually muddy because of this (Morrow & Mayall, 2009). To further this point, all the following claim to measure wellbeing: Self-Evaluated Quality of Life Questionnaire (Ventegodt *et al*., 2003), the Subjective Vitality Scale (Ryan & Fredrick, 1997) and Students Life Satisfaction Scale (Huebner, 1991). This further blurs the boundaries of what wellbeing actually is and whether it even exists. Why does Ryan and Fredrick's (1997) scale of vitality measure wellbeing and not the construct, vitality? Giles *et al*. (2020) argues:

> To circumvent this issue, researchers have typically employed proxy indicators of wellbeing, such as life satisfaction, affect, subjective vitality... Although these concepts are necessary to understand wellbeing, they are individually not sufficient to provide a complete and accurate representation of the construct. Therefore, the continued and sole use of proxy indicators engenders conceptual ambiguity and, as a consequence, compromises understanding of the components of… wellbeing (p.1256)

Conceptual clarity is therefore essential to highlight the key differences between related constructs like wellbeing, happiness and life satisfaction. The difference between happiness and life satisfaction

is that happiness is an affect and life satisfaction is a cognitive evaluation (Bowling, 2017). Happiness differs to wellbeing because it is an experience of short-term emotions such as joy and pleasure, which change with day to day life events (Lyubomirsky, 2009). Happiness does not contribute to long term sensations as it is not a stable construct. Wellbeing is concerned with long term, more stable changes in emotions. Headey and Wearing (1992) concluded that wellbeing is 'fairly stable' in their review of subjective wellbeing. Life satisfaction differs to wellbeing because it requires people to reflect on their whole past life, wellbeing is about current perceptions of the present and recent past. Life satisfaction is a snapshot or a summary of many feelings and life events. Life satisfaction questionnaires require individuals to accurately assess their life and report/score it (Lucas, Oishi & Diener, 2016). These reports/scores can change depending on the context or the mood someone is in when asked to judge their life satisfaction. Redelmeier *et al*. (2003) has shown that how an experience ends influences an individual's perception of the whole experience. For example, if a bad experience ends well, then an individual would not perceive the experience to be as bad as it was altering their judgement of life satisfaction. Context and experiences such as good weather, finding a coin or seeing an individual in a wheelchair can also reportedly influence a person's judgement (Alexandrova, 2017). Seligman (2012) states that an individual's mood when asked, determines 70% of how much life satisfaction is perceived and it merely measures how cheerful someone is.

Table 2.4 shows that physical health was cited in 64% of the sampled studies. Having physical health means that individuals are not physically fatigued, have access to physical activity and an absence of illness (Dodge *et al*., 2012; Kelly, 2018). Dodge *et al*. (2012) argue that optimal wellbeing cannot be achieved without having good physical health. Tabor and Yull (2018) suggest the most important factor which influences wellbeing is how people view their health, not their actual health.

In addition to physical health, spirituality is a cited aspect of wellbeing which has global importance (Bai & Lazenby, 2015). Spirituality is often linked to wellbeing (Unterrainer *et al*., 2014) and religion, however wellbeing is a broader concept than this with some individuals not linking it to religion at all (Siddall *et al*., 2017). Spirituality encompasses identity, purpose and meaning with strong links to eudaimonia (Siddall *et al*., 2017). It is a broad construct and maybe beyond the emotional literacy of children and young people. Siddall *et al*. (2017) and Kelly (2018) state that spirituality is often linked to pain (both psychological and physical) and spiritual wellbeing will lessen as pain increases. In addition to physical and spiritual health, psychological health is a part of 'health' as an umbrella term. Positive psychological functioning is an element of wellbeing (Dodge *et al*., 2012; Manning-Morton, 2013; Kelly, 2018; Lijadi, 2018) and can promote length of life and reduce risk of disease (Lijadi, 2018). For children and adolescents in particular, it is highly important to establish emotional

attachment in order to develop psychological resilience for adult life (Underdown, 2006). Negative mental health is related to mental illness such as depression and anxiety, which can have an adverse impact on wellbeing (Steptoe *et al*., 2015).

Psychologists have long been interested in developing potential which starts with attainment of basic needs (McLellan & Steward, 2015). Basic needs are often included in the description of wellbeing (Lijadi, 2018). Maslow's hierarchy of needs (Figure 2.3) identifies eight basic needs for all humans (Maslow, 1943). This theory states that all individuals have the same basic needs which they need to meet to feel fulfilment. Maslow's methodology has been critiqued for using biographical analysis because of its subjective nature, meaning the validity of his theory is compromised (McLeod, 2007). Self-determination theory suggests if competence, autonomy and relatedness are met, then wellbeing is fulfilled (Ryan & Deci, 2000). This theory is based on ontological beliefs that all individuals have constructive and innate dispositions to develop a sense of self (McLellan & Steward, 2015). It cannot be assumed though, that basic needs of all humans can be summarised in a hierarchy or as a list of constructs such as food, physical health, education and safety (Kelly, 2018). Lijadi (2018) concluded that individuals should be considered well if they understand what the good things in their life are, have opportunities to get them and intention to achieve them, which echoes a eudaimonic philosophy. This suggests that basic needs are unique to individuals which seems apparent when considering the basic needs of individuals living in first world country compared to those in a third world country.

Figure 2. 2: Maslow's Hierarchy of Needs (Maslow, 1943).

Economic growth is undoubtedly important at some stages of development as it can provide the general population with enhanced wellbeing as they have the potential to fulfil their basic and personal needs and have a wider range of choices (Dalziel *et al*., 2014). Economic growth can bring some communities out of poverty through providing income, development of environments and improvement of material conditions (Pouw & McGregor, 2014). Because of this, GDP is often used as a measure of wellbeing (Costa *et al*., 2019). Although there is a statistical link between economics and reported wellbeing (Gardner & Oswald, 2007), hedonic pleasures such as material items, only make people momentarily happy, and this is not an enduring positive emotion (McLellan & Steward, 2015). Increased economy can be a means to satisfy human wants, but overall, Herath *et al*. (2017) argue that it is not important. An increase in economy can also increase material welfare and urbanisation, reducing the natural environment which will have different effects on individuals' wellbeing because of individual differences (Pouw & McGregor, 2014). Max-Neef (1995) and Brown *et al*. (2018) concluded that wealth results in a limited increase in wellbeing beyond a certain point. This may be because beyond a minimum income, individuals judge their happiness against their relative income rather than overall income (Alexandrova, 2017). Dalziel *et al*. (2014) argue that policies should focus on economic growth as it is the best way to determine the long-term wellbeing of a population. In contradiction to this, Ryan and Deci (2001) suggest that money is not a reliable route to positive wellbeing for the individual and the Children's Society (2006) report that improved economic conditions are linked to an increased level of emotional problems for young people.

The balance between the numerous constructs discussed above equates to equilibrium, which Kelly (2018) suggests is optimal for wellbeing. Dodge and colleagues (2012) comment that each individual has their own subjective view on what wellbeing means to them, so equilibrium is unique to each individual. The term 'equilibrium' is interchangeable with homeostasis and life events can 'tip the see-saw' of an individual's wellbeing (Dodge *et al*., 2012). Waterman *et al*. (2010) propose that everyone has a set point of wellbeing. Ryan and Deci (2001) expand on this by suggesting life events cause changes from this point which are either positive or negative and wellbeing flows between both. Stable changes in wellbeing, however, take a lot of effort over a period of time (Ryan & Deci, 2001).

2.2.3 Current definitions

In addition to describing, authors have also attempted to define the term wellbeing. Deci and Ryan (2008) state that wellbeing involves a 'cognitive evaluation of one's life' (p.2), but the definition of wellbeing should not be oversimplified, as it is a broad construct, as demonstrated by Table 2.3. The fact that wellbeing is used interchangeably with terms like 'quality of life' and 'happiness' has

complicated the task of defining the term (Bowling, 2017). Because of this, wellbeing has been described as 'elusive' (Bhrarara *et al*., 2019). Policy makers and sociologists have described wellbeing, but descriptions from the psychology discipline are arguably more scientific (McLellan & Steward, 2015). Little (2006) suggests that policy makers should be held accountable for the creation of a single definition of wellbeing, but Ben-Arieh (2008) highlights that this will be done with a specific agenda in mind, not scientifically. To take the word literally, *well* is defined as 'in a good or satisfactory way' and *being* is defined as 'existence' (The Oxford Dictionary, 2015). Lijadi (2018) suggests a definition of wellbeing needs to be holistic. Table 2.5 shows different definitions of wellbeing, as suggested by different authors. One common theme throughout these definitions concerns individuals and their emotional responses, such as satisfaction and happiness gained from life. The term wellbeing is used to define self-love in the Oxford Dictionary (2015). This emphasises the importance of one's self and the element of looking after one's self.

Table 2. 5 Suggested Definitions of Wellbeing.

Author	**Definition**
Dodge *et al*. (2012)	The balance point between an individual's resource pool and the challenges faced (p.230).
Diener *et al*. (1999)	A broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgments of life satisfaction … We define SWB as a general area of scientific interest rather than a single specific construct (p.309).
Pouw and McGregor (2014)	A state of being with others and the natural environment that arises where human needs are met, where individuals and social groups can act meaningfully to pursue their goals, and where they are satisfied with their way of life (p.16).
Tabor and Yull (2018)	Personal wellbeing is based on people's views of their own individual wellbeing. Personal wellbeing measures are grounded in individuals' preferences and take account of what matters to people by allowing them to decide what is important when they respond to questions (p.11).
The Oxford Dictionary (2015)	The state of being comfortable, healthy, or happy.

Diener and colleagues (1999) definition is 20 years old. It can be argued that advancements in employment rates, household income, technology and development in society norms over the past 20 years will have influenced how individuals perceive wellbeing. Diener *et al* (1999) definition could therefore be outdated. Pouw and McGregor's (2014) definition breaks wellbeing down into three dimensions; fulfilment of basic needs, pursuit of goals and feeling life satisfaction however, this overlooks wellbeing's complexity and multiple facets which are frequently cited (Spence *et al*., 2011; Ryff, Boylan & Kirsch, 2021). Within Tabor and Yull's (2018) definition the word 'wellbeing' is used within the definition itself, which is clearly ambiguous. One limitation to the Oxford Dictionaries' (2015) definition is with the conjunction 'or' as this implies that an individual must feel only one of the three listed constructs to have increased wellbeing. If an individual feels happy then according to this definition their wellbeing will increase, arguably their happiness is just increasing. Furthermore, if someone feels happy because they have taken an illegal substance, following this definition would suggest that their wellbeing will consequently increase, even though this method is not good for their overall health. Dodge and colleagues (2012) definition is encompassing of many aspects which influence wellbeing which is a great strength. Figure 2.2 is provided alongside their definition which emphasises the 'balance' between resources and challenges.

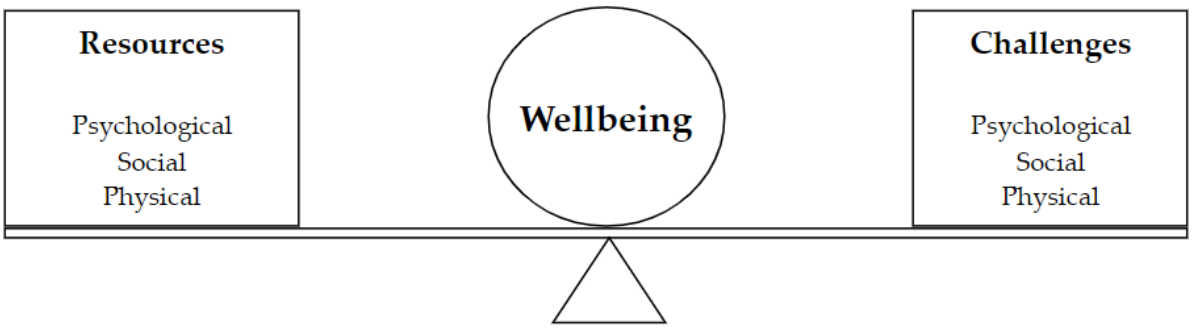


Figure 2. 4: Visual Representation of The Definition of Wellbeing (Dodge *et al*., 2012).

The balance point which wellbeing sits upon suggests there is a connection between resources and challenges, but it does not comment on what the connection between resources and challenges might be. Dodge and colleagues (2012) claim that their definition 'can be applied to all individuals regardless of age, culture and gender' (p.231). However, the construction of this definition is based on a literature review of journal articles which have sampled from an adult population, the findings are analysed by adults and the report is written by adults. Guidance for constructing definitions explicitly highlights that a definition needs to include perspectives of those to whom the definition is applied (Podsakoff, MacKenzie & Podsakoff, 2016). Dodge and Colleagues (2012) conclusions, although make a valuable and needed contribution to the field, cannot be applied to populations which are not adult, such as

children. Much less is known about children's wellbeing in comparison to adults (Rees *et al*., 2010). Findings from adult studies should not be applied to children uncritically, because factors which influence children's wellbeing are different to adults (McLellan & Steward, 2015) and young people's perceptions of wellbeing are likely to differ from adults (Bharara, Duncan, Jardena and Hinkson, 2019). If the target audience is not involved in shaping the definition of wellbeing, then the findings and conclusions will not be accurate (Macdonald, 2017). Children and adults should therefore be considered separate groups with their own concerns and priorities, and therefore they need their own definition and measure of wellbeing (McLellan & Steward, 2015). Waterman *et al*. (2010) for example found within their group of college students, age was the only demographic factor which significantly changed scores of eudaimonic wellbeing. The age range of participants in this study was 17 to 31 years old.

Often, defining constructs means practical and controversial assumptions need to be made (Alexandrova, 2017). Defining wellbeing is complex and controversial with many researchers neglecting the task by describing it rather than defining it, possibly to avoid criticism (Ryan & Deci, 2011; Pouw & McGregor, 2014; Tabor & Yull, 2018). This has resulted in numerous descriptions of wellbeing which are not useful when trying to measure the concept itself (Ryan & Deci, 2011). A definition which is agreed upon is needed to meet calls for a single summary which can be used to test wellbeing reliably and validly (Ben-Arieh, 2008; McLellan & Steward, 2015;). Alexandrova (2017) argues although it is controversial 'the science of wellbeing is better off when its values are well articulated and defined' (p.xv). Wellbeing is a multidimensional construct with many layers (Boyko *et al*., 2017; VanderWeele *et al*., 2021) making it difficult to define.

2.2.4 Considerations

Wellbeing is subjective and contextual (Deci & Ryan, 2008; Kelly, 2018; Lijadi, 2018). Two individuals with the same material goods in the same circumstance can still have different levels of wellbeing (Fegter *et al*., 2010). This means a collection of constructs used to describe wellbeing cannot individually or objectively be measures of wellbeing (ibid). Wellbeing will also differ cross-culturally (Ryan & Deci, 2001). For example, Oishi (2010) found that Chinese individuals described happiness as calm and peaceful, but Americans describe it as excitement. This makes it difficult to provide one global measure of wellbeing. A global measure would also have to be translated and the same reliability and validity tests be repeated in the different languages (Streiner *et al*., 2015). Moreover, McLellan and Steward (2015) reported variances within children's ideas of wellbeing when developing their frequency scale in the school environment, they also showed differences in gender and age between their participants.

Literature has focused on adult's wellbeing but the importance of understanding and measuring children's wellbeing has grown (Ben-Arieh, 2008). Manning-Morton (2013) reported that children's wellbeing is influenced by spaces to be in and play in, childcare, parental leave, and quality of housing. Adults have described that children need social skills such as empathy and communication with others to fulfil a feeling of wellbeing, but this is different to what children report (Manning-Morton, 2013; Bharara *et al.,* 2019). It is imperative to be concerned with every individual's wellbeing for the benefit of society and not just for adults or people who might be vulnerable in some way (Rees *et al*., 2010; McLellan & Steward, 2015) since national wellbeing could be the aggregate of individual wellbeing (Tabor & Stockley, 2018). Brown and colleagues (2018) argue that the optimum time to measure and influence individual's wellbeing is during childhood. This means resources can be used to treat the cause of the problem, not the symptoms of poor wellbeing later in life. Blanchflower and Oswald (2008) concluded in their study of 500,000 participants that wellbeing is U-shaped over a life cycle. They did, however, fail to define wellbeing and used proxy indicators of wellbeing, data from happiness and depression surveys, which are not directly representative of wellbeing (Giles *et al*., 2020). It has also been shown that this trend is not global with wellbeing progressively declining with age in Eastern Europe and Latin America (Steptoe *et al*., 2015). Domínguez-Serrano and Del Moral Espín (2018) argue that studies dealing with the measurement of children's wellbeing have proliferated in the last few years but, this research has often focused on individuals aged ≥ 16 years of age (Blanchflower & Oswald, 2008; Jones &Randall, 2018; Tabor & Yull, 2018). The modern view is that children are their own group with different concerns and needs to adults (McLellan & Steward, 2015). Schools should therefore provide an environment to assist the development of child specific wellbeing. In the current expectation framework for Ofsted, wellbeing is not mentioned (Office for Standards in Education, 2018). Additionally, this highlights a gap within research for children's wellbeing to be defined, measured and addressed.

2.2.5 Children's Wellbeing in the Current Climate: United Kingdom

A national study to investigate UK adolescent's mental health identified that between 1995-2014 there was a consistent increase in poor mental health conditions (Pitchforth *et al*., 2018). Prevalence increased sixfold in England, more than doubled in Scotland and increased by half in Wales over this 19-year period (ibid). In the latest UNICEF report (2020) on child wellbeing in developed countries, the UK is rated overall 27/38. The report has three dimensions: mental wellbeing, physical health, and academic and social skills. The lowest rank from these three dimensions in the UK is within the dimension mental wellbeing (29/38) and the best in physical health (19/38). Chzhen (2020) comments that the UK has made no progress over the past two decades regarding children's wellbeing because

in the same report in 2000, the UK ranked last. In January 2021, the Children's Commissioner for England concluded in their report on the state of children's mental health services that 'provision of children's mental health services is still nowhere near sufficient to meet children's needs' (Lennon, 2021; p.11). Chzhen (2020) argues that austerity is the reason for the lack of progress which the Covid-19 pandemic has exacerbated.

In January 2020, the World Health Organisation declared Coronavirus a public health emergency of international concern (World Health Organisation, 2020). In response many countries, including England, went into national lockdown where restrictions such as social distancing, school and border closures and working from home were enforced (Pouso *et al*, 2020). Due to these changes in daily life, many researchers begun to monitor the wellbeing and mental and physical health of populations. The English Government reported that during the Covid-19 pandemic, young people coped 'generally well' during the first lockdown period from March and September 2020 (GovUK, 2020). However, when socio-demographics were considered female, Black, Asian and Minority Ethnic (BAME), low income and Special Education Needs and Disability (SEND) groups had an increased likelihood of reporting decreased mental health and wellbeing (ibid). This could be due to a range of factors such as: access to technology, the internet and the outdoors, and a poor home environment due to domestic violence and lack of space to work (Cowie & Myers, 2020). After this Government report, two further lockdowns and school closures occurred.

Young Minds, a charity in England supporting young people to better mental health, conducted a survey over the third lockdown period during January 2021. This showed 67% of 2,015 young people aged between 13-25 believed the pandemic would have a long-term negative impact on their mental health and wellbeing (YoungMinds 2020). Girlguiding (2020) surveyed 6,678, 4- 18-year-olds in the UK and concluded that all age groups reported feeling lonely and worried and, 45% of 11–14-year-olds reported feeling stressed all of the time. Social isolation has been frequently reported across many countries and age groups due to lockdowns (Pouso *et al*., 2020). Young people who had access to the internet were often able to connect with friends online, although Cowie and Myers (2020) identified this means of communication lacked intimacy and therefore heightened young people's sense of loneliness. A study based in Pakistan which also focused on the impact Covid-19 had on children, reported increased feelings of anxiety among young people and due to an increase in screen time and use of social media heightened risk of online bullying (Imran, Zeshan & Pervaiz, 2020). Arguably, now more than ever, there is the need for impactful research into child wellbeing and interventions to support and improve it.

2.2.6 Conclusion

An agreed definition of wellbeing should influence government, parenting and teaching which all aims to better humans. Without an agreed definition, the validity of research and the existence of wellbeing is questionable. As subjectivity effects what individuals regard as a positive or negative influence on their wellbeing, the challenge in research lies in capturing what is important and relevant to most people (Bowling, 2017). This ideology suggests that specific measures of wellbeing for context or populations is needed. Wellbeing is influenced by an individual's environment and it should be thought of as a long-term construct which is not affected by life's daily events. Happiness, however, does flow with life's day-to-day events and is influenced by hedonia and materialistic possessions. This is what differentiates it to wellbeing.

The Covid-19 pandemic has exacerbated the mental health and wellbeing of young people globally (Pouso *et al*., 2020; YoungMinds, 2020). In the case of England, guidance for caregivers and parents during the pandemic emphasised the need for children to feel safe and a sense of belonging (Long & Evans, 2020). YoungMinds (2020) identified the main sources of help for children during the pandemic were socialising with friends, exercising, playing and listening to music, being outdoors, spending time with pets and journaling. Research into the meaning of wellbeing and interventions to support it, which draw on these main sources of help, is needed now more than ever.

2.3 Understanding the Scale Development Process to Evaluate Existing Measures of Children's Wellbeing

Measurement is "the assignment of numbers to objects or events to represent quantities of attributes, according to rules" (McDowell, 2006. p. 10). To improve a variable, the possibility to measure it is needed (Ben-Arieh, 2008). Health measures are a central factor to indicate health problems, monitor the effectiveness of medical health care, and to influence the setting of policy goals (McDowell, 2006). A measurement of wellbeing has long been debated due to its broad and subjective nature (Costa *et al*., 2019). Rees *et al*. (2012) highlight that there is no sufficient or agreed upon measure of children's wellbeing in England. This needs to change to promote advocacy of wellbeing and to help keep track of goals and improvement of it (Ben-Arieh, 2008). One form of measurement is through surveying. A survey is;

> Used to study large groups or populations, usually using a standardised quantitative approach to identify beliefs, attitudes, behaviours and other characteristics (Curtis & Drennan, 2013, P. 175).

One method to survey a construct is through a scale. Although scales are subjective measures which are open to bias, they give insights into matters of human concern which cannot be deducted only from physical measures or laboratory analysis (McDowell, 2006). There are two approaches to scale development: inductive and deductive (Hinkin, 1995). To develop a scale of children's wellbeing, an inductive approach is needed due to the uncertainty of its definition (Tay & Jebb, 2017). Currently, attempts to measure children's wellbeing are made without theoretical justification or attempt, to fit a pre-defined definition of wellbeing which is not derived from research with children (Bowling, 2017). The development of the Winchester Children's Wellbeing Scale (WCWS) will take an inductive approach by developing a definition grounded in previous research, using a sample of experts in the field and a representative population of young people to subsequently develop items. In addition to reviewing the relevant literature about wellbeing, a review of literature specific to scale development should be carried out to inform the scale development process (Streiner *et al*., 2015).

The development of a scale has many steps and there are multiple frameworks published within different contexts to guide researchers such as, MacKenzie *et al.* (2011), Boateng *et al.* (2018) and Carpenter *et al.* (2018). For this thesis, Mackenzie *et al.* (2011) framework of scale development was utilised because it provides an in-depth discussion of each of its 10 stages. See Figure 2.4 for a summary.

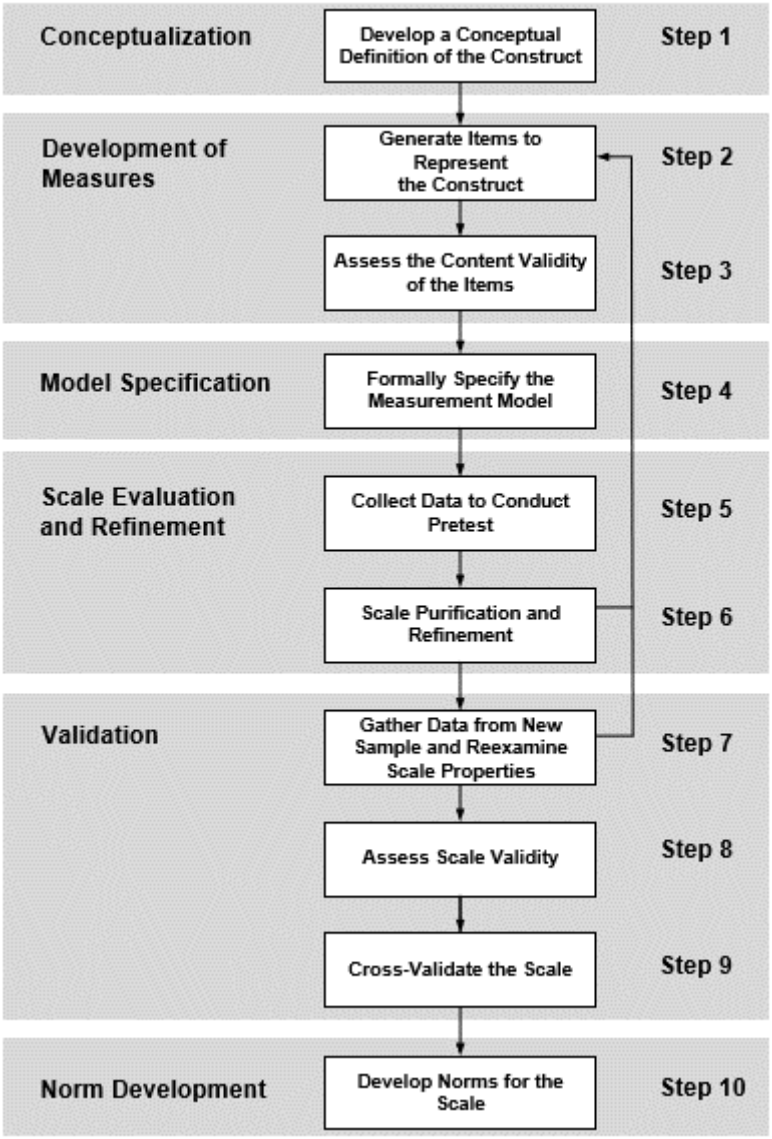


Figure 2. 3: Scale Development framework, an overview (MacKenzie *et al*., 2011).

2.3.1 The Scale Development Process

An overview of the recommendations of MacKenzie *et al*. (2011) and discussion of these recommendations with relevant literature follows.

Stage 1: Defining Wellbeing

Initially, a construct needs to be clearly defined within the relevant domain and differentiated from similar constructs. This should be completed first to ensure that the scale measures what it intends to (McDowell, 2006). This stage is often neglected even though it is important in the validation process. Many scales of wellbeing have not defined or explicitly defined wellbeing, which is further discussed in section 2.3.3. To develop a definition, researchers must review literature, previous theoretical definitions and conduct interviews with experts in the topic and the population that the scale will be

implemented with. Streiner and colleagues (2015) state that three to ten experts should be consulted. If experts are not chosen carefully the information gathered may be skewed making it unreflective of a range of opinions (Streiner *et al*., 2015).

Stage 2: Generating Items for the Scale

To generate items that fully represent a construct a variety of sources can be used including reviews of literature, deduction from theoretical definitions, suggestions from experts, focus group interviews with a representative population and clinical observations (Bowling, 2017). The aim of conducting a focus group is for participants to generate general themes which could be used in development of scale items (Streiner *et al*., 2015). The scale developer should be as inclusive as possible when writing items since poor items can be easily weeded out in the validation process (Ibid). Then, the ambiguity of the developed items and whether all the main themes have been addressed should be discussed (Ibid). The wording of these items should be as clear and simple as possible. Frameworks such as Ostrom's ABC model of attitudes can be used to structure item development as it helps researchers develop items which reflect a broader category of states. Ostrom's ABC model comprises of three factors: affective, behavioral, and cognitive states (Ostrom, 1986). By developing items which reflect the ABC structure, participants will reflect on three broad categories of assessment meaning a more accurate evaluation is captured (Giles *et al*., 2020).

Stage 3: Content Validity

Content validity is 'the degree to which a sample of items, taken together, constitute an adequate operational definition of a construct' (Polit & Beck, 2006, p.490). Lynn's (1986) Content Validity Index is often used to assess for content validity. It requires experts to rate items' representativeness to the subscale on a 4-point Likert scale (from completely irrelevant to relevant). It results in a representativeness score of the overall scale (S-CVI) and individual items (I-CVI) (Polit & Beck, 2006).

Stage 4: Specify the Measurement Model

Instead of assuming the direction of causality, the proper specification of the measurement model before analysis is necessary so meaning can be applied to the model (Jarvis, MacKenzie & Podsakoff, 2003). Bagozzi (1981) describes this as something which must be done prior to analysis. Bollen and Lennox (1991) highlighted that the traditional methods for assessing construct reliability and validity (factor analysis or structural equation modelling) are not suitable for constructs where the direction of causality flows from the items to the latent construct. Without formally specifying the measurement model prior to analysis the direction of causality between a latent construct and its

measures could be mis-specified leading to inaccurate conclusions about the structural relationships between items and constructs (Jarvis *et al*., 2003).

Unidimensional measurement models need to be classified as formative or reflective. A model is formative when causality flows from the latent construct to the items and the construct is a linear combination of its measures, plus error (Jarvis *et al*., 2003). A model is reflective when causality flows from the items to the latent construct and the construct is a perfect linear combination of its measures (Ibid). Multidimensional models can be classified as either reflective, formative or a mixture of both.

Stage 5: Pilot the Scale

Scales can be piloted online or in person (paper and pen), both have benefits and limitations. Online piloting means the researcher has easy access to a wider audience and there is a decrease in data entry errors (Boateng *et al*., 2018). Piloting a scale online does however mean participants cannot readily access the researcher if they have any questions regarding the scale and its completion, which the paper and pen method overcomes, as researchers are often present when individuals complete these. This does however mean that the paper and pen method can be labour intensive and there are no backup copies to rely on (Ibid).

Responses need to be obtained from a representative sample of participants to examine the psychometric properties of the scale and to evaluate its validity and reliability (Curtis & Drennan, 2013). Sample range and ratio recommendations for piloting a scale vary because there is no accepted standard or rule of calculating which sample size is best to adequately assess the properties of the measure (Mundfrom, Shaw & Ke, 2005; Tabachnick & Fidell, 2014; Giles *et al*, 2020). Recommendations of sample range are between 100-500 and sample ratio between 3:1 – 10:1 (MacKenzie *et al*., 2011). There are many contributions to the debate about sample size relating to response to item ratio, which Table 2.6 summarizes:

Table 2. 6: Sample Size Recommendations via a Subject to Item Ratio.

Author	Minimum subject to item ratio
Gorsuch (1983)	5:1
Jöreskog & Sörbom (1996)	10:1
Mundfrom, Shaw & Ke (2005)	7:1
Boateng *et al* (2018)	10:1

Osborne (2014) concluded that 'larger samples are better than smaller samples' (p.46) however, a sample can also be too large and result in inaccurate conclusions, including mis-assignment of items

to factors and extraction of wrong factors. Comfrey and Lee (1992) suggested the following criteria for sample size: 50 = very poor; 100 = poor; 200 = fair; 300 = good; 500 = very good; ≥ 1000 = excellent. But Osborne (2014) critiques this method for being simplistic as scales differ in a number of ways including number of items, subscales and variability of the factor being measured. Furthermore, MacKenzie and colleagues (2011) suggest sample size should not be limited to invariant categories like Comfrey and Lee (1992) suggest but should be dependent on the indication of specific variables like the Kaiser-Meyer-Olkin test of sampling adequacy. MacCallum and colleagues (1999) suggested that small sample sizes are adequate when communalities and factor loadings are high and Tabachnick and Fidell (2014) suggest large samples are needed when these values are low. Carpenter *et al.* (2018) furthers this point by highlighting practicalities of collecting data from large samples when dealing with specific and hard to access populations. Carpenter and colleagues, alike MacCallum *et al.* (1999), suggest smaller samples within this context can be defended if they meet certain factor loading (> 0.4) and communality (> 0.5) criteria. Recommendations for sample size also do not reflect published literature. Carpenter *et al*. (2018) reviewed the reporting of scale development and identified 34% of journal articles published had ≥ 500 participants, 27% of journal articles published had a sample size of ≤ 200.

Stage 6: Exploratory Factor Analysis

If the measurement model is identified as reflective, data collected in the pilot can be analysed via factor analysis. Factor analysis identifies clusters of variables which enable the researcher to understand the structure of the scale (Humble, 2020). There are two stages within factor analysis, exploratory and confirmatory. The aim of the exploratory factor analysis (EFA) is to identify items which are not and are least related to the construct being measured (Boateng *et al*., 2018). The EFA is dependent on the researcher's decision making and the accuracy of data collection (Carpenter *et al*., 2018). It is therefore important, and often a missed-out step of scale development, that data is checked for its factorability. Tabachnick and Fidell (2019) suggests data is suitable for factor analysis when Bartlett's Test of Sphericity is significant ($p < 0.05$), the correlation matrix contains factor loadings of ≥ 0.3 and the Kaiser-Meyer-Olkin test of sampling adequacy is ≥ 0.6. Additionally, before the EFA is conducted, an a-priori method of item extraction should be identified so the researcher can approach the process in a systematic manner and not make adjustments to the scale which compromises underpinning theory (Osborne, 2014). This is particularly important as factor analysis is a data driven process.

Stage 7: Re-Pilot

As items are often dropped/reworded during the exploratory factor analysis, the scale needs to be re-estimated using a new sample of data which needs to have similar characteristics to the original sample used.

Stage 8: Confirmatory Factor Analysis

The purpose of the confirmatory factor analysis (CFA) is to confirm the fit of a hypothesized model (Humble, 2020). Unlike the EFA, the researcher specifies the pattern of how items and their latent factors are related (Ibid). Within the context of this thesis, the confirmatory factor analysis was used to examine whether the structure identified in the EFA worked with a new set of data (Harrington, 2009).

Stage 9: Cross Validation of the Scale

Discriminant validity should be assessed by cross validating the scale with other scales where there is an expected correlation. In addition, using different samples where a difference in overall score is expected. For example, children with a poor mental health diagnosis in comparison to a general population of children will identify the sensitivity of the scale.

Stage 10: Developing Normative Values for the Scale

The meaning of scores generated from the scale can only be determined in relation to a frame of reference therefore, normative values need to be developed. To do this a scale needs to be administered to the sample of interest so the shape of distribution can be observed. This process could involve thousands of data samples. This stage is an ongoing process as overtime normative values are expected to change.

2.3.2 Existing Scales of Wellbeing

Scales to measure the wellbeing of young people exist. Pineiro-Cossio and colleagues (2021) reviewed the impact of physical education and school sports on wellbeing and identified out of the 21 papers included in their review, 17 different measures were used to assess wellbeing. For an overview of existing measures of children's wellbeing from other countries and age groups, please see Appendix 11.1 and 11.2 where the scales characteristics, including underpinning properties and methodological properties, are summarised. All these measures have strengths which this thesis can adopt. In this chapter the *Good Childhood Index, Warwick Edinborough Mental Wellbeing Scale for Teenage Students (WEMWBS-TS), Stirling Children's Wellbeing Scale* and *How I Feel about Myself and School*

questionnaire will be discussed as they are all UK based and focus on young people between the ages of 10 – 16. An overview of these scales is presented in Table 2.7 and potentially have a methodological or conceptual weakness which are further discussed below.

Table 2. 7: An Overview of UK Scales to Measure Young People's Wellbeing.

	The Children's Society (2008) The Good Childhood Index	**Clarke *et al* (2011)** WEMWBS (Teenage school student's validation)	**Liddle and Carter (2015)** Stirling Children's Wellbeing Scale	**McLellan and Steward (2015)** How I Feel About Myself and School
Definition of Wellbeing:		✓	✓	✓
Age Range:	10-15	13-16	11-15	11-15
Underpinning Work:				
Primary Research	✓			
Existing Scale		✓	✓	✓
Dimensions/Subscales:				
Happiness	✓			
Life Satisfaction	✓			✓
Individual Factors	✓			
Overall Associations	✓			
Overall Wellbeing	✓			
Environmental Experiences	✓			
Stability and Change	✓			
Bullying	✓			
Family Relationships	✓			
Mental Wellbeing		✓		
Positive Emotional State			✓	
Positive Outlook			✓	
Social Desirability			✓	
Interpersonal				✓
Competence				✓
Negative Emotion				✓
Context:				
General Measure	✓	✓		

School Specific			✓	✓
Measurement:				
5-point Likert scale	✓	✓	✓	✓
Rating out of 10	✓			✓
Assessed for:				
Construct Validity	✓	✓	✓	✓
Face Validity			✓	
Internal Reliability	✓	✓	✓	✓
Test-retest Reliability	✓	✓		

2.3.3 Conceptual and Theoretical Issues

Children's Society

The full version of the Good Childhood Index has a questionable conceptual foundation. The first stage of developing a scale should include the conceptualisation and definition of the target construct (Clark & Watson, 1995; MacKenzie, 2003; Tay & Jebb, 2017). This process should be clearly reported to increase the prospect of the scale making a significant contribution to literature (MacKenzie *et al*., 2011; Boateng *et al*., 2018; Carpenter *et al*., 2018). The quality of this stage has clear ramifications for the following stages (Clark & Watson, 1995). Current literature according to MacKenzie *et al*. (2011) often fails to adequately define the construct being measured. The Children's Society (2006; 2008) failed to provide a definition of wellbeing. This is a fundamental problem as failure to do so: 1) compromises the internal validity of the scale, 2) leads to invalid conclusions, 3) creates difficulty in developing measures that represent its domain, 4) creates difficulty in correctly specifying how the construct should relate to its measures, and 5) undermines the credibility of a study's hypothesis (MacKenzie, 2003; MacKenzie *et al*., 2011). Their initial investigation (Children's Society, 2006) was underpinned by two questions in an open-ended survey asking participants:

> 1. What do you think are the most important things that make for a good life for young people? 2. What things do you think stop young people from having a good life? (p.8)

It is not made clear in their report why the Children's Society chose the phrasing 'good life' or how this directly relates to wellbeing. The answers from these questions were used to underpin their index of wellbeing so clarification and providing a rationale for this is of high importance. The open-ended survey did not allow researchers to follow up on students answers which interviewing/focus groups would enable; surveying did however result in a large sample participating in the initial investigation which is a great strength to the study. Yardley *et al*. (2015) states that a person-based approach to research should be in-depth; this index has 'a firm commitment to child-centredness' (The Children's Society, 2006. p.6). Surveying as a research method does not yield in-depth data when compared to other methods like interviewing.

Although the index has since been piloted in mainstream schools, the initial investigation consisted of participants only from independent schools. Their findings showed that family economic status does not significantly influence wellbeing (Children's Society, 2008) but this finding is in the context of students at the higher end of the socioeconomic scale as they attend independent schools. The generalisability of findings to the wider population are questionable. If the index was initially piloted

with mainstream school students and disadvantaged populations, the structure of the index could be considerably different and arguably make a more unique contribution to literature.

The Good Childhood Index has not undergone the peer review process which is described essential to ensure academic quality (Roberts & Shambrook, 2012). The reports (The Children's Society, 2006; 2008) can be brief, probably to make them more accessible for the general population to read, but there is a large amount of information missing and the reports have ambiguous statements, for example 'statistical analysis of this data set indicated that most aspects of the questionnaire were working well' and 'after data cleaning' (The children's Society, 2008; p.20 & p.23 respectively). This would make it problematic to replicate their initial enquiry or understand the development of the survey. The overall structure of the index is ambiguous potentially because the index is not shared outside of commissioned work or collaboration with The Children's Society[2] (A. Turner, personal communication, May 26, 2020).

It is reported that the 'secondary and primary school questionnaires contained approximately 140 and 100 items respectively' (The Children's Society, 2008. p.20). The length of a scale has a negative linear relationship with reliability (Ziegler, Poropat & Mell, 2014) and increases the chance of a halo effect occurring (Streiner *et al*., 2015) however, reduction in scale length should not be done at the cost of internal consistency and without careful consideration. The sub-scales of the index are not made explicitly clear within their report (The children's Society, 2008). This casts doubt that the subscales reported in table 2.7 for this index are accurate. In 2010 a short version of this index was developed as The Children's Society concluded 'there is currently no entirely satisfactory index of children's subjective wellbeing in England' (Rees, Goswami & Bradshaw, 2010. p.4). Like the full version, this is not underpinned by a definition of wellbeing but underpinned by 'whatever data of acceptable quality were available' (Rees *et al*., 2010. p.20). Acceptable quality is not defined; therefore, it is open to the interpretation of the reader what 'acceptable' means. Furthermore, Ryff, and colleagues (2021) criticise short wellbeing assessments for ignoring prior extensive research documenting wellbeing's complexities and multi-faceted nature and that, 'simplistic measures of wellbeing effectively guarantee simplistic findings. Such a practice undermines progress in the field, including development of policies and interventions to promote wellbeing in its various forms' (p. 547).

[2] The Children's Society provide a contact for enquiries about the full version of the scale. They were not forthcoming with information about the long version of the index which led to my uncertainty of the scales structure.

WEMWBS-TS

The WEMWBS-T was initially developed for an adult population (WEMWBS). There is consensus among academics that wellbeing is multidimensional (Hone, Schofield & Jarden, 2015; VanderWeele *et al*, 2021); any definition and assessment tool of wellbeing should be reflective of this (Lijadi, 2018). The WEMWBS-TS is a unidimensional measure as it only measures mental wellbeing (Clarke *et al*., 2011), disregarding the existence of physical, social and spiritual wellbeing. Conceptually, it is potentially flawed because it is underpinned by the Affectometer 2 (Kamman & Flett, 1983) which measures current level of general happiness. As covered in this thesis in section 2.2.2, happiness and wellbeing are often used interchangeably. The key difference between wellbeing and happiness relates to longevity whereby wellbeing is relatively stable and happiness not (Children's Society, 2019). The Affectometer was developed over three decades ago and the literature it is underpinned by is arguably outdated. Furthermore, it is based on adult views its applicability to children could be limited. Although unidimensional measures are useful, this thesis is adopting a child-centred approach to the development of a scale to measure all dimensions of wellbeing so it can be used in a general context to identify which dimensions of wellbeing are rated lower than others.

Stirling Children's Wellbeing Scale

Liddle and Carter's (2015) definition of wellbeing includes the term 'holistic' which refers to a construct which is broad and all encompassing. Their scale, however, does not have a holistic focus as it measures only emotional and psychological wellbeing (Liddle & Carter, 2015). For the sake of 'clarity' (Liddle & Carter, 2015. p.175), or arguably brevity this description of wellbeing does not clarify what the construct 'wellbeing' means; it is a vague description. The purpose of defining the construct measured is so the relationship between the definition and the items developed can be measured to evaluate content validity (Stage 3 of MacKenzie *et al*., 2011). Without a clear and concise definition of wellbeing, this cannot be assessed or confirmed. Liddle & Carter (2015) based their scale on previous work, the Warwick-Edinburgh Mental Wellbeing Scale (Tennant *et al*., 2007), which MacKenzie *et al*. (2011) advocates. This scale was validated with young people to develop the WEMWBS-TP therefore the same issues with the scales underpinning applies to the Stirling Children's Wellbeing Scale.

How I Feel About Myself and School

McLellan and Steward (2015) used a definition provided by Diener *et al*. (1999) of subjective wellbeing (shown in Appendix 11.1). Unlike their scale, McLellan and Steward's (2015) definition is not specific to children which would impact on the assessment of content validity (stage 3 of MacKenzie *et al*., 2011). Scale developers need to review literature, previous theoretical definitions and conduct

interviews with appropriate experts and the relevant population that the scale will be used with (MacKenzie *et al*., 2011). McLellan and Steward (2015) informed their scale with previous scales and a steering group consisting of teachers and students. The reasoning behind the choice of the individuals is not made clear and data analysis from the steering group is not available to the reader. The 'How I Feel About Myself and School' scale is context specific to young people's school life as the items are specific to school and the scale was validated in a school context. The suggestion that wellbeing is context specific goes against the conceptualisation of what wellbeing is within this thesis.

2.3.4 Methodological Issues

The scale that items are measured on should reflect the target population (Streiner *et al*., 2015). There is no evidence of this consideration in any of the four papers but, McLellan and Steward (2015) did change their categories from a 3-point scale for primary school aged children to a 5-point for secondary school aged children. This was so the 'secondary version was more complicated' (McLellan & Steward, 2015, p.315). Liddle and Carter (2015) claimed to write their scale in language easily understood by a child with a reading age of eight plus. There is no evidence of this though, such as using the Flesch–Kincaid readability test. The Children's Society, (2008) used both a 5-point Likert scale and a 10-point score. Clarke *et al*. (2011) did not adapt their 5-point Likert scale from the original adult version to the young person's version, however the validation with young people found although some terms were identified as difficult to understand, it was comprehendible and easy to complete. Liddle & Carter (2015) also used a 5-point Likert scale; McLellan and Steward (2015) used a 7-point Likert scale with an overall rating out of 10. Choosing an appropriate scale type is important because the nature of the questions asked will reflect on the responses attained and the type of scale should reflect the population being tested (Streiner *et al*., 2015). Table 2.8 summarises scale types and their advantages and disadvantages.

Table 2. 8: Summary of Scale Types, Advantages and Disadvantages. Informed by: Coaley (2010), Kline, (2014), Streiner *et al*, (2015), McDowell (2006) and Gahagan (1987).

Scale Type	Advantages	Disadvantages
Likert Scale	- Reliability increases up to a seven-point scale then becomes level. - Easy and quick to construct. - Items can be equally balanced, so favourable responses are not endorsed. - They can measure anything.	- As it is ordinal, the magnitude of differences between scores cannot be determined. - The measure has no true zero which compromises validity.
Guttman	- The target population is involved with the development and organisation of the scale. - The scale appeals to common sense. - Items are ordered into a hierarchy of severity, making it easier to identify items which should be removed.	- As it is ordinal, the magnitude of differences between scores cannot be determined. - There is a restricted number of statistical tests that can be used for analysis. - The items correlate perfectly with the total scale score which is unlikely of any variable in the real world.
Semantic Differential	- Young children have been shown to be capable of responding to this scale. - It is used to measure an individual's feelings/attitude. - Items are equally balanced.	- Values which fall outside of the centre scale are difficult to interpret.
Thurstone's Scale	- A representative sample from the relevant population are used to judge the severity of each item in the scale.	- Two respondents can have the same score from a different pattern of responses. - As it is ordinal, the magnitude of differences between scores cannot be determined.
Visual Analogue Scale	- The scale is simple to use and understand. - At seven years old, a child can handle the cognitive demands of a visual analogue scale. - Champion *et al*. (1998) report good validity for these scales with 5-year-olds.	- This method provides an illusion of precision. There is no guarantee that the response accurately represents the underlying attribute. - Rating highly dependent on wording of end points. - Reliability of the scale is directly related to its length.
Face Scale	- Can be used in different countries if no words are used and faces are gender/ethnically neutral. - Due to simplicity, they are often used with children.	- Boys in some cultures for example may be biased towards not picking a crying face.

Validation and reliability testing are an important part of scale development as it cannot be assumed that the scale measures/represents the construct intended (MacKenzie, 2011; Tay & Jebb, 2017;). The

validation process will highlight if an item is unrelated to the construct and needs to be re-worded or removed (Clark & Watson, 1995). If this stage of scale development is missed then false scientific conclusions may be made (Tay & Jebb, 2017). Waterman *et al*. (2010) and Liddle & Carter (2015) clearly expressed their validity and reliability measures shown in Table 2.7. Liddle and Carter's (2015) results are underpinned by an ambiguous description of wellbeing, so they should be relied upon with caution. The authors also did not test the scale for sensitivity to change due to time constraints which compromises the reliability of the scale. Tabor and Yull (2018) stated that they expressed validity using 95% confidence intervals and coefficient variation, however no confidence intervals were presented.

MacLellan and Steward (2015) dropped items if they were 'wordier or seemed less applicable' (p.326). With no further explanation of this process, it can be argued that the procedure was subjective and therefore open to bias. In addition, there is no mention of validity testing after this step in their scale development occurred. To assess the reliability and validity of a scale, 100-500 participants are needed, and this is something which needs to be reassessed once items are dropped or re-worded (MacKenzie *et al*., 2011).

Rees *et al*. (2010), McLellan and Steward (2015) and Tabor and Yull (2018) all have a large sample size (150,000, 2,170 and 13,000 respectively). None though, undertook the reliability process which MacKenzie *et al*. (2011) suggests. The three studies have gathered enough data to complete the initial validation and reliability processes and enough to form normative values. When interpreting scores, it is helpful to understand their distribution within various populations so the meaning of the score can be determined in relation to a frame of reference (Spector, 1992). Normative values need to be periodically updated to address any changes over time (MacKenzie *et al*., 2011). Tabor and Yull (2018) presented normative values but Liddle and Carter (2015), McLellan and Steward (2015) and Rees *et al*. (2010) presented averages from their studies. In addition, Rees and colleagues (2010) only provided age as a part of their participant demographics. The normative/average values presented in the three studies are from an un-validated source, making the application of them to the wider population less appropriate.

The studies overviewed in Table 2.7 did not detail how many items were initially generated and how many were dropped because of validation. Each subscale should include a minimum of three items to capture each subscale adequately which is repeatedly endorsed by methodologists (Carpenter, 2018) and psychologists (VanderWeele *et al*., 2021). Liddle and Carter (2015) provided a good example of this where both their subscales 'positive emotional state' and 'positive outlook' were underpinned by six items each. In contrast, Tabor and Yull (2018) had one item per subscale, thus compromising the validity of the scale.

2.3.5 Conclusion

From evaluating the scale development process of The Children's Society (2008), Clarke et al (2011), Liddle and Carter (2015) and McLellan and Steward (2015), in comparison to relevant literature and MacKenzie *et al* (2011) scale development framework, there are clear limitations to their work. This overall has had a large impact on the reliability and validity of their scales to measure wellbeing. Future studies should use scale development literature (McDowell, 2006; MacKenzie *et al*., 2011; Tay & Jebb, 2017; Streiner *et al*., 2015) and validation literature (Hinkin, 1995; Clark & Watson, 1995; Polit & Beck, 2006; Carpenter, 2018) to underpin their work. Although these scales used literature, the content of literature has focused on dimensions or descriptions of wellbeing (Dodge *et al*., 2012). These studies have used the best available existing knowledge and arguably have measured dimensions of wellbeing, not wellbeing itself. Based on this, future research should seek to define wellbeing so a scale can be developed to validly measure wellbeing and be underpinned by current scale development literature such as MacKenzie *et al*. (2011).

2.4 Summary of Literature Review

The literature review has shown that urbanisation is increasing, and young people have long been considered to be at risk of nature deficit disorder (Louv, 2008): a point considered to be exacerbated during the Covid-19 era and potential outcomes of lockdowns (Chzhen, 2020). There is limited research about blue space compared to green, despite the suggestion that blue space is more impactful on individual's wellbeing (White *et al*., 2015; Kelly, 2018). Blue exercise combines the benefits of blue space and physical activity which could be a potential intervention to improve young people's wellbeing (Selhub & Logan, 2012; White *et al*., 2016), this is something which is needed now due to the impacts of the Covid-19 pandemic. An accepted definition of young people's wellbeing does not exist even though young people's wellbeing is reportedly declining (NHS Digital, 2018 [online]). There is currently no open access multidimensional measure of young people's wellbeing. To develop a new measure of wellbeing, scale development literature needs to be consulted and a rigorous scale development framework, like MacKenzie *et al* (2011), needs to be adopted. A blue space physical activity intervention could potentially positively impact young people's wellbeing. This thesis will develop a scale to accurately measure this impact and conduct an investigation into the impact of such intervention.

3.0 Overall Methodology

3.1 Philosophical Assumptions

A research paradigm is underpinned by a researcher's ontology and epistemology. Epistemology is how knowledge is acquired and ontology is the study of reality (Curtis & Drennan, 2013). Epistemology and ontology are linked because 'adhering to an ontological belief system (explicitly or implicitly) guides one to certain epistemological assumptions' (Rehman & Alharthi, 2016, p. 52). If a serious contribution to knowledge is to be made, underlying assumptions, experiences and values of the researcher need to be examined as they shape decisions and analysis (Denzin, 2002; Gringeri *et al*., 2013). Traditionally, qualitative researchers hold an interpretivist research paradigm and quantitative researchers a positivist research paradigm (Hall, 2014). Qualitative and quantitative research methods both have methodological advantages and weaknesses. Qualitative research arguably lacks objectivity and quantitative research can be criticized for lack of participant voice (McKim, 2017). A mixed methods approach minimizes these weaknesses and brings together the benefits of both methods (Richards & Hallberg, 2015; Creswell & Plano-Clarke, 2017); This thesis adopted a fixed mixed methods design, where the use of both qualitative and quantitative research was pre-determined (Creswell & Plano-Clarke, 2017) to enhance findings and to provide a balanced perspective (Bryman, 2006; McKim, 2017). Johnson, Onwuegbuzie and Turner (2007) defined mixed methods research as,

> The type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration (P.123)

Different mixed methods research designs can be employed; this thesis adopted an exploratory sequential design, illustrated by figure 3.1, to ensure that the research is grounded in the views of participants (Creswell & Plano-Clarke, 2017). Creswell (1999) deems this design appropriate for the development of new measures and where the variables are unknown.

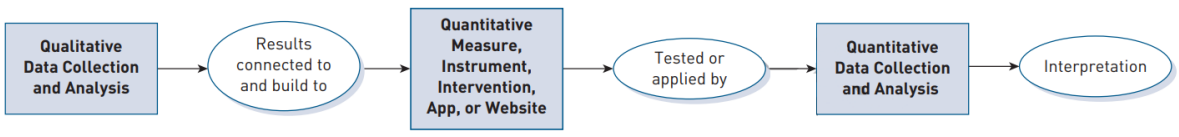


Figure 3. 1: The Exploratory Sequential Design (Creswell & Plano-Clarke, 2017, p.66).

This thesis begun with a qualitative inquiry into children's conceptualisations of wellbeing. Results from the qualitative research were then used to build a quantitative measure of wellbeing which was applied to a case study study looking at the impact of outdoor physical activity on adolescent

wellbeing. The impact of the case study was assessed via both quantitative and qualitative research methods.

Critical realism is a research paradigm gaining popularity by mixed methods researchers as it facilitates the collaboration between qualitative and quantitative research methods and analysis (Creswell & Plano-Clark, 2018). Critical realism is a combination of a realist ontology and a constructivist epistemology as seen in table 3.1 and is adopted in this research.

Table 3. 1: Epistemology an Ontology Underpinning Critical Realism (Adapted: Creswell & Plano-Clark, 2018).

Critical Realism	
Ontology	There is a real world that exists independently of our own perceptions, theories and constructions
Epistemology	Our understanding of the world is inevitably a construction built from our own perspectives and standpoint

A mixed methods approach for this PhD was adopted so the construct of *wellbeing* could be understood in breadth and in depth from different individuals' perspectives. Straub *et al*. (2004) comments that science should try to understand the real world, and there should be awareness that measurement and observations are not perfect and so require multiple corroboration or triangulation. Critical realism encapsulates this (Curtis & Drennan, 2013) and is the research paradigm adopted for this thesis. Pilgrim (2013) concludes that research in the field of mental health is suited to a critical realist research paradigm because it encapsulates many methods and can be aligned to several theories. In addition, it's focus is on 'the being rather than knowing, without losing sight of epistemological matters' (p.1), which is particularly important for this study as it is concerned with a different population's (children's) conceptualisation of a psychological construct.

3.2 Theoretical Framework

The person-based approach was developed by Yardley, Morrison, Bradbury and Muller (2015a). The approach is centred around grounding the development of interventions with a deep insight from the relevant population, or in this case, ground the development of a measure of wellbeing with an in-depth insight of young people's perceptions and conceptualisations of wellbeing (Yardley *et al*., 2015a). Although everyone was once young, it would be difficult to retrospectively develop a scale which would accurately measure current young people's wellbeing. The Children's Society (2006) state that,

> Positive change for children and young people can only be achieved by observing the principles of child-centred-ness. By child-centred we mean that the child, and the best interests of the child, should always be our focus (p.7).

By adopting a person-based approach it means that young people will be fully included in the development of the scale to measure wellbeing and vital insights into young people's conceptualisations of and opinions about wellbeing will be gained (Yardley *et al*., 2015a). Yardley, Ainsworth, Arden-Close and Muller (2015b) comment that in-depth qualitative research is fundamental to the person-based approach where both experts and the relevant participants should be included to provide a full perspective. Although this approach was initially developed to inform health psychology interventions, it complements the initial stages of Mackenzie's Scale Development Framework (2011) where step 1 is to conceptualise and define the construct being measured; it is suggested that this is done via consulting the relevant population. Young people can also be in co-opted into many other stages of MacKenzie and colleagues (2011) scale development framework.

3.3 Research Methods and Analysis - Qualitative

Qualitative research methods gather in depth, personal data which are often used to understand meanings, concepts and experiences (Patton, 1987). As this thesis looks to understand the concept 'wellbeing' from a different population's perspective, qualitative research methods were initially adopted. Interviews are frequently used in social inquiry as they generate empirical data about the world and how individuals live (Holstein & Gubrium, 2003). Other methods of collecting qualitative data include open ended questionnaires, observations, and ethnography (Gratton & Jones, 2015). Ethnography provides rich data and often focuses on a particular group or culture; therefore, it is advantageous to use when the sample is easily available (Higginbottom, Boadu & Pillay, 2013). Open ended questionnaires are valuable when looking to study a population as they can reach a large number of individuals and are relatively easy to explain and complete (DeVellis, 2017). It is common practice to measure health via questionnaires and doing this is regarded as fundamental to health science (Strenier & Norman, 2008). Within the context of children's wellbeing, the Children's Society (2006) explored children's perceptions of wellbeing via an open-ended questionnaire. This resulted in them reaching a large sample of participants, but it did not allow the researchers to follow up answers or ask probing questions. As this thesis aims to understand perceptions and conceptualisations, adopting an ethnographic or observational approach did not seem appropriate as they are often focused on understanding behaviours. Open ended questionnaires, although reach a large audience, do not collect data as rich in detail as interviewing. Eder and Fingerson (2003) state:

> One clear reason for interviewing youthful respondents is to allow them to give voice to their own interpretations and thoughts rather than rely solely on our adult

> interpretations of their lives… another reason to interview young people is to study those topics which do not occur in daily conversations (p.33).

Within the context of children and health, it has been found that young people can talk freely and in their own words when interviewing is the chosen methodology over questionnaires (Woolley, Edwards & 2018). This thesis therefore adopted interviewing as a qualitative research method to understand children and expert's conceptualisations of wellbeing in chapter four and five, and in chapter eight to explore children's experiences of Covid-19 and the case study.

3.3.1 Interviews

Interviews were utilised to inform the development of a construct definition. Podsakoff and Colleagues (2016) suggest interviewing as part of the first stage of developing a construct definition to help identify potential attributes of the construct. Both experts and the relevant population should be consulted when developing a construct definition (MacKenzie *et al*., 2011). Individual interviews were conducted with experts, and this was followed by focus groups with young people. The difference in interview type reflected the population being interviewed. Focus groups encourage discussion between individuals and create a more natural setting (Gratton & Jones, 2015), this helps reduce the intensity of the interview and therefore the young people in this research felt at ease and able to contribute. Eder and Fingerson (2003) highlight the importance of creating a natural context while interviewing young people; one way of doing this is conducting interviews with children's existing group of friends which is more indicative of a natural setting. Conducting a focus group style interview facilitates this (Ibid) but, doing the same with an expert sample may disrupt experts flow and level of meaningful contribution. Individual interviews were conducted with the expert sample as individuals selected for these interviews were regarded as experts, they had a wealth of experience and knowledge to impart during interviews.

Interviews vary in structure from rigid to unstructured (Gubrium & Holstein, 2001). Depending on context and research questions both have advantages. A structured interview asks interviewees the same questions in the same order whereas an unstructured interview is free to follow conversation and topics discussed by interviewees (Holstein & Gubrium, 2003). Semi-structured is most common as researchers have the ability to be flexible to conversation but have a pre-planned set of questions or a framework to follow (Prior, 2005). This is advantageous so detailed, relevant, and rich data can be collected (Harvey-Jordan & Long, 2001). All interviews and focus groups within this thesis adopted a semi-structured approach. The purpose of the interviews were to understand a concept/experience from a different population's perspective; therefore, the researcher was uncertain what topics would arise in interviews so, being flexible to dialogue was imperative to collect meaningful data (Eder &

Fingerson, 2003; Kallio, Pietilä, Johnson & Kangasniemi, 2016). Within chapters four and five it was important to discuss critical issues and key topics relating to wellbeing therefore consultation of existing literature, definitions and theory was a key step to developing an interview guide (Sartori, 1984). Wellbeing has been cited as *elusive* (Bharara *et al.,* 2019) and embedding key topics within the interview guide, such as the relationship between basic needs and wellbeing, was important to obtain relevant and meaningful data. In addition, having flexibility to follow dialogue was crucial as the researcher was exploring a different population's experiences of wellbeing and therefore could not predict the topics which would arise within interviews.

3.3.2 Interview Samples

The researcher interviewed three different samples within the thesis, young people, parents, and experts. Predominantly young people were interviewed and the rationale for this was that high quality, relevant data, about young people's lives, can only be collected if they are incorporated into research methodologies (Lundy *et al.,* 2011). Lees *et al*. (2017) argues that this should be considered gold standard practice and young people should be engaged in research and have their views heard and respected. This is often not the case due to doubts in their maturity and literacy skills to participate meaningfully (Eder & Fingerson, 2003). While their views were taken seriously, they were considered in due weight and did not prevail on every issue (Lundy *et al*., 2011), as parents and experts were also consulted alongside children. The quality of qualitative data in study five had implications for the following stages of the PhD research (Clark & Watson, 1995). It is recommended in scale development literature that experts in the field being measured should also be included in its underpinning research (MacKenzie *et al*., 2011), therefore the enquiry into developing a measure of wellbeing begun with a consultation with experts then children. Without the mixture of both adult expert and young people's perspectives, the scale developed in this thesis would have been developed around adult perspectives which would weaken the reliability and ethical acceptability of the scale for young people (Lundy *et al*., 2011).

Purposive sampling was used to identify experts in the field of wellbeing. Etikan and colleagues (2015) described purposive sampling as 'the deliberate choice of a participant due to the qualities the participant possesses… This involves identification and selection of individuals or groups of individuals that are proficient and well-informed with a phenomenon of interest' (p.2). Adopting this sampling technique resulted in consultation with experts with relevant expertise and level of experience in the field of wellbeing. Convenience sampling was used to identify children to form the focus groups. Convenience sampling is defined as:

> A type of nonprobability or non-random sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study (Etikan *et al.,* 2015, p.2)

To access young people gatekeepers were contacted. A gatekeeper is someone senior within an organisation who has authority to provide permission to access children associated with the organisation, such as a school headteacher (Shaw, Brady & Davey, 2011). Within this thesis for example, gatekeepers to groups of young people were welcomed to consider inviting their students or athletes to participate (Singh & Wassenaar, 2016). Information regarding the research aims, inclusion criteria, ethical approval and burden on staff and participants should be highlighted to a gatekeeper (Shaw *et al*., 2011). This was done and enabled them to decide whether to disseminate the invite to the children associated with their organisation.

The inclusion criteria for this research was that the young people were between the ages of 11 and 16. This age group was selected because a) scales to measure wellbeing in a general context are focused on ages 18 and over (World Health Organisation, 1998; Tennant *et al*., 2007), b) young people between the ages of 11 to 16 have exam pressures and are going through puberty (West, Sweeting & Young, 2010; Roome & Soan, 2019), c) 11 to 16 year old's are developing emotional literacy so able to discuss topics such as wellbeing (Keatley, 2012), d) prevalence of poor mental health with this population has been steadily increasing since 1995 (Pitchforth *et al*., 2018) and exacerbated with the Covid-19 pandemic (Chzhen, 2020) therefore early promotion of wellbeing is a national priority for children this age in England (Clarke *et al.,* 2011).

3.3.3 Analysis

Thematic analysis is a way of identifying, analysing and interpreting interview transcripts (Clarke & Braun, 2014). It is uniquely flexible and enables a researcher to provide thick description of data by breaking it down into themes (Braun & Clarke, 2006). This analysis technique was used to analyse data collected from interviews because it allowed the data to be minimally organised and allow for the identification of themes (Ibid). Braun and Clarke's (2006) framework for thematic analysis was used to guide the analysis which took an inductive approach, so themes were strongly linked to the data collected. Qualitative findings were used to explore the concept of *wellbeing* in rich detail.

3.4 Research Methods and Analysis - Quantitative

Quantitative research collects numerical data which is analysed via statistical testing (Field, 2013). As the purpose of this thesis was to develop a scale to measure wellbeing, numerical values of validity and reliability were needed to assess the scales psychometric properties (DeVellis, 2013). To identify

variables and understand the structure of a scale a factor analysis, providing the measure is reflective, needs to be conducted (Humble, 2020). This can be done via statistical packages such as IBM SPSS.

3.4.1 Scale Development

Researchers should follow a scale development framework to ensure best practice and well-informed decisions as scale development is a complex and iterative process (Boateng *et al.,* 2018; Batten, Jessop & Birch, 2019). This thesis followed MacKenzie and Colleagues (2011) 10-step scale development framework due to its rigorous and detailed recommendations. This framework was however developed for research within the context of management, not health or social sciences therefore guidance by other authors which filled these gaps were consulted. Boateng and colleagues (2018) developed scale development recommendations for research on health and Carpenter (2018) developed a framework for social research.

3.4.2 Participant Sample

Participants included within the scale development are predominantly children aged 11 to 16 years old as this population is the focus of this thesis, as explained previously in section 2.2.5 and 3.3.2 of this thesis. Focusing on this age group has practical advantages because the same scale can be used by secondary schools and findings can be used to support interventions to sustain and improve whole school wellbeing. Schools are an easy setting for this to occur due to their pre-set infrastructure and accessibility to this population (Biddle, Mutrie & Gorely, 2021). Relevant experts within the field of positive psychology and scale development were also included in the scale development. Both groups of participants were included as the guidelines followed for the scale development of this thesis state that both the relevant population and experts need to be consulted to inform a construct definition (MacKenzie *et al*., 2011). This thesis took a person-centred approach and therefore endeavoured to always ensure the children's voice prevailed over experts (Yardley *et al.,* 2015a).

3.4.3 Data Analysis: Factor Analysis

Factor analysis is a commonly used method for dimension reduction and assessing a measure for validity (Tabachnick & Fidel, 2001). This method is specifically for reflective measurement models (Jarvis *et al*., 2003), which was appropriate for this thesis as identified in section 6.3.1. It identifies whether a group of variables measure a latent construct and helps a researcher identify the structure of a measurement model (Humble, 2020). Overall, a factor analysis consists of two stages: exploratory factor analysis and confirmatory factor analysis (Humble, 2020). Both stages of factor analysis have been completed within this thesis.

3.4.4 Case Study

To obtain an in-depth appreciation of the impact outdoor exercise has on young people, a case study approach was adopted to understand the impact of outdoor exercise in its natural real-life context (Crowe *et al.,* 2011). A case study approach supports longitudinal research due to the relationship built with the organisation the case study is based upon. Focusing on the long-term impact of outdoor exercise was particularly important as research within this field often focuses on a period of days or weeks (Barrable & Booth, 2020). The case study was of the Andrew Simpson Foundation which is a charity that provides water sport activities such as sailing, windsurfing and kayaking to age groups from 5 years plus. The case study was specifically with the Portsmouth Centre which is based in a diverse area regarding socioeconomic status (Portsmouth City council, 2021). The foundation's mission statement is 'Together we can transform lives through sailing' and this is based on the belief that:

> All young people have the ability to excel and succeed in life and work and we believe that the challenges of sailing and water sports do this by promoting health and well-being and building essential personal skills (Andrew Simpson Foundation, 2021 [online]).

Implementation of multiple sources of data has been advocated by Stake (1995) as a mixed methods approach increases the internal validity of a case study. Both quantitative survey data and qualitative interviews were used to research the impact the Andrew Simpson Foundation was having on young people's wellbeing during the easing of UK national lockdown restrictions.

3.4.5 Data Analysis

A mixed methods approach was adopted as the research question could not be answered by qualitative or quantitative approaches alone (Creswell & Plano-Clarke, 2017). Inferential statistics were used to analyse the quantitative data collected (Field, 2013). Specifically, survey data was analysed via IBM SPSS Statistics version 26. Data was tested for normality and differences between means (via both independent and paired samples T-tests) in addition to trends being identified. Statistical significance was defined as $p < 0.05$ (Field, 2013). Focus group data was analysed via thematic analysis following Braun and Clarke's 6-phase framework (2006).

3.4.6 Participant Sample

Participants in the case study were aged 11-16 to reflect the thesis aims. The experimental group consisted of existing members at the Andrew Simpson Foundation, Portsmouth. The planned control group consisted of pupils from secondary schools within Hampshire. Gatekeepers were used to access

adolescents (Shaw *et al*., 2011; Singh & Wassenaar, 2016), including the cite manager at the Andrew Simpson Foundation and teachers within secondary schools.

3.5 Research Ethics

When working with a venerable population research ethics are an important consideration. All of the young people included within the research were recruited via a gatekeeper whose responsibility was to share all information sheets and consent forms to participants. When recruiting children at all stages of the research two information sheets were shared. One for the child and one for their parent. The children's information sheet was adapted to obtain a Flesch Reading Ease Score suitable for secondary school aged children (11-16 years). This was important so children could understand why they were invited to participate, what participation included, their right to confidentiality and withdrawal, and how the findings would be shared. Importantly, it was outlined that participation was a choice, and choosing not to participate would not impact their relationship with the sailing centre, parents or coaches. This was to avoid coercion from parents, teachers or coaches.

Gatekeepers, participants and their parents were informed about the publication of results within a Doctor of Philosophy degree and that results may be published within an academic journal, conference or textbook. It was particularly important during the pilot of the scale to ensure gatekeepers, participants, and their parents knew wellbeing was not being measured but the reliability and validity of the scale structure was being assessed. Section 9.2.2 highlights ethical considerations in relation to the Covid-19 pandemic.

4.0: Understanding Adult Experts' Conceptualisations of Wellbeing[3]

4.1 Introduction

To develop a scale, the construct being measured must be defined (MacKenzie *et al*., 2011). Once a single definition has been adopted, as previously discussed in section 2.3.1, a construct can be validly and reliably measured (Ben-Arieh, 2008; McLellan & Steward, 2015). According to Steptoe *et al*. (2015) having positive wellbeing is a protective factor over physical and psychological conditions, such as premature mortality, coronary heart disease and depression. As previously presented (see Chapter 2, section 2.3.2), despite there already being scales to measure wellbeing, there is no universal agreement on what the term 'wellbeing' actually means (Rees *et al*., 2010; Manning-Morton, 2013; McLellan & Steward, 2015; Boyko *et al*., 2017; Goodman *et al*., 2017). As seen in section 2.2.2 of the literature review, current definitions of wellbeing are not accurate, are descriptive or lack explanation. Lijadi (2018) suggests that a definition of wellbeing should be holistic and align with the idea that wellbeing is a multidimensional construct (Boyko *et al*., 2017; Ryff, Morozink-Boylan & Kirscstates, 2021). Little (2006) calls for the creation of a definition of wellbeing specifically for adolescents. Once a definition is developed, a scale to measure wellbeing can be developed and tested for reliability and validity (MacKenzie *et al*., 2011).

The development of a validated scale of wellbeing is necessary to enable authorities to successfully promote the concept and the measure could be used to monitor individual and demographic targets, encourage sustained attention, and provide warning of the failure of interventions (Ben-Arieh, 2008). Streiner *et al*. (2015) suggest the way to develop a definition must include a review of relevant literature, existing scales and theories, alongside consulting subject experts on the topic. A person-based approach also advocates a consultation with experts when developing a new tool or intervention to enable an in-depth inquiry to occur (Yardley *et al*., 2015a).

The purpose of this chapter was to complete the first stage of MacKenzie and colleagues (2011) framework of scale development 'Conceptualisation'. This study examined the opinions and understandings of experts in the field of wellbeing to inform the generation of a definition of young people's wellbeing. The aim this study was to address A1, to develop a definition of young people's wellbeing (aged 11-16).

[3] Findings from this chapter have been published within the International Journal of Wellbeing, accesses via: - **Gennings, E. K.,** Brown, H. J., & Hewlett, D. (2021). Constructing a definition: Adolescent wellbeing from the perspective of the child and expert. International Journal of Wellbeing, 11(1).

4.2 Methodology

4.2.1 Participants

Experts were invited to participate if they had been working or researching in the field of wellbeing for more than five years. Overall, eight participants (4 female and 4 male) took part in the study: four were researchers and four were practitioners within the field of wellbeing. As wellbeing is a broad topic, the sample of experts were from a broad range of backgrounds to gather a holistic understanding of wellbeing. Their backgrounds included psychology, therapy, health geography, physiology, paediatrics, workplace wellbeing, social work and learning disability nursing. Table 4.1 summarises specific participant details:

Table 4. 1: Expert Characteristics

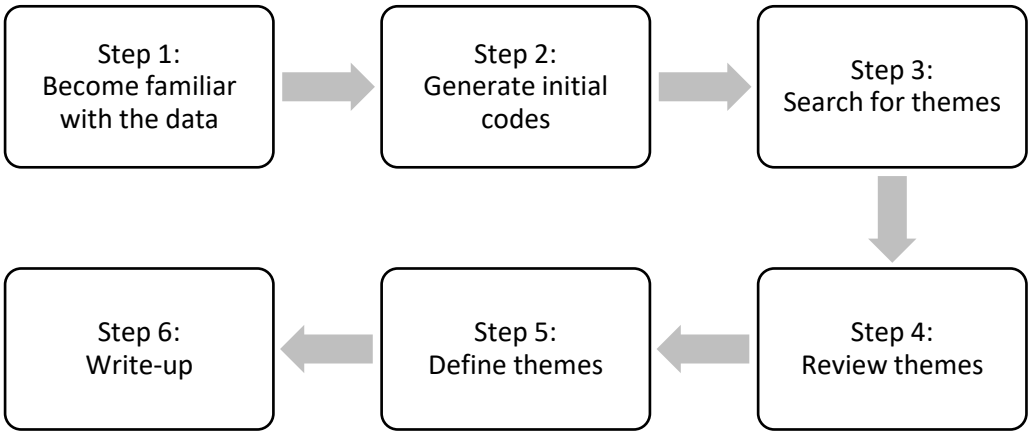
Participant Code	Gender	Field	Expertise
P1	Male	Researcher	Wellbeing with specific focus on physiology
P2	Female	Practitioner	Workplace wellbeing/spirituality
P3	Female	Practitioner	Psychology
P4	Female	Researcher	Paediatrics
P5	Male	Researcher	Learning disability nursing specifically with children and young people
P6	Female	Practitioner	Social Work
P7	Male	Researcher	Health Geography
P8	Male	Practitioner	Therapy with children and young people

MacKenzie *et al*. (2011) and Streiner *et al*. (2015) suggest experts need to be interviewed when forming a new definition of a construct. Brown, Abdallah and Townsley (2018) also interviewed practitioners (*n* = 26) when developing their indicators of adult wellbeing. As this scale is for young people's wellbeing, the number of experts interviewed was less than Brown *et al*. (2018) because young people need to be consulted in addition to experts (Lundy *et al*., 2011). The study protocol gained institutional level approval and written informed consent was obtained from each participant before data was collected. Anonymity was assured via codes replacing participants' names. The cohort was determined through purposive sampling to ensure participants possessed the qualities needed for participation in this study: expertise in wellbeing (Tongco, 2007; Robinson, 2014).

4.2.2 Protocol and Data Analysis

Initially, participants were sent an invitation to interview via e-mail and an explanation as to why they had been invited. The information sheet of the study was also attached to the email (Appendix 11.3). If they expressed an interest in participating, a date, time and venue was agreed upon for the interview to take place. Participants were informed about the presence of a Dictaphone (Yamaha Pocketrak C24 Portable Recorder). This was used to record the interview which was then transcribed. The interviewer followed a semi structured interview guide (Appendix 11.4) to allow for flexibility with follow up questions (Bowling, 2014). Design of the interview guide was informed by a literature review. Interviews were carried out face to face (*n* = 6), over Skype call (*n* = 1) and over the phone (*n* = 1) due to geographical locations of participants. All participants who were interviewed face to face chose their place of work as the interview setting.

Following each interview full transcripts were generated and shared with the respective participant so they could confirm the content was representative of the interview. Riessman (1993) suggests that transcribing is an effective way for the researcher to familiarise themselves with the data. Once all eight interviews were transcribed, thematic analysis began to identify common themes within the interviewee's responses. Thematic analysis was chosen because it is flexible, has theoretical freedom and organises and describes data in rich detail (Braun & Clarke, 2006; Maguire & Delahunt, 2017). An inductive approach was taken so the themes were strongly linked to the data set. Braun and Clarke's (2006) six-phase framework (Figure 4.1) for thematic analysis was used to guide the research. Maguire and Delahunt (2017) regard it as the clearest approach to thematic analysis and Microsoft Excel was



used to undertake these stages as Bree and Gallagher (2016) advocate.

Figure 4. 1: An Adaption of Braun and Clarke's (2006) Six-Phase Framework for Doing a Thematic Analysis.

Step 1 – Become familiar with the data

Each transcript was read through three times to create familiarity between the researcher and the content (Braun & Clarke, 2006; Maguire & Delahunt, 2017). On the third read, a search for patterns of meaning and potential interests in the data began.

Step 2 – Generate initial codes

The key quotes were grouped together on a Microsoft Excel spreadsheet. There were no pre-set codes, and throughout the thematic analysis the codes were reviewed, modified and developed (Bree & Gallagher, 2016).

Step 3 – Search for themes

Key quotes were colour coded to indicate their relationship with other quotes. Once complete, each colour code was labelled with a theme name. A theme was identified if the key quotes captured something interesting, significant, or represented a level of pattern within the data set (Braun & Clarke, 2006; Maguire & Delahunt, 2017). If one quote was applicable to more than one theme, it was duplicated and added into both (Bree & Gallagher, 2016).

Step 4 – Review themes

The preliminary themes were reviewed and any quotes which did not have enough data to support them or were dissimilar in relation to the whole data set were removed (Maguire & Delahunt, 2017). The remaining themes were consolidated, and some themes were collapsed together to form one theme (Braun & Clarke, 2006). Codes which did not fall into a theme in stage three were reviewed again and either added to the relevant theme or removed. Any codes which did not represent something prevalent in the data were removed (Ibid). A few days later, the researcher came back to the data with 'fresh eyes' and reviewed and consolidated the data again. The final steps were often revisited as thematic analysis is often not a linear process (Ibid).

Step 5 – Define themes

Final refinement of the themes occurred with a critical friend (a supervisor), and they were then defined. If a theme had a sub theme, they were subsequently summarised. The results table (Table 4.2) shows this with a sample of relevant quotes. Step six (Write-up) is encompassed in the following results and discussion section of this chapter.

4.3 Results

Table 4.2 shows a summary of results including, a sample of direct quotes, codes, first order and final themes.

Table 4. 2 Results Table.

Examples of Direct Quotes	Codes	First Order Themes	Final Themes
• Wellbeing is an overarching construct that encompasses a number of different elements that matter in people's lives • It is a vague concept that it is difficult to get a hand on	Holistic Broad Multidimensional Ambiguous	Multi-dimensional	Holism
• Feeling healthy within yourself and feeling at ease with your own body and with your place in the world around you • It is about someone being in charge and in control of their own health	Internal Balance Control Individual	Intrinsic	Positive Feelings
• Wellbeing to me is about someone really flourishing in life so they are happy, they have good connections which may be to family, friends, pets or connected in the community so they are not isolated • People who are in work generally report better wellbeing than people out of work	Flourishing Purpose	Flourishing	
• Huge number of the things that contribute to wellbeing, contribute to happiness • Happiness is a kind of state which you attain every now and then. You are happy. Whereas wellbeing is more of a kind of constant state	Hedonia Happiness Short-term Emotion Desires		
• You could argue that someone might have a medical diagnosis can have very high wellbeing • People with underlying health conditions can still experience good wellbeing. People without them may not experience good wellbeing. They are not cause and effect with each other	Health Evaluation Control	Health	

• For me it is the absolute core that relationships, quality relationships • Isolation... just general connections and relationships, I think. Having a sense of control in your life	Connections Social interaction Isolation Purpose	Connections	External Influences
• I think it is relatively situation specific and so for both of those reasons, wellbeing will necessarily change over time • Some people who do not have a fixed abode, they are sofa surfing and we may think their situation is extremely difficult and how are they managing. But their wellbeing can be high, they could have lots of satisfaction and gain from other things in their life.	Context Situation Specific Influence Environment	Context	
• Every pound does not buy you an equal amount of happiness indefinitely so there comes a point at which increases in income don't actually buy you increases in happiness but at the bottom it definitely makes a difference • To the real basics of food and shelter, yes. I think it would be difficult to achieve wellbeing without those	Basic needs Diet Money Health Physical activity	Basic Needs	
• Things that make children feel good are probably going to be different to things that make older people feel good and like they are doing well • I think there is as much less external [with old age], it is a more internally defined thing...I have less bother about what other people think regarding what I wear for example	Development Fluid with age Priorities	Lifetime Development	
• Wellbeing is about the experience of what it is to feel good with your life • It is about how we experience our lives overall but also about the day to day and moment to moment moods and feelings that we experience	Experiential Experience		

4.4 Discussion

Current literature about wellbeing either fails to define it, loosely defines it, or describes it (Diener *et al*., 1999; Pouw & McGregor 2014; Tabor & Yull, 2018). The results of this study have split wellbeing into three themes: holism, positive feelings, and external influences. Each will be discussed as follows:

4.4.1 Holism

Much of the literature about wellbeing states that it is made up of many different dimensions making it a broad topic (Spence *et al*., 2011; Lijadi, 2018). Findings from the interviews support this:

> Wellbeing is an overarching construct that encompasses a number of different elements that matter in people's lives (P3)

> I imagine that wellbeing is made up of lots of different dimensions which contribute to how well you're doing (P4)

This supports Ryan and Deci (2011), Dodge *et al*. (2012) and Boyko *et al*. (2017) who have said that wellbeing is a complex, multi-faceted construct. Because of this, the term is often found to be 'fuzzy' (P3) or elusive (Bharara, Duncan, Jarden & Hinckson, 2019);

> It is a vague concept that it is difficult to get a hand on… often confused and wrapped up. (P1)

> It is difficult to define, and it is used in everything from shampoo to insurance policy. (P2)

This confusion provides a rationale to offer an evidence-based definition of wellbeing to combat its ambiguity. Ben-Arieh (2008) and McLellan and Steward (2015) suggest that an agreed definition of wellbeing is needed.

4.4.2 Positive Feelings

While discussing what contributes to wellbeing, participants discussed that it is an internal feeling which is linked to happiness and flourishing, leading to the conclusion that wellbeing is only concerned with positive feelings. This contradicts Diener and Suhs's (1997) conclusions which state that wellbeing is concerned with both negative and positive affect and can be presented as a continuum. Dodge *et al*. (2012) supports the notion that wellbeing is only concerned with positive affect as they argue that positive and negative affect are two separate dimensions.

Intrinsic

Wellbeing was conceptualised as a personal feeling, 'Feeling healthy within yourself and feeling at ease with your own body and with your place in the world around you' (P7). It is something individuals

have ownership of, and this feeling of control contributes to a greater sense of wellbeing, supporting the notion that wellbeing is subjective (Waterman *et al*., 2010; Dodge *et al*., 2012; Pouw & McGregor, 2014). P2 explained 'your wellbeing is yours, you can't give someone good wellbeing'. Having a sense of control over positive feelings seemed key to participant's having a good level of wellbeing. For example,

> Your ownership of how you feel and that you can make changes to feel better… being able to mentally control your mind and stay calm. (P8)

> It is about someone being in charge and in control of their own health. (P6)

This was linked to mindfulness by one participant (P8). Mindfulness relates to an individual being actively conscious of, aware of, and attentive to, their thoughts and feelings which Brown and Ryan (2003) argue promotes a good level of wellbeing. This can be explained by mindfulness increasing ones' awareness and ownership of self. The narrative around mindfulness supports the notion of intrinsic, control and ownership of feelings which participants discussed in relation to wellbeing. Both Pagnini *et al*. (2019) with a clinical population and Slutsky *et al*. (2018) with a healthy adult population found that a 6-to-8-week mindfulness intervention improves subjective wellbeing. How Slutsky *et al*. (2018) and Pagnini *et al*. (2019) assessed wellbeing though, was vague.

Flourishing

Seligman (2004), Dodge *et al*. (2012), Humberstone (2015) and Bowling (2017) have commented on the close link between wellbeing, flourishing and happiness. This link could be explained through their association to positive psychology, hedonia and eudaimonia, henceforth their inclusion in the theme 'Positive Feelings' (Deci & Ryan, 2008; Smith & Reid, 2017). This close link was reflected during the interviews with all participants discussing the topic happiness in relation to wellbeing, for example,

> There is a huge amount of cross-over. I really do, I think it is appropriate for the wider conversation about wellbeing to include aspects of happiness. (P6)

This cross-over means they are often used interchangeably (Dodge *et al*., 2012; Bowling, 2017; Goodman *et al*., 2017; Kelly, 2018). The interchangeable nature was explained through the two constructs being similar, '[a] huge number of the things that contribute to wellbeing, contribute to happiness' (P1). To differentiate the two constructs, Lyubomirsky (2009) links happiness to short-term emotions, which is supported by P1 and P8 who commented respectively on the short-term nature of happiness:

> Happiness is a kind of state which you attain every now and then. You are happy. Whereas wellbeing is more of a kind of constant state.

Happiness is momentary

Happiness was described as a 'rollercoaster' (P2) because it can change frequently which contrasts wellbeing's long term, more stable nature. This distinction is necessary as Bowling (2017) states that currently there is ongoing confusion and overlap between similar constructs to wellbeing, such as happiness and flourishing, which few authors distinguish between. Participants also discussed the term flourishing in relation to wellbeing.

> Wellbeing to me is about someone really flourishing in life. (P6)

> We think of wellbeing as being about flourishing and doing well across all the different aspects of your life. (P4)

This supports literature written by Ryan and Deci (2001), Dodge *et al*. (2012), Humberstone (2015), McLellan and Steward (2015), Goodman *et al*. (2017), Smith and Reid (2018) and Lijadi (2018) who have also discussed the term flourishing in relation to wellbeing. Dodge *et al*. (2012) stated that it is a synonym of positive psychology. Flourishing was described by P1 as:

> I think flourishing is about happiness, contentment, and agency. Of course, for different people it will mean different things. For different people, flourishing will relate to stability, financial stability and employment stability and those sorts of things but I wouldn't want to constrain it too much because some people don't desire that stability and absolutely flourish in their lives without.

The mention of individual differences is something that is threaded throughout wellbeing literature (Pouw & McGregor, 2014). Participants in this study felt that individuals need opportunities in life to feel as if they are flourishing, as it is something that occurs when individuals achieve:

> If one is in a position to be able to achieve what one is hoping to achieve, then I think there is at least opportunity for flourishing. Therefore, when one achieves some of those things then one might consider one's self to be flourishing (P1)

McLellan and Steward (2015) and Lijadi (2018) discuss the positive influence of education on flourishing. The opportunity for and quality of different experiences, such as education, can range across cultures, location, and economic status. However, these experiences are needed to stimulate positive feelings which ultimately influence wellbeing (Lijadi, 2018).

Health

Health is included in the theme 'Positive Feelings' as participants often referred to an individual's evaluation of their health, not their actual health. Control was highlighted by P6 as an important aspect when evaluating one's own health:

> It is about someone being in charge and in control of their own health… someone can have a diagnosis of mental or physical [ill-] health but still have really high and thriving wellbeing compared to someone with no diagnosis but very low wellbeing.

This was a common discussion point within the interviews which linked back to mindset. The argument that anyone can have a high level of wellbeing no matter what their health condition is, is supported by Tudor's (1996) Dual-Continuum Model of Mental Health seen in Figure 4.2. This also highlights that individuals with perfect health can have poor wellbeing.

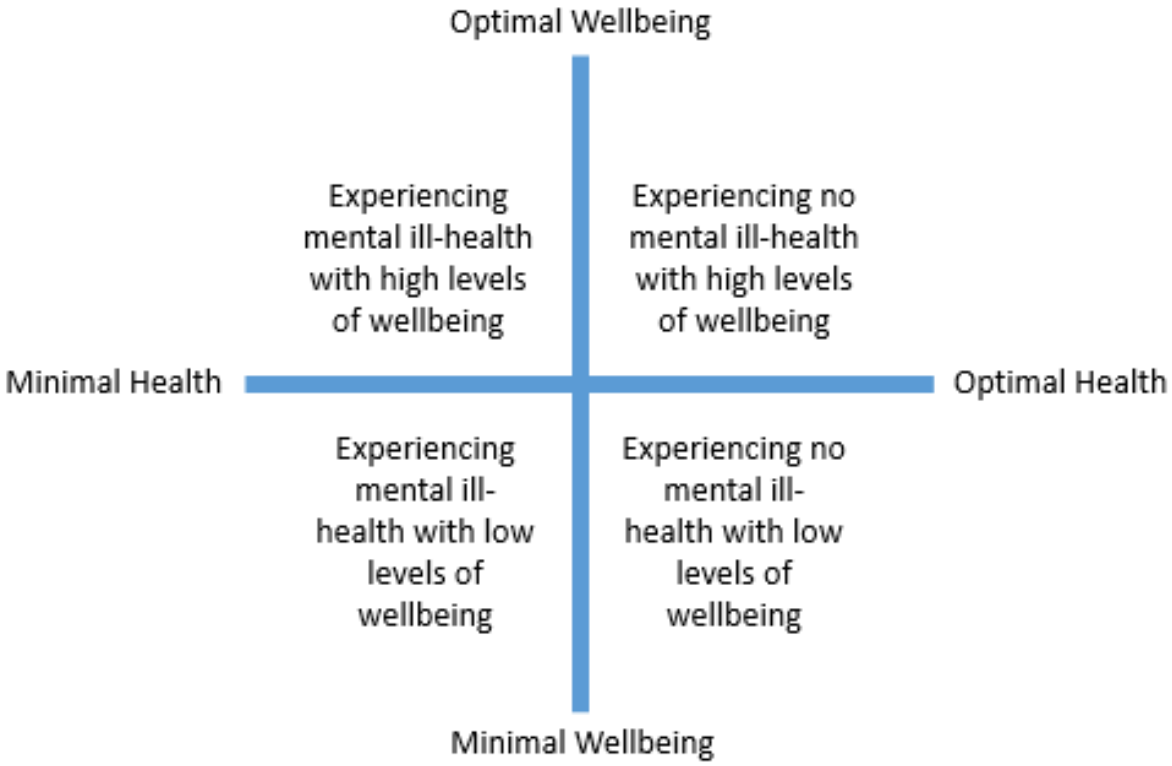


Figure 4. 2: The dual-continuum model of mental health (Tudor, 1996: Adapted).

The ideology that wellbeing is not concerned with individual's actual health, but their own internal evaluation of their health is reiterated in Figure 4.2. Therefore, 'health' is it a part of the theme of positive feelings.

4.4.3 External Influences

Many external events influence an individual's wellbeing, including connections with others, experiences, attainment of basic needs and development. It is important to highlight that although these external influences impact an individual's wellbeing, they will do so differently depending on what an individual values and prioritises. These external influences do not define wellbeing, they contribute to it (Seligman, 2012), but the interaction between these influences and our positive feelings define an individual's level of wellbeing.

Connections

Relationships with others is a prevalent topic in wellbeing literature, where its influence on wellbeing is acknowledged (Putnam, 2001; Ryan & Deci, 2001). The importance of having connections with others was reflected in the interviews:

> The emotional connection and the need to connect with other people. That is also a fundamental need [for wellbeing]. (P5)

> Some of the findings that we get that persistently come out is having a partner, having good relationships and having someone to rely on are some of the really important parts of wellbeing. (P3)

The emerging reason as to why participants identified this point is related to feeling loved and being cared for; 'feeling loved and connected and that you have people who care about you and that you can care about them' (P5). Wellbeing has also been conceptualised by children as being influenced by love and support from family within the development of the Good Childhood Index (Children's Society, 2006). This is also supported by Maslow's (1943) hierarchy of needs as the third level in this model is 'belongingness and love needs'. This includes social connections and relationships as a basic need which contributes to self-actualisation. Ryan and Deci (2001) included relationships as a basic need for all humans and Seligman (2012, p.20) also comments,

> When was the last time you laughed uproariously? The last time you felt indescribable joy? The last time you sensed a profound meaning and purpose? The last time you felt enormously proud of an accomplishment? Even without knowing the particulars of these highpoints in your life, I know their form: all of them took place with other people.

This statement implies that humans rely on connections with others to feel many different positive emotions. Without these connections, individuals can feel isolated. The interviewees showed the importance of having connections for wellbeing when discussing loneliness; 'I think a huge one is connection...if someone is isolated that can have a massive impact on their wellbeing' (P6) and 'Isolation and loneliness have a very negative link with wellbeing' (P3). Literature about isolation and loneliness shows that it has a large association with negative mental and physical health (Courtin & Knapp, 2017). Participants also related having connections to generating a feeling of purpose:

> The thing about relationships and the power of those relationships is also part of what gives you meaning and purpose in life and sometimes that is about shared purpose and sharing values and political or religious beliefs and sometimes it is just about sharing goals and we are sharing this together, doing this together. (P5)

Feeling a sense of purpose within a eudaimonic philosophy greatly contributes to a feeling of wellbeing (Deci & Ryan, 2008). One example participants gave, in addition to connections, was being employed: 'People who are in work generally report better wellbeing than people out of work' (P2). Work, in this

example, provides individuals with a sense of purpose contributing to a feeling of good wellbeing, as per a eudaimonic philosophy (Boyko *et al*., 2017). Employment does not directly relate to children, but Mata *et al*. (2012) has shown they gain a sense of belonging from being part of clubs at school which contributes to them having purpose (McLellan & Steward, 2015; Lijadi, 2018). Sport clubs had a bigger impact on sense of belonging than academic, music, creative, language and agricultural clubs. These findings were linked to suicide rates and Mata *et al*. (2012) concluded that extracurricular activities make a good intervention to decrease adolescent suicide risk.

Lifetime Development

Participants also identified that, with age, the experiences and values individuals have are likely to develop and change. This may cause the things which influence their wellbeing to also change;

> Things that make children feel good are probably going to be different to things that make older people feel good and like they are doing well. (P4)

One participant expanded on this to describe adults as 'self-contained' (P5), which is the biggest difference between adults and children, who are by nature dependent. As individuals age and grow to be independent, their priorities change due to life experiences. One participant commented: 'what impacts peoples wellbeing does change as people's priorities do. I suppose your core values may even change' (P6). An example of differences in priorities may be children valuing friendships, adults valuing their career path and elderly individuals valuing their health. Everyone would gain satisfaction from achieving their priority which ultimately influences the level of wellbeing they have. One participant, while reflecting on their own life and what gave them a good sense of wellbeing commented,

> If I think about my own personal experience, ten years ago I was wanting to go out with friends, and the Christmas rota… I used to be horrified at the thought of working on New Year and I'd rather work Christmas so I could have New Year off so I could go out with friends and socialise. Now, I'd quite happily stay in New Year and spend Christmas with my nana and my mum. (P6)

This anecdotal evidence highlights how an individual's values and priorities changing as they get older. Lifetime development is included in the theme 'external influences' because the experiences individuals want to have and their social norms change with age:

> Mortgages, careers, looking after children becoming parents, debt and all of those things are likely to happen in those ages [mid-life] and we know that they all have a big effect on wellbeing. (P3)

Age is linked to life experiences, social norms and priorities as they change as age increases. Age itself does not influence wellbeing but the changes in experiences, social norms and priorities do. Age is the agent for this change. This links to Blanchflower and Oswald's (2008) work where they present

wellbeing as a U-shape over a life cycle. Their explanation for this is that because mental distress reaches a maximum in middle age, happiness and life satisfaction are decreased (Ibid). These two factors are portrayed by Blanchflower and Oswald (2008) as constructs which have greatest influence on wellbeing, although wellbeing has not been clearly defined within the article. Findings in this study support the ideology that wellbeing is reduced during mid-life. This could explain why there is wealth of research around adult's wellbeing and several measures of wellbeing which focus on the adult population, not on the younger or older population.

Context

Results showed that experts conceptualise wellbeing as being context specific; 'Situation specific wellbeing… You might be asking them about their wellbeing, and they will respond in relation to the context they are in' (P1). If an individual is asked about their wellbeing, they may associate this consciously, or unconsciously, with their work life, home life or when with friends depending on what context they are asked in. Kelly (2018) also argues that wellbeing is contextual to the status of a population or an individual regarding illness and what strategies these individuals or populations have for maintaining good physical, psychological and spiritual wellness. Headey and Wearing (1992) however conclude that wellbeing is 'fairly stable'. In addition, a eudaimonic philosophy states that wellbeing is developed over time with personal growth and development (Waterman *et al*., 2010; Boyko *et al*., 2017). This suggests that it is mood which changes with context, not wellbeing. Alexandrova, (2017) argues that wellbeing is something which is self-evaluated meaning that the individual is the subject of that context, thus it is context specific to the individual. Other's evaluations of a different individual's wellbeing can be context specific though. For example, a doctor's evaluation of wellbeing will be in a different context to a friend's evaluation.

Basic Needs

Economic status can influence the experiences, quality of life and wellbeing an individual can have (Gardner & Oswald, 2007). This is supported by the expert sample with P1 suggesting that 'money influences wellbeing'. The importance of satisfying human wants however is arguably not important for wellbeing as wants are often concerned with short term, hedonic pleasure (Herath *et al*., 2017). Another layer to this argument highlighted by P3 is that money is an external influence on wellbeing, but its influence is not equally weighted:

> Every pound does not buy you an equal amount of happiness indefinitely, so there comes a point at which increases in income don't actually buy you increases in happiness but at the bottom it definitely makes a difference.

The term happiness here has been used interchangeably with wellbeing. The argument is supported by Alexandrova, (2017) who explains that the influence of money is relative to the individual and their overall income as individuals spend money within their means. Participants also identified that the environment, specifically housing, is an impacting factor on wellbeing for many different reasons:

> Housing is a massive one, even someone with permanent housing, if it is overcrowded, damp that will have loads of issues on their health and wellbeing. It could be in an area of high anti-social behaviour or crime rates which links into someone's feelings of safety so them feeling then isolated due to not linking with the community and going out. (P6)

Manning-Morton (2013) also reported the importance of the quality of housing for children's wellbeing. Good quality housing, as explained by P6, provides comfort, safety and a feeling of connection to the community. Maslow considers shelter as the one of the most important biological and physiological needs as it is part of the first level in his model (Maslow, 1943). Housing is important for everyone's wellbeing, but the value placed on its stability will differ between individuals:

> Some people who do not have a fixed abode, they are sofa surfing and we may think their situation is extremely difficult and how are they managing. But their wellbeing can be high, they could have lots of satisfaction and gain from other things in their life. (P6)

This highlights that an individual's value of the external influence is what affects their level of wellbeing, not the actual external influence itself. In summary of this theme:

> [Wellbeing] is about how we experience our lives overall, but also about the day to day and moment to moment moods and feelings that we experience. (P3)

Individual differences must be considered though as they were discussed in relation to wellbeing in every interview. This is reflected in literature where there are suggestions that wellbeing is subjective, (Waterman *et al*., 2010; Dodge *et al*., 2012), meaning two individuals in the same circumstances might perceive different levels of wellbeing. Wellbeing has been termed 'subjective wellbeing' within academic literature due to the belief it has a strong link to individual differences (Diener *et al*., 1999; Rees *et al*., 2010; White *et al*., 2017; Goodman *et al*., 2018; Mansfield *et al*., 2018; Testoni *et al*., 2018). All social research using human participants, including measurement of health, can be criticised for subjectivity and individual differences (Bowling, 2017). This is not unique to wellbeing. In addition to this, all the external influences on wellbeing will have a unique interaction with individuals. The

definition of wellbeing therefore needs to be open to individual differences which the two broad themes 'Positive Feelings' and 'External Influences' accommodate, tackling wellbeing's ambiguity.

4.3 Conclusion

The findings of this study have been organised into three themes, holism, positive feelings, external influences. In summary, wellbeing is multi-faceted and influenced by both positive feelings, such as happiness and evaluation of health, and external influences, such as connections and basic needs. Individual differences will influence the values placed on external influences. This makes defining a 'normal' level of wellbeing difficult (Dodge *et al*., 2012). Future research should develop these findings by consulting different populations; the need for this with young people has been highlighted in literature (Bharara *et al.*, 2019). The next stage of this thesis will use these findings as a framework to explore children's conceptualisations.

5.0 Understanding Young People's Conceptualisations of Wellbeing[4]

5.1 Introduction

There is growing concern about the wellbeing of children in the UK (Children's Society, 2006), mental health problems have increased over the last 20 years, with one in eight young people (5-19-year-olds), having a mental health disorder (NHS Digital, 2018 [online]). Adolescent's wellbeing is an area of policy interest (Alexandrova, 2017), and is gaining increasing attention, with it also being emphasised within the UN sustainable goals (United Nations, 2019 [online]). The question regarding what adolescent wellbeing is, however, has received no rigorous answer from scientists or philosophers (Alexandrova, 2017). Research into wellbeing has shown bias towards adults and has often not included young people. The importance of young people being involved in wellbeing research about their age group has been emphasised by governments worldwide (Bharara *et al*., 2019).

The definition of wellbeing remains unclear as researchers have been unable to agree what constitutes such a definition (Rees *et al*., 2010; Manning-Morton, 2013; McLellan & Steward, 2015; Goodman *et al*., 2017), although contributions to this debate remain frequent (Dodge *et al*., 2012; Pouw & McGregor, 2014; Tabor & Yull, 2018). Bharara *et al*. (2019) states that this lack of consensus is an 'impediment to the progress, as well as the precision, of wellbeing science' (p.1). High quality, relevant data, about children's lives can only be collected if children are incorporated into the decisions made within research (Lundy *et al*., 2011). Lees *et al*. (2017) argues that children have the right to have their views respected and therefore they should be engaged in research, this supports a person-based approach to the development of a new measure/intervention. Often this is not the case due to doubts in their maturity and literacy skills to participate meaningfully (Lundy *et al*., 2011). Without adolescents' perspectives involved in research, the measurement of their wellbeing and interventions to improve it will have weakened reliability and validity (Ibid). Understanding young people's conceptualisation of wellbeing is therefore worthy of investigation (Bharara *et al*, 2019).

The purpose of this study is to fulfil stage one of MacKenzie *et al* (2011) scale development framework, 'conceptualisation'. This is needed to inform the initial stages of the development of a scale to measure wellbeing in children because the measurement of a construct is influenced by the way individuals define it (McDowell, 2006). This means that once the scale is developed, it will be

[4] Findings from this chapter have been published within the International Journal of Wellbeing, accesses via: - **Gennings, E. K.,** Brown, H. J., & Hewlett, D. (2021). Constructing a definition: Adolescent wellbeing from the perspective of the child and expert. International Journal of Wellbeing, 11(1).

representative of, and applicable to, the relevant population. The aim this study is addressing is A1: to develop a definition of young people's wellbeing.

5.2 Methodology

5.2.1 Participants

Participants were identified through purposive sampling to deliberately choose participants who were aged between 11 and 16 (Tongco, 2007; Robinson, 2014). Scales to measure wellbeing have focused on adolescents aged 16 and over (Waterman *et al*., 2010; Tabor & Yull, 2018), highlighting a gap in younger people which this study aims to fill. One third of the global population are 5-18 years old, of which 20% face mental health issues (O'Connor *et al*., 2018). Covid-19 has increased the prevalence of poor mental health; YoungMinds (2020) reported in their sample of 2,438 British children that 67% believed the pandemic will have a long-term negative impact on their mental health.

Participant demographics are presented in Table 5.1. Stevens and Jarden (2019) argue there is strength in approaches which consider the youth voice in research regarding the conceptualisation of young people's wellbeing. The study gained institutional level ethical approval. Written and informed consent was obtained from the participant and their parent to ensure consent (see Appendix 11.5). Their identity was anonymised.

Table 5. 1: Participant Demographics.

	M	**F**	**Secondary School Year Group**				
			7	8	9	10	11
N	18	23	9	10	11	10	1

Abbreviations: M (male), F (Female)

5.2.2 Protocol

Schools and sports club organisers were initially contacted via email. The initial email included a brief about the study, the whole PhD and two information sheets were attached, one for the parents and one for the participants. The language used on the participant information sheet obtained Flesch Reading Ease Score of 64.6, this is considered standard and at a secondary school level of reading meaning the audience should understand the information presented (Spadaro, Robinson & Smith, 1980). When gatekeepers expressed an interest in having their school/sports club participate a date, time and venue was agreed upon for the interviews to take place. Participants, parents, and the teachers/sports club organisers were informed about the presence of a Dictaphone (Yamaha

Pocketrak C24 Portable recorder) which was used to record the interview. It was explained that the use of a dictaphone was to enable a transcript to be generated. Once the transcript was generated, all audio recordings were deleted.

Data was collected via focus group interviews to provide an insight and narrative into the attitudes, perceptions, and opinions of participants (Gibson, 2007). The interviews were semi-structured to help the interview take its natural course rather than controlling its direction which, in turn, Irwin and Johnson (2005) suggest helps build rapport. The interview guide can be seen in Appendix 11.6. Interviews were carried out face to face and were conducted in groups of three to four with a maximum of a two-year age gap between the oldest and youngest participant to help aid discussion (Gibson, 2007). First, the interviewees were briefed about the study and had the chance to ask questions. The interview included open ended questions and a ranking activity (see Appendix 11.6) Lundy *et al*. (2011) suggests that a ranking activity is an age appropriate exercise for children which increases their engagement in research. The young people were provided with 11 cards, presented in figure 5.1, which they were asked to rank in an order of high to low importance regarding the card's influence on good wellbeing. The content of the cards was constructed based on the findings from the expert interviews. The purpose of this was to understand if young people held the same importance over these topics as experts and Lundy *et al*. (2011) suggests this activity aids discussion, which it proved to do.

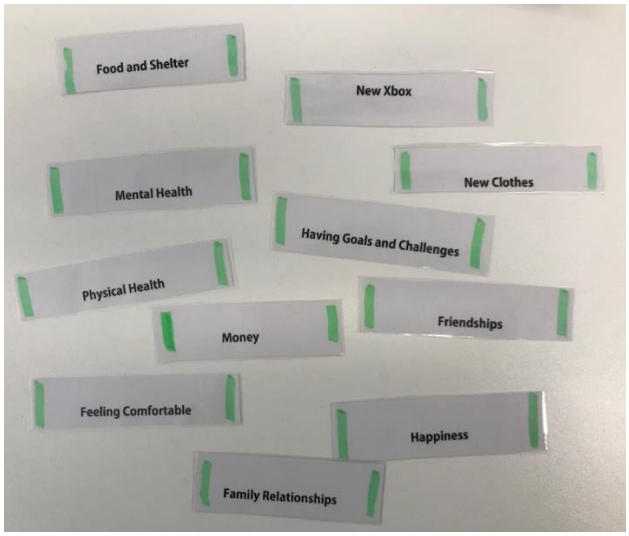


Figure 5. 1: Ranking Cards.

To assist the feeling of a natural setting, the interviews were carried out in a room decided by the organisation which the adolescents were associated with, for example a school classroom (Eder & Fingerson, 2003). The interviewer had a valid Disclosure and Barring Service certificate clearance.

5.2.3 Data Analysis

At the point of information saturation, data analysis begun. Transcripts were generated by the researcher after every interview which helped familiarise the researcher with the data (Riessman, 1993). Once all the interviews were conducted and transcribed, thematic analysis was undertaken. This was done in the same method as study one (section 4.2.2), using Braun and Clarke's (2006) six-phase framework of thematic analysis. The ranking data was also organised to show in which order the items were rated overall.

5.2.4 Development of Research Instruments

Both the questions on the interview guide, and items on the ranking cards, were chosen as they seemed central to wellbeing and were derived from the results of the interviews with experts and the review of literature from this thesis. Both the interview guide and ranking cards are presented in Appendix 11.6.

5.3 Results

Results from the interviews are presented in Table 5.2 which shows the codes, themes and category of data collected from interviews, in addition to a sample of quotes in each theme. Results from the ranking task are displayed in table 5.2 reversed average ranking order of each card.

Table 5. 2: Results Table.

Direct Quotes	Codes	First Order Themes	Final Themes
• Physical health, food and shelter and happiness… they kind of all just link together in the way that like when you do exercise it makes you feel happy • I think it is like the main thing you should focus on… you can't have one without the other. You can't have good physical health without good mental health or good mental health without good physical health	Interaction between Influences on Wellbeing	Interlinked	Holism
• You've got like your overall wellbeing but then you have like… if you break it down you have the wellbeing that you would have at school like during lessons and in break and kind of like then the wellbeing you have at athletics like how you're training how you feel and like how it is going?	Happiness	Interchangeable	
• Wellbeing is kind of how you're feeling and what you feel is very personal to you • It is different to every single person	Unique Individual	Personal	Positive Feelings
• If you aren't physically healthy, you won't feel good • Making sure you're ok whether that is physically or mentally	Feeling Ok Physical Health Mental Health Mind Set Happiness Care	Health	
• Having a set target for you to achieve is good because it gives you a fixed mindset on what you want • I think it helps with your motivation to get things done	Purpose Goals Focus of Attention Motivation to Achieve	Determination	

• Family relations and friendships anyone needs because otherwise you would feel a bit lonely • If you have good relationships with your parents and that they could improve your happiness as you can always talk to them about stuff	Loneliness Mood lifting Hobbies Connections Interactions Other's state	Social Interactions	
• It doesn't matter if you don't have any dads or you have two. You still need family relationships and friendships and happiness to truly thrive to any extent • I also think the environment of where you are also helps coz like quite a degrading place would give you bad wellbeing because it could promote bad actions and bad wellbeing. Say somewhere is full of happy people and in an all-round good place could kind of make you live better and have a good wellbeing	Family Set up Permanent Comfort Encouragement Parents Home environment Physical home Siblings	*Upbringing & Parental Dependence	External Influences
• When you're at school you could have like an anxiety because you think people will judge you if you get something wrong in class or if you aren't the best at sports, people better than you will judge you or not want you on their team so • It depends on how serious the situation is really… It could be something that sticks with you and then you could think 'oh am I really this?' or whatever and then it just like puts you down	Self Confidence Self-Acceptance Judgement Being Yourself Belonging Fitting in Social Media	*Acceptance & Judgement	
• Like an Xbox you don't really need it but you can have it just for like, to be a nice thing when you're sad maybe • I don't think you need loads of money but just some to support you and that	Nice Can be Essential Limited Effect	Material Goods	

*indicates themes which differentiate from study one.

During the interviews, participants were also asked to rank 11 cards in order of what was most to least important for their wellbeing. The ranking scores were reversed, and figure 5.2 shows how each item was valued, on average, by participants. The lowest score indicates the card which was ranked overall as least important to the young people (New Xbox) and the highest score symbolises the most important item for wellbeing (Mental Health).

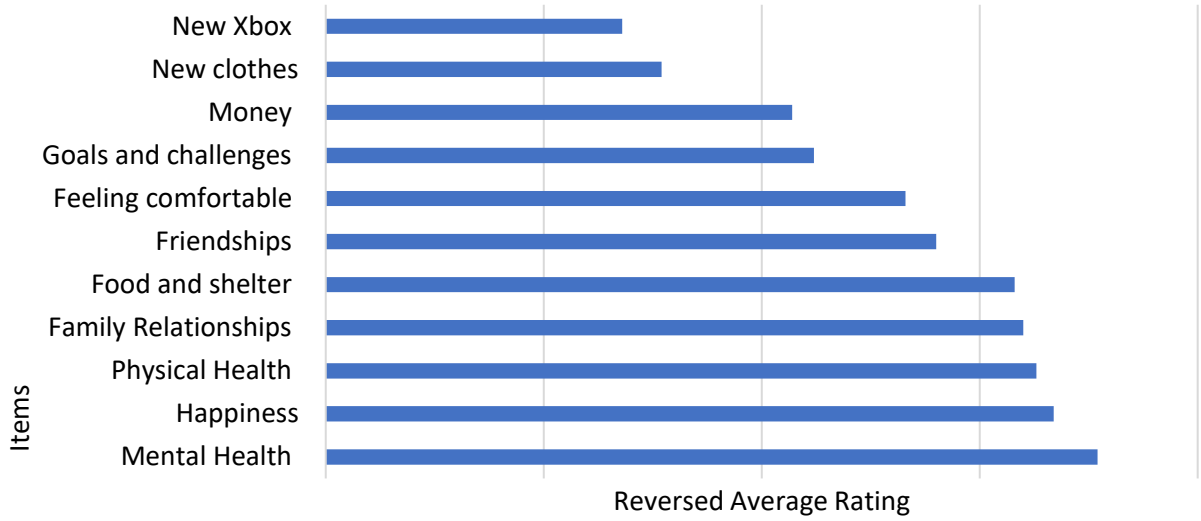


Figure 5. 2 Raw and Summary Data from the Ranking Activity.

5.4 Discussion

Whilst several definitions of wellbeing exist in academic literature, there is no agreed upon definition (Baker, Green & Falecki, 2017); young people's wellbeing specifically is under-investigated (Bhrarara *et al*., 2019). The purpose of this study was to explore young people's perceptions of wellbeing to support the development of a definition for their wellbeing. The results of this study have split wellbeing into three themes which reflect study one of this thesis: Holism, Positive Feelings and External Influences. These findings will also be compared to study one of this thesis.

5.4.1 Holism

It has been suggested that wellbeing is multidimensional within the context of adults (Huppert & So, 2013) and adolescents (Dunlop-Bennett, Bryant-Tokalau & Dowell, Anthony, 2019). Dunlop-Bennett and colleagues (2019) explored Samoan children's conceptions of wellbeing and their sample identified that wellbeing is multidimensional. Young people within this study also identified this and due to its multidimensional nature, wellbeing is often used interchangeably with other concepts, such as happiness and life satisfaction (Dodge *et al*., 2012; Bowling, 2017; Goodman *et al*., 2017; Kelly, 2018), which this study's findings also support.

Interlinked

The dimensions of wellbeing are interlinked (Spence *et al*., 2011; Lijadi, 2018). The young people interviewed easily identified this about wellbeing. During the ranking activity, many gave examples of how the constructs listed were linked. Figure 5.3 shows this, each line represents a statement from a participant linking the two constructs.

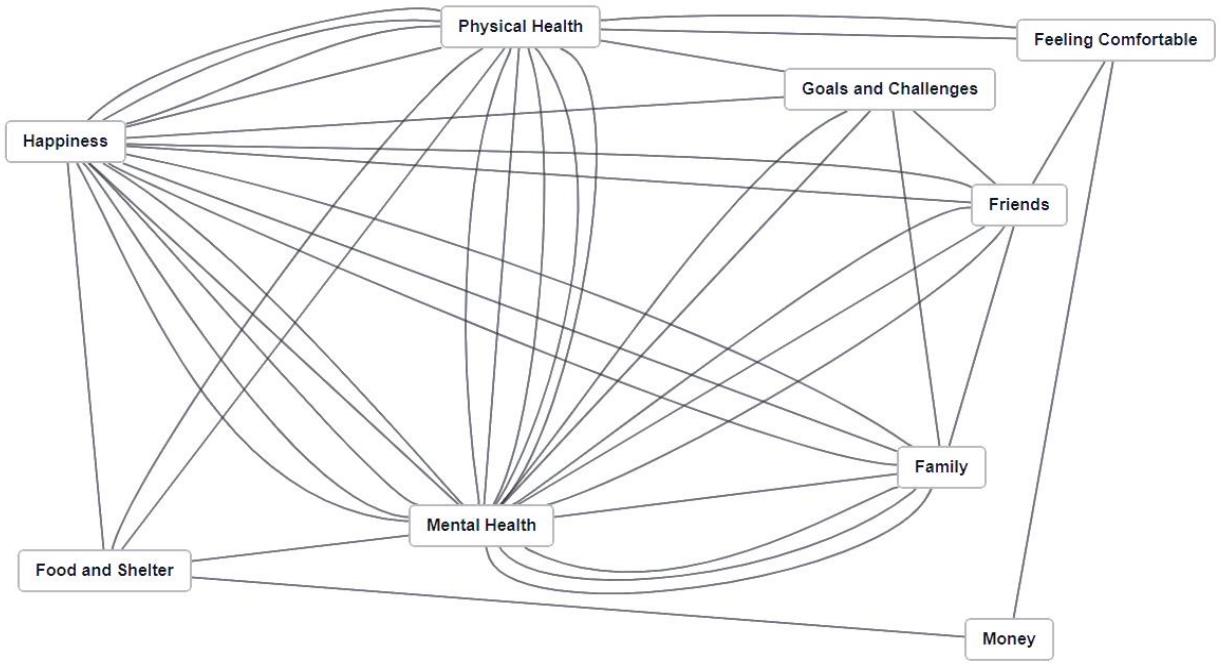


Figure 5. 3: Visual Representation of The Links Young People Identified Between Constructs.

Figure 5.3 shows that mental health was interlinked most with other topics; wellbeing is influenced greatly by mental health. The Word Health Organisation consider positive mental health as the foundation for wellbeing (World Health Organization, 2005). Galderisi *et al*. (2015) supports as they have defined mental health as,

> A state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (p. 231).

As the term wellbeing is used to define mental health, they must be strongly interlinked which figure 5.3 supports as it shows most cards were linked to mental health. The second most linked card in Figure 5.3 is 'happiness', potentially due to its similarities with mental health and positive psychology (Dodge *et al*., 2012; Kelly, 2018; Lijadi, 2018). An example of how the young people articulated the links between constructs is below:

> Happiness, friendships and family relationships… they all kind of linked in with each other… they effect both your mental and physical health

> Physical health, food and shelter and happiness… they kind of all just link together in the way that like when you do exercise it makes you feel happy

This finding supports what academics have confirmed in literature, but it has been articulated by a young person showing their awareness of this quality of wellbeing. As wellbeing is holistic and concerned with many other constructs, understanding wellbeing can be difficult, which is why it is often used interchangeably with constructs such as happiness and life satisfaction (Dodge *et al*., 2012; Bowling, 2017; Goodman *et al*., 2017; Kelly, 2018).

Interchangeable use of Wellbeing and Happiness

Happiness and wellbeing are often closely discussed in academic literature (Seligman, 2004; Humberstone, 2015; Bowling, 2017), due to their similarities regarding positive psychology (Deci & Ryan, 2008; Smith & Reid, 2017). The findings from both the ranking activity (Figure 5.2) and thematic analysis (Table 5.2) fit with existing knowledge, further evidencing the link between feeling happy and having a good level of wellbeing. Participants worked in pairs while ranking the cards so they could discuss the meaning of items and reasons for their order. Participants did show evidence of using 'wellbeing' and 'happiness' interchangeably, this could be due to their level of emotional literacy (Lundy *et al*., 2011). For example:

> I think you have short term wellbeing and longer term. So over time if you're going through a particular event say with your family that period your overall wellbeing might be different but a day that might change. You could be happier one moment than another

Using the terms 'wellbeing' and 'happiness' interchangeably is also an issue within academic literature and not exclusive to young people (Bowling, 2017). The reference to being happy 'on moment to another' fits the qualities of hedonia and happiness being the experience of short-term emotions, which change with day-to-day life events (Lyubomirsky, 2009). This lack of understanding between the constructs wellbeing and happiness does not mean young people's thoughts should be ignored but they should be considered in due weight (Lundy *et al*., 2011).

5.4.2 Positive Feelings

The following section discusses positive feelings that young people identified as good for and enhancers of wellbeing.

Personal

Participants identified that wellbeing is unique to everyone, 'I guess you're just yourself… It is different to every single person'. Individual differences are something prevalent throughout wellbeing literature (Pouw & McGregor, 2014). The definition of wellbeing therefore must allow for the notion

that specific influences on wellbeing will be unique to everyone. Stevens and Jarden (2019) state that wellbeing has core similarities between individuals. One participant stated:

> Even if, I prefer listening to one genre of music to my friend, we still both ultimately listen to music… Even if I have one method of dealing with it, the needs are ultimately come down to the same thing

This supports Stevens and Jarden (2019) as it shows that although influences on wellbeing are unique to individuals, it has core similarities between people, providing support that the definition of wellbeing needs to be all encompassing. Moreover, Bharara *et al*. (2019) studied conceptions of wellbeing with children aged 11 to 13 years old based in New Zealand. Bharara and colleagues used a prototype analysis to frame their results. A prototype analysis assumes that some components are more central and important to a concept, and others are considered peripheral as they are still important, but less so than the central (Rosch, 1975). This approach can be applied to Figure 5.3. showing that mental health, happiness and physical health, being the most linked up concepts, are the central components. The other constructs in figure 5.3 could be more individualistic and therefore the peripheral component, less so but still important.

Health

Feeling healthy was considered important for feeling a good sense of wellbeing, lack of health was regarded a bad feeling, 'If you aren't physically healthy, you won't feel good', hence it's inclusion in the theme 'positive feelings'. The word 'health' to participants meant a mixture of physical health, mental health and feeling generally ok, which table 5.2 shows. Although feeling good was deemed beneficial for wellbeing, one participant commented 'you could be severely disabled but as long as you're mentally healthy it can help you get through' which highlights that good mental health is more important for wellbeing than good physical health. The value of mental health over physical health was evident in the ranking activity, where mental health was continuously ranked first overall, compared to physical health ranking on average third (see figure 5.2), this is also the case in other research with young people (Children's Society, 2006).

Specific interventions to improve health like mindfulness were not discussed, even though there is evidence to suggest mindfulness can improve adolescent's wellbeing (Sanger, Thierry, Dorjee, 2019). Bharara *et al*. (2019) suggests that young people are uninformed about such interventions and have a greater understanding of more straightforward and visible pathways to enhance wellbeing. Findings showed that visible pathways such as family, friends and hobbies such as physical activity were often linked to improving mental and physical health, supporting Bharara *et al*. (2019).

Determination

Determination is in the theme positive feelings because it is an internal feeling described to benefit wellbeing. Goal setting was the tool which made participants feel determined because it resulted in them having a focus and being motivated to achieve:

> If you don't have anything to kind of like, lead you forward then I guess um… it gives you something to work towards… I think it helps with your motivation to get things done.

Goal setting is underpinned by motivation and one of its purposes is to direct attention (Lunenburg, 2011). Having a goal to achieve links to feeling a sense of purpose which is central to a eudaimonic philosophy (Waterman *et al*., 2010; Boyko *et al*., 2017). This is also reflected in Selgiman's (2004) PERMA model of wellbeing as 'optimism' is considered a key contributor to good wellbeing. Although having goals to generate individual's determination is important to wellbeing, the results from the ranking activity showed goals and challenges were not ranked to have high importance, as they were ranked eighth on average (see figure 5.2).

5.4.3 External influences

The following section highlights factors that young people identified as enhancers to wellbeing, which are external to the individual and generally uncontrollable, many include other individuals.

Social interactions

Participants felt being around others who were considered friends or family as important for wellbeing (Table 5.2). This was to reduce the feeling of loneliness, which has been shown in literature to be detrimental for wellbeing (Courtin & Knapp, 2017). Participants also highlighted that happiness can be transmitted from one individual to another; 'Attitude of other people… if someone else is in a bad state of mind it can sometimes rub off on other people'. Simply being around positive people is seen to be beneficial for wellbeing due to the influence of others' mood on oneself and vice versa (Povey, 2015). This finding is supported by Bharara *et al*. (2019) who found that more than half of their sample of 11 to 13-year-olds from New Zealand (N= 125) valued positive friendships and family relationships as enhancers of wellbeing. Social interactions are part of wellbeing models like Ryff's Six-Factor Model of Wellbeing (Ryff & Keyes, 1995), PERMA (Seligman, 2004) and the United Kingdom's 5-ways to wellbeing (Government Office for Science, 2008 [online]). Hobbies were also discussed within interviews as they provided the opportunity for young people to socially interact with others and provided a distraction from any bad happenings. The examples of hobbies discussed were sports, train spotting, drama and music (see Table 5.2). Sport featured most and was often linked to the physical

and psychological health benefits of participation and being outside but, more importantly the social interaction it promoted.

Upbringing and Parental Dependence

Family relationships were deemed more important than friendships due to the loyalty participants had to their family and the permanent nature of family. Dunlop-Bennett *et al*. (2019) also found that Samoan children valued 'spending time with family' and 'having family around' more than 'hanging out with friends' (p.109). Furthermore, 'spending time with family' was the only thing identified by their entire sample, highlighting its importance. The ranking data (Figure 5.2) shows that, overall, family relationships were rated fourth out of eleven regarding its importance to achieving a good level of wellbeing. Alike Bharara *et al*. (2019), family relationships were regarded as important, but not as important as other constructs like mental health. An explanation for this could be due to the age difference in samples (8 years old versus 11-16 years old), and the younger children in Dunlop-Bennett *et al*. (2019) sample being more dependent on their family.

Results also showed family set up did not enhance or hinder wellbeing, the things identified which enhanced wellbeing were links to encouragement to achieve goals from parents, comfort parents can provide and their contribution to participants' overall happiness (see table 5.2). This finding is supported by Bharara *et al*. (2019) who found 60% of their sample valued family relationships in relation to their wellbeing needs. The Children's Society (2006) found that young people valued the stability and security of the family environment in addition to the family structure. This could be because they surveyed a larger, more representative sample (*n* = 7000) of UK adolescents.

Acceptance and Judgement

Participants frequently identified that having self-confidence and being resilient was important for good wellbeing:

> Being mentally resilient and I guess not listening to people who think that they can like tell you bad stuff.

It was apparent however, that many of them did not have this self-resilience. The Children's Society (2006) found in their report that young people frequently discussed the negative impact of bullying and peer pressure on their wellbeing. Participants in this study similarly discussed the impact of other people's opinions about them:

> When you're at school you could have like an anxiety because you think people will judge you if you get something wrong in class or if you aren't the best at sports, people better than you will judge you or not want you on their team.

> At school you try and put a brave face on for everyone at times but at home it is different and no one is there to watch you.

Fear of judgement by others is not apparent in models of wellbeing such as Ryff's six-factor model of wellbeing (Ryff & Keyes, 1995) and PERMA (Seligman, 2004), or discussed in its underpinning theory. This suggests that young people have a different understanding of the concept wellbeing in comparison to adults. Adults are viewed as 'self-contained' individuals who are less likely to need the approval or acceptance of others. Acceptance by others relates to a sense of belonging and Ryff (1989) suggests that the importance of belonging reduces with age, meaning that is it less likely to feature on adult measurement scales of wellbeing. It was identified that acceptance from peers was important for feeling comfortable and having a good sense of wellbeing, 'if people accept you for being you then you are more likely to be more comfortable'. Arslan (2018) also found a positive association between belonging and wellbeing among adolescents.

Material goods

In alignment with academic literature (Children's Society, 2006; Dalziel *et al*., 2014; Alexandrova, 2017), young people understood that money and material goods are important to enable survival however, excesses of money and material goods were agreed to have a limited, if not no, impact on wellbeing.

5.4.4 Adults Conceptions of Wellbeing in Comparison to Young People's

Although children have the right to be consulted about their opinions, it should be recognised that there are limitations to this consultation, and their opinions will change as they grow older. This study's findings will therefore be discussed in relation to study one. There were three key differences between the conceptualisations of adults and young people's wellbeing. Young people's wellbeing was greatly influenced by acceptance of others and having resilience to cope with judgements placed on them. Adults are less self-conscious of other's opinions and judgements of themselves. In study one, it was commented,

> I have a different perspective on how I think about it [wellbeing] compared to how I did…. I have less bother about what other people think regarding what I wear for example. I remember when my kids had to have seen the right thing before they talked to their friends at school. So, for them to feel ok they need to be accepted by peers, fitting in and all of that is much, much stronger. When you're older there is a little more about life on my terms

This evidence provides support of having a scale to measure young people's wellbeing specifically which is based on data derived from the target population. Young people also frequently discussed the importance of their parents in making them feel well. As individuals mature, they become less

dependent, meaning reliance on others, such as parents, lessens. Adults were able to identify positive feelings beyond happiness such as flourishing, and the importance of that to wellbeing. Young people may not have the emotional literacy to identify what it feels like to flourish. Although, during focus groups they did describe scenarios which could be labelled as flourishing, for example:

> Having something to look towards and sometimes people, who struggle with their wellbeing or mental health is because they cannot see the clear path and having that can just guide you in some way.
>
> Having a set target for you to achieve is good because it gives you a fixed mindset on what you want.
>
> Having goals because that can make you happy when you achieve them.

These comments allude to young people wanting to have a purpose in life and achievement of this being linked to feeling good. Having purpose and feeling good when achieving something are qualities of flourishing. Dodge *et al*. (2012) stated that there are 39 varying definitions of flourishing between 1938 and 2000. Huppert and So (2013) concluded that features of flourishing included meaning, self-esteem and optimism, which are all identifiable factors in the quotations.

5.5 Limitations

During interviews one of the initial questions was 'What does the word wellbeing mean to you?'. Occasionally, participants said they did not know. Interviewing these young people about wellbeing then posed a challenge as the idea was to understand their views and opinions about a topic which they disclosed they did not know about. The interviewer did not comment on this to avoid biasing the interviewees opinions, also to not influence their own open-minded approach to the topic. Once these interviewees heard their peers discuss what wellbeing meant, they contributed more during the interview. With the finding's showing wellbeing was used interchangeably with happiness, this could explain the initial lack of understanding; alternatively, participants may have just been initially shy. This also infers not all young people are receiving education about wellbeing. A potential explanation for this is that because wellbeing is ambiguous, it makes it difficult to coherently educate others about what it is and its importance. This provides support for the need of clarification regarding what young people's wellbeing is. Future studies should also adopt a focus group method when interviewing young people as it enabled some participants to gain understanding on the topic and therefore, make meaningful contributions.

5.6 Conclusion

The need for a definition of adolescent's wellbeing has been highlighted in literature (Bharara *et al*, 2019). Findings have been organised into three themes, holism, positive feelings, external influences

which reflect the findings from study one of this thesis with an expert population. Although there are similarities between expert's and adolescent's conceptualisations of wellbeing, there are some key differences. This supports the rationale for the creation of an explicit definition of young people's wellbeing. Individual differences within the same population must also be considered as they were discussed in relation to wellbeing in every interview. This is reflected in literature where some authors have used the term 'subjective wellbeing' (Goodman *et al*., 2018; Mansfield *et al*., 2018; Testoni, Mansfield & Dolan., 2018; White *et al*., 2017; Rees *et al*., 2010) as an alternative to 'wellbeing'. All social research using human participants, including the measurement of health, can be criticised for subjectivity and individual differences (Bowling, 2017). This is not unique to wellbeing. The definition of wellbeing therefore needs to be open to individual differences which the two broad themes 'positive feelings' and 'external influences' accommodate, tackling wellbeing's ambiguity.

Adolescent's wellbeing is holistic, multi-faceted and influenced by both positive feelings, such as happiness and evaluation of health, and external influences, such as connections to others and judgements. Individual differences will influence the values placed on external influences of wellbeing. In conclusion, adolescent's wellbeing is defined as:

> A multifaceted perception of an interaction between an individual's positive feelings and external influences.

This definition is broad to encapsulate individual differences, but sill sets a parameter for what wellbeing is. 'Perception' relates to what the individual perceives of themselves. The term 'interaction' has been chosen to show that both positive feelings and external influences impact and affect each other. External influences and positive feelings alone do not define wellbeing but contribute to it, the interaction between external influences and positive feelings define an individual's level of wellbeing. This interaction is continuous and how an individual perceives this interaction defines their level of wellbeing. An example within the context of this study is that the external influence 'social interaction' and the positive feeling 'determination' will both impact each other. If one is feeling determined, this may impact their social connection to others vice versa. The perception an individual has over this interaction defines their wellbeing.

The proposed definition is based on adolescent's conceptualisations of wellbeing, supported by a sample of expert's conceptualisations. The definition has had support from the wider academic community whereby it is published within the International Journal of Wellbeing (Gennings *et al.,* 2021). This definition should only be applied to the population of British adolescents aged 11 to 16 as this is where it was developed. Future research should consult with different populations to make a definition of wellbeing specific to the population.

6. Development of the Winchester Children's Wellbeing Scale

6.1 Introduction

To develop and validate a scale, research should follow evidence-based scale development procedures to inform and guide decision-making and protocols. Mackenzie and colleagues (2011) produced a 10-step framework for developing and validating scales. So far, this thesis has addressed stage one. The purpose of this chapter is to fulfil stages two to four of this scale development framework. These stages focus on translating underpinning theory into a comprehensive and rigorous scale which will then be piloted with the relevant population. Within this chapter, subscales are defined, items are developed and assessed for content validity, and the measurement model is specified. The aim of this chapter is to address A2: Develop a scale to measure young people's wellbeing.

6.2 Generating the Item Pool

The aim of this stage was to identify sub-scales and generate appropriate items to measure wellbeing by following on from the research in chapters four and five of this thesis, deducting from existing literature, as well as taking a collaborative approach to generating items. Boateng *et al*. (2018) considers a combination of inductive and deductive methods best practice for generating a pool of items. This helps generate a pool of representative items which encapsulate all aspects of the construct and the lived experience of participants (MacKenzie *et al*., 2011). Due to the expected extraction of items in the latter stages of scale development and validation, a large pool of items should be generated. Guidance on this is mixed, with the suggestion of developing twice as many items (Kline, 2000) to five times as many items (Schinka, Velicer & Weiner, 2013) as needed on the final scale. Subscales need ≥ 3 items to be represented in the final scale to encapsulate the subscale and ensure the construct is being assessed (Carpenter, 2018).

6.2.1 Methodology: Subscale Development

The subscales were derived from the themes and sub-themes identified in chapters four and five because they reflect the lived experiences of the young people and experts consulted. Chapters five concluded that wellbeing was the perception of an interaction between an individual's positive feelings (e.g., happiness, determination) and external influences (e.g., family, judgement from peers). Subscales derived from these themes were defined using criteria outlined by Podsakoff, MacKenzie and Podsakoff (2016) regarding construct definition development. The subscales were: Health (He), Flourishing (F), Determination (D), Happiness (Ha), Judgement (J), Family (Fa) and Friendships (Fr).

Definitions of the subscales are presented in Table 6.1 and were scrutinised by a critical friend (a supervisor).

Table 6. 1: Subscale Definitions.

Sub-Scale	Definition
Health	Perceptions of feeling well within one's self
Flourishing	Perception of accomplishment from achieving goals
Determination	Perceptions of drive to achieve personal goals
Happiness	Perceptions of momentary pleasure
Judgement	Perceptions of being viewed negatively by others
Family	Perceptions of comfort afforded by parents
Friends	Perceptions of feeling connected to others

6.2.2 Methodology: Item Generation

Participants

Purposive sampling was used to recruit participants who were experts in the field of wellbeing and/or scale development. Participants were contacted via email to introduce the study and to ask if they were interested in participation. Upon expression of interest, information regarding participation was shared and informed consent was obtained. A mixture of scale development (n = 3) and wellbeing experts (n = 3) took part in the scrutiny of subscales and the generation of items to fulfil Step 2 of MacKenzie and colleagues (2011) scale development framework. The researcher and supervisors also participated in item generation.

Procedure

A 'scale development day' was hosted at the University of Winchester. Prior to this day, participants were sent a document which included the definition and characteristics for each subscale and were instructed to scrutinise the document (Appendix 11.7). The day began with a discussion of the subscale definitions and characteristics. Once agreement was held over subscale definitions and characteristics, the overarching anchor of the scale was discussed, followed by how many points would be on the Likert scale, as well as the adjectives used.

Next, items which represented the sub-scale were discussed and developed using Ostrom's ABC Model (affective, behavioural, cognitive) as a framework (Ostrom, 1986). This model was utilised so participants, while completing the scale, would reflect on three broad categories of assessment, including cognitive evaluations, affective states, and psychological functioning, to provide an accurate

evaluation of their wellbeing (Giles *et al*., 2020). A collaborative approach was adopted to develop items because a high level of item removal is expected upon factor analysis (DeVellis, 2016). One subscale was focused on at a time. Using a board at the front of the room, the subscale definition and characteristics were displayed; participants called out items which they thought related to the subscale and bounced ideas off each other. Items which were called out were recorded on the board so participants could see all collated items (see Figure 6.1 for an example of two subscales). At the point of idea saturation, focus was moved onto another subscale.

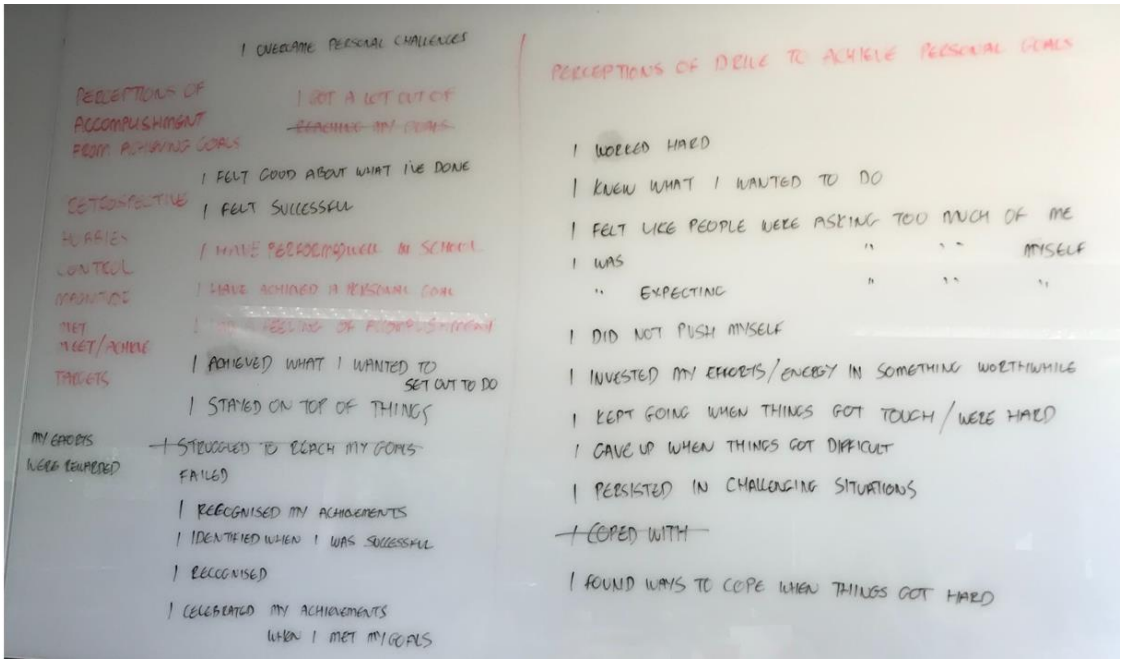


Figure 6. 1: Picture from the scale development day of the item development for the subscales *Flourishing* and *Determination.*

After the scale development day, items were refined by the researcher to ensure they fitted with the overarching anchor, and there was a balance of items which reflected the ABC model. These items were shared with a critical friend (a supervisor) who reviewed and discussed the items with the researcher.

6.2.3 Results: Subscale Development and Item Generation

Amendments to the definitions suggested on the item development day can be seen in Appendix 11.8, where red text indicates changes. A few questions were asked about why the subscales were defined as they were. These questions were satisfied with an explanation that subscales were defined within the context of the data collected from chapters four and five. The suggestions included the word perception being consistently plural, the definition for family impact to include carers, and the characteristics of flourishing to include a reference to wider society, all of which were accepted.

The overarching anchor 'over the past month I…' was agreed upon as it reflected the underpinning theory that wellbeing is relatively stable over time. A 5-point Likert scale was chosen as research suggests it to be understood by young people (Coaley, 2010) and it reflects existing literature (The Children's Society, 2008; Clarke *et al*, 2011; Liddle & Carter, 2015; McLellan & Steward, 2015). Next, the adjectives used on the measurement scale were discussed. After reviewing the work of Vagias (2006), the adjectives: *Never, rarely, sometimes, often, always* were suggested because they are simple adjectives that describe frequency of occurrence. This was agreed upon by the group.

Appendix 11.9 shows the final items developed (*n* = 134) and the ABC component they reflect. There were more positive items developed for two reasons. First, the underpinning theory is that wellbeing is only concerned with positive emotions (Dodge *et al*., 2012), and second, if respondents completed a negatively worded scale with high ratings, they may feel dissatisfied once the scale was completed.

6.3 Content Validity of Items

Step 3 of MacKenzie and colleagues (2011) scale development framework is to assess the content validity of items developed in Stage 2. Content validity is a vital part of scale development because it evidences the degree to which an instrument has an appropriate and representative sample of items for the construct being measured (Polit & Beck, 2004). Lynn's (1986) Content Validity Index (CVI) was adopted and resulted in both a score for the representativeness of the overall scale (S-CVI) and individual items (I-CVI) (Polit & Beck, 2006). The aim of this stage was to remove items from the scale which did not represent the construct from the perspective of experts and the target population, 11-16-year-olds.

6.3.1 Methodology

Participants

Lynn (1986) suggests between 3-10 raters should be consulted for the assessment of content validity. Two groups of participants undertook the assessment of content validity. MacKenzie *et al*. (2011) highlights that participants need the 'sufficient intellectual ability to rate the correspondence between the items and the theoretical definitions' (p.306). Therefore, Group 1 (*n* = 6) were experts in the field of wellbeing or scale development, defined as publishing within that field for > 5 years. Experts were recruited via purposive sampling to ensure they had relevant expertise and that they were independent from the group who developed the item pool. To make this stage relevant to the target population, a second group was included in the CVI. Group 2 (*n* = 6) consisted of young people aged 11-16 years. These participants were a convenience sample as their parents were all known

connections to the researcher. This method of sampling was chosen due Covid-19 and the restrictions of lockdown beginning in England.

Procedure

An initial email was sent to potential participants in group one with the information sheet for the study (Appendix 11.10). If an expression of interest was received, the participant was sent the consent form and the CVI form (Appendix 11.11). Participants were required to rate each individual item's representativeness of its subscale definition. Ratings were on a 4-point scale: 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, 4 = highly relevant (Davis, 1992). Once the forms were analysed and the low scoring items removed, the form was sent to group two. Parents of the young people were contacted via social media with an information sheet about the study (Appendix 11.12). If the parent and child were happy to participate, the consent form was sent to the parent for both parent and child to read and sign, along with the CVI form for the child to complete (Appendix 11.13). Forms were sent out to group two after the first round of analysis to reduce participant burden, because the initial CVI Form was long, and there was a need to ensure the reliability of group two's responses. Once group two completed the forms, the same analysis was conducted, and low scoring items removed.

Analysis

The I-CVI Score was calculated via the following equation (*n* = total number of raters):

$$\frac{\sum (Ratings\ of\ 3 + Ratings\ of\ 4)}{n}$$

The S-CVI Score was calculated via the following equation (X = total number of items):

$$\frac{\sum I - CVI\ Scores > 1}{x}$$

Accepted I-CVI scores were ≥0.79 and any items with a score below this were removed from the scale (Lynn, 1986). A score of ≥0.8 was considered acceptable for the S-CVI (Polit & Beck, 2006).

Results

The content validity index removed 87 items, leaving each subscale with ≥ 5 items for the pilot. Total I-CVI Scores are presented in Table 6.2 and 6.3 for the category's positive feelings and external influences, respectively. Items in bold were retained as their I-CVI score was ≥ 0.8 (Polit & Beck, 2006).

Table 6. 2: Total I-CVI Scores for Sub-scales within the Positive Feelings Category.

Codes	Item	I-CVI Score
D5	**Felt determined to achieve a goal**	**0.92**
D1	**Put in effort towards a task**	**1.00**
D3	**Invested my efforts in something worthwhile**	**0.83**
D4	**Kept going when things got tough**	**0.83**
D2	**Kept going when things were too hard**	**0.83**
D6	Gave up when things got difficult	0.58
D7	Remember giving up on a goal	0.67
F5	**Felt good about what I've done**	**0.83**
F9	Felt successful	0.75
F10	Felt bad about what I achieved	0.42
F1	**Overcame personal challenges**	**0.83**
F11	Have achieved a personal goal	0.75
F2	**Have had a feeling of accomplishment**	**0.83**
F7	**Achieved what I set out to do**	**1.00**
F8	**Stayed on top of things**	**1.00**
F12	Had my efforts rewarded	0.75
F4	**Identified when I was successful**	**0.83**
F13	Celebrated my achievements	0.67
F6	**Recognised my achievements**	**0.92**
F9	**Recognised when I was successful**	**0.92**
F3	**Remember celebrating my achievements**	**0.83**
Ha1	**Felt happy**	**0.92**
Ha6	Felt unhappy	0.42
Ha5	**Did things that made me happy**	**0.92**
Ha2	**Did things that made me feel good**	**0.92**
Ha4	**Found enjoyment in things**	**0.92**
Ha7	Did something that made me unhappy	0.58
Ha3	**Recognised moments that made me happy**	**0.92**
He10	**Felt well within myself**	**0.83**
He9	**Felt physically fit**	**0.83**
He5	**Felt well rested**	**0.92**
He6	**Felt positive about myself**	**0.83**
He2	**Felt physically able to complete tasks**	**0.92**
He4	**Felt comfortable with how much physical activity I do**	**0.83**
He11	Felt stressed	0.58
He3	**Had a positive attitude**	**0.83**
He8	**Had lots of energy**	**1.00**
He12	Had a lack of energy	0.58
He7	**Remember feeling physically healthy**	**0.92**
He1	**Remember feeling mentally well**	**0.92**

*Bold indicates items which were not removed.

Table 6. 3: Total I-CVI Scores for Sub-scales within the External Influences Category.

Codes	Item	I-CVI Score
Fa2	**Felt comfortable at home**	**1.00**
Fa5	**Felt encouraged by my family**	**0.93**
F3	**Felt safe at home**	**1.00**
Fa6	**Felt my family were there for me when I needed them**	**0.92**
Fa4	**Felt like my family listened to me**	**0.83**
Fa8	Felt uncomfortable around my family	0.5
Fa9	Got on with my family	0.75
Fa10	Argued with my family	0.58
Fa7	**Felt supported by my family**	**0.93**
Fa11	Remember when my family comforted me	0.75
Fa1	**Remember when my family supported me**	**0.83**
Fa12	Did not see my family as much as I would have liked	0.42
J1	**Felt accepted by others**	**0.83**
J7	Felt like I could be me	0.75
J4	**Felt like I belonged**	**0.92**
J8	Felt judged by others	0.75
J5	**Was able to be myself**	**0.92**
J6	**Could be myself around others**	**0.92**
J2	**Was confident in being myself around others**	**0.83**
J9	Tried to get people to like me	0.75
J10	Was accepted by others for being me	0.75
J3	**Was worried about what other people thought of me**	**0.83**
J11	Was hurt by what people said about me	0.75
J12	Took peoples comments personally	0.67
J13	Kept thinking about what others said about me	0.75
J14	Remember thinking people didn't like me	0.58
J15	Remember acting differently to fit in	0.67
Fr3	**Felt like part of a group**	**0.92**
Fr13	**Felt like I could trust others**	**0.92**
Fr8	Felt lonely	0.75
Fr4	Felt reluctant to talk to others	0.67
Fr9	Felt reluctant to reach out to others	0.58
Fr2	**Found the time to talk to friends**	**0.83**
Fr1	**Spent time with friends**	**1.00**
Fr11	Talked to other people about my problems	0.67
Fr10	Had my mood lifted by others	0.67
Fr5	**Had others make me feel good about myself**	**0.83**
Fr6	Had support when I needed it	0.67
Fr12	Did not enjoy spending time with others	0.50
Fr7	Remember feeling connected to others	0.67

*Bold indicates items which were not removed.

6.4 Specifying the Measurement Model

Specification of the measurement model needs to occur so the meaning of results and direction of causality can be understood (Jarvis, MacKenzie & Podsakoff, 2003). Bagozzi (1981) describes this as something that must be done prior to analysis. Bollen and Lennox (1991) highlighted that the traditional methods for assessing construct reliability and validity (i.e., factor analysis and structural equation modelling) are not suitable for measures where the direction of causality flows from the items to the latent construct. Without formally specifying the measurement model prior to analysis, the direction of causality between a latent construct and its measures could be mis-specified leading to inaccurate conclusions about the structural relationships between items and constructs (Jarvis *et al*., 2003).

Unidimensional measurement models need to be classified as formative or reflective. A model is formative when causality flows from the latent construct to the items and the construct is a linear combination of its measures, plus error (Jarvis *et al*., 2003). A model is reflective when causality flows from the items to the latent construct and the construct is a perfect linear combination of its measures (Ibid). Multidimensional models can be classified as either reflective, formative, or a combination of both. The aim of this stage was to identify the type of measurement model the scale is so the appropriate analysis of reliability and validity can be selected.

6.4.1 Methodology

Procedure

To determine the measurement model, Jarvis and colleagues (2003) framework of 'Decision Rules for Determining Whether a Construct is Formative or Reflective' (p.203) was used.

Results

The Winchester Children's Wellbeing Scale is a reflective model which Figure 6.2 demonstrates.

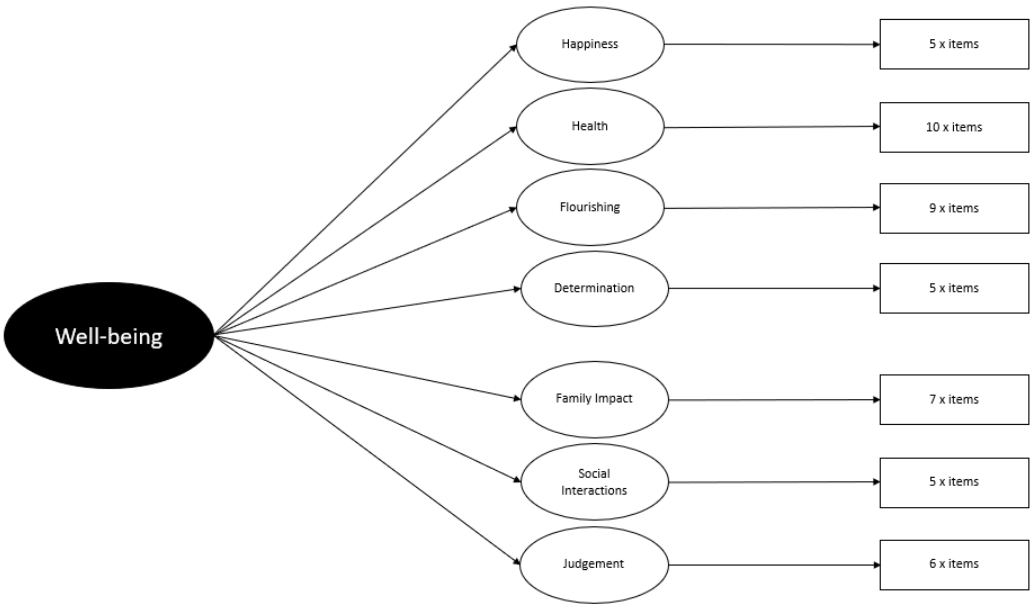


Figure 6. 2: Nomological Net of The Winchester Children's Wellbeing Scale.

Figure 6.3 shows the decision-making process, with red circles illustrating the selection process and that the first order relationships fall mostly on the reflective model column of the decision-making rules (Jarvis *et al.,* 2003).

DECISION RULES FOR DETERMINING WHETHER A CONSTRUCT IS FORMATIVE OR REFLECTIVE

	Formative model	Reflective model
1. Direction of causality from construct to measure implied by the conceptual definition	Direction of causality is from items to construct	Direction of causality is from construct to items
Are the indicators (items) (*a*) defining characteristics or (*b*) manifestations of the construct?	Indicators are defining characteristics of the construct	Indicators are manifestations of the construct
Would changes in the indicators/items cause changes in the construct or not?	Changes in the indicators should cause changes in the construct	Changes in the indicator should not cause changes in the construct
Would changes in the construct cause changes in the indicators?	Changes in the construct do not cause changes in the indicators	Changes in the construct do cause changes in the indicators
2. Interchangeability of the indicators/items	Indicators need not be interchangeable	Indicators should be interchangeable
Should the indicators have the same or similar content? Do the indicators share a common theme?	Indicators need not have the same or similar content/indicators need not share a common theme	Indicators should have the same or similar content/indicators should share a common theme
Would dropping one of the indicators alter the conceptual domain of the construct?	Dropping an indicator may alter the conceptual domain of the construct	Dropping an indicator should not alter the conceptual domain of the construct
3. Covariation among the indicators	Not necessary for indicators to covary with each other	Indicators are expected to covary with each other
Should a change in one of the indicators be associated with changes in the other indicators?	Not necessarily	Yes
4. Nomological net of the construct indicators	Nomological net for the indicators may differ	Nomological net for the indicators should not differ
Are the indicators/items expected to have the same antecedents and consequences?	Indicators are not required to have the same antecedents and consequences	Indicators are required to have the same antecedents and consequences

Figure 6. 3: First Order Decision Making Process.

To explain figure 6.3, within the first order relationship between the latent construct (wellbeing) and subscales, the direction of causality is concluded to be from the subscales to wellbeing, as wellbeing is conceptualised as a perception of all these things. The subscales do not define wellbeing, they

embody what young people said influenced their overall wellbeing. As wellbeing is the perception of all these different subscales, changes in wellbeing are caused by changes in the subscales. The subscales are not interchangeable as they are independent and measure different dimensions of wellbeing. They do, however, share a common theme, that is either positive feelings or external influences. As a result, dropping one subscale should not alter the conceptual domain of wellbeing. As the subscales fit into two themes, they are expected to covary. The definition of wellbeing states that these subscales interact with each other, so subscales are expected to have the same consequence, which is an alteration to overall wellbeing.

Next, the second order relationships between the subscales and items will be addressed. Figure 6.4 shows the decision making for the second order, with red circles illustrating the selection process.

DECISION RULES FOR DETERMINING WHETHER A CONSTRUCT IS FORMATIVE OR REFLECTIVE

	Formative model	Reflective model
1. Direction of causality from construct to measure implied by the conceptual definition	Direction of causality is from items to construct	Direction of causality is from construct to items
Are the indicators (items) (*a*) defining characteristics or (*b*) manifestations of the construct?	Indicators are defining characteristics of the construct	Indicators are manifestations of the construct
Would changes in the indicators/items cause changes in the construct or not?	Changes in the indicators should cause changes in the construct	Changes in the indicator should not cause changes in the construct
Would changes in the construct cause changes in the indicators?	Changes in the construct do not cause changes in the indicators	Changes in the construct do cause changes in the indicators
2. Interchangeability of the indicators/items	Indicators need not be interchangeable	Indicators should be interchangeable
Should the indicators have the same or similar content? Do the indicators share a common theme?	Indicators need not have the same or similar content/indicators need not share a common theme	Indicators should have the same or similar content/indicators should share a common theme
Would dropping one of the indicators alter the conceptual domain of the construct?	Dropping an indicator may alter the conceptual domain of the construct	Dropping an indicator should not alter the conceptual domain of the construct
3. Covariation among the indicators	Not necessary for indicators to covary with each other	Indicators are expected to covary with each other
Should a change in one of the indicators be associated with changes in the other indicators?	Not necessarily	Yes
4. Nomological net of the construct indicators	Nomological net for the indicators may differ	Nomological net for the indicators should not differ
Are the indicators/items expected to have the same antecedents and consequences?	Indicators are not required to have the same antecedents and consequences	Indicators are required to have the same antecedents and consequences

Figure 6. 4: Second Order Decision Making Process.

Figure 6.4 highlights that the items of the WCWS do not define wellbeing, they embody the characteristics identified in chapters four and five which influence the wellbeing of young people. Changes in individual items should cause changes in the sub-scales, which in turn cause changes in the overall construct, as wellbeing is defined by the perception of these. As wellbeing is an interaction of all of this, changes in wellbeing are expected to influence other items. Items should be interchangeable within their subscale as they share a common theme (the subscale definition). Dropping one item should not alter the subscale. Items are expected to covary within their subscale and to have the same consequence, alteration of the overall subscale.

Overall, because the model is reflective at both first and second order, it is suitable for assessing via factor analysis (Jarvis *et al*., 2003).

6.5 Conclusion

The scale developed was derived using both an inducive and deductive approach. A collaborative approach was adopted to develop an initial pool of items which were subsequently assessed for content validity. Items were removed due to having low item content validity and the subsequent item pool contained 47 items. The scale was identified as suitable for reliability and validity analysis as the model was classified as reflective (Jarvis *et al*., 2003).

7. Validation of the Winchester Children's Wellbeing Scale

The Winchester Children's Wellbeing Scale (WCWS) included a range of 5-9 items per subscale and comprised of seven factors, including: Health (He), Flourishing (F), Determination (D), Happiness (Ha), Judgement (J), Family (Fa) and friends (Fr). This chapter reports the factoral analysis of the WCWS and covers stages five to eight of MacKenzie and colleagues (2011) scale development framework. Factor analysis is a sub-set of structural equation modelling whereby relationships between variables are examined (Tabachnick & Fidel, 2001). This enables the researcher to identify groups of variables to help understand the structure of a questionnaire (Humble, 2020). A factor analysis consists of two stages: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA; Humble, 2020). An EFA explores relationships within a data set and the CFA identifies the fit of data to a pre-specified model. This chapter reports both the findings from the EFA and CFA. The aim of this chapter is to address, A3: Validate the measure of young people's wellbeing.

7.1 Introduction: Exploratory Factor Analysis

An EFA is a dimension reduction tool which has many applications but is regularly used to explore the psychometric properties of a scale (Mundfrom, Shaw & Ke, 2005; Osborne, 2005). EFA examines the relationships between items and identifies latent factors within the measurement model (Osborne, 2005). To conduct an EFA, the scale needs to be piloted with a representative and large sample (Curtis & Drennan, 2013). There is no agreement on the perfect sample size for piloting a scale (MacKenzie *et al*., 2011; Carpenter, 2018), but the sample should represent and reflect the range of the target population (Osborne, 2014). Generally, a larger sample is better as it reduces measurement error, produces more stable factor loadings, as well as generalisable results (Boateng *et al*., 2018). However, the practical significance of having a large sample is questionable; as large samples may magnify differences within data and produce biased findings. As such, Mundfrom and colleagues (2005) suggest an item to factor ratio of > 7 as a reasonable recommendation that diminishes the effect of the level of communality. In addition, the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy can be consulted to identify the adequacy of a sample, with the KMO statistic considered the best measure of sampling adequacy for factor analysis (Humble, 2020). A KMO value which is closer to one indicates that data will yield distinct and reliable factors (Kaiser & Rice, 1974). Within health science, a KMO value of > 0.5 has been used as a benchmark for suitability for factor analysis (Chinnasee, Sukonthasab & Lawthong, 2020).

7.1.1 Methodology

Participants

Data was gathered from young people aged 11-16 years living in the United Kingdom (*n* = 182), as this is the target population of this thesis. Table 7.1 shows participant demographics.

Table 7. 1: Participant Demographics.

Variable	Frequency
Gender	
Female	104
Male	78
Age	
11	13
12	30
13	27
14	38
15	36
16	38
Ethnicity	
White	152
Mixed / Multiple ethnic groups	15
Asian / Asian British	5
Black / African / Caribbean / Black British	4
Other ethnic group	6

Gatekeepers, such as school teachers, head teachers, and sports clubs' organisers were contacted via email with the letter shown in Appendix 11.14 to introduce the study. Those who expressed an interest in participation were asked to share a link with parents/pupils associated with their organisation which led them to the online information sheet, consent form and the scale. This was shared via parent mail, virtual learning environments and newsletters. The scale was also advertised on the social media platform Twitter, from the researchers personal account (@EllieGennings).

Procedure

The scale was administered online to overcome restrictions associated with Covid-19. JISC Online Surveys was the platform used to create and share the scale. The order items appeared on the online survey was randomised via a random order generator. Before this was advertised to the wider population, 10 young people completed the scale and had the option to give feedback on problems they found and the accessibility of the technology. No negative feedback was reported and therefore it was assumed that the survey worked as expected.

Analysis

IBM SPSS (v. 26) was used to assess the data for normal distribution, via a Shapiro-Wilk Normality Test. A Spearman's Correlation Coefficient was also run to assess multicollinearity between items. Factor analysis is the widely used method of analysis within scale development (Boateng *et al*., 2018; Humble, 2020) as it identifies common variance among items (Carpenter, 2018). An EFA was conducted using Principal Component extraction and Orthogonal Varimax rotation to identify correlations between items and the latent construct. Principal Component extraction and Orthogonal Varimax rotation were selected as the subscales were theorised in stage four of MacKenzie and colleagues (2011) scale development framework to be independent but related. Varimax rotation was selected as it provides a simple structure and is often recommended in factor analysis literature (Pett, Lackey & Sullivan, 2003; Field, Miles & Field, 2012).

Item Extraction Method

Data was checked for suitability of factor analysis by inspection of the KMO value and Bartlett's test of sphericity (Carpenter, 2018). Once identified as suitable, factor analysis begun by removing items with a correlation coefficient of > 0.8 as this highlighted multicollinearity (Stevens, 2012). The correlation matrix was checked to identify whether theorised subscales loaded together to form a factor. The scree plot and eigenvalues were inspected to identify how many factors should be retained.

The rotated component matrix was used to identify which items cross-loaded and/or mis-loaded onto factors. An a-priori method of item extraction was identified (Table 7.2) based on suggestions from literature (Pett *et al*., 2003; Harrington, 2009; Comrey & Lee, 2013; Tabachnick & Fidell, 2014). This process was carried out on an item-by-item basis so the impact of the removal of one item could be understood. The impact of item removal on the KMO and eigenvalues was continuously checked (Kaiser, 1960) to determine the impact of item removal. On completion of item removal, the reliability of each factor was assessed via Cronbach α.

Table 7. 2: Item Extraction Method.

Stage	Criteria for item removal
1	Correlation coefficient is > 0.8
2	Mis-loading
3	Cross-loading occurs over > 2 factors
4	Cross-loadings over 2 factors: remove items with higher cross-loadings first
5	Items with singular loadings ≤ 0.5

7.1.2 Results

Data was non-parametric ($p < 0.05$). No items displayed multicollinearity, as correlation coefficients were all < 0.78. The KMO value verified the sampling adequacy as 'marvellous' (KMO = 0.94; Kaiser & Rice, 1974) and Bartlett's test of sphericity was significant ($p < 0.05$) suggesting relationships between variables were detected (Humble, 2020). Considering this, the data was concluded to be suitable for factor analysis.

Table 7.3 shows an overview of the EFA decision-making process. Item codes have been used to replace the items; the codes reflect those used in chapter 6. The correlation matrix showed that all theorised subscales consistently loaded together apart from items within the theorised 'Happiness' subscale. Items in this theorised subscale cross-loaded across the correlation matrix, while a maximum of two items loaded together on the same factor. As a result, item extraction begun by removing items in the 'Happiness' subscale. This made theoretical sense because the 'Happiness' subscale did not reflect the underpinning theory of the WCWS, being that wellbeing is a stable long-term construct which section 2.2.2 of this thesis discusses. Furthermore, the 'Happiness' subscale was included within the scale development due to being highlighted within the expert consultation, not the children's consultation. Items F6 and F9 were removed next as they cross loaded onto three factors, in addition to J3 being removed as it had a negative loading score. Then, items which cross-loaded onto two factors were removed. Items such as F8 were removed first as they had higher loadings than, for example, He2 which was later removed. Once all cross-loadings were removed, F1 and F2 were removed due to their low scored mis-loadings (< 0.5) and Fr3 was removed as it mis-loaded and was independent to any other items from 'Friends'. Overall, 21 items were removed from the scale and one factor was lost.

Table 7. 3: Decision Making Process throughout EFA.

EFA	Items Removed	Factor Loading	Reason
1	Ha1	0.58	ML
	Ha2	0.43	ML
	Ha3	0.54	ML
	Ha4	0.43 – 0.48	ML & CL
	Ha5	0.46 – 0.44	ML & CL
2	F6	0.46 – 0.41 – 0.46	CL
3	F9	0.5 – 0.45 – 0.4	CL
	J3	-0.7	Negative loading
4	F8	0.65 – 0.41	CL
	Fr4	0.59 – 0.48	ML & CL
5	F5	0.51 – 0.46	CL
	He8	0.46 – 0.53	CL
6	F3	0.53 – 0.41	CL
	He3	0.49 – 0.51	CL
7	Fr3	0.45 – 0.52	CL
	F7	0.41 – 0.66	CL
	He2	0.47 – 0.42	CL
8	F4	0.45 – 0.4	CL
9	Fr4	0.64	ML
10	F1	0.48	ML
	F2	0.45	ML

Abbreviations: Exploratory Factor Analysis (EFA); Mis-load (ML); Cross-load (CL)

Both Eigenvalues and the Scree Plot were used to inform factor retainment. The point of inflection on the Scree Plot was ambiguous (Figure 7.1) as it could be at both factor two and six, but due to the eigenvalues being > 1 for factors one to five, five factors were retained (Field, 2018).

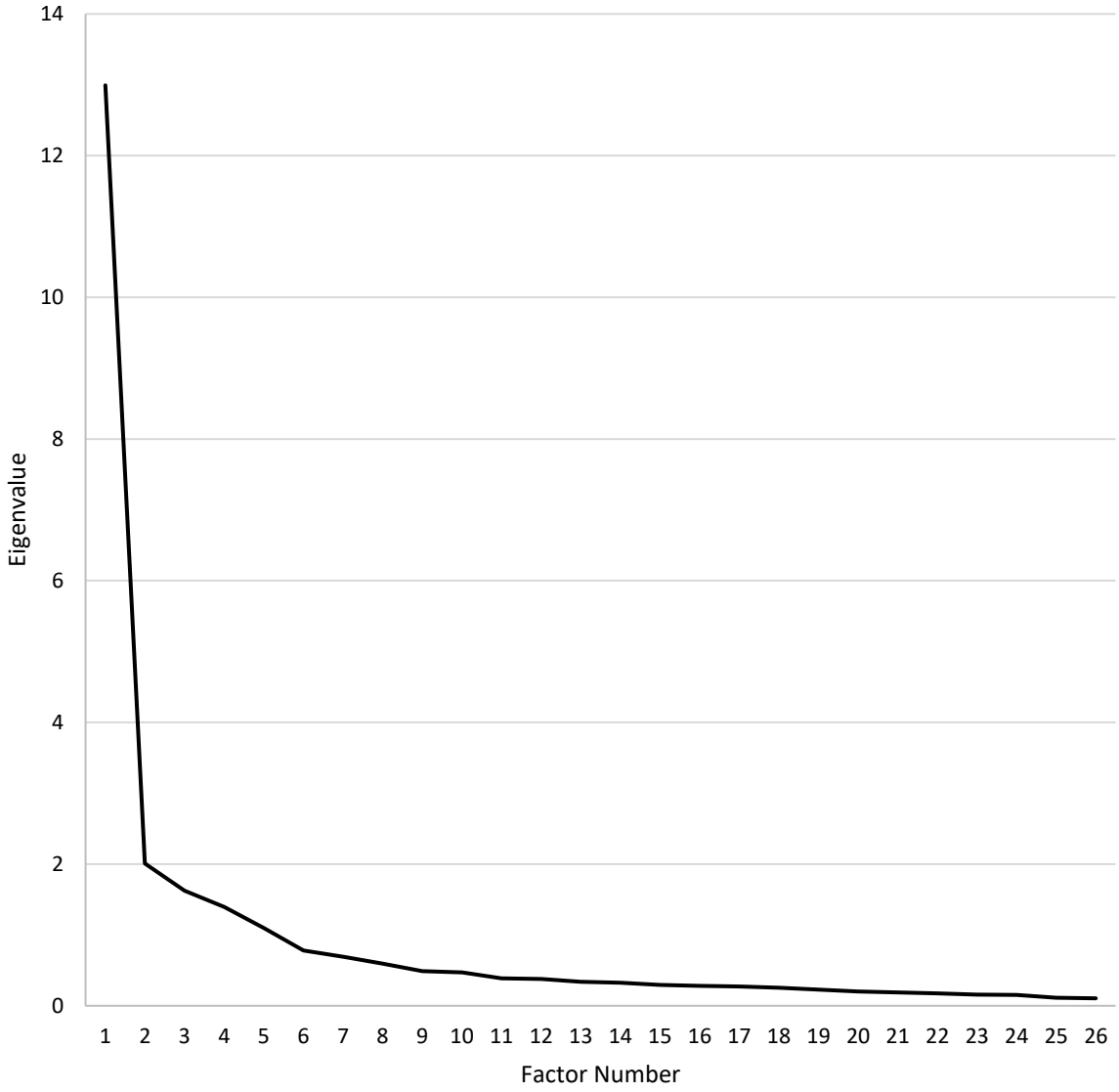


Figure 7. 1: Scree plot.

After item removal, the resulting scale had 5 factors, overall explaining 73.53% of the total variance (see Table 7.4). As a result of the EFA, the subscale 'Judgement' was re-named 'Acceptance' to better reflect the dimension. All five factors also showed high internal reliability (α = > 0.8; Kline, 2000) apart from factor five (α = 0.68). Factor five only included two items which explains its low reliability but, these two items had high factor loadings (> 0.75). Factor five was therefore retained, and a new item was developed to reflect the dimension definition, so the factor was adequately represented in the scale (Carpenter, 2018).

Table 7. 4: Summary of Exploratory Factor Analysis.

Variable	Item	Factor 1: Acceptance	Factor 2: Family	Factor 3: Determination	Factor 4: Physical Health	Factor 5: Friends
Factor Loadings						
	J6	0.78				
	He6	0.76				
	J1	0.75				
	J4	0.74				
	J5	0.73				
	J2	0.71				
	He10	0.68				
	He1	0.68				
	He5	0.57				
	Fa6		0.81			
	Fa5		0.79			
	Fa2		0.79			
	Fa3		0.72			
	Fa7		0.69			
	Fa1		0.69			
	Fa4		0.65			
	D4			0.82		
	D2			0.79		
	D5			0.72		
	D1			0.67		
	D3			0.65		
	He9				0.79	
	He4				0.79	
	He7				0.69	
	Fr1					0.89
	Fr2					0.75
Eigenvalues						
		12.99	2.01	1.62	1.39	1.09
Variance Explained (%)						
		49.97	7.72	6.24	5.36	4.21
Cronbach α						
		0.94	0.92	0.88	0.89	0.68

7.1.3 Discussion

Overall, two theorised subscales were removed, four were supported by the data and one sub-divided. These changes seemed logical and in accordance with existing literature. The scale contained strong factor loadings and internal reliability. Figure 7.2 is an overview of the development of the scale structure.

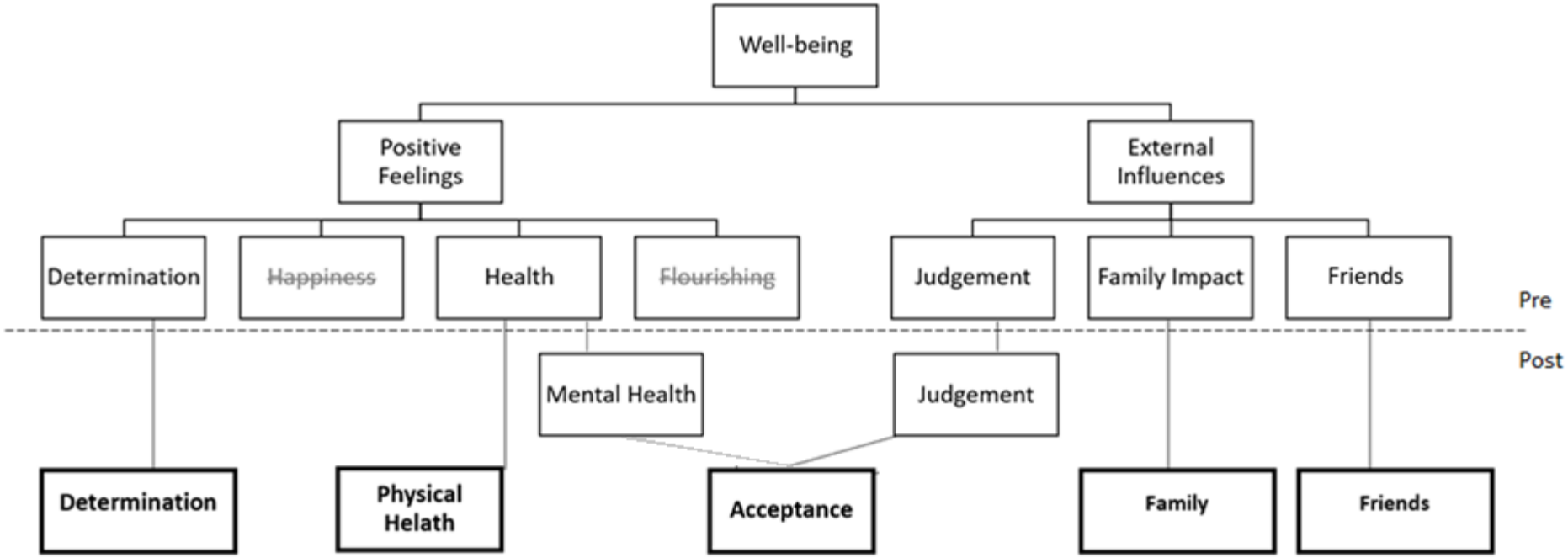


Figure 7. 2: Development of Scale Structure Pre and Post EFA.

Remaining Subscales

As a result of the EFA and the removal of items, the WCWS consisted of five subscales representing positive feelings (Determination, Physical Health) and external influences (Family and Friends), with Acceptance branching across both subdimensions of wellbeing. This reflected the underpinning conceptualisations of wellbeing (Gennings *et al*., 2021). Definitions of these subscales are summarised within table 7.5.

Table 7. 5: Subscale Definitions.

Subscale Name	**Definition**
Determination	Perceptions of drive to achieve personal goals
Physical Health	Perceptions of feeling physically well within one's self
Family	Perceptions of support afforded by parents/carers
Friends	Perceptions of feeling connected to others
Acceptance	Perceptions of belonging within self and in a community

The subscales determination, friends and family, all loaded as theorised. Items within 'Family' reflect both emotional investment (for example, felt supported by my family) and social investment (for example, felt encouraged by my family). Reynolds (2007) suggested that young people's relationship with friends differs to family as emotional and social investment is placed in family, but, emotional investment is exclusive to close friends, not casual friends. Data reflects this as the subscale entitled 'Friends' includes only social investment items (for example, spent time with friends). The subscale 'Friends' had an internal reliability score of 0.68, which falls short of the recommended 0.7 (Kline, 2000). This factor was retained due to the high scoring factor loadings (≥ 0.75). To overcome internal reliability issues, a new item (Fr13: spent time talking to friends) was developed for the confirmatory factor analysis which reflected both items Fr1 (Spent time with friends) and Fr2 (Found the time to talk to friends).

Items which related to emotional investment in friends were found within the theorised subscale 'Judgement'. This is because the characteristics of the judgement subscale were 'being unaccepted by peers and feeling uncomfortable within self'. These characteristics relate to how belonging has been

conceptualised. Goodenow (1993) characterised belonging as perceptions of being accepted, respected, included, and supported by others. The judgement items reflect individuals' perceptions of belonging within a community, with items: 'felt like I belonged' and 'could be myself around others', as examples of this.

The theorised subscale 'health' divided into two distinctive factors, physical health and mental health. The distinction between items within this subscale were discussed when the item pool was initially developed, and it was predicted that the subscale may divide into physical and mental health. This is because mental and physical health do not have a positive linear relationship, as was often discussed by participants in chapters four and five of this thesis. Items which reflected metal health loaded with items from the theorised subscale 'Judgement'. Mental health items reflected acceptance of one's elf and an intrinsic feeling of belonging, for example 'felt well within myself' and 'felt positive about myself'.

Items from judgement and those reflective of mental health from the subscale health formed a new factor reflecting acceptance of self and by others entitled, Acceptance. Arslan (2018) found a significant positive association between belonging and emotional wellbeing among adolescents within a school context. In addition, Sagone and Caroli (2014) stated that self-acceptance is a frequently cited element of eudaimonic wellbeing, which reflects the underpinning theory of the WCWS. Ryff and Singer (1996) called self-acceptance a central feature of metal health, highlighting the inter-relationships between belonging, acceptance, mental health, and wellbeing, supporting the findings of the EFA. Ryff (1989) suggests that this internal evaluation of belongingness diminishes with age, meaning that is it less likely to feature on adult measurement scales of wellbeing, furthering the need for a specific scale of adolescent wellbeing.

Removed Subscales

Both flourishing and happiness were subscales which were removed during the EFA. Happiness did not consistently load onto any factor. It was important to include the subscale Happiness within the pilot as this thesis adopted a person-based approach to scale development and this factor was derived from the consultation with experts. When considering underpinning theory, eudaimonia and the ideology that wellbeing is a relatively stable factor, it made theoretical sense for the subscale Happiness to be removed from the scale. Happiness is underpinned by hedonia and is therefore described as a short-term, fluctuating emotion (Lyubomirsky, 2009). To reflect wellbeing's more stable nature, the WCWS requires individuals to reflect over the last month. This could explain why the Happiness items did not load consistently. Happiness should fluctuate over a month and as respondents reflected over the past month while completing the scale, some items might have been

rated more highly than others as different aspects of happiness were evaluated. This difference in underpinning theory could explain the inconsistent loadings.

During item development, the distinctiveness of the subscales determination and flourishing were discussed by the expert panel. Due to this, it was predicted that the subscales may collapse together. In the latter stages of the EFA process, the remaining flourishing items loaded onto the determination factor; however, these had a low factor scoring < 0.5 and were therefore removed from the EFA. Additionally, the Flourishing subscale was derived from the initial consultation but, the term flourishing was exclusive to the expert consultation. It was included as it seemed important to experts and is often discussed within literature (Dodge et al.,2012). It was however noted in section 5.4.4 that children aged 11-16 may not have the emotional literacy to understand the term flourishing. Due to this factor being derived from the expert consultation and the discussion round its distinctiveness from determination during the scale development day, the removal of the factor during the EFA was not surprising and seemed theoretically justified.

7.1.4 Limitations

MacKenzie and colleagues (2011) recommend that a sample size for an EFA ranges between 100-500 participants. Although the sample size for the EFA within this chapter fits within this recommendation, it is closer to the less desirable end of the range. As such, sample size must be acknowledged as a limitation to this chapter. There are variations on sample size recommendations for conducting an EFA however, it is agreed that a larger sample is better (Osborne, 2014). The response to item ratio was 4:1 and the total response rate is small in comparison to various recommendations. Yet, it should be considered that the population the sample was from was hard to access, due to the age group and the need for additional parental consent. Carpenter (2018) suggests practicalities such as ease of access for large sample sizes should be considered. Smaller sample sizes with hard to access populations should not be limited by invariant categories such as Comfrey and Lee (1992) suggest but be assessed for factorability by identifying if key variables such as KMO measure of sampling adequacy, factor loadings and sphericity, meet specified criteria. Due to the circumstances data was being collected in (Covid-19) and the existing difficulties of accessing young people, KMO measure of sampling adequacy, factor loadings, communality and sphericity were used as benchmark scores to determine that an EFA was appropriate (Preacher & MacCallum, 2002; Tabachnick & Fidell, 2014). As the sampling adequacy was considered ‘marvellous’ (Kaiser & Rice, 1974), and factor loadings and Bartlett’s test of sphericity met specified criteria (Carpenter, 2018), the data was analysed. Tabachnick and Fidell (2014) support this as they suggest large sample sizes (*n* = 500) are only needed when factor loadings and communalities are low. Once the EFA was complete, 21 items had been removed,

meaning that the response to item ratio for the final items was 7:1, meeting Mundfrom and colleagues (2005) recommendations.

The small sample size and the use of a Likert scale also explains why the data is non-parametric. The sample has a positive skew which is reflective of the current mental health climate of young people living in the UK. Indeed, Vizard, Sadler and Ford (2020) report, 16% of boys and 15% of girls aged 5-16 in the UK to have poor mental health/wellbeing; making it more likely that the sample will score highly on the wellbeing scale. One positive about the sample was that, although small, ethnic diversity was representative of the ethnic diversity of England's population (Gov UK, 2018 [online]).

7.1.5 Conclusion

The WCWS consists of five subscales representing external influences (Family, Friends) and positive feelings (Determination, Physical Health, Acceptance). The scale consists of strong factor loadings and each subscale has a Cronbach α of ≥ 0.68. The biggest change from the theorised scale to the current scale is that two factors were dropped (Happiness, Flourishing) and one sub-divided (Health). Changes to the subscales seemed logical and in accordance with existing literature and underpinning theory (Gennings *et al*., 2021). The scale should be re-piloted, and a confirmatory factor analysis undertaken. A confirmatory factor analysis is also needed next to test the fit of the emergent model.

7.2 Introduction: Confirmatory Factor Analysis

The purpose of a CFA is to confirm the fit of a hypothesized model (Humble, 2020). A CFA was conducted to examine the fit of the model identified in the EFA with a new set of data (Harrington, 2009). Unlike the EFA, the researcher specifies the pattern of how items and their latent factors are related (Humble, 2020).

7.2.1 Methodology

Participants

Data was gathered from young people aged 11-16 years living in the United Kingdom (*n* = 244). Hoelter (1983) and Harrington (2009) suggest a sample size of 200 is acceptable for a CFA. Table 7.6 shows participant demographics.

Table 7. 6: Participant Demographics.

Variable	Frequency
Gender	
Female	147
Male	91
Rather not say	6
Age	
11	37
12	28
13	34
14	30
15	54
16	61
Ethnicity	
White	223
Mixed / Multiple ethnic groups	16
Asian / Asian British	1
Black / African / Caribbean / Black British	2
Other ethnic group	2

As schools and sports clubs were closed due to national lockdown, parenting and community groups on social media were used to advertise participation in the study. An introduction to the study, recruitment poster and link to the online questionnaire was shared with these online groups (see Appendix 11.15 for an example). The link to the scale first opened the information sheet and consent form (Appendix 11.16), whereby both participants and their parents had to check a box to give consent before the scale was completed.

Procedure

JISC Online Surveys was used to create and distribute the scale to overcome restrictions of Covid-19. The item order was randomised via an online random order generator.

Analysis

Data was analysed for normality in IBM SPSS (v. 26), via a Shapiro-Wilk Normality Test. The measurement model was built in IBM SPSS Amos Graphics Version 26. Estimation discrepancy was maximum likelihood; with recommendations by Hu and Bentler (1999) used as criterion to assess model fit (RMSEA ≤ 0.06; TLI & CFI ≥ 0.95). These values cover the two classifications of fit indices, absolute (RMSEA) and incremental (TLI & CFI). Typically, the chi-squared statistic is used as an indicator of measure of fit; however, it is frequently cited as sensitive to sample size, whereby larger samples lead to model rejection (Harrington, 2009; McLellan & Susan Steward, 2015; DeVellis, 2017), it was therefore not included in this analysis as the sample exceeded size recommendations suggested by Hoelter (1983) and Harrington (2009). Modification indices were used to inform decisions, such as covarying error terms, when the threshold was > 20 (Harrington, 2009).

7.2.2 Results

Data was non-parametric ($p > 0.05$), but the KMO value was classified as 'marvellous' (KMO = 0.91; Kaiser & Rice, 1974) and Bartlett's test of sphericity was significant ($p < 0.05$). Harrington (2009) comments that Maximum Likelihood is robust to non-normality unless there is extreme kurtosis. The CFA suggested that the model was not a good fit, with Table 7.7 providing an overview of results and their acceptable values.

Table 7. 7: Assessment of Model Fit.

Measure	Acceptable Values	Value
RMSEA	<0.06	0.08
TLI	>0.8	0.86*
CFI	>0.9	0.88

*acceptable value

The values presented in table 7.7 suggest the model is not a good fit; however, all non-acceptable values are within 0.02 of being acceptable. All items loaded onto their respective factors significantly (p <0.05), see table 7.8 for standardised regression weights.

Table 7. 8: Standardised Regression Weights.

Item	Factor	Standardised regression weight	Classification
J4	Acceptance	0.79	Excellent
J2		0.74	Excellent
He1		0.76	Excellent
He10		0.71	Excellent
He5		0.70	Very Good
He6		0.88	Excellent
Fa3	Family	0.79	Excellent
Fa5		0.90	Excellent
Fa6		0.92	Excellent
Fa2		0.83	Excellent
Fa1		0.89	Excellent
Fa7		0.62	Good
D3	Determination	0.61	Good
D4		0.71	Excellent
D5		0.81	Excellent
D1		0.71	Excellent
Fr2	Friends	0.93	Excellent
Fr1		0.93	Excellent
Fr5		0.53	Fair
He4	Physical Health	0.74	Excellent
He9		0.91	Excellent
He7		0.79	Excellent

The modification indices were consulted; however, as it is a data driven process, some of the suggested changes did not make theoretical sense (Harrington, 2009), or significantly impact the results.

7.2.3 Discussion

Although the CFA suggests that the model does not fit, all values were close to being acceptable. In addition, all items significantly loaded onto their respective factors, meaning further scale refinement could result in an acceptable measurement model.

7.2.4 Conclusion

The model fit could be improved by refining the scale further. Therefore, another EFA should be conducted with this data set.

7.3 Exploratory factor analysis 2

7.3.1 Method

The same protocol for the previous EFA was followed. The EFA was conducted using the data from the previous CFA (*n* = 224). The data was first screened for factorability and normal distribution, before item removal began.

7.3.2 Results

The Spearman's Correlation Coefficient displayed no multicollinearity. The data was suitable for an EFA as the sampling adequacy was classified as 'marvellous' (KMO = 0.92; Kaiser & Rice, 1974) and Bartlett's test of sphericity was significant ($p < 0.05$). Table 7.9 shows the decision-making process throughout the EFA. The EFA retained all 5 factors which was supported by the scree plot and eigenvalues (all were > 1.02)

Table 7. 9: Item removal.

EFA	Items Removed	Factor Loading	Reason
1	He1	0.68	ML
	He5	0.55	
2	He6	0.50 – 0.45 – 0.42	CL
3	D4	0.42 – 0.73	CL
4	D2	0.41 – 0.64	CL
4	Fr2	0.43 – 0.54	CL
	He10	0.52 – 0.41	

Abbreviations: Health (He); Determination (D); Friends (Fr); Mis-load (ML); Cross load (CL).

Table 7.10 shows the remaining item factor loadings, eigenvalues, variance explained and internal reliability. The total variance explained by this scale structure is 75.91%.

Table 7. 10: Summary of Second Exploratory Factor Analysis.

Variable	Item	Factor 1: Family	Factor 2: Acceptance	Factor 3: Physical Health	Factor 4: Determination	Factor 5: Friends
Factor Loadings						
	Fa5	0.84				
	Fa6	0.84				
	Fa4	0.75				
	Fa3	0.69				
	Fa1	0.81				
	Fa7	0.87				
	Fa2	0.65				
	J5		0.76			
	J4		0.66			
	J6		0.84			
	J1		0.76			
	J2		0.83			
	He9			0.78		
	He4			0.82		
	He7			0.74		
	D1				0.68	
	D2				0.84	
	D5				0.65	
	Fr1					0.91
	Fr5					0.92
Eigenvalue						
		9.18	2.32	1.42	1.22	1.24
Variance explained (%)						
		45.9	11.64	7.13	6.13	5.11
Cronbach α						
		0.93	0.92	0.85	0.76	0.93

Discussion

No factors were lost or removed during the EFA. The subscale 'Friends' lost an item due to cross-loading. Similar to the results of the initial EFA, this resulted in the 'Friends' factor being left with only two items. Due to the high factor loadings (0.91 & 0.92) and the high internal reliability of the subscale (α = 0.93), the subscale was retained.

During the initial EFA, items relating to mental health loaded onto the Judgement subscale. To reflect the remaining items and the additional mental health items, this subscale was renamed Acceptance as items reflected both acceptance of self and by the community. During the second EFA, all items

which reflected mental health were removed from the subscale Acceptance. The subscale name remained 'Acceptance' due to underpinning theory stating that wellbeing is only concerned with positive feelings (Gennings *et al*., 2021), and acceptance has a positive connotation in comparison to judgement. The five items left in the subscale Acceptance reflected the subscale definition. The subscale fits within sub-dimension positive feelings as all remaining items within this subscale reflect an individual's perception of belonging within themselves and their community.

7.3.3 Conclusion

The WCWS consists of five subscales representing external influences (Family, Friends) and positive feelings (Determination, Physical Health, Acceptance), but with seven less items. The scale consists of strong factor loadings and high internal reliability ($\alpha \geq 0.76$). The scale should be re-piloted, and a CFA undertaken.

7.4 Confirmatory factor analysis 2

7.4.1 Method

The same protocol for the previous CFA was followed. MacKenzie and colleagues (2011) state that if items have been dropped and not re-worded or added, data from the original sample can be used for the CFA. Based on this, data from the original CFA was used in addition to a new pool of data.

Participants

Additional data was gathered from young people aged 11-16 years living in the United Kingdom (n = 248) who had not taken part in the pilot before. The study was advertised via online platforms through parenting groups. Table 7.11 shows participant demographics for a combination of randomly selected data from the original sample (n = 100) and the new pool of participants used for the CFA.

Table 7. 11: Participant Demographics.

Variable	Frequency
Gender	
Female	211
Male	134
Rather not say	3
Age	
11	52
12	41
13	50
14	46
15	72
16	87
Ethnicity	
White	318
Mixed / Multiple ethnic groups	19
Asian / Asian British	6
Black / African / Caribbean / Black British	3
Other ethnic group	2

7.4.2 Results

Data was normally distributed, sampling adequacy was classified as 'marvellous' (KMO = 0.92; Kaiser & Rice, 1974) and Bartlett's test of sphericity was significant ($p < 0.05$). The modification indices suggested co-varying the error terms for items Fa4 and Fa7. As these error terms load onto the same factor, they were covaried (Harrington, 2009). Findings from the data analysis indicated that the model was a good fit (RMSEA = 0.06; TLI = 0.95; CFI = 0.96). The measurement model was classified as having excellent and very good standardised correlation coefficients as illustrated in figure 7.3 (Comrey, & Lee, 2013, range = 0.66 – 0.94), as well as each factor having a high internal reliability (See Table 7.10).

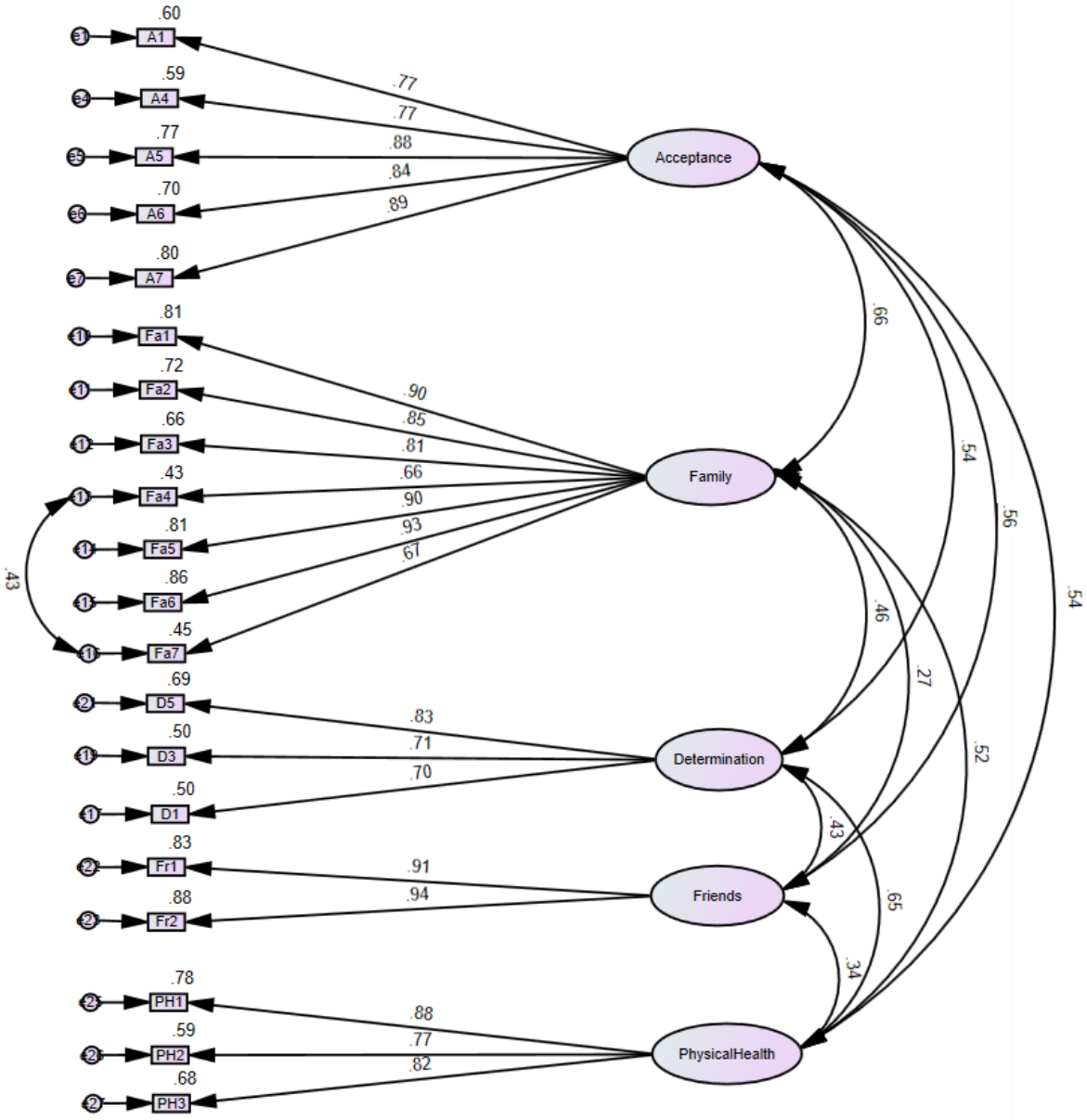


Figure 7. 3: Standardised Regression Weights.

7.5 Discussion

The WCWS consists of the following subscales: Determination, Physical Health, Acceptance, Family, and Friends. Definitions of these subscales and items representing each factor are summarised within table 7.12.

Table 7. 12: Scale Structure and items.

Subscale Definition	Items
Determination Perceptions of drive to achieve personal goals	D1 – Put effort in towards a task D2 – Invested my efforts in something worthwhile D5 – Felt determined to achieve a goal
Physical Health Perceptions of feeling physically well within one's self	He4 – Felt comfortable with how much physical activity I do He7 – Remember feeling physically healthy He9 – Felt physically fit
Acceptance Perceptions of belonging within self and in a community	J1 – Felt accepted by others J2 – Was confident in being myself around others J4 – Felt like I belonged J5 – Was able to be myself J6 – Could be myself around others
Family Perceptions of support afforded by parents/carers	Fa1 – Remember when my family supported me Fa2 – Felt comfortable at home Fa3 – Felt safe at home Fa4 – Felt like my family listened to me Fa5 – Felt encouraged by my family Fa6 – Felt my family were there for me when I needed them Fa7 – Felt supported by my family
Friends Perceptions of feeling connected to others	Fr13 – Spent time talking to friends Fr2 – Found the time to talk to friends

The WCWS has emerged from a person-based approach where the conceptualisations of children and experts have been translated into a scale to holistically measure the wellbeing of children aged 11-16 years in the United Kingdom. This chapter has demonstrated the initial internal reliability and validity of the WCWS.

The development and validation of psychometrics is presented as a linear process (MacKenzie *et al*, 2011; Carpenter, 2018). However, on reflection of the experience of developing a scale, this is not the true reality. This chapter presents all the theorised factors and the true analysis process; although it may have been easier to discuss the process as if subscales like happiness were not included. The honesty shown in presenting the whole process hopefully provides a good example of the complexities of developing a scale. It is also important to remember that factorial validity and item development are only one 'piece of the puzzle', with the psychometric validation of an instrument an on-going and iterative process (Batten, Jessop & Birch, 2019).

7.6 Conclusion

The WCWS has emerged from rich integration of theory and primary research with adolescents (Gennings *et al*, 2021). In this research, the underpinning theory was translated to a comprehensive and psychometrically rigorous scale. Stages one to eight of MacKenzie and colleagues (2011) scale development framework have been addressed and the resulting WCWS consists of five subscales representing external influences (Family, Friends) and positive feelings (Determination, Physical Health, Acceptance) meaning that it aligns to the definition of wellbeing suggested in chapter 5 of this thesis (see section 5.6). The factor analysis confirmed the structure of the model and highlighted good internal reliability. Changes to the scale resulting from the factor analysis were logical and in accordance with the underpinning theory (Gennings *et al*., 2021). The WCWS should be used with the population it was validated with, UK Adolescents aged 11-16 years old in a general context. Future research should also test the discriminant validity of the scale and adopt an open approach to the reporting of scale development and validation.

8.0 The Impact of Returning to Regular Physical Activity Post-Lockdown on Young People: A case study of The Andrew Simpson Foundation

8.1 Introduction

The positive physiological and psychological health benefits of participating in physical activity are well reported within all populations (Lubans *et al*., 2012), however, a recent meta-analysis on the effects of physical activity interventions which focused on improving adolescents (aged 10-19 years old) mental health have indicated that impacts have been small and statistically insignificant (Neill, Lloyd, Best & Tully, 2020). Studies included in this meta-analysis were predominantly conducted within a school context and lasted on average 11.7 weeks (± 5.2 weeks). Dobbins, Husson, DeCorby and LaRocca (2013) add from their review of physical activity programmes in schools that research now needs to focus on the long-term impacts of physical activity interventions.

Research which has focused on the impact of physical activity in nature initially focused on physiological measures of health, like body mass (Dyment & Bell, 2008). More recently, being in nature has been associated with psychological health and wellbeing. Blue and green spaces are concluded to be healing and restorative (Humberstone, 2015; Pearson *et al*., 2017; Mansfield *et al*., 2018) and elicit the same (or even heighten) the impact of physical activity on health and wellbeing (Thompson-Coon *et al*., 2001; Mitchell, 2013). Roberts and colleagues (2019) reviewed studies on nature activities as interventions for young people's health, they highlighted that psychological measures, like wellbeing, are gaining interest. There is a wealth of literature regarding the impact of physical activity in green spaces, such as high ropes, rock climbing and orienteering (Green, Kleiber & Tarrant, 2000; Cross, 2002; Bloemhoff, 2006; Hignett *et al*., 2018). Within the context of children, research has continuously focused on the school setting (Biddle *et al*., 2015) and there are few studies which have focused specifically on blue space, physical activity and individuals aged below 18 years old.

It has been suggested that nature-based interventions to improve health and wellbeing are most effective when individuals feel connected to nature (Cleary *et al*., 2017; Pritchard, Richardson, Sheffield & McEwan, 2020). Nature connection within youth populations has been found to be poor because of safety concerns around being outdoors, longer hours in education, and a lack of suitable outdoor spaces to be in and play in (Barrable & Booth, 2020). Children and youth's lack of connection to nature has been labelled *Nature Deficit Disorder* (Louv, 2010). In Barrable and Booth's (2020) review of interventions to increase children's nature connection, they concluded most are school based, few have control groups and many last for no longer than one week meaning they are too short to observe measurable benefits. In addition, many studies which have explored the use of nature as therapy

(ecotherapy) on young people aged below 18 years old, have been predominantly in green spaces (Bloemhoff, 2006; Cross, 2002; Green *et al.,* 2000). There is a gap within literature for an intervention study specifically in blue space, away from the school context and focused on longitudinal impacts on wellbeing which utilises a control group.

The need for this intervention is enhanced by the impacts of the Covid-19 pandemic. Over half of the children aged 7-16 surveyed by Sport England (*n* = 1,164) reported being less physically active during national lockdown (Sport England, 2020). This is reflective of other countries across the globe (Moore *et al*., 2020; Schmidt *et al*., 2020; Xiang, Zhang, Kuwahara, 2020) and is not surprising given increases in screen time (Xiang *et al*.,2020; Pouso *et al*., 2021), and considering 60% of English children spent less time outside during national lockdown (Natural England, 2020). The outdoors is typically where physical activity occurs (Völker & Kistemann, 2011; Pearson *et al*., 2017) but it cannot be assumed that children chose to spend less time outside or doing physical activity especially when considering minority groups. Natural England (2020) reported that 71% of BAME groups and 73% of low-income children spent less time outside due to access in comparison to white (57%) and households earning > £17,000 per year (57%). Kovacs and colleagues (2021) reported that children with access to the outdoors were more likely to use it for physical activity and to socialise in. During the first lockdown GovUK (2020) reported that young people coped 'generally well' but Young Minds (2020) findings showed that 75% of the children they surveyed in England said the second lockdown was harder, and 67% believed the pandemic would have a long-term negative impact on their mental health. Furthermore, GovUK (2020) identified the greatest negative impact on wellbeing and mental health was within BAME and SEND groups, females and low socioeconomic groups. Girl Guiding (2020), in their sample of 6678 English females, concluded that 34% of 4–10-year-olds felt lonely most of the time and 45% of 11–14-year-olds felt stressed and worried most of the time. This is of particular concern based on the trends in depression, anxiety and suicide already seen in children (Pitchforth *et al*., 2018).

Time spent participating in physical activity and being in nature have both decreased during the pandemic (Sport England, 2020; Natural England, 2020), but these are both well reported to support the health and wellbeing of individuals. Due to the decreases in wellbeing and physical activity as a result of the pandemic, this study will investigate the impact of a return to outdoor physical activity at the Andrew Simpson Foundation (based in Portsmouth) post-lockdown on children's wellbeing and whether the type of outdoor environment affects this impact. The Andrew Simpson Foundation is a not-for-profit charity, and the Portsmouth Centre is based in a council-owned facility within Langstone Harbour. All programmes are subsidised, and the foundation offers financial grants to enable

participation. Their overall aim is to increase participation for everyone. Figure 8.1 shows the Portsmouth Centre from the water:

Figure 8. 1: The Andrew Simpson Foundation, Portsmouth.

The aim of this chapter is to address, A4: investigate the impact of blue exercise on the wellbeing of young people post national lockdown using the newly validated measure. The term 'blue exercise' is used to encompass any activity which is performed within or next to blue spaces including exercise, sports and physical activity (Donnelly & Macintyre, 2019).

8.2 Methodology

8.2.1 Participants

Participants were all members of the Andrew Simpson Foundation and were invited to take part in the study if they were aged between 11 to 16 years old (13.13 ± 1.63 years) to reflect the age group the WCWS was developed with. The criteria for inclusion in the study also included those participants had not participated in blue exercise during national lockdown between January and March 2021, but that they would usually participate in both green and blue exercise. The sample was not ethnically diverse with all participants being white British (n = 16). Over the course of the study participants spent time doing both green and blue exercise, rated their social status towards the mid/high end of the MacArthur Scale and 75% of the sample lived within 5 miles of a blue space (See table 8.1).

Table 8. 1: Participant Demographics.

		n **(s.d.)**
Hours doing GE per week		
	1-2 hours	4
	3-4 hours	6
	5-6 hours	4
	6 +	2
Hours doing BE per week		
	1-2 hours	4
	3-4 hours	5
	5-6 hours	3
	6 +	4
Socio-economic status		
	Home	4.00 (1.24)
	School	3.31 (1.30)
Home proximity to BS		
	< 1 mile	6
	1-5 miles	6
	5+ miles	3
	Not sure	1

Abbreviations: Green Exercise (GE); Blue Exercise (BE); Blue Space (BS).

8.2.2 Protocol

Institutional level ethical approval was obtained. The Andrew Simpson Foundation was a gatekeeper to their members. Initially, the Andrew Simpson Foundation shared an invite (including the information sheet) to participate in the study with all their members aged 11-16 (Appendix 11.17). The language used on the participant information sheet obtained a Flesch Reading Ease Score of 60.0, which is considered a standard level at secondary school (Spadaro, Robinson & Smith, 1980). The invite contained a link to JISC Online Surveys where those interested in participation clicked and completed an online form giving informed consent (from both the parent and participant) and a contact email address for the participant's parent. The researcher used the contact email to share an online questionnaire pack with parents once a month who would then ask their child to complete the pack.

Two secondary schools accepted the invitation to participate in the study as a control group where their pupils would continue their usual daily activities and complete the questionnaire packs once a month. Inclusion criteria for the control group included that pupils did not participate in blue exercise. Both secondary schools were based within a city location in Hampshire and were asked to share the invitation with all pupils so the researchers could adopt a control match design based on gender, age and socioeconomic status. In return, the school would receive a report of their pupil's wellbeing, nature connection and enjoyment of physical activity. The secondary schools sent out the invitation

letter to pupils (Appendix 11.18) however, only one pupil signed up. As a result, the study did not have a large enough pool to adopt the control match design. Section 9.2.1 of this thesis discusses the impact of Covid-19 on this research.

The study adopted a mixed methods approach. For the quantitative branch of the study, a questionnaire pack was sent to parents of participants via email during the last week of each month. The questionnaire pack contained surveys validated for the age group which focused on wellbeing (Gennings *et al.,* 2021 [in review]), nature connection (Richardson *et al*., 2019), enjoyment of physical activity (Moore *et al.,* 2009) and perceived social status (Goodman *et al.,* 2001). Participants were asked to reflect over a period in the last month and complete the questionnaire pack within 5 days of receiving it. Figure 8.2 illustrates how the survey distribution reflected the easing of English Covid-19 lockdown rules.

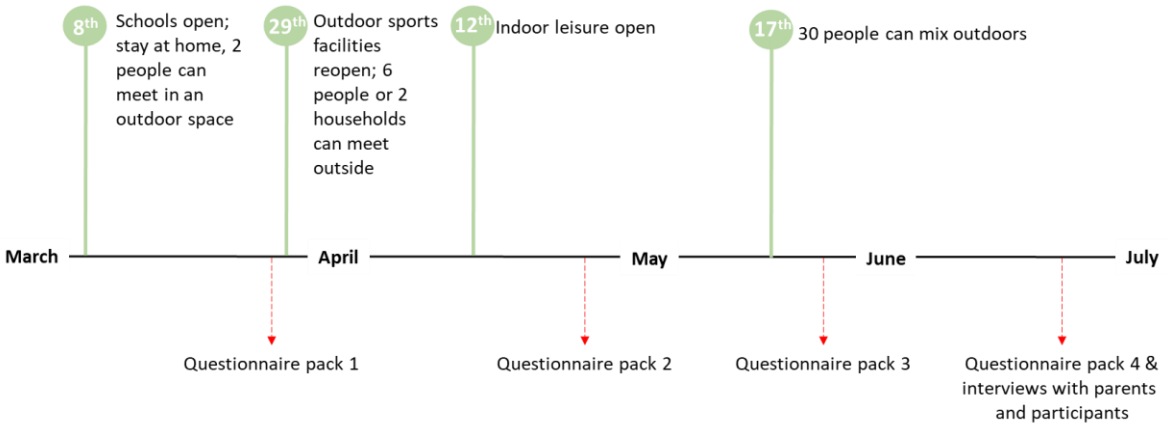


Figure 8. 2: Data Collection Timeline.

Once participants had completed all four questionnaire packs, they were given a goody bag containing University of Winchester branded gifts (notebook, pen and pencil) and Andrew Simpson Foundation branded gifts (stickers and a lanyard). The qualitative branch of the study included participation in a semi-structured individual interview. Participation was optional whereby parents and participants had the option to opt in or out of an interview during the final month of the study. The guide was developed based off existing literature and the findings from the quantitative branch of the study (See Appendix 11.19). Interviews occurred at the Andrew Simpson Foundation (Portsmouth) and over the phone. Participants and parents were informed about the presence of a Dictaphone (Yamaha Pocketrak C24 Portable recorder) which was used to record the interview to assist in the development of a transcript. Once the transcript was generated, all audio recordings were deleted.

8.2.3 Data Analysis

Data was tested for normality (Shapiro-Wilk Normality Test) and descriptive statistics (Mean, standard deviations and trends) were calculated for quantitative data. After, T-tests with paired- (Time; March,

April, May & June) and independent- (Subjects; Male & Female) samples were used to identify whether outdoor exercise had a significant effect on all outcome measures, in addition to observing differences between genders. Statistical significance was set at $p \leq 0.05$ using IBM SPSS (v. 26). Qualitative data was analysed thematically following Braun and Clarke's (2006) six-phase framework, adopting the same procedures as outlined in sections 4.2.2 and 5.2.3 of this thesis. Transcripts were generated using Trint transcription software.

8.3 Results

8.3.1 Quantitative Findings

Data was normally distributed. Scores of wellbeing, nature connection and enjoyment all had a positive trend throughout the study (See figure 8.3). Differences were significant between March and April for enjoyment of exercise (44.00 ± 9.00 vs 48.06 ± 12.45, $t_{(15)} = -2.27$).

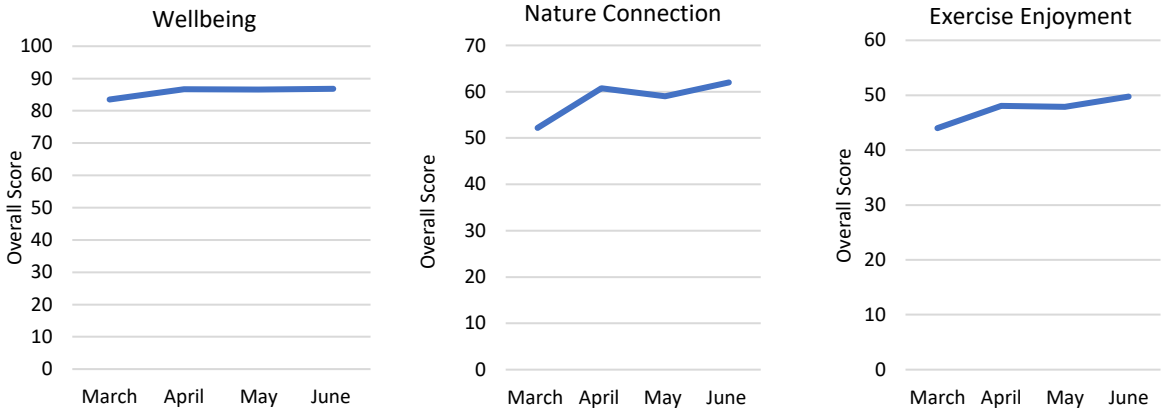


Figure 8. 3: Means for Each Key Variable Over the Course of The Case Study.

Although overall score of wellbeing did not significantly increase, between March and April the subdimensions *determination* (11.38 ± 1.71 vs 12.56 ± 1.78, $t_{(15)} = -2.45$) and *friends* significantly increased (8.38 ± 1.20 vs 9.13 ± 0.96, $t_{(15)} = -3.22$). Time participating in sport and exercise also increased over the course of the study. There was a significant increase ($p < 0.05$) in green exercise between March and April (1.62 ± 0.5 vs 2.19 ± 0.83, $t_{(15)} = -9.93$) and March and June (1.62 ± 0.5 vs 3.31 ± 0.5, $t_{(15)} = -6.30$), and in blue exercise between March and April (0 ± 0 vs 2.63 ± 1.15, $t_{(15)} = -9.15$), and March and June (0 ± 0 vs 3.88 ± 1.31, t(15) = -8.78).

When data was divided by sex, males had a significantly higher rating of wellbeing in both April (82.50 ± 6.19 vs 90.88 ± 8.10, $t_{(7)} = -2.40$) and May (81.00 ± 7.17 vs 92.13 ± 92.13, $t_{(7)} = -3.25$), with the trend suggesting females wellbeing plateaued throughout the study until June, as illustrated by Figure 8.4.

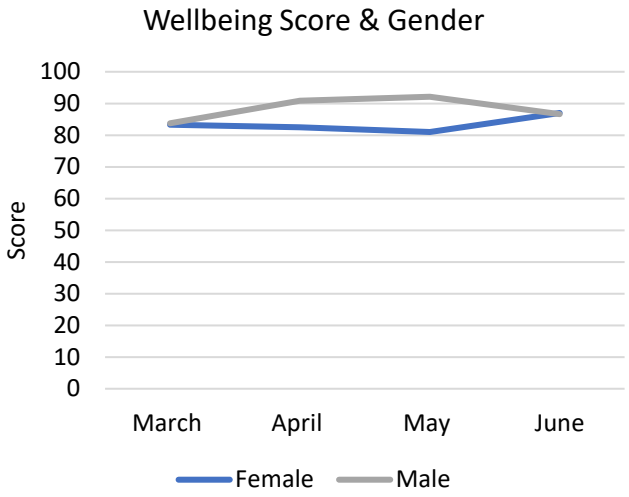


Figure 8. 4: Overall Wellbeing Score of Females and Males During the Study.

When looking at the sub-dimensions of the WCWS, females rated their sense of *acceptance* and support from *friends* significantly lower than males over the duration of the study (see table 8.2).

Table 8. 2: Female and Male means and *p* values for significantly different wellbeing sub-dimensions.

		Mean (*sd*)	***p***	**T(df)**
Acceptance (April)				
	Female	19.25 (1.91)	0.01	$-4.35_{(14)}$
	Male	23.50 (2.00)		
Acceptance (May)				
	Female	19.00 (2.83)	0.01	$-2.87_{(14)}$
	Male	22.75 (2.38)		
Friends (May)				
	Female	29.75 (4.33)	0.04	$-2.26_{(14)}$
	Male	33.00 (2.77)		
Friends (June)				
	Female	30.25 (4.62)	0.03	$2.40_{(14)}$
	Male	32.25 (4.30)		

8.3.2 Qualitative Findings

Results from the interviews have been organised into data relating to lockdown and the Andrew Simpson Foundation. Table 8.3 provides an overview of the thematic analysis for data relating to the UK national lockdown.

Table 8. 3: Results Table.

Direct Quotes	Codes	Sub-themes	Final Themes
• The main thing is gone is the opportunity of the youths… that's always been the focus and the goal. And she's gone from so many years of doing regular training and competitions and last year it just all got cancelled • From his bedroom he can see the water and he would just sit and look out and his face would say I need to be out there. And then he just kept asking are they open yet mum? But as soon as they were, we were there	Opportunities Goals Uncertainty	Opportunities	Missing out
• But the first lockdown… the only place I could windsurf was a reservoir so you couldn't windsurf whatsoever. And it was, it was so annoying like everyone else who lived by the sea could do it and other people were getting better while some people were staying at the same position if not getting worse because we weren't windsurfing • We went to the beach most days for a walk… his fitness definitely went down	Body image Frustration Physical fitness	Fitness	
• It was frustrating for him. Frustration and boredom. You know, you could just go for a walk and we did that. We did a lot of that but for him it wasn't technical enough… it was the learning he missed • They became very boring people. I think we all did. I think we became boring and restless and just people who werent very interested in anything… they felt very trapped.	Variety Boredom Daily routine Uncertainty	Lack of Adventure	Monotonous
• What I think XXX missed was interaction with other people. So he got to one stage where it became too much. For XX where we lost him for a little bit, and when I say we lost him I mean he wasn't focusing, he wasn't himself, he was quite vulnerable, I would say, as in the case of, easily upset by anything little • There is also a social impact too because she didn't get to see the people that, you know, she would normally kind of mix with	Emotions Interaction Missing out Technology	Disconnect with Friendships	
• There was no great loss apart from not seeing friends, but that wasn't always a bad thing because friendships at that age can be tricky • He enjoyed learning from home because he doesn't like the people in his class who distract the teacher	Friendships Walking Appreciation		Positive Impacts

The themes identified from discussions around the UK national lockdown were labelled missing out, monotonous, and positive impacts.

Missing out

Goals and opportunities that participants once had were no longer attainable.

> She has missed out on her opportunity to go to the Youth Championships because that has been delayed. Her goal has always been to go and compete there and now she will never be able to do that because she will be too old. So she has just missed out.

This impacted all areas of children's lives, with participants also discussing the changes to exam structures, school induction days and children's ability to keep physically fit and upkeep/improve their skill sets. These changes weren't sometimes visible until children returned to their usual physical activities, one parent reported:

> She can see for herself now getting back into things but also how, how hard it is to start training again… She cried, at taekwondo after her first session. One hour, was fine but the second hour she was so exhausted... she felt like she used to be able to do more and she felt she would have done much better before too.

Monotonous

Children often described missing their friends and spending time with them. Parents commented on their children's increase in use of technology to connect with their friends. This was identified by one participant as '*not being the same as real life'* and parents expressed concerns regarding screen time and sedentary behaviours. Upon the easing of lockdown restrictions one parent described her daughter as finding it difficult to deal with the emotional stress of a return to normal.

> They're a bit more sensitive and they didn't have that interaction with friends for so long… maybe it is harder with the girls that age, maybe they have more problems, you know, with being face to face. They've got friends that they haven't seen that much and have just been chatting online and then they're suddenly back at school and having all those emotions.

During lockdown children were isolated physically from friends, but not their families. Which, some parents reported as a positive due to difficulties with friendship groups and Covid bringing their families together, particularly for families who were forced to work from home. However, children did not have independence from their families and found day-to-day activities in lockdown boring.

> I think he certainly missed doing something that was his thing, rather than yes let's do something all four of us as a family. Which we do a lot of but it's nice for them to interact with someone else.

Parents described their children as *frustrated, vulnerable* and *trapped people*. Particularly because they had no release and were not able to do what they were passionate about, which was mostly sailing and windsurfing. Qualitative findings about the Andrew Simpson Foundation reveal that participants receive a sense of belonging and acceptance while at the centre. This feeling of belonging was taken away from them during lockdown.

Positive Impacts

Parents commented that learning from home was not as effective as the school environment, however, it did give children a break from difficult friendships:

> He enjoyed learning from home because he doesn't like the people in his class who distract the teacher.

In addition, some children valued the opportunity develop a new appreciation and time to reflect on what they enjoyed in their lives.

> There was a point where I would only really come [windsurfing] in the summer because of the cold. I have now got more into it even though it's still pretty cold, but I like coming here whereas during lockdown I couldn't, and I realised how much I missed it.

Parents also reflected on the implications of lockdown and how it enabled their family to bond and become closer:

> Lockdown also had benefits for me not doing a commute to London. And so I was able to do stuff like go paddle boarding at six in the evening where I would usually be stuck on a train at that time.

Whilst considering the experiences of children in lockdown it is important to think critically as individual experiences of lockdown, and returning back to normal, will be different. In addition, there will have been both positive and negative impacts during and after lockdown on children's lives. The return to normal was both stressful and a relief. Table 8.4 provides an overview of the thematic analysis for data relating to the case study.

Table 8. 4: Results Table.

Direct Quotes	Codes	Sub-themes	Final Themes
• I mean it can be competitive but...you can choose whether you're going to have a competition day or whether you just going for a nice relaxing afternoon. So, it's a lovely that they can choose how serious they want to take it and use their different skills in different ways • It is mostly for the experience… like when you're on the water it's like the wind is in your face, you're going quite fast, but you feel in control. And sometimes I feel like there isn't even water underneath me. I am just sitting on a boat going as fast as I can, but I'm not scared or anything bad, I feel in total control and it's like, fun.	Inclusive Pressure free Relaxed Control Confidence Passion Autonomy	Openness	Culture
• He is assisting tonight... It helps with growth, and you know the fact that oh well if I'm sort of instructing then maybe I am a bit of an adult. You know, they're bridging that gap • I think in all I think in other aspects of life, I think being a being confident and proficient at something gives you that confidence that you can carry over in the in the rest of life in school etc. And so, it sort of is making her a nice, rounded person	Teaching Leadership Confidence	Empowerment	
• Being out in the fresh air, doing something out their comfort zone and learning new skills there are what improves his mood and these are all things which playing on his games machine does not do for him and that machine does not enhance his mood in any way • It is just so much nicer on the sea. Like obviously having the view, I like all the boats out there instead of just like concrete walls	Care Safety Calming Beauty Experiencing nature Feeling good	Looking after and benefiting from	Nature
• The conditions here are challenging and variable…it's like constantly changing and like you can feel that when you're out in the water, you can feel the tide pushing you. It just exposes you to different elements of stuff out there in the sea • When you're out on the water, you're reactive to the tide, the wind, everything around you. Your one solution to do whatever manoeuvre might slightly change. You have to continuously adapt which has helped him in other areas of his life	Unpredictable Challenging Reactive Exploration	Variability & adaptability	

• The instructors are laid back but in control. Maybe it is because they're younger, but they just seem to have that sense of adventure and that everything will be alright. You're safe here. I never worried once about leaving him here because I just know that they will look after him. They are an amazing bunch of people. • The instructors here at Andrew Simpson are lovely and inspirational young people	Welcoming In control Inspirational	Instructors	Belonging
• You make a lot of friends here as you're doing it. Like sometimes if I need help, someone will always help me out. Just with like carry the kit or taking down sails or rigging them up. Yeah, they're always really helpful. So, it is good to be independent on the water but then it is also good to have those friendships to • You help each other, like taking up the boats and that's like the time you get to talk and build friendships	Likeminded people Friendships Connections Different people	Friendships	
• he has got friends outside of school…. So, he has got a safe haven if things aren't going well at school. He can come here and be with *his* people • I think all her windsurfing and stuff as much as she does have a laugh with people here, it is a lot about being independent. Which brings its own benefits.	Belonging Community Confidence Independence	*Their* space	
• I think the confidence of getting good at something is probably part of it • You can kind of come here and be able to leave and say how well you did	Autonomy Pride Empowered	Doing well	Accomplishment
• When he comes out of the water he is always in a much much better mood. You know, it really does enhance his mood and he's happy within himself. It brings confidence to him without a doubt. • It's just fun really because when you're out on the water you get to practice those different things and see how good you get	Energising Enjoyment Confidence Motivation	Participation and feeling good	

Four themes were identified and labelled nature, belonging, accomplishment, and culture.

Nature

There was a symbiotic relationship between nature and participants. The participants cared for and respected the environment, and the environment provided them with challenges and a calming backdrop to sailing/windsurfing. When discussing the environment both green and blue exercise occurred in, children showed great appreciation for blue:

> There is something calming about the sea… having the wind in your hair, if you get sprayed by the sea there is a freshness and the smell. Mentally it is just something magical.

Green exercise within a school context was described as *busy* and *loud* by one participant, this was in contrast to blue exercise which offered children a chance to experience freedom on the water and an independence from others:

> You're in your own boat and you're following a course but you get to like control how you do the course and take on all the turns and you have that independence.

Children showed deep gratitude for the environment they were sailing/windsurfing in. One participant described their pro-environmental behaviours when out at sea:

> I go around picking up some rubbish from the sea and putting them in the powerboats… you just see like plastic bottles floating around so I always drop my sail and put it in my back foot strap.

The fluidity of the water and *exposure to the elements* was discussed in most interviews, one participant described their favourite thing about sailing as:

> There is always something new on the water. You don't get the exact same day twice and you know something is always going to be different. It helps with your adaptability and ability to react to new things.

This aspect to blue exercise is unique and something that cannot be replicated in green exercise. Parents also identified this aspect of blue exercise and commented upon how being adaptable while on the water has transferred into, and benefited, other areas of their children's lives such as problem solving at school.

Belonging

Participants described the Andrew Simpson Foundation as a place where they belonged. Being around likeminded people who were both helpful and encouraging individuals outside of their usual friendship group benefited their confidence and connections to others.

> She interacts with different children when she's sailing to the ones she's at school with and she gets to learn about people and how people are which is one of the most important thing in life.

The nature of the sport encourages both team and individual work which the children valued.

> You make a lot of friends here as you're doing it. Like sometimes if I need help, someone will always help me out. Just with like carrying the kit or taking down sails or rigging them up... So it is good to be independent on the water but then it is also good to have those friendships too.

Parents described the Andrew Simpson Foundation as their children's space and community meaning it was a great *timeout* from home life and school life.

> They are mixing with likeminded people, people that are kind of outside their normal circle… that's why I've said yes a lot because I know if things don't go well at school or home, he can have time with likeminded people here… and be with his people.

The instructors at the Andrew Simpson Foundation also played a large role in creating an environment which encourages confidence from the children.

> You could provide the centre and the boats but if you add someone who wasn't invested in them succeeding and making them feel good about themselves and just went through, you know, c'mon do this I need to tick this box. He wouldn't have that confidence within him.

Instructors were described as being *in control, encouraging* and *inspirational* and having a *sense of adventure*. Parents felt confident in them and happy to leave their children at the centre knowing they would be looked after and taken care of.

Accomplishment

Participation in physical activity made participants feel positive about themselves and lifted their mood. Parents commented on the impact of *doing well.*

> You can see him like come out of the water with this pride. His chest is like [puffed] and he's thinking I am quite important, you know, people actually think I am good at something.

> She likes being able to join in with something she feels she is good at.

It is not a unique finding that participation in exercise made participants feel good. Participation in blue exercise is distinctive to green exercise and sports played at school therefore it seems that the positive impact maybe initially greater. One parent commented,

> There was a massive group [of children] out the front when we arrived today. There must have been 60 kids out there on the field, just finished a multi activity

> day. And you can just hear the comradery from all the children. How excited they were. And it's just just brilliant.

Culture

The culture of the Andrew Simpson Foundation was described as inclusive and unpressured. The children were able to enjoy sailing/windsurfing and take it as seriously as they liked. One parent said:

> They don't have to be good at it, they can just do it and enjoy it. They don't have to be at a certain level at their age or a particular size and weight. And as well they're not kind of comparing themselves to each other because they're busy sailing.

The children described feeling confident when they were at the Andrew Simpson Foundation due to the autonomy the culture afforded them. Members of the club were trusted and were able to '*just go and launch'.* In addition, there was discussion around feeling in control which was a product of the environment and encouragement by instructors.

> When you're on the water it's like the wind is in your face, you're going quite fast but you feel in control. And sometimes I feel like there isn't even water underneath me. I am just sitting on a boat going as fast as I can but I'm not scared or anything bad, I feel in total control and it's fun.

The responsibility of the children (from a safety aspect) and given to the children resulted in them feeling empowered. Being in control of a boat and being out on water meant that children had to behave responsibly and be respectful of the environment. Parents identified how this responsibility transferred into other areas of their child's life.

> It gives him a massive grounding in life. So, the way he acts, behaves and interacts with other people... I just think it makes him a lot more mature. He's quite mature for a 13 year old boy... I guess it's a lot of responsibility... There's the safety aspect of things as well... He loves it here.

> The fact he's learnt here how to teach on the water has helped him in the classroom. And he's always wanting to help… I think that has come from watersports and the training more than anywhere else because it's such a technical sport and you have to listen and you have to understand.

Many of the older children were given leadership responsibilities through assisting instructors with classes.

> He is assisting tonight... It helps with growth and you know the fact that oh well if I'm sort of instructing then maybe I am a bit of an adult. You know, they're bridging that gap from child to adult.

8.4 Discussion

8.4.1 Experiences of Lockdown

The impact of Covid-19 on children is not yet fully understood, particularly from a qualitative perspective (O'Sullivan *et al.,* 2021). The findings from this case study cannot be adequately explained or discussed until the experiences participants had of the UK national lockdown are recognised and discussed in reflection of existing literature.

The key findings suggest that national lockdown restrictions had adverse impacts on young people's wellbeing. Children and parents discussed the impact of missing out on milestone events they had been planning for (such as exams) or had goals aligned to (such as sports competitions). The sadness of missing milestone events is not exclusive to this sample; O'Sullivan and colleagues (2021) reported that Irish adolescents mourned the cancellation of events (such as school proms) and parents commented on the disruption cancellation of events had on children's routines. Changes and disruptions to regular routines can precipitate poor wellbeing and mental health for children and has implications for their attainment of goals (Drouin, McDaniel, Pater & Toscos, 2020; Mantovani *et al*., 2021; McArthur *et al*., 2021).

Unsurprisingly, children within this case study reported their limited ability to stay active during lockdown and feelings of missing out on their usual physical activities. Throughout the pandemic English schools were closed, partially open due to local lockdowns, and did not return to normal from 19th of March 2020 until the 8th of March 2021. During this time there was a *stay at home* order from the English Government with children only being permitted to exercise in the local outdoors with one other person for an hour per day. Wider national surveys have concluded that 52% of English children aged 7-16 were less physically active during lockdown (Sport England, 2020). Restrictions regarding spaces and time to be physically active, in addition to online learning and the *stay at home* order, encouraged excessive use of technology and an increase in children's screen time and sedentary behaviour (Mondragon *et al,* 2021). Decreases in physical activity and increases in screen time are associated with loss of fitness, time spent outdoors and weight gain (Mondragon *et al,* 2021). Screen time specifically has been shown to have significantly predicted anxiety and depression symptomatology during the Covid-19 pandemic (McArthur *et al.,* 2021).

The closure of schools will have impacted beyond reduction in physical activity and exam stress with the provision of essential services such as free school meals and care giving services having been hampered (UNSDG, 2020), in addition to an increased risk in violence against females due to the inability of educational institutions to detect and report maltreatment (Cabrera-Hernández & Padilla-

Romo, 2020). McKinlay *et al* (2021) highlight the importance of educational institutions as providers of regular care and guidance for children. Educational and government authorities need to be responsive to the needs of young people by restructuring policies and systems affected by the virus and lockdowns (Kim, Leary & Asbury, 2021). This should include the voice of young people, so their needs are met (Efuribe, Barre-Hemingway, Vaghefi & Suleiman, 2020).

The two sub-themes which underpin monotony were that during lockdown there was a lack of adventure and a disconnect between children due to the *stay at home* order and enforced social distancing. O'Sullivan and colleagues (2021) state that 'Children and young people were seen as having the worst experiences in the Covid-19 crisis because they could not be children' (p.6). Typically, in middle childhood, children's peer relationships greater optimise developmental health compared to parental/caregiver relationships, but quarantining and social distancing meant that these relationships could not flourish (McArthur *et al.,* 2021). Spaces to play in and other children to play with exacerbated inequalities as did the reliance of online technologies to deliver education and connect with friends (Marston, Wilson, Morgan & Gates, 2020; Watts, 2020). During interviews, parents expressed concerns regarding wellbeing for their children who they felt needed face to face social interaction with other children as online socialising was viewed as *not the same*. There is clear evidence to suggest loneliness is associated with poor wellbeing and mental health (Loades *et al.,* 2020; Mondragon *et al.,* 2021). O'Sullivan and colleagues (2021) found in their study of Irish youth's experience of lockdown that poor mental health was provoked by experiences of loneliness and social isolation in children as young as 5 years old. The negative impact of lockdown on the wellbeing of participants is highlighted by average wellbeing scores in March being the lowest throughout the entire study (overall score = 83.5 ± 8.54). McKinlay and colleagues (2021) labelled quarantine as a 'significant mental health threat' and that the impacts of isolation and loneliness are likely to persist after lockdown restrictions have relaxed due to anxiety around socialising after the pandemic. Children have also identified that the impacts of lockdown on mental health will have a continued affect beyond the lifting of restrictions, with 67% of 2,438 British children believing the pandemic would have a long-term negative impact on their mental health and wellbeing (Young Minds, 2020). Social interactions, in-person, contribute to health by enhancing sense of belonging which Oosterhoff, Palmer, Wilson and Shook (2020) consider a crucial interpersonal need and Gennings *et al.,* (2021 [pre-print]) includes as a crucial aspect of the measurement of wellbeing.

A frequently used term by participants to describe lockdown during the interviews was *boring.* Reasons for this are likely to be multifaceted but often included the lack of interaction with friends, not being able to participate in leisure activities or leave their homes. Other research has commented

on the lack of freedom and feeling of entrapment at home expressed by children (McKinlay *et al.,* 2021; O'Sullivan *et al.,* 2021). The impact of loneliness and isolation from peers can be mitigated by digital communications, such as social media (Deolmi & Pisani, 2020). Despite the negative long-term effects of social media, it was often identified by participants as their way of keeping in contact with friends and preventing boredom. One parent described 'So he'll be on his Switch [games console] talking to his friends, while watching his tablet and sitting and actually talking to someone on the Internet'. Parents often expressed guilt around letting their children spend extensive time using technology/looking at a screen. Hammons, Villegas and Robart (2021) also reported that parents were concerned that their children were too attached to screens during the pandemic but screen time and use of technology was one of the limited things children and families could do. Although screen time has not been shown to impair psychological development (Ophir, Rosenberg & Tikochinski, 2021), it has been identified as a significant predictor of Covid-19 anxiety and depression (McArthur *et al*., 2021). The pandemic occurred while habits were being established by young children, the negative long-term impact of an increase in screen time must be monitored by health care professionals to safeguard children's wellbeing and mental health (Hammons *et al*., 2021).

While the impacts of lockdown and quarantining are largely negative, parents did comment on some positive consequences of time away from school and a growth in appreciation of what was once normal. Chawla, Sharma and Sagar (2021) suggested a *'silver lining'* (p.1) to lockdown is that some children were protected from issues that relate to attendance at school such as bullying, peer's disruptive behaviour and exam pressure. During interviews participants were reflective of lockdown and showed new appreciation for what was once their everyday activities such as sailing, going for walks, and spending time with family. These factors will have improved the wellbeing of some individuals (McKinlay *et al.,* 2021).

8.4.2 Returning to The Andrew Simpson Foundation

Overall scores for wellbeing, nature connection and enjoyment had a positive trend throughout the study. The positive trend in wellbeing is consistent with literature which has explored the impact of blue exercise on children (Godfrey *et al.,* 2015; Hignett *et al*., 2018). Godfrey and colleagues (2015) reported significant increases ($p \leq 0.05$) in the wellbeing of children with a diagnosis of poor mental health after a surfing intervention. The differences in sample characteristics and length of the study could explain why Godfrey and colleagues reported a greater increase in overall wellbeing. All participants in this study were white and middle/upper class without a mental health diagnosis therefore Godfrey and colleagues (2015) sample could have been more sensitive to the intervention and increases in wellbeing. Additionally, this study looked to measure wellbeing over a long-term

period (4-months), whereas Godfrey *et al.,* (2015) focused on a 6-week period. Potentially, blue exercise causes a short-term spike in wellbeing. Future research should look to further explore the long-term impact of blue exercise on a general population with a larger and cultural heterogeneous sample.

Physical and social isolation of individuals was a global issue caused by the Covid-19 pandemic (Pouso *et al*., 2020). Overall score of wellbeing was lowest at the beginning of the study in March when lockdown restrictions and social distancing were still in place. Loneliness during the pandemic among children has been linked to poor mental health, including the prevalence of anxiety and depression (Groarke *et al*., 2020; Loades *et al*., 2020) which could explain the initial low score of wellbeing. Upon reintegration to 'normal' life, Sullivan (2021) recommends structured activities which foster belonging and confidence. In April, structured sporting and leisure activities were reopened to children and the quantitative data showed a positive trend in wellbeing score between March and April. A sense of belonging is regarded as a fundamental human need (Maslow, 1943) and will increase feelings of group membership and decrease feelings of loneliness due to individuals feeling valued, needed and accepted (Sullivan, 2021). McKinlay *et al.* (2021) highlight the importance of educational institutions for providing belonging and a sense of accomplishment. Qualitative findings from this research build on this by highlighting the vital role of leisure and sporting activities as providers of support, belonging and accomplishment with data identifying that a return to these activities caused a significant increase in enjoyment and an increase in wellbeing.

Within the sample, the sub-dimensions of wellbeing, determination and friends significantly increased between March and April. During this time, children were allowed to return to the Andrew Simpson Foundation and had already been attending school for one month, highlighting the key role the Andrew Simpson Foundation may have played in contributing to children's connections with each other and drive to achieve goals and succeed. Both of these experiences are protective factors against loneliness and depression. Magson *et al*, (2021) researched the experiences of children before and during lockdown and identified that out of 18 factors, their sample found not seeing friends and an inability to participate in extra-curricular activities (such as sport and leisure) as some of the most distressing limitations during the Covid-19 pandemic. In addition, participants who reported the highest levels of social connectedness also reported the lowest depressive symptoms, lowest anxiety scores, and highest life satisfaction (Ibid). Social connectedness and activities which stimulate belonging also support wellbeing and are factors of wellbeing measures (Clarke *et al*., 2011; Gennings *et al*., 2021 [pre-print]) and theories (Seligman, 2004; Dodge *et al*., 2012).

8.4.2 Gender differences

Gender differences among adolescents and adults regarding mental health have been widely reported, relating to happiness and anxiety (Esteban-Gonzalo, Esteban-Gonzalo, Cabanas-Sánchez, Miret & Veiga, 2020), quality of life (Michel, Bisegger, Fuhr & Abel, 2009), wellbeing (Etheridge & Spantig, 2020) and chronic stress (Stratta *et al.,* 2013) whereby males have a higher rating than females. The Covid-19 pandemic has substantially and unequally impacted the mental health and wellbeing of individuals across the globe with the pandemic exacerbating gender differences in mental health and wellbeing (Etheridge & Spantig, 2020; Radia, 2021). Etheridge and Spantig, (2020) explain that this is largely due to the isolation and loneliness the pandemic has caused, not necessarily due to the financial impact or fear of the virus itself. Loneliness is strongly associated with increased depressive symptoms, particularly among females (Michel *et al.,* 2009; Loades, 2020). Children spend considerable time with and are reliant upon family and friends, so it is not surprising social contexts are linked to health outcomes (Levin, Dallago & Currie, 2012).

Survey data from the quantitative branch of this study identified significant differences in the wellbeing of males and females, with females rating their wellbeing significantly lower during April and May. This difference reflects existing literature which has measured the mental health and wellbeing of children and adolescents during the Covid-19 pandemic and concluded females are worse impacted (Magson, 2021; Rania & Coppola, 2021; Loades, 2020). Literature which has examined traumatic events have also identified gender differences. Stratta and colleagues (2013) investigated the impact of the earthquake of L'Aquila on children's resilience and coping. Authors concluded that female adolescents reported a higher prevalence of traumatic symptoms which may be linked to impaired resilience as females had significantly reduced scores of resilience than males and those not impacted by the earthquake. Wider literature focusing on gender differences across nationalities has concluded that across Europe, there are significant gender differences for children's perception of quality of life (Michel *et al.,* 2009; Esteban-Gonzalo *et al.*, 2020), with Michel and colleagues (2009) reporting that older female adolescents are likely to have lower scores of qualities of life than younger females and males. Levin *et al* (2012) also commented on older female adolescents being more likely to have lower life satisfaction than younger.

Reasons for the gender differences are described to be multifaceted whereby influencing factors are biological, psychological and sociological (Esteban-Gonzalo *et al.*, 2020). Gender Intensification Hypothesis was originally proposed by Hill and Lynch (1983) and states that adolescents experience pressure to conform to societal standards of gender roles. Femininity is associated with becoming compliant, self-conscious (Priess & Lindberg, 2014) and concerned with interpersonal relations, being

focused and ruminative (Esteban-Gonzalo *et al.*, 2020). Scores of overall wellbeing were broken down into their sub-dimensions and data revealed that girls rated Acceptance and Friends significantly lower than boys during April and May. During April children were reintroduced to regular leisure and female participants may have been more concerned than boys with being accepted in their leisure environment and socialising with friends there. There was not a significant difference between boys' and girls' wellbeing in March. During March children returned to school but, participants commented in interviews that they remained in regular contact with their school friends during lockdown and attended online classes together. Returning to this setting in contrast to their leisure setting which they were isolated from during lockdown, did not have the same impact on wellbeing. This was potentially because children still felt a sense of belonging to their school and accepted by their peers.

Breslin *et al.* (2012) researched gender differences regarding physical activity, weight and wellbeing in 9-11 year olds within a general context and identified that girls had an increased score of social support but a decrease for self-perception and self-acceptance compared to males. The gender difference for acceptance of self and by the community reflects the findings of this study from April and May however, during June, there were no differences between girls and boys overall score of wellbeing. Within interviews it was often commented how friendly and approachable the Andrew Simpson Foundation was. The culture promoted at the Andrew Simpson Foundation along with spending time in nature while being physically active could be what heightens both boys' and girls' wellbeing. This suggestion is consistent with existing literature regarding the positive impact of doing physical activity and spending time in nature on children (White *et al*., 2015; Nutsford *et al*., 2016; Pearson *et al*., 2017; Kelly, 2018); this finding only emerged once children had settled back into their usual routines post- lockdown.

There are also biological factors including the impact of the menstrual cycle and pubertal factors impacting mood and psychological factors including coping strategies, and resilience which may influence the gender difference (Estiban, 2020). It is also reported that the gender difference in perceptions of mental health and wellbeing maybe due to emotional literacy and females being more sensitive of and reflective to their emotions, making them more concerned with their own wellbeing (Michel, 2009). So, with the pandemic and returning to normal, on top of female adolescents physical and social transition in life it is understandable for their wellbeing to be ranked lower than males (Michel, 2009; Levin, 2012).

The negative impact lockdown restrictions have had on children's mental health and wellbeing are concerning for healthy development as children are susceptible to experiencing poor long term mental health because of crises (O'Sullivan *et al.,* 2021). Exercise and physical activity seems to be embedded

in interaction with friends leading to achievement of social acceptance and support (*Breslin et al.,* 2012) therefore it is important to encourage female adolescents to connect with social groups, such as leisure and sporting groups, so they can access their support systems in the pandemic and a time of uncertainty (Magson, 2021). One way of doing this could be by promoting the work of campaigns such as This Girl Can.

8.4.3 Nature Connection

During interviews, participants described caring for the natural environment and how it is *magical.* The value and appreciation for nature expressed in interviews was reflected in the quantitative branch of the study. Scores for nature connection were above the population average (Richardson, 2019) as illustrated by Figure 8.5, particularly for the two youngest age groups.

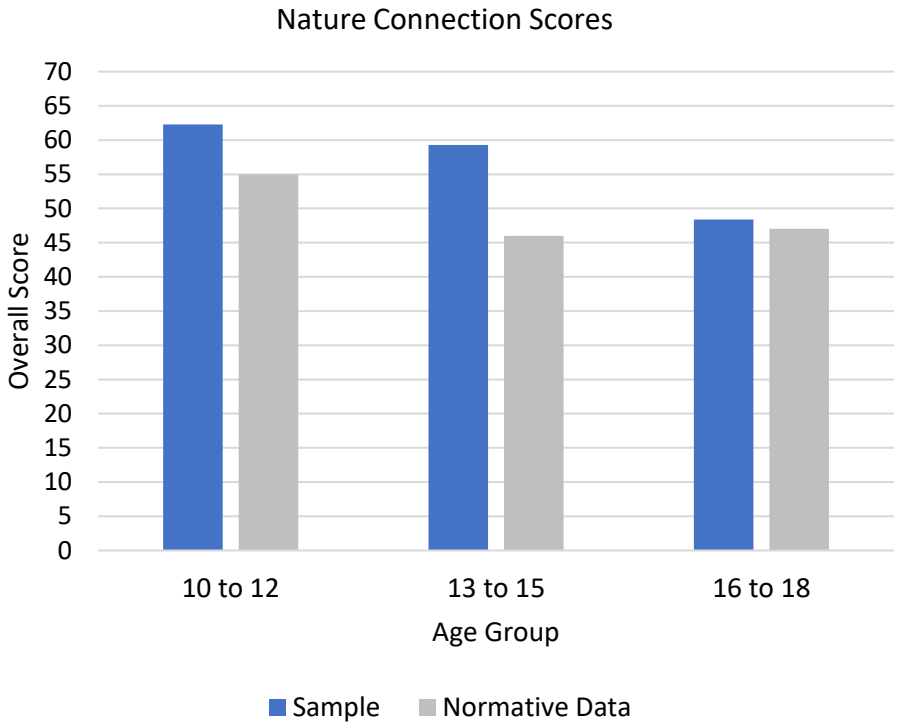


Figure 8. 5: Average Nature Connection Scores and Normative Values.

The high scores of nature connection throughout the study could explain why there was no significant increase in nature connection upon return to regular blue exercise. In addition, as participants were those who regularly participated in blue and green exercise, and 75% of the sample lived within 5 miles of a blue space, they could have already had a high score of nature connection which the pandemic did not alter. This study aimed to explore the gap Mackenzie and Hodge (2020) identified

within literature whereby the importance of nature connection for children's wellbeing had not been explicitly explored. Findings within this study highlight that children's connection to nature did not diminish over lockdown and future research should look to explore nature connection with children new to blue exercise or those form differing ethnicities, class and physical activity levels.

8.5 Limitations

8.5.1 Sample Size

For an intervention which focuses on nature connection in children, Barrable and Booth (2020) suggest a sample size of 200-400 participants however, in Britton and colleagues (2018) review of blue space interventions for health and wellbeing, they reviewed studies with samples ranging from 1 to 321 (66.9 ± 91.8). This highlights inconstancies among literature. Due to Covid-19 the inability to recruit and retain participants the sample size was small. Individuals expressed not wanting to measure their wellbeing during a stressful time and by seeing participation as an additional burden in an already stressful time.

8.5.2 Sample Demographics

Roberts and colleagues (2019) identified interventions which focus on nature and children's wellbeing are often conducted with marginalised groups and that studies with a general population are needed so comparisons can be made. This study aimed to fill that gap and identified that within a white, upper/middle class sample who rate their nature connection above average, minor improvements to wellbeing occur and that nature connection did not decline during the Covid-19 pandemic. Future studies should look to research a culturally heterogonous sample. The lack of diversity within this studies sample may suggest that sailing/windsurfing is not diverse in participants and potentially perceived by outsiders as a sport/activity for the privileged/upper class. Within its local area, the Andrew Simpson Foundation (Portsmouth) is affordable as they subsidise their courses and the foundations aim is to encourage participation for all. Parents even commented during interviews that one other local sail club was exclusive and prestigious in nature whereas the Andrew Simpson Foundation was the opposite to this. The Andrew Simpson Foundation is already endeavouring to be accessible but potentially not perceived in that way. Research and marketing should seek to understand why there is this potential perception and how to showcase the work of the Andrew Simpson Foundation to improve participation and make water sports accessible to wider groups within society.

8.5.3 Study Design

Researched focused on assessing the impact of both nature connection and physical activity on the wellbeing of children have been critiqued for lack of a control group (Lubans *et al*., 2012; Roberts *et al.,* 2019). This study aimed to show methodological rigor by utilising a control match group to the case study participants. Difficulties caused by Covid-19 caused this to not be a viable option (for details, see Section 9.2.1 of this thesis).

8.6 Conclusion

This chapter presented a case study of the Andrew Simpson Foundation in Portsmouth and aimed to investigate the impact of returning to blue exercise post- national lockdown (A4). National lockdown had a significant impact on participants lives with literature highlighting the prevalence of loneliness (O'Sullivan *et al.,* 2021) among children leading to depression and anxiety (Groarke *et al*., 2020; Loades *et al*., 2020). Upon return to regular blue exercise participants wellbeing, nature connection and enjoyment of physical activity all showed a positive trend. Differences between male and females scores of wellbeing were significant with females rating their perception of wellbeing lower than males. This finding is in line with existing literature which has focused on gender differences within perceptions of mental health, quality of life and depression (Groarke *et al*., 2020; Loades *et al*., 2020). Reasons for this difference are multifaceted and can be explained by biological, social and psychological factors (Esteban-Gonzalo *et al.*, 2020). To extend upon this research, scholars should also adopt longitudinal research designs and aim to achieve and culturally heterogenous sample. In addition, understanding the barriers facing marginalised groups to accessing blue exercise would be useful for the planning of interventions to ensure inclusivity and diversity. Future research should build on this research by ensuring methodological rigor by the inclusion of a control group and aim for a greater participant cohort so more sophisticated data analysis techniques like linear regression could be utilised to explore what factors of blue exercise significantly predict wellbeing. The findings of this study have implications for policy, educators and parents whereby encouraging leisure and sporting activities in nature post lockdown could mitigate poor wellbeing and loneliness among children (McKinlay *et al.,* 2021). Blue exercise provides an unpredictable environment where children must be responsible and independent but can also feel a sense of freedom. Specifically, the culture at Andrew Simson Foundation, Portsmouth, empowers their members and provides children with a sense of accomplishment, belonging and independence which are factors that contribute to wellbeing (Clarke *et al*., 2011; Dodge *et al*., 2012; Gennings *et al.,* 2021).

9.0 Overall Discussion

9.1 Overview of Thesis

There are numerous descriptions of wellbeing within academic literature (Diener, Lucas, Suh & Smith, 1999; Dodge *et al.*, 2012; Pouw& McGregor., 2014; Tabor &Yull., 2018) however, it is still cited by scholars that wellbeing is 'elusive' (Bharara *et al.*, 2019) and 'ill-defined' (Bourke & Geldens, 2007). This may be due to the prevailing conclusion that wellbeing is broad and multidimensional (Hone *et al*., 2015). This thesis used guidance from literature regarding the development of construct definitions (Podsakoff *et al.,* 2016) to explicitly define wellbeing. Both experts within the field of wellbeing and positive psychology and children aged 11-16 years old were consulted and the following definition of wellbeing concluded:

> A multifaceted perception of an interaction between an individual's positive feelings and external influences.

The process of forming the above definition also fulfilled stage one of MacKenzie and Colleages (2011) scale development framework. The above definition was used to underpin the development of a new measure of children's wellbeing called, the Winchester Children's Wellbeing Scale (WCWS). The definition and chapters four and five were translated into a comprehensive and psychometrically rigorous scale. Stages two to eight of MacKenzie and colleagues (2011) scale development framework were addressed, and the resulting scale consisted of five subscales representing external influences (Family and Friends) and positive feelings (Determination, Physical Health and Acceptance). A factor analysis confirmed the structure of the model and highlighted good internal reliability and face validity.

The need for the development of the WCWS was identified by supervisor's previous work with the Andrew Simpson Foundation (Cotterill & Brown, 2018) where they could not find a measure of children's wellbeing for a general context. The WCWS was used within the case study of the Andrew Simpson Foundation to indicate the impact participation in blue exercise, specifically sailing and windsurfing, had on regular members at the Portsmouth centre. Participation in blue exercise was linked to a positive trend in scores of wellbeing, nature connection and enjoyment of physical activity over the course of four months while UK national lockdown restrictions for the Covid-19 pandemic were easing.

9.2 Limitations

9.2.1 Impact of Covid-19 on Recruitment & Study Designs

Covid-19 significantly impacted the study design and recruitment process for chapters six, seven and eight. The pilot of the scale was initially planned to occur in collaboration with two schools. Upon the closure of schools due to Covid-19 both withdrew from participation in the study due to the extra stressors on both staff and pupils. From here on in the recruitment of children from secondary schools was not possible due to the impact of Covid-19 on staff's workload and wellbeing (Kim, Oxley & Asbury., 2021).

Pre-Covid, the pilot of the scale was planned to happen via pen and paper in person whereby the researcher would visit schools and explain to children what the scale is and how to complete it. The advantages of this being that it was more personal, the school could benefit by having a talk about wellbeing, and the researcher would have direct access to a large pool of participants – something which is needed for scale development and validation (Streiner *et al*., 2015). National lockdown resulted in the focus shifting from in-person recruitment to online advertisement on social media as schools closed across England. Online advertisement resulted in easy access to large groups individuals, and it was a simple process to focus recruitment on specific groups (Saberi, 2020). A limitation to the online pilot is that authors of the PhD have never physically seen a child complete the survey. Non-verbal behaviour was therefore not accounted for. Children may have expressed boredom through, for example, fidgeting while completing the survey. This visual cue would suggest the length of the scale needs reconsidering. Furthermore, without having time to build rapport with participants in-person, it is impossible to understand whether the children's self-reported wellbeing was in fact coherent with their internal state (Cipresso & Immekus, 2017). Researchers should carefully weigh-up the advantaged and disadvantages of both online and in-person pilots. A hybrid pilot of both online and in-person recruitment could minimise the limitations and combine the advantages of both.

One developing area of research into wellbeing is the inclusion of the voices of marginalised or at-risk groups, including children in care, living in poverty, BAME and SEND groups. Advertising and collecting data exclusively online resulted in marginalised populations being potentially excluded from participation as they may not have access to the technology or the skills needed to be able to participate online (Sevelius *et al*., 2020). Due to the obligations of completing a fulltime studentship PhD, there was not the ability to wait for lockdown to ease to include these groups. Online recruitment and surveys also limited the researcher's ability to screen participants to check if they were aged 11-

16 and from England. During analysis many responses were removed due to them not meeting the age range criteria of the study.

Regarding the intervention study, visiting the Andrew Simpson Foundation in person to recruit participants would have been largely beneficial and would have helped with retention of participants. Instead of the researcher being an 'outsider' they could have been part of the community at the Sailing Foundation due to frequently visiting and building relationships with participants and their parents/guardians. Being able to do this was important for both recruitment and retention but to facilitate the collection of quality qualitative data (Dwyer & Buckle, 2009). In addition, being able to collaborate with a secondary school by using their pupils as the control group would have been highly advantageous for enhancing the methodological rigour of the study design by using control matches. A control match design is something that has been highlighted as a gap within literature in this field (Lubans *et al*., 2012; Roberts *et al.,* 2019). Considering this, a control match was included in the initial ethics application and study design. Initial steps were implemented with Ditcham Park School and The Westgate School where schools were briefed on the study and agreed to advertise participation to pupils in return for a wellbeing report. Both schools did then advertise the study to their pupils and only one individual signed up, meaning the control match design of the study was not possible. As Covid-19 has profoundly impacted all of society (Brock & Laifer, 2020), obtaining consent from both parents and children and committing to a 4-month study could have been viewed by families as an additional burden which they did not need, resulting in poor recruitment. An incentive to participate, like members of the Andrew Simpson Foundation had (a goody-bag) was not financially possible and due to the study researching the impact of blue exercise while the lockdown restrictions were easing, data collection became time sensitive. Lack of engagement from secondary school pupils resulted in there being no representative control match group. Future research within this field should look to adopt this research design (Lubans *et al*., 2012; Roberts *et al.,* 2019).

9.2.2 Impact of Covid-19 on ethical considerations.

During the PhD, data collection strategies needed to be flexible around government guidance and lockdowns. All data relating to the pilot of the WCWS was collected online to remain within the law during lockdowns and outside of these restricted times to follow university guidance of no unnecessary travel. This was beneficial as it removed geographical barriers however, the method of data collection excluded those who did not have access to the internet (Newman *et al.,* 2021). Remote data collection during a pandemic also presents ethical challenges relating to recruitment and psychological harm (Hensen *et al.,* 2021).

It is consistently reported within literature that the pandemic worsened children's mental health (Chzhen, 2020; O'Sullivan et al., 2021), and with the shift in work environment, teachers workload was ever increasing leading to reports of symptoms of stress and anxiety amongst teachers and school staff (Kim *et al.*, 2021). During this time the WCWS was piloted. Many schools withdrew their interest in supporting the research because they did not want to burden their staff with organising distribution or burden their pupils in a time where they could have been experiencing poor mental health. Researchers considered at this time whether it was ethical to pilot the survey or wait until the pandemic was over. As the purpose of the research was to understand the validity and reliability of a psychometric and not to measure individual wellbeing, the pilot continued. It was imperative to clearly outline and explain the study purpose and content of the measure. Scale development procedures are complex, and it is not general knowledge how they are developed, due to the pressure teachers and schools were under, they did not have the time to consider supporting a study that's purpose was complex. Future research should consider alternative ways to introduce research to organisations alongside the information sheet required for ethical practice.

Another factor which contributed to the launch of the pilot was that items on the scale were positively worded due to the underpinning theory that wellbeing sits within the field of positive psychology. Therefore, the measure was not focused on poor mental health. Many gatekeepers suggested that they did not want to measure children's wellbeing during the unprecedented circumstances. The ethical concern from gatekeepers is valid however their response highlights stigma that mental health is viewed with a negative lens and not from the perspective that mental health is a continuum whereby mental health can also be positive. Gatekeepers feared that if results showed poor wellbeing, that this might reflect badly on their school. This point reinforces the need to clearly explain the study purpose.

9.3 Implications and future directions

9.3.1 Conceptualisation of wellbeing

The development of a definition of adolescent wellbeing has filled the gap within literature where research has previously used definitions of wellbeing developed by adults for adults, developed by adults for adolescents, or adolescents' conceptions are explored but no explicit definition is concluded (Gennings *et al.,* 2021). The explicit definition of children's wellbeing developed within this thesis is based on person-centred research with children. The definition will help to develop a shared language among practitioners and researchers where the definition can shape the narrative of children's wellbeing, what is done to improve/support children's wellbeing and the conversations people have about children's wellbeing. This explicit framework provided by the definition does not currently exist

in the UK for children's wellbeing. Having a shared definition of children's wellbeing is particularly important given the current climate regarding the Covid-19 pandemic. If researchers and government want to support young people's wellbeing, they first adopt a shared framework of what the construct actually means to children.

The development of the definition followed recommendations provided by Podsakoff, MacKenzie and Podsakoff (2016). This guidance was key throughout the process and future research should consult published guidance. The process of developing the construct definition was long and complex; this is something scholars should be mindful of when developing a definition. Having time-off from constructing the definition and returning with 'fresh-eyes' was important for clarity of thought. Additionally, having a critical friend (in this case a supervisor) review each developed definition was important. The development of a definition should not be done in silo.

The methods used to develop the measure were based on recommendations from scale development literature (MacKenzie et al., 2011; Streiner et al., 2015); experts were included within the primary research which underpinned the definition of children's wellbeing. Experts provided a valuable insight into wellbeing and data supported children's conceptions. As children have the right to have their voices heard within research about themselves (Lees et al., 2017), they were included within the development of the definition which underpinned this thesis. Inclusion of children within research is often limited due to concerns for literacy and meaningful contribution (Lundy et al., 2011). However, within this thesis children's contributions were carefully considered and invaluable. Future research should adopt a focus group style of enquiry as the discussions between children were extremely insightful. Additionally, providing activities to engage young people (such as the ranking activity in chapter 5) and capturing their thought process throughout the activity was a crucial aspect of understanding children's conception of wellbeing.

9.3.2 Scale Development

The development of the WCWS, with further validation studies, means that future research can measure children's wellbeing. As the measure has been developed for a general context, it has a versatile use. Arguably, any organisation who works with children can use it to monitor wellbeing. As the scale has five subdimensions, results can be used to highlight which areas of children's wellbeing are flourishing or need improvement. Based on this, organisations can develop interventions with a focus on one of the five areas to improve overall wellbeing. The utility of the scale is not limited to research, the development of the scale also has implications for policy and organisations. The Organisation for Economic Co-operation and Development's (OECD) centre for Wellbeing, Inclusion,

Sustainability and Equal Opportunities called for a multidimensional child centred measure of wellbeing in July 2021 (OECD, 2021). Additionally, the improvement in children's wellbeing is a key policy goal for organisations including Youth Sports Trust, Stormbreak, UN Rights of the Child and Young Minds. The WCWS can be used to both reliably and validly evidence the progress these organisations are having towards their policy goals.

Measurement of variables is a fundamental aspect of science, and therefore, transparency in reporting the development of a new measure is crucial to enable assessment of reliability and valid conclusions to be made (Flake & Fried, 2020). The scale development process followed the guidance of MacKenzie et al (2011). While this guidance was detailed and clear it did not reflect the true reality of scale development. Decisions based on underpinning theory should prevail over statistical significance however, research suggests that underpinning theory should not be compromised, and statistical values need to be achieved in order to validate a scale. The scale development process is intricate and in reality, compromises need to be made. For example, guidance suggests that each subscale needs to have three items (Carpenter, 2018). While this should be seen as gold standard it should not stop the development of a measure. Within this thesis the subscale 'Friends' has two items, therefore, does not meet the gold standard three items to be adequately represented. However, this subscale has high internal reliability, high factor loadings and during the development of underpinning theory friendships prevailed as a significant impactor on children's wellbeing. Therefore, the subscale remained in the scale. Honest reporting of justifications for compromises is needed to highlight scale development complexities.

Whole factors were also removed during the scale development process (Happiness and Flourishing). This stage of the research highlighted the complexities of scale development whereby there is tension between achieving statistical benchmarks and staying true to the underpinning theory. The approach taken to this thesis was that all relevant data collected during the consultation with experts and children would be put forward for the scale development. Any irrelevant items (or in this case sub-scales) would then be weeded out by the factor analysis process, a process commonly cited within scale development literature (Streiner *et al*., 2015). Although decisions during scale validation should not compromise underpinning theory, in this case the statistical stage of scale development highlighted issues with the underpinning theory relating to happiness and flourishing. Therefore, the statistical analysis drove the re-reflection and resulted in a change in underpinning theory. The PhD could have been ignorant to this and chose, for simplicity, to not report these subscales ever existing but, to be transparent allows other researchers to pass judgement on methodological rigor and validity of the scale (Flake & Fried, 2017). Detailing decision-making processes within publications is

key for clarity and to present an accurate representation of the scale development process. Flake and Fried (2020) highlight the importance of transparency when reporting measurement design and practice to promote methodological rigour and allow for accurate evaluation of a measures/studies reliability.

This thesis provides the initial reliability and validity statistics for the WCWS. While shown to have face and construct validity, further statistical analysis is needed to complete all the stages of MacKenzie and colleagues (2011) framework. The transparency in reporting of the scale development process allows readers to understand the application and limitations of the developed measure in its current form. One area in stage eight which needs developing is examination of the second order model. Currently, the analysis supports that the items reflect their subscales but, it is not yet examined if these subscales account for the latent construct, wellbeing. Stages nine (cross-validation) and ten (development of normative values) also need to be completed so results from the WCWS can be used in a meaningful way. For example, without normative values developed it is unknown how the scores of wellbeing relate to an average population.

9.3.3 Use of case study

Although there is a wealth of literature focused on the impact of lockdown on children's education, Holt and Murray (2021) called for research on the specific experiences of children during lockdown in other domains, such as leisure. The case study sought to share accounts of the impact of lockdown on blue exercise (as a form of leisure) from the perspectives of both parents and children. It was identified that national lockdown had a significant impact on participants' lives, including their ability to engage in leisure activities, with supporting literature highlighting the prevalence of loneliness amongst children. The findings of this study have implications for policy, educators, and parents, whereby encouraging leisure and sporting activities post lockdown could mitigate poor wellbeing and loneliness in children (McKinlay *et al.,* 2021).

The case study has also collated preliminary data which suggests participation in blue-exercise is limited to white middle-upper class populations. This research can be used as evidence to base future interdisciplinary research on which focuses on understanding barriers marginalised communities have to accessing this type of activity. This is particularly important as it is believed the pandemic will disproportionately impact disadvantaged children (Hefferon *et al.,* 2021). Therefore, understanding barriers these groups have to accessing blue exercise (and therefore health and wellbeing) is important.

The case study, however, is limited by a small and exclusive sample and therefore findings cannot be generalised beyond the research. The research gave a voice to children whose perspectives are underrepresented within research nonetheless, there is a shift in research from 'on' children, to 'with' children (Christopher, 2021). The case study provides evidence which advocates the inclusion of having the voice of the child within research. Children are the experts of their own experiences and therefore have the right, and ability, to contribute to research and decisions made about their own lives. Future research into individualised and unprecedented events should also include the voice of the child. Additionally, the inclusion of the parent's voice provided a different perspective and a way of 'triangulating' data which improved the overall quality of the study. Future research should adopt a more creative way of stimulating conversation such as the use of photo voice or drawings however, with the limitations of the Covid-19 pandemic, sharing of materials was not allowed.

9.4 Conclusion

The main aim of this thesis was to develop and validate a scale to measure children's wellbeing while following strict scale development guidelines (MacKenzie *et al.,* 2011). This thesis has empowered the voice of the child and provided new knowledge regarding the conceptualisation of wellbeing from the perspective of children. Having an explicit definition and a scale to measure children's wellbeing in a general context means that policy makers, the education sector, and essentially anyone or any business who work with/for children, can utilise this new knowledge and measure developed by this thesis to support/improve children's overall wellbeing.

This thesis also includes a case study of the Andrew Simpson Foundation, Portsmouth. Findings supported existing literature which suggests physical activity and nature improve wellbeing but study limitations due to Covid-19 meant that findings could not be generalised to a wider population and sophisticated statistical analyses could not be used to identify specifically what about the Andrew Simpson Foundation contributes to children's wellbeing. Yet, the findings from the research will impact wider society as the Andrew Simpson Foundation will be able to use results as evidence to campaign for further funding to potentially offer free sailing/windsurfing sessions to marginalised groups of children.

This thesis has furthered knowledge and understanding surrounding the assessment of wellbeing in children aged 11-16 years old, and the consequences of participation in blue exercise upon wellbeing, nature connection and enjoyment of physical activity. Participation in blue exercise has the potential to positively impact individuals' wellbeing and future research should seek to identify this impact in wider, more diverse samples. Understanding this impact and promoting participation in blue exercise could mitigate the negative impacts of the Covid-19 pandemic and national lockdowns on children.

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11. Appendix

11.1: Young People's Wellbeing Scale Review: Underpinning Properties

	Name of Scale	Definition	Age Range	Underpinning Work	Dimensions/Subscales	Context	Country of Origin
The Children's Society	The Good Childhood Index	✖	10-15	An open-ended survey of 'just under' 7,000 young people aged 11 - 15 in England	Happiness; life satisfaction; individual factors; overall associations; overall wellbeing; environmental experiences; stability and change; experiences of bullying; family relationships	General National Measure	UK
Liddle & Carter (2015)	Stirling Children's Wellbeing Scale	For the sake of clarity, the holistic view of wellbeing incorporating both SWB [subjective wellbeing] and PWB [psychological wellbeing] will simply be described as "psychological wellbeing (PWB)" (p. 175).	11-15	Warwick-Edinburgh Mental Wellbeing Scale & literature review	Positive Emotional State; Positive Outlook; Social Desirability	School	UK
McLellan & Steward (2015)	How I Feel About Myself and School	A broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgments of life satisfaction … 'We define SWB as a general area of scientific interest rather than	11-15	PERMA, PANAS, The Satisfaction with Life Scale, UNICEF Index of Children's Wellbeing, Health Behaviour in School-aged Children (HBSC), The Index of Children's Subjective Wellbeing in	Interpersonal; Life-satisfaction; Competence; Negative emotion	School	UK

		a single specific construct' (p.309).		England & a steering group			
Clarke *et al* (2011)	WEMWBS	The extent to which good feelings predominate over bad feelings, and this is reflected in the balance formula for calculating the total score: PA - NA	13-16	WEMWBS & Affectometer 2	Unidimensional: Mental Wellbeing	General National Measure	UK
Grossi & Compare (2012)	Psychological General Wellbeing index	Physical wellbeing consists of the ability to perform physical activities and carry out social roles that are not hindered by physical limitations and experiences of bodily pain, and biological health indicators.	15+	Psychological General Wellbeing (PGWB) Schedule	Anxiety; Depressed mood; Positive wellbeing; Self-control; General health; Vitality	General	Italy
Bradshaw, Hoelscher & Richardson	An index of child wellbeing in the European Union	Realisation of children's rights and the fulfilment of the opportunity for every child to be all she or he can be.	0-16	Bronfenbrenner's bioecological model of	Material situation; Housing; Health; Subjective wellbeing; Education; Children's relationships; Civic participation; Risk and safety.	General	Europe

Land *et al*, 2001	Child and Youth Wellbeing Index in the United States	✗	0-17	Human development	family economic wellbeing, health, safety/behaviour, educational attainment, community connectedness, social relationships, and emotional/spiritual wellbeing	General	USA
Huebner (1991)	Students' Life Satisfaction Scale	Research has derived three major components of subjective wellbeing: positive affect, negative affect and life satisfaction	7 - 14	Diener *et al* (1985) Life Satisfaction Questionnaire for Adults	Unidimensional: Life Satisfaction	Student Life Satisfaction	USA
Cummins & Lau (2005)	Personal Wellbeing Index: School Children	✗	12 - 20	The Comprehensive Quality of Life Scale	Standard of living; Health Achievement; Achievement; Relationships; Safety; Community; Security; Religion & School	Life Satisfaction	Australian
Tabor & Yull (2018)	Office for National Statistics Measure of Personal Wellbeing	Personal wellbeing is based on people's views of their own individual wellbeing. Personal wellbeing measures are grounded in individuals' preferences and take account of what matters to people by allowing them to	16+	Their own previous research and interviews.	Life Satisfaction; Worthwhile; Happiness; Anxiety	National	UK

		decide what is important when they respond to questions (p.11).					
Rees *et al*. (2010)	Children's Society Good Childhood Index: Short Version	✗	8-15	Whatever data of acceptable quality were available	Life Satisfaction; Overall Wellbeing Happiness	OECD Countries	UK
Waterman *et al*. (2010)	The Questionnaire for Eudaimonic Wellbeing	Quality of life derived from the development of a person's best potentials and their application in the fulfilment of personally expressive, self-concordant goals (p.41)	17 – 31	Philosophical understandings of Eudaimonic wellbeing	Unidimensional: Eudaimonic Wellbeing	College Students	USA

11.2: Young People's Wellbeing Scale Review: Methodological Properties

	Name of Scale	Items per subscale	Scale Type	Validity & Reliability Testing	Overarching anchor	Number of Citations
The Children's Society	The Good Childhood Index	✗	5-point Likert scale and 10-point score	Construct Validity; Bivariate correlations p.23; Cronbach's alpha; Internal Consistency; Test-retest reliability	Please say how much you disagree or agree with each of the following statements AND How happy are you with…	✗
Liddle & Carter (2015)	Stirling Children's Wellbeing Scale	6 / 6 / 3	5-point Likert scale	Face validity; Construct validity; Internal reliability; external reliability	Over the last couple of weeks	17
McLellan &Steward (2015)	How I Feel About Myself and School	8 / 5 / 5 / 2	Likert Scale and ratings out of 10	Factor Analysis; Predictive validity	Over the last 2 weeks	20
Clarke *et al* (2011)	WEMWBS	✗	5-point Likert scale	Construct Validity; Correlation Coefficients; Factor analysis; Internal Consistency; Test re-test	✗	126
Grossi & Compare (2012)	Psychological General Wellbeing index	≥3	Several types of frequency–intensity matrices are used in the response	Factor analysis; construct validity; Cronbach's alpha	Mixture of questions and statements	3
Bradshaw, Hoelscher & Richardson	An index of child wellbeing in the European Union	51 items overall	Objective Statistical Data	Z Scores	✗	219

Land *et al*, 2001	Child and Youth Wellbeing Index in the United States	4 / 6/ 2 / 3 / 5 / 2 / 6	Objective Statistical Data	✗	✗	93
Huebner (1991)	Students' Life Satisfaction Scale	✗	4-point Likert	Convergent Validity; Test-Retest; Internal Consistency	N/A - The rating is about a general statement of life	481
Cummins & Lau (2005)	Personal Wellbeing Index: School Children	1	11 Point Likert Scale	EFA & CFA & Construct Validity	How happy are you…	27
Tabor and Yull (2018)	Office for National Statistics Measure of Personal Wellbeing	1	Visual Analogue Scale	No factor analysis as each question is analysed separately.95% confidence intervals and coefficient variation	How strongly do you agree with the following statements	✗
Rees *et al*. (2010)	Children's Society Good Childhood Index: Short Version	1	5&10-point Likert	unclear	Please say how much you disagree or agree with each of the following statements AND How happy are you with…	✗
Waterman *et al*. (2010)	The Questionnaire for Eudaimonic Wellbeing	N/A	5-point Likert Scale	Factor Analysis; Cronbach's alpha; Convergent validity, discriminant validity	✗	162

11.3: **Study One: Information Sheet**

Participant Information Sheet

Defining wellbeing: Using a qualitative methodology to look through the lens of expert practitioners within the field of wellbeing.

Postgraduate Researcher: Ellie Gennings

Ethics Approval Code: [BLS/19/03]

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to check a box indicating consent before completing an online survey.

What is the research about?

The aim of this research is to understand the individual ideologies current experts within the field of wellbeing have regarding what wellbeing means. The purpose of this is to contribute to the development of a validated scale to measure wellbeing.

Why am I being asked to take part?

I am approaching you because you because you are regarded as an expert within the field of wellbeing.

What will I have to do if I take part?

You will participate in an individual interview with the researcher for a maximum of 60 minutes to discuss the topic of wellbeing. A sound recording device will be used and transcripts written for the use of the researcher only.

Are there any benefits in my taking part?

By taking part you may become more aware of your thoughts and feelings related to wellbeing. Collectively, all information gathered will be used to inform the development of a scale for wellbeing. Enabling practitioners to monitor improvements in wellbeing and increase advocacy of the topic.

Are there any risks involved?

In taking part there is no risk greater than those risks faced in everyday life.

Will my participation be confidential?

We comply with the Data Protection Act and our own University policy on data management and storage. All information will remain confidential as no participant names will be attached to it. All

data will be stored on a password protected computer only accessible to the researcher and their supervisor. Anonymity is also assured.

What happens if I change my mind?

You have the right to withdraw from the study without your legal rights being affected. You can withdraw from the study at any point until the data analysis has occurred. There is no penalty for withdrawing and there will be no ill feeling.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you should contact the chair of our ethics committee, Dr James Faulkner (email james.faulkner@winchester.ac.uk).

Where can I get more information?

If you would like to ask any questions about this research, please get in touch with either Ellie Gennings or Hazel Brown. Their contact details are below.

Postgraduate Researcher: Ellie Gennings Department of Sport & Exercise University of Winchester Email: E.Gennings.14@unimail.winchester.ac.uk

Research Supervisor: Dr Hazel Brown Department of Sport & Exercise University of Winchester Tel: 01962 827464 Email: hazel.brown@winchester.ac.uk

11.4: Study One: Interview Guide

Interview Guide: Defining wellbeing: Using a qualitative methodology to look through the lens of expert practitioners within the field of wellbeing.

1. How have you used the concept of wellbeing within your research/work?
2. What do you personally believe wellbeing is?
3. How does wellbeing differentiate to happiness?
4. What do you think influences an individual's wellbeing?
5. Is there a link between basic needs and wellbeing?
6. Do you think wellbeing means the same thing throughout the course of one's life?

11.5: Study Two: Participant Information Sheet

Participant Information Sheet

Defining and Understanding Wellbeing: Development of the Winchester Wellbeing Scale.

Researcher: Ellie Gennings

Ethics Approval Code: BLS/19/15

Please read this sheet carefully before deciding to take part in this research. If you are happy to take part you will be asked to check a box showing consent before taking part in the interview.

What is the research about?

Wellbeing is a large topic which covers health, life purpose and flourishing. The aim of this research is to understand opinions and ideas young people have about wellbeing. This will help create a scale to accurately measure young people's wellbeing.

Why am I being asked to take part?

I am inviting you to take part because you are within the age range (11 to 16 years old) which this research study is focused on.

What will I have to do if I take part?

You will take part in a group interview with the researcher for up to 30 minutes to talk about wellbeing. A sound recording device will be used so the discussion can be typed up in order for the researcher to analyse the conversation. The audio recording will be available to the researcher only.

Are there any benefits in my taking part?

By taking part you may become more aware of your thoughts and feelings about wellbeing. All of the information will be used to create a scale to measure young people's wellbeing. This could encourage the government and, for example, schools to measure and try to improve young people's wellbeing.

Are there any risks involved?

There is no risk greater than those risks faced in everyday life by taking part.

Will my participation be confidential?

We comply with the Data Protection Act and our own University policy on how we look after our data. All information will remain confidential as no participant names will be used. You will remain anonymous. All data will be stored on a password protected computer only available to the researcher and their supervisor.

What happens if I change my mind?

You have the right to stop taking part in the study without your legal rights being affected. You can stop taking part in the study at any point until the data analysis has occurred. There is no penalty for withdrawing and there will be no ill feeling.

What happens if something goes wrong?

In the case of concern or complaint, you should contact the chair of our ethics committee, Dr James Faulkner (email james.faulkner@winchester.ac.uk) and quote the following ethical approval code (BLS/19/15).

Where can I get more information?

If you would like to ask any questions about this research, please get in touch with either Ellie Gennings or Hazel Brown. Their contact details are below.

Postgraduate Researcher: Ellie Gennings Department of Sport & Exercise University of Winchester Email: E.Gennings.14@unimail.winchester.ac.uk

Research Supervisor: Dr Hazel Brown Department of Sport & Exercise University of Winchester Tel: 01962 827464 Email: hazel.brown@winchester.ac.uk

11.6: Study Two: Interview Guide

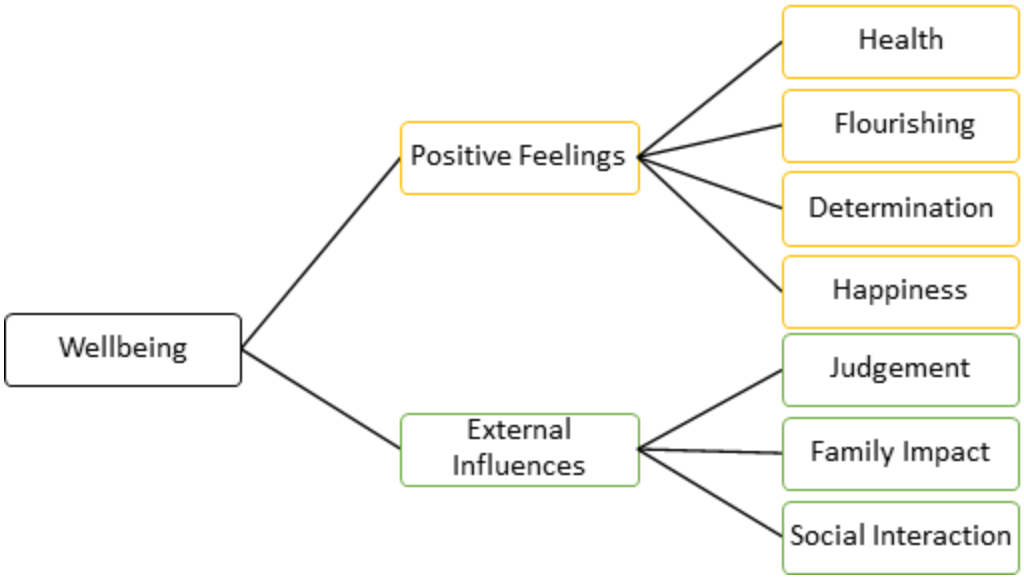
Interview Guide: Defining and Understanding Wellbeing: Development of the Winchester Wellbeing Scale.

1. What other topics about metal health have you discussed before?
2. What does the word wellbeing mean to you?
3. Have you ever thought about your own wellbeing?
4. Can you rate these items from most important to least important for wellbeing?
    - Happiness
    - Physical Health
    - Mental Health
    - Friendships
    - Family Relationships
    - Food and shelter
    - Money
    - Feeling comfortable
    - Having goals and challenges
    - New clothes
    - New Xbox
5. Why did you put the items in this order?
6. If you could add anything else to this list, what would you add?
7. What do you think effects someone's wellbeing?
8. Do you think you and your best friend get feelings of good wellbeing from the same things?
9. If you wanted to know if your friends had good wellbeing, what would you ask them?
10. Do you think your feeling of wellbeing changes depending on where you are (for example, at school, home, at the park)?

11.7: Subscale Scrutiny Sheet

The Winchester Children's Wellbeing Scale – Scale Development Day – 2020

My research has split wellbeing into 'external influences' and 'positive feelings'. The following figure shows what theme the subscales fit under.



How well do the following definitions encapsulate the characteristics provided below?

Health: Perceptions of feeling well within one's self

Characteristics: Feeling both mentally and physically well within one's self

Flourishing: Perception of accomplishment from achieving goals

Characteristics: Achieving what one hopes to achieve in life

Determination: Perceptions of drive to achieve personal goals

Characteristics: A motivating behaviour causing the want to achieve which firms' purpose

Happiness: Perceptions of momentary pleasure

Characteristics: A momentary attainment of pleasure for pleasures sake

Judgement: Perceptions of being viewed negatively by others

Characteristics: Being unaccepted by peers and feeling uncomfortable within self

Family Impact: Perceptions of comfort afforded by parents

Characteristics: Having parents present and providing comforting safe environment

Friends: Perceptions of feeling connected to others

Characteristics: A fundamental need to have connections with others which improves overall mood and provides a distraction

11.8: Subscale definitions and refinement

Health: Perceptions of feeling well within one's self

Characteristics: Feeling both mentally and physically well within one's self

Flourishing: Perceptions of accomplishment from achieving goals

Characteristics: Achieving what one hopes to achieve in life and helping in society

Determination: Perceptions of drive to achieve personal goals

Characteristics: A motivating behaviour causing the want to achieve which firms' purpose

Happiness: Perceptions of momentary pleasure

Characteristics: A momentary attainment of pleasure for pleasures sake

Judgement: Perceptions of being viewed negatively by others

Characteristics: Being unaccepted by peers and feeling uncomfortable within self

Family Impact: Perceptions of comfort afforded by parents and carers

Characteristics: Having parents present and providing comforting safe environment

Friends: Perceptions of feeling connected to others

Characteristics: A fundamental need to have connections with others which improves overall mood and provides a distraction

11.9: Initial Items Developed & ABC Split

Sub Scales	Affect	Behaviour	Cognitive
Health	Felt well within myself Felt physically fit Felt well rested Felt positive about myself Felt physically strong Felt physically able to complete tasks Felt comfortable with how much physical activity I do Felt ok Felt in control Felt stressed Felt overwhelmed Felt like I needed to do more physical activity Felt like I had headspace	Had a positive attitude Took part in physical activity Have been physically able to complete tasks Had lots of energy Had a lack of energy Did not want to take part in physical activity	Remember feeling physically healthy Remember feeling mentally well Recognised when I needed to rest Remember feeling weak
Happiness	Felt happy Felt comfortable within myself Felt frustrated Felt unhappy	Was happy with my appearance Did things that made me happy Did things that made me feel good Had fun Found enjoyment in things Did something that made me unhappy Did things which made me sad	Recognised moments that made me happy Remember being happy Recognised moments that made me unhappy

Flourishing	Felt good about what I've done Felt successful Felt bad about what I achieved Felt unsuccessful	Overcame personal challenges Have achieved a personal goal Have had a feeling of accomplishment Achieved what I set out to do Stayed on top of things Had my efforts rewarded Identified when I was successful Celebrated my achievements Did not accomplish a goal I wanted to	Recognised my achievements Recognised when I was successful Remember celebrating my achievements Remember not achieving what I set out to achieve Remember not being bothered about an achievement
Determination	Felt determined to achieve a goal Felt motivated Felt like people were asking too much of me	Worked hard Knew what I wanted to do Put in effort towards a task Did not push myself Invested my efforts in something worthwhile Kept going when things got tough Kept going when things were too hard Persisted in a challenging situation Was expecting too much of myself Gave up when things got difficult Did not want to work hard	Remember being motivated Remember working hard Remember being unmotivated Remember giving up on a goal

Friends	Felt like part of a group Felt like I could trust others Felt confident to be myself around others Felt lonely Felt reluctant to talk to others Felt reluctant to reach out to others Felt nervous around other people	Did not feel sociable Found the time to talk to friends Spent time with friends Talked to other people about my problems Had my mood lifted by others Had others make me feel good about myself Had support when I needed it Did not enjoy spending time with others Was sometimes anti-social Was distant from other people	Recognised when I had a good chat with someone Remember chatting to other people Remember feeling connected to others Remember when being with others provided a good distraction Remember being disconnected to people
Judgement	Felt accepted by others Felt like I could be me Felt like I belonged Felt judged by others	Was able to be myself Could be myself around others Was confident in being myself around others Tried to get people to like me Was accepted by others for being me Was worried about what other people thought of me Was hurt by what people said about me Took peoples comments personally Kept thinking about what others said about me	Remember wanting more people to accept me Remember thinking people didn't like me Remember acting differently to fit in

Family Impact	Felt comfortable at home Felt supported by my family Felt encouraged by my family Felt safe at home Felt my family were there for me when I needed them Felt like my family listened to me Felt left out of family events Felt like my family made decisions for me Felt that my family pushed me Felt like my family expected too much of me Felt uncomfortable around my family Felt uncomfortable at home	Spent time at home Wanted to spend time at home Engaged in my family life Got on with my family Did not see my family as much as I would have liked Argued with my family Fell out with my family	Recognised when I had support Think my family understood who I am Remember when my family comforted me Remember when my family supported me

11.10: Expert's Information Sheet & Consent Form

Participant Information Sheet

Validation of the Winchester Wellbeing Scale: Content Validity.

Researcher: Ellie Gennings

Ethics Approval Code: HWB_REC_20/01_Gennings

Please read this sheet carefully before deciding to take part in this research. If you are happy to take part you will be asked to check a box showing consent.

What is the research about?

Wellbeing is a large topic which covers health, life purpose and flourishing. The aim of this research is to discover if a newly developed scale to measure wellbeing is valid. This will help create a scale to accurately measure young people's wellbeing.

Why am I being asked to take part?

I am inviting you to take part because you have been considered an expert in wellbeing and/or scale development.

What will I have to do if I take part?

You will have to rate on a 4-point scale each items relatedness to its sub-scale definition.

Are there any benefits in my taking part?

By taking part you may become more aware of your thoughts and feelings about wellbeing. All the information will be used to validate a scale to measure young people's wellbeing. This could encourage the government and, for example, schools to measure and try to improve young people's wellbeing.

Are there any risks involved?

There is no risk greater than those risks faced in everyday life by taking part.

Will my participation be confidential?

We comply with the Data Protection Act and our own University policy on how we look after our data. All information will remain confidential as no participant names will be used. You will remain anonymous. All data will be stored on a password protected computer only available to the researcher and their supervisor.

What happens if I change my mind?

You have the right to stop taking part in the study without your legal rights being affected. You can stop taking part in the study at any point until the data analysis has occurred. There is no penalty for withdrawing and there will be no ill feeling.

What happens if something goes wrong?

In the case of concern or complaint, you should contact the chair of our ethics committee, Dr James Faulkner (email james.faulkner@winchester.ac.uk) and quote the following ethical approval code (HWB_REC_20/01_Gennings)

Where can I get more information?

If you would like to ask any questions about this research, please get in touch with either Ellie Gennings or Hazel Brown. Their contact details are below.

Postgraduate Researcher:

Ellie Gennings

Department of Sport & Exercise

University of Winchester

Email: Ellie.Gennings@winchester.ac.uk

Research Supervisor:

Dr Hazel Brown

Department of Sport & Exercise

University of Winchester

Tel: 01962 827464

Email: hazel.brown@winchester.ac.uk

CONSENT FORM FOR VALIDATION PARTICIPATION

Study title: Validation of the Winchester Children's Wellbeing Scale (Content Validity).

Researcher: Ellie Gennings

Please tick next to each box to indicate that you have read and understood the statement

		Participant
1.	I confirm that I have read and understand the information sheet for the above study and that I have had an opportunity to ask questions	
2.	I understand that my participation is voluntary and that I am free to withdraw at any time without my legal rights being affected	
3.	I agree to take part in the above study	

Name of participant	Date	Signature
Researcher	Date	Signature

Data Protection Act

I understand that data collected about me during my participation in this study will be stored on computer, and that any files containing information about me will be made anonymous.

I agree to the University of Winchester recording and processing this information about me. My consent is conditional upon the University complying with its duties and obligations under the Data Protection Act.

11.11: Experts CVI Form

Content validity Index: The Winchester Wellbeing Scale

The following categories are the subscales which make up a scale to measure young people's wellbeing. Please rate the individual items representativeness of the defined subscale, with 1 being completely irrelevant and 4 being extremely relevant.

The overarching anchor for the scale is 'over the past month I…'.

Happiness: Perceptions of momentary pleasure

Characteristics: A momentary attainment of pleasure for pleasures sake

Over the past month I…	1	2	3	4
Felt happy				
Felt comfortable within myself				
Felt frustrated				
Felt unhappy				

Recognised moments that made me happy				
Remember being happy				
Recognised moments that made me unhappy				

Was happy with my appearance				
Did things that made me happy				
Did things that made me feel good				
Had fun				
Found enjoyment in things				
Did something that made me unhappy				
Did things which made me sad				

Health: Perceptions of feeling well within one's self

Characteristics: Feeling both mentally and physically well within one's self

Over the past month I…	1	2	3	4
Felt well within myself				

Felt physically fit				
Felt well rested				
Felt positive about myself				
Felt physically strong				
Felt physically able to complete tasks				
Felt comfortable with how much physical activity I do				
Felt ok				
Felt in control				
Felt stressed				
Felt overwhelmed				
Felt like I needed to do more physical activity				
Felt like I had headspace				

Remember feeling physically healthy				
Remember feeling mentally well				
Recognised when I needed to rest				
Remember feeling weak				

Had a positive attitude				
Took part in physical activity				
Have been physically able to complete tasks				
Had lots of energy				
Had a lack of energy				
Did not want to take part in physical activity				

Judgement: Perceptions of being viewed negatively by others

Characteristics: Being unaccepted by peers and feeling uncomfortable within self

Over the past month I…	**1**	**2**	**3**	**4**
Felt accepted by others				
Felt like I could be me				
Felt like I belonged				
Felt judged by others				

Remember wanting more people to accept me				
Remember thinking people didn't like me				
Remember acting differently to fit in				

Was able to be myself				
Could be myself around others				
Was confident in being myself around others				
Tried to get people to like me				
Was accepted by others for being me				
Was worried about what other people thought of me				
Was hurt by what people said about me				
Took peoples comments personally				
Kept thinking about what others said about me				

Friends: Perceptions of feeling connected to others

Characteristics: A fundamental need to have connections with others which improves overall mood and provides a distraction

Over the past month I…	**1**	**2**	**3**	**4**
Felt like part of a group				
Felt like I could trust others				
Felt confident to be myself around others				
Felt lonely				
Felt reluctant to talk to others				
Felt reluctant to reach out to others				
Felt nervous around other people				
Did not feel sociable				

Recognised when I had a good chat with someone				
Remember chatting to other people				
Remember feeling connected to others				
Remember when being with others provided a good distraction				
Remember being disconnected to people				

Found the time to talk to friends				
Spent time with friends				
Talked to other people about my problems				
Had my mood lifted by others				
Had others make me feel good about myself				
Had support when I needed it				
Did not enjoy spending time with others				
Was sometimes anti-social				
Was distant from other people				

Family Impact: Perceptions of comfort afforded by parents and carers

Characteristics: Having parents present and providing comforting safe environment

Over the past month I…	**1**	**2**	**3**	**4**
Felt comfortable at home				
Felt supported by my family				
Felt encouraged by my family				
Felt safe at home				
Felt my family were there for me when I needed them				
Felt like my family listened to me				
Felt left out of family events				
Felt like my family made decisions for me				
Felt that my family pushed me				
Felt like my family expected too much of me				
Felt uncomfortable around my family				
Felt uncomfortable at home				

Recognised when I had support				
Think my family understood who I am				
Remember when my family comforted me				
Remember when my family supported me				

Spent time at home				
Wanted to spend time at home				

Engaged in my family life				
Got on with my family				
Did not see my family as much as I would have liked				
Argued with my family				
Fell out with my family				

Flourishing: Perception of accomplishment from achieving goals

Characteristics: Achieving what one hopes to achieve in life and helping in society

Over the past month I…	**1**	**2**	**3**	**4**
Felt good about what I've done				
Felt successful				
Felt bad about what I achieved				
Felt unsuccessful				

Recognised my achievements				
Recognised when I was successful				
Remember celebrating my achievements				
Remember not achieving what I set out to achieve				
Remember not being bothered about an achievement				

Overcame personal challenges				
Have achieved a personal goal				
Have had a feeling of accomplishment				
Achieved what I set out to do				
Stayed on top of things				
Had my efforts rewarded				
Identified when I was successful				
Celebrated my achievements				
Did not accomplish a goal I wanted to				

Determination: Perceptions of drive to achieve personal goals

Characteristics: A motivating behaviour causing the want to achieve which firms' purpose

Over the past month I…	1	2	3	4
Felt determined to achieve a goal				
Felt motivated				
Felt like people were asking too much of me				
Remember being motivated				
Remember working hard				
Remember being unmotivated				
Remember giving up on a goal				
Worked hard				
Knew what I wanted to do				
Put in effort towards a task				
Did not push myself				
Invested my efforts in something worthwhile				
Kept going when things got tough				
Kept going when things were too hard				
Persisted in a challenging situation				
Was expecting too much of myself				
Gave up when things got difficult				
Did not want to work hard				

Total Items: 134

11.12 Young People Information Sheet & Consent Form

Participant Information Sheet

Validation of the Winchester Wellbeing Scale: Content Validity.

Researcher: Ellie Gennings

Ethics Approval Code: HWB_REC_20/01_Gennings

Please read this sheet carefully before deciding to take part in this research. If you are happy to take part you will be asked to check a box showing consent.

What is the research about?

Wellbeing is a large topic which covers health, life purpose and flourishing. The aim of this research is to discover if a newly developed scale to measure wellbeing is valid. This will help create a scale to accurately measure young people's wellbeing.

Why am I being asked to take part?

I am inviting you to take part because you are between the age of 11 to 16.

What will I have to do if I take part?

You will have to rate on a 4-point scale how related each statement is to its category definition.

Are there any benefits in my taking part?

By taking part you may become more aware of your thoughts and feelings about wellbeing. All the information will be used to validate a scale to measure young people's wellbeing. This could encourage the government and, for example, schools to measure and try to improve young people's wellbeing.

Are there any risks involved?

There is no risk greater than those risks faced in everyday life by taking part.

Will my participation be confidential?

We comply with the Data Protection Act and our own University policy on how we look after our data. All information will remain confidential as no participant names will be used. You will remain anonymous. All data will be stored on a password protected computer only available to the researcher and their supervisor.

What happens if I change my mind?

You have the right to stop taking part in the study without your legal rights being affected. You can stop taking part in the study at any point until the data analysis has occurred. Your parent can also stop you taking part in the study at any point until the data analysis has occurred. There is no penalty for withdrawing and there will be no ill feeling.

What happens if something goes wrong?

In the case of concern or complaint, you should contact the chair of our ethics committee, Dr James Faulkner (email james.faulkner@winchester.ac.uk) and quote the following ethical approval code (HWB_REC_20/01_Gennings).

Where can I get more information?

If you would like to ask any questions about this research, please get in touch with either Ellie Gennings or Hazel Brown. Their contact details are below.

Postgraduate Researcher:

Ellie Gennings

Department of Sport & Exercise

University of Winchester

Email:
Ellie.Gennings@winchester.ac.uk

Research Supervisor:

Dr Hazel Brown

Department of Sport & Exercise

University of Winchester

Tel: 01962 827464

Email: hazel.brown@winchester.ac.uk

CONSENT FORM FOR VALIDATION PARTICIPATION

Study title: Validation of the Winchester Children's Wellbeing Scale (Content Validity).

Researcher: Ellie Gennings

Please tick next to each box to indicate that you have read and understood the statement

		Participant	Parent
1.	I confirm that I have read and understand the information sheet for the above study and that I have had an opportunity to ask questions		

2.	I understand that my participation is voluntary and that I am free to withdraw at any time without my legal rights being affected		
3.	I agree to take part in the above study		

Please date and sign below to show consent

	Date of Birth	Date	Signature
Child			
Parent			
Researcher		June 2020	E Gennings

Data Protection Act

I understand that data collected about me during my participation in this study will be stored on computer, and that any files containing information about me will be made anonymous.

I agree to the University of Winchester recording and processing this information about me. My consent is conditional upon the University complying with its duties and obligations under the Data Protection Act.

11.13: Young People CVI Form

Content Validity Index: The Winchester Wellbeing Scale

The following categories make up a scale to measure young people's wellbeing. Please rate how well each statement relates to the categories definition by placing an x in the relevant box.

- 1 = completely irrelevant
- 4 = extremely relevant

Happiness: Perceptions of momentary pleasure

Characteristics: A momentary attainment of pleasure for pleasures sake

Over the past month I…	1	2	3	4
1. Felt happy				
2. Felt unhappy				
3. Recognised moments that made me happy				
4. Did things that made me happy				
5. Did things that made me feel good				
6. Found enjoyment in things				
7. Did something that made me unhappy				

Judgement: Perceptions of being viewed negatively by others

Characteristics: Being unaccepted by peers and feeling uncomfortable within self

Over the past month I…	1	2	3	4
1. Felt accepted by others				
2. Felt like I could be me				
3. Felt like I belonged				
4. Felt judged by others				
5. Remember thinking people didn't like me				
6. Remember acting differently to fit in				

7. Was able to be myself				
8. Could be myself around others				
9. Was confident in being myself around others				
10. Tried to get people to like me				
11. Was accepted by others for being me				
12. Was worried about what other people thought of me				
13. Was hurt by what people said about me				
14. Took peoples comments personally				
15. Kept thinking about what others said about me				

Friends: Perceptions of feeling connected to others

Characteristics: A fundamental need to have connections with others which improves overall mood and provides a distraction

Over the past month I…	**1**	**2**	**3**	**4**
1. Felt like part of a group				
2. Felt like I could trust others				
3. Felt lonely				
4. Felt reluctant to talk to others				
5. Felt reluctant to reach out to others				
6. Remember feeling connected to others				

7. Found the time to talk to friends				
8. Spent time with friends				
9. Talked to other people about my problems				
10. Had my mood lifted by others				
11. Had others make me feel good about myself				
12. Had support when I needed it				
13. Did not enjoy spending time with others				

Family Impact: Perception of comfort afforded by parents, carers and home environment

Characteristics: Having parents present and providing comforting safe environment

Over the past month I…	1	2	3	4
1. Felt comfortable at home				
2. Felt supported by my family				
3. Felt encouraged by my family				
4. Felt safe at home				
5. Felt my family were there for me when I needed them				
6. Felt like my family listened to me				
7. Felt left out of family events				
8. Felt uncomfortable around my family				
9. Remember when my family comforted me				
10. Remember when my family supported me				
11. Got on with my family				
12. Argued with my family				

Determination: Perceptions of drive to achieve personal goals

Characteristics: A motivating behaviour causing the want to achieve which firms' purpose

Over the past month I…	1	2	3	4
1. Felt determined to achieve a goal				
2. Remember giving up on a goal				
3. Put in effort towards a task				
4. Invested my efforts in something worthwhile				
5. Kept going when things got tough				
6. Kept going when things were too hard				
7. Gave up when things got difficult				

Health: Perceptions of feeling well with one's mental and physical self.

Characteristics: Feeling both mentally and physically well within one's self

Over the past month I…	1	2	3	4
1. Felt well within myself				
2. Felt physically fit				
3. Felt well rested				
4. Felt positive about myself				
5. Felt physically able to complete tasks				
6. Felt comfortable with how much physical activity I do				
7. Felt stressed				
8. Remember feeling physically healthy				
9. Remember feeling mentally well				
10. Had a positive attitude				
11. Had lots of energy				
12. Had a lack of energy				

Flourishing: Perception of accomplishment from achieving goals

Characteristics: Achieving what one hopes to achieve in life and helping in society

Over the past month I…	1	2	3	4
1. Felt good about what I've done				
2. Felt successful				
3. Felt bad about what I achieved				
4. Recognised my achievements				
5. Recognised when I was successful				
6. Remember celebrating my achievements				
7. Overcame personal challenges				
8. Have achieved a personal goal				
9. Have had a feeling of accomplishment				
10. Achieved what I set out to do				
11. Stayed on top of things				

12. Had my efforts rewarded				
13. Identified when I was successful				
14. Celebrated my achievements				

11.14: School's Letter

Winchester Children's Wellbeing Scale – Pilot

Dear Head Teacher,

I hope you, your staff and pupils are adjusting well to the changes and challenges facing the education sector in the current situation.

I am a PhD student at the University of Winchester, based in the Health and Wellbeing Faculty. For my PhD I am developing and validating a scale to measure adolescent wellbeing.

As schools are settling into their new normal, I am hoping some would be able to share my scale with their pupils. The results will not be used to assess your pupils wellbeing but used to assess the validity and reliability of the structure of the scale. This measure will be a useful and accessible tool for schools to use in the future.

The link to the scale is at the end of this email. The research has full ethical approval and is GDPR compliant. Pupils are required to tick a box to show consent, and ask their parents to tick a box to show consent. They will then need to complete the scale which asks them to rank on a Likert scale how frequently an item has occurred to them (for example, 'over the last month I stayed on top of things'). This should take approximately 5-10 minutes.

The link takes you to a page which gives further information about the study. Other schools have shared the link via parent mail, in tutor time, via news letters and within class to open up discussions about wellbeing.

Please let me know if you have any questions, or if you can/cannot share the scale with your pupils.

Link to the scale to be shared with pupils: https://win-its-stu.onlinesurveys.ac.uk/the-winchester-wellbeing-scale

Many thanks,

Ellie Gennings

Please contact for more info: ellie.gennings@winchester.ac.uk

11.15: Recruitment Poster

11.16: Information Sheet and Consent Form: CFA

Participant Information Sheet

Validation of the Winchester Wellbeing Scale: The Pilot.

Researcher: Ellie Gennings

Ethics Approval Code: HWB_REC_20/01_Gennings

Please read this sheet carefully before deciding to take part in this research. If you are happy to take part you will be asked to check a box showing consent before taking part in the interview.

What is the research about?

Wellbeing is a large topic which covers health, life purpose and flourishing. The aim of this research is to discover if a newly developed scale to measure wellbeing is accurate. This will help create a scale to accurately measure young people's wellbeing.

Why am I being asked to take part?

I am inviting you to take part because you are within the age range (11 to 16 years old) which this scale is focused on.

What will I have to do if I take part?

You will have to honestly answer the questions on the questionnaire.

Are there any benefits in my taking part?

By taking part you may become more aware of your thoughts and feelings about wellbeing. All of the information will be used to validate a scale to measure young people's wellbeing. This could encourage the government and, for example, schools to measure and try to improve young people's wellbeing.

Are there any risks involved?

There is no risk greater than those risks faced in everyday life by taking part.

Will my participation be confidential?

We comply with the Data Protection Act and our own University policy on how we look after our data. All information will remain confidential as no participant names will be used. You will remain anonymous. All data will be stored on a password protected computer only available to the researcher and their supervisor.

What happens if I change my mind?

You have the right to stop taking part in the study without your legal rights being affected. You can stop taking part in the study at any point until the data analysis has occurred. There is no penalty for withdrawing and there will be no ill feeling.

What happens if something goes wrong?

In the case of concern or complaint, you should contact the chair of our ethics committee, Dr James Faulkner (email james.faulkner@winchester.ac.uk) and quote the following ethical approval code (HWB_REC_20/01_Gennings).

Where can I get more information?

If you would like to ask any questions about this research, please get in touch with either Ellie Gennings or Hazel Brown. Their contact details are below.

Postgraduate Researcher:

Ellie Gennings

Department of Sport & Exercise

University of Winchester

Email:
Ellie.Gennings@winchester.ac.uk

Research Supervisor:

Dr Hazel Brown

Department of Sport & Exercise

University of Winchester

Tel: 01962 827464

Email: hazel.brown@winchester.ac.uk

CONSENT

For parents/guardians: By clicking yes below I confirm that: A) I have read and understood the information sheet for the study and that I have had an opportunity to ask questions B) I understand that my child's participation is voluntary and that I am free to withdraw them, up until the data has been analysed, without mine or my child's legal rights being affected C) My child is aged between 11 and 16 D) I give consent for my child to take part in the above study.

YES /NO

For the young person: By clicking yes below I confirm that: A) I have read and understand the information sheet for the study and that I have had an opportunity to ask questions B) I understand that my participation is voluntary and that I am free to withdraw, up until the data has been analysed, without my legal rights being affected C) I am aged between 11 and 16 D) I agree to take part in the above study

YES /NO

11.17: Andrew Simpson Foundation Invite Letter

Dear Parent/Guardian,

My name is Ellie Gennings, and I am doing a PhD at the University of Winchester, based in the Health and Wellbeing Faculty. For my PhD, I am investigating whether the environment exercise is undertaken in impacts children's subjective wellbeing.

The current project I am working on is in collaboration with the Andrew Simpson Sailing Foundation. We are looking to see if exercising in blue spaces (in the sea) greater impacts children's wellbeing than exercising in green spaces (in a park). The project includes two groups, a control and an experimental group. The experimental group will consist of regular members aged 11-16 at the Andrew Simpson Sailing Foundation and the control group will be pupils from a secondary school that is in-land away from the coast. **The sailing foundation and I would like to invite your child to participate in the experimental group as they participate in one of the water sports offered at the sailing foundation.**

Participation in this includes once a month your child completing a questionnaire pack. The pack contains 4 questionnaires which ask questions about wellbeing, nature, enjoyment of exercise and friendships. This should take no longer than 20 minutes and everything will be completed online, via JISC Online Survey, and will be sent across to you by email. At the end of this period, I will invite some children and their parents to interview to discuss their experiences of watersports over the last 4 months. **Your child will also receive a goodie-bag containing Univrtsity of Winchester and Andrew Simpson Sailing Foundation goodies as a thank you for participation!**

If you think your child would like to participate, please click the following link to see an information sheet which details more about the study and a consent form: https://win-its-stu.onlinesurveys.ac.uk/sign-up-sheet-a-return-to-blue-space

Please let me know if you have any further questions via email: ellie.gennings@winchester.ac.uk

Many thanks,

Ellie Gennings

11.18: School's Invitation letter

Dear Parent/Guardian,

My name is Ellie Gennings, and I am doing a PhD at the University of Winchester, based in the Health and Wellbeing Faculty. For my PhD, I am investigating whether the environment exercise is undertaken in impacts children's subjective wellbeing.

The current project I am working on is in collaboration with the Andrew Simpson Sailing Foundation. We are looking to see if exercising in blue spaces (in the sea) greater impacts children's wellbeing than exercising in green spaces (in a park). The project includes two groups, a control and an experimental group. The experimental group will consist of regular members aged 11-16 at the Andrew Simpson Sailing Foundation and the control group will involve pupils from the secondary school your child/children attends. **The school and I would like to invite your child to participate in the control group if they are aged between 11-16 and do not participate regularly in Watersports.**

Participation in this includes once a month (from April to July) your child completing a questionnaire pack and themselves continuing their daily life as usual. The questionnaire pack contains 4 questionnaires which ask questions about wellbeing, nature, enjoyment of exercise and friendships. This should take no longer than 20 minutes and everything will be completed online, via JISC Online Survey, and will be sent across to you by email. At the end of this period, I will invite some children and their parents to interview to discuss their experiences of watersports over the last 4 months.

If you think your child would like to participate, please click the following link to see an information sheet which details more about the study and a consent form: https://win-its-stu.onlinesurveys.ac.uk/sign-up-sheet-ditcham-park

Please let me know if you have any further questions via email: ellie.gennings@winchester.ac.uk

Many thanks,

Ellie Gennings

11.19: Interview Guide

Interview Guide – Children

- Describe to me what lockdown was like for you?
- What are your top 3 reasons for doing water sports here?
- If your best friend said they wanted to come and try it out, how would you describe it to them and encourage them to come?
- Do you think coming here and doing water sports helps you in other areas of life?

Interview Guide – Parents

- What are the reasons for signing your child up to the programme?
- During lockdown did they speak about coming here and water sports?
- What were they like during lockdown and did their lives change much?
- Did you notice any differences in coping between your son/daughter (or comparative)?
- How do you think participating in water sports impacts your children?