

**EMOTION MALLEABILITY BELIEFS,
EMOTION REGULATION AND
SCHOOL-RELATED WELLBEING IN
YOUNG PEOPLE**

Joanna Beaumont

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Declaration

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification at this university, or any other university or other institute of learning.

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Abstract

Previous research has shown that believing emotions are malleable is positively linked to the emotion regulation strategy cognitive reappraisal, and to improvements in facets of wellbeing. However, less is known about how anxiety and happiness malleability beliefs, or beliefs about the malleability of one's own emotions, relate to cognitive reappraisal and wellbeing. Moreover, most studies do not allow for inferences about the directionality of relations between these constructs over time. There have also been no investigations which have examined how emotion malleability beliefs and cognitive reappraisal are linked to *school-related* wellbeing; and most studies have yet to compare beliefs about the malleability of one's own emotions with beliefs about the malleability of other people's emotions, to identify which has the stronger relations with wellbeing. To address gaps in the current literature, this doctoral thesis examined relations between beliefs about the malleability of one's own emotions (considering emotion beliefs in general, happiness malleability beliefs, and anxiety malleability beliefs), cognitive reappraisal and school-related wellbeing over a 12-month period across two school years. Data were collected in November 2018, May 2019, and November 2019. Findings were extended to identify whether beliefs about the malleability of one's own anxiety and happiness had stronger relations with wellbeing than beliefs about the malleability of other people's anxiety and happiness.

Participants were 2,365 secondary school and 6th form college students in England (aged 11–19 years). Three latent cross-lagged panel models (CLPMs) examined the directional ordering of emotion malleability beliefs, cognitive reappraisal and wellbeing over time. Findings showed that school-related wellbeing was reciprocally related to cognitive reappraisal. In addition, believing one's own anxiety was malleable positively predicted

school-related wellbeing. School-related wellbeing positively predicted beliefs in the malleability of one's own happiness, and believing one's own happiness was malleable positively predicted cognitive reappraisal. However, all three significant malleability belief relations were only evident across the first two waves. General emotion malleability beliefs were not related to cognitive reappraisal or school-related wellbeing. Further analyses showed that beliefs about the malleability of one's own anxiety and beliefs about the malleability of other people's anxiety had the same equivalent power in predicting school-related wellbeing. School-related wellbeing did not predict beliefs about the malleability of other people's happiness. Findings may inform the design of interventional research in schools and colleges by highlighting the importance of cognitive reappraisal, and anxiety and happiness malleability beliefs in the school-related wellbeing of young people. School leaders and educators may also consider developing instructional practices which promote the use of cognitive reappraisal in the classroom, and consider adopting a whole-school growth mindset approach to promote malleability beliefs and improve wellbeing.

Definitions and Key Terms

AIC	Akaike Information Criteria
Anxiety Malleability Beliefs	Beliefs about the changeability and controllability of anxiety
CBT	Cognitive Behavioural Therapy
CFI	Comparative Fit Index
CLPM	Cross-Lagged Panel Model
Cognitive Reappraisal	An emotion regulation strategy used to reinterpret the meaning of a situation
DfE	Department for Education
DfES	Department for Education and Skills
DHSC	Department for Health and Social Care
DoH	Department of Health
Entity Belief	A belief that a trait, attribute or state is fixed and innate
Emotion Malleability Beliefs	Beliefs about the changeability and controllability of emotions
ERQ	Emotion Regulation Questionnaire
ERQ-CA	Emotion Regulation Questionnaire for Children and Adolescents
FIML	Full Information Maximum Likelihood
First-Person Emotion Beliefs	Beliefs about one's own emotions
FSM	Free School Meals
Happiness Malleability Beliefs	Beliefs about the changeability and controllability of happiness

Implicit Belief	A belief held outside of conscious awareness
Implicit Theory	An individual's understanding of how the world works
Incremental Belief	A belief that a trait, attribute or state is malleable
LJMU	Liverpool John Moores University
MAR	Missing at Random
ML	Maximum Likelihood
NHS	National Health Service
NW	North West
OECD	Organisation for Economic Co-operation and Development
RI-CLPM	Random Intercept Cross-Lagged Panel Model
RMSEA	Root Mean Square of Approximation
RQ	Research Question
Secondary School	Mandatory education for students aged 11–16
SEL	Social and Emotional Learning
SEM	Structural Equation Model
SES	Socio-Economic Status
Sixth Form College	Education for students in their final years of secondary education, starting at age 16
SRMR	Standardised Root Mean Square Residual
Theory of Emotion	An individual's set of beliefs about emotion
Third-Person Emotion Beliefs	Beliefs about the emotions of other people
TLI	Tucker-Lewis Index

WHO

World Health Organisation

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Chapter 1:

Introduction

1.1 Overview of the Chapter

This doctoral project explored the relation between emotion malleability beliefs, emotion regulation, and school-related wellbeing. To frame the research questions (RQs), this chapter will briefly discuss the current status of young people's wellbeing, how wellbeing is placed within UK education and government policies, and its relation to education outcomes. It will also provide a short overview of how emotion regulation might benefit a young person's wellbeing and education. Then, it will define implicit theories and give an overview of the background to this work, and briefly describe how emotion malleability beliefs might help students' emotion regulation and wellbeing. Finally, it will present limitations of the extant literature, the RQs, and an overview of the thesis.

1.2 Wellbeing in Young People

Recent decades have seen a global increase in mental health problems and a decrease in the wellbeing of adolescents (Marquez & Long, 2021). Indeed, in England where this doctoral research was conducted, 12.6% of secondary school aged students were identified as likely to be suffering from a mental disorder in 2017, rising to 17.6% in 2020 (Vizard et al., 2020). In addition, a recent review of 16 quantitative studies, with 40,076 participants, conducted from 2019-2021 in eight countries worldwide found that adolescents were suffering from higher rates of anxiety, stress and depression which has been exacerbated due to the COVID-19 pandemic (Jones et al., 2021). The wellbeing of young people in England has shown a slight improvement since the onset of the pandemic, showing signs of recovery in 2021, following a small reduction in 2020; however, rates of probable mental health disorders remain higher in 2021 compared to 2017 (NHS, 2021).

1.2.1 The Wellbeing Agenda in UK Schools

“Before the millennium the term ‘wellbeing’ barely figured in educational lexicon, a decade later its use is ubiquitous” (White, 2011, p. 12)

For the past 20 years, promoting the wellbeing of young people has increasingly featured in UK schools’ agendas, policies and practices. White (2011) proposed that three developments changed the focus of wellbeing in schools since the turn of the century, (1) the UK government’s Every Child Matters (DfES, 2003) agenda for England and Wales stated that every child must be safe, healthy, enjoy and achieve, attain economic wellbeing and make a positive contribution, (2) curriculum aims which focus on wellbeing, and, (3) lessons which intend to improve students’ wellbeing. The Organisation for Economic Cooperation and Development (OECD, 2011) may have also been a contributor to this change, since their framework was launched in 2011, which maintained that material conditions and quality of life need to be considered in the measurement of wellbeing, rather than just the consideration of economic prosperity (Thorburn, 2017).

In 2015, the Future in Mind Report set out proposals by the UK government for improving mental health care for the next five years in England, including making better links between schools and specialist services (DoH, 2015). Following this, the government’s Green Paper on children’s and young people’s mental health (DHSC & DfE, 2017) and the NHS Long-Term Plan (NHS, 2019) set out plans for improving the mental health of students in schools, including the introduction of support teams, a mental health lead, and improving young people’s understanding of mental health. These plans were brought about as support from the NHS (e.g., CAHMS) was not quick to access or consistently available across the country, thus the aim was to make mental health support in schools and colleges more readily available for young people (DHSC & DfE, 2018). Due to the COVID-19 pandemic, the UK government proposed to accelerate these plans and invested £79m to fund

initiatives which trained school staff to link with local services and support the wellbeing of students (DHSC, 2021). Nonetheless, concerns have been raised by some stakeholders and charities about the continued focus on achieving academic results in schools (Jeffreys & Shearing, 2022), rather than improving students' wellbeing, and stress that more support is needed for young people to recover from the negative mental health impact of the pandemic (e.g., Mind, 2021; Whewell, 2021).

1.2.2 Subjective Wellbeing and Education Outcomes

There has been some evidence to suggest that subjective wellbeing (see Section 2.2.1 for definition) is associated with positive educational outcomes for children and young people (Steinmayr et al., 2018). For instance, in a meta-analysis of 47 studies with 38,946 children and adults aged 11 to 26 years, Bückner et al. (2018) found small to medium correlations between subjective wellbeing and academic achievement. In addition, in one longitudinal study with middle school students (aged 10 to 14), higher subjective wellbeing predicted grades one year later, even after controlling for initial levels of academic achievement (Suldo et al., 2011). Indeed, even if wellbeing does not directly impact on academic achievement, wellbeing is a crucial component for a positive atmosphere in school, and a positive school environment is needed for successful learning (Hascher, 2003, 2007).

1.3 Emotion Regulation and Young People's Wellbeing

Young people undergo significant biological, cognitive, social and psychological changes during adolescence (Blakemore & Mills, 2014), and they have heightened emotional responses compared to those experienced in childhood (e.g., Stroud et al., 2009). In addition, emotionally challenging situations such as conflict with parents and sensitivity

to peer interactions typically occur more often and with greater intensity (Powers & Casey, 2015; Riediger & Klipker, 2014). This coincides with the substantial development of emotion regulation strategies (Zimmerman & Iwanski, 2014) which play a key role in managing emotions and determining socioemotional adjustment (Riediger and Klipker, 2014). As such, if young people can manage their emotions effectively, it can result in positive outcomes for their current and future mental health (Ahmed et al., 2015, Young et al., 2019).

1.3.1 Emotion Regulation and Education Outcomes

Effectively regulating emotions is important for optimum mental health and regulating emotional experiences may be linked to important education outcomes. For instance, regulation of emotional experiences in the classroom to achieve one's goals is important for learning (Boekaerts, 2011). This may involve decreasing negative emotions which impede learning but also increasing positive emotions to enhance learning (Martin & Ochsner, 2016). Indeed, negative emotions such as anxiety, anger, and shame can negatively impact academic performance, and positive emotions such as enjoyment and pride can positively impact performance (e.g., Pekrun et al., 2017). Students who make use of emotion regulation strategies to successfully manage their classroom experiences are more likely to feel capable of pursuing their academic goals and perceive the classroom environment as supportive and constructive (Boekaerts 2011; Boekaerts & Pekrun, 2016). This is likely to contribute to a students' increased sense of wellbeing.

1.4 Implicit Theories

Research on implicit theories was pioneered by Carol Dweck and her colleagues (e.g., Dweck, 1999; Dweck et al., 1995). An implicit theory, also referred to in the literature

as a lay theory, refers to an individual's understanding about how the world works (Ford et al., 2018). These beliefs define one's reality and give meaning to events (Dweck et al., 1995), and form the foundation that influences an individual's behaviours, attributions and relevant goals (Dweck, 1999; Dweck & Molden, 2005; Kneeland et al., 2016a). In addition, these theories or beliefs are thought to lie on a spectrum or continuum (e.g., Yeager & Dweck 2012; Schroder et al., 2019) with individuals holding more of an entity or incremental theory about an attribute or trait. Individuals with more of an incremental theory view a trait or attribute as malleable, and those with an entity theory typically believe that attributes or traits are fixed and unchangeable. Dweck (2006) introduced the term 'mindset' to refer to these implicit or lay theories, which has become a well-known term used in the field of education. Much of the work on implicit theories has concentrated on intelligence, demonstrating that individuals with an incremental theory of intelligence put more effort into school and studying, have higher levels of achievement, adopt more adaptive learning strategies, have mastery-orientated goals (rather than performance-orientated goals), and engage more successfully in self-regulation (Dweck, 1999). Conversely, persons with an entity view of intelligence are more likely to believe that intelligence is a fixed trait, and put less effort into developing their skills (e.g., Dweck, 1999).

1.4.1 Emotion Malleability Beliefs

An individual's theoretical knowledge about the nature of emotion affects how that person deals with emotional experiences (Barrett, 2012). As emotions are transient, holding implicit beliefs about the malleability of emotions refers to the perceived likelihood that an individual can change the course of the emotional experience in a particular moment (Kneeland et al., 2016b). The work by Dweck and colleagues (see Section 1.4) inspired research into implicit emotion beliefs. Research to date has shown that individuals who have

an incremental view of emotion are more likely to regulate an emotional experience, whereas those with an entity view of emotion are less likely to attempt to change or control an emotional experience (e.g., Kneeland et al., 2016a; see Section 2.6).

I chose to investigate emotion malleability beliefs in this doctoral thesis (as opposed to other malleability beliefs) as previous literature shows that emotion malleability beliefs play a crucial role in young people's mental health (see Somerville et al., 2022 for a review). In addition, theoretical models propose that emotion regulation is the underlying mechanism which links emotion malleability beliefs to mental health disorders such as depression and anxiety (Ford & Gross, 2019; Kneeland et al., 2016a; Somerville et al., 2022). Psychopathology may relate to emotion regulation and emotion malleability beliefs in a similar way to how subjective wellbeing relates to emotion regulation and emotion malleability beliefs (see Section 2.4.2). Thus, I chose to build on previous findings by investigating the relation between emotion malleability beliefs, emotion regulation and school wellbeing. Ultimately, I wanted to determine whether emotion malleability beliefs play a role in influencing a young person's wellbeing at school, and whether these beliefs influence wellbeing via cognitive reappraisal.

Anxiety malleability beliefs were investigated in this study (as opposed to beliefs about the malleability of other emotions) as anxiety rates have increased among young people within the past decade (e.g., Ghandour et al., 2019; Vizard et al., 2020). Moreover, anxiety is likely to impact negatively on students' school experiences. Students who have high anxiety are likely to experience emotional and cognitive difficulties, and have physical reactions (e.g., shaking, sweating; Zhang et al., 2023) at school. In addition, anxiety has been negatively associated with school performance (e.g., Mazzone et al., 2007). As such, students' beliefs about the controllability of anxiety may influence how successful they are at regulating it, and thus experiencing it, which is likely to impact on their school wellbeing

and school performance. Moreover, as teachers can worsen or relieve students' anxiety (Van Lier, 2014) it may be an emotion which can also be regulated with support from teachers (e.g., by interventions which focus on promoting its malleability). As such, beliefs about the controllability of this emotion may be particularly relevant to investigate within the school context.

I chose to investigate happiness malleability beliefs (as opposed to beliefs about the malleability of other emotions) as beliefs about the controllability of positive emotions is underrepresented in the literature. However, beliefs about whether happiness is something that can be controlled may have important implications for wellbeing (i.e., believing happiness can be controlled may mean increased upregulation of happiness, which may increase wellbeing). Relatively less is known about the emotion regulation strategies individuals use to increase positive emotions (i.e., reappraisal to increase happiness) compared to the strategies used to decrease negative emotions (Livingstone & Srivastava, 2012). Thus, I determined it was pertinent to investigate beliefs about the malleability of a positive emotion in this doctoral work, and chose happiness in particular as the pursuit of happiness is important for many people (e.g., Diener, 2002). In addition, it is likely important for students to be happy at school to enable them to succeed academically.

1.4.2 Terminology

In this thesis, I will use the terminology 'implicit theories' or 'implicit beliefs' (rather than 'mindset' or 'lay theories/beliefs') for simplicity. 'Implicit theory' and 'implicit belief' are often used interchangeably in the literature. I define an implicit theory as a set of beliefs about how the world works, and an implicit belief as representing one single underlying belief (Ford et al., 2018). In addition, I refer to emotion malleability beliefs to include an individual's beliefs about the changeability and controllability of general and/or

specific emotions (Hong & Kangas, 2021). The terms ‘emotion malleability beliefs’, ‘anxiety malleability beliefs’, ‘happiness malleability beliefs’ refer to an individual’s beliefs about changeability and controllability of emotions (all emotions), anxiety, and happiness, respectively.

There have been two terms used in the literature to describe beliefs in the ability to control or change one’s own emotions: emotion regulation self-efficacy (e.g., De Castella et al., 2018), and personal emotion controllability (or malleability) beliefs (e.g., De Castella et al., 2013). In this thesis, I refer to individuals’ beliefs in the ability to control or change their own emotions as *first-person emotion malleability beliefs*, or *beliefs in the malleability of one’s own emotions*. Importantly, terms relating to emotion malleability beliefs (including anxiety and happiness beliefs) in this study refer to an individual’s beliefs about the changeability and controllability of *their own* emotions (typically omitting ‘*first-person*’ in most sections) with the exception of references to ‘third-person emotion malleability beliefs’ in Section 2.9, Chapter 5 and Section 6.5 which compares beliefs in the malleability of one’s own anxiety and happiness (termed ‘*first-person anxiety/happiness malleability beliefs*’) with beliefs about the malleability of the anxiety and happiness of others (termed ‘*third-person anxiety/happiness malleability beliefs*’).

1.5 How might Emotion Malleability Beliefs help Students’ Emotion Regulation and Wellbeing?

As previously mentioned in Section 1.4, research has shown that holding a more malleable view of intelligence is associated with individuals being more likely to attempt and engage in self-regulation during learning (Dweck, 1999; Gross, 2008). The belief that *emotions* are malleable has the potential to influence if and how an individual progresses through each stage of the emotion regulatory process (Ford & Gross, 2019; see Section 2.3.3

for a description of the regulatory process; Gross, 2015). Individuals who believe that their emotions are malleable may be more likely to successfully determine whether an emotion needs regulating, have more emotion regulation strategies to consider, be more likely to choose a strategy which regulates successfully, and persevere with regulation (Ford & Gross, 2019). In turn, the engagement and success in emotion regulation is likely to improve wellbeing (see Section 2.8 for a detailed description).

1.6 Limitations of the Extant Literature

There are various gaps in the literature concerning examination of the relation between emotion malleability beliefs, emotion regulation and wellbeing. This section (1.6) will provide a brief overview of these limitations. First, no studies have used a school-related measure of wellbeing to evaluate how wellbeing relative to the school predicts, or is an antecedent of, emotion regulation and emotion malleability beliefs (for an exception see Smith et al., 2018 in Section 2.7.2). This is important as there are likely many domains of subjective wellbeing (e.g., education, social relationships, self; Oishi & Diener, 2001), and context-specific wellbeing (e.g., school wellbeing) may be influenced by different factors than those associated with general wellbeing (Oishi & Diener, 2001; see Section 2.2.3). Second, much of the research to date has been concerned with examining emotion beliefs in general (e.g., not specifying a specific emotion). However, beliefs about the malleability of emotions can differ across a variety of subordinate features, including specific emotions (e.g., anxiety, happiness; Ford & Gross, 2019; see Section 2.5.2.1). As such, beliefs about different emotions may relate to emotion regulation and wellbeing in different ways than general emotions beliefs. This doctoral thesis will address these gaps by measuring one's beliefs about the malleability of anxiety and happiness, as well as emotion beliefs in general.

Second, most studies have considered the target of the beliefs as the ‘other’ (e.g., asks individuals what *people* believe), rather than examining what individuals believe about their own emotions; and only one study has compared beliefs about the malleability of one’s own emotions with beliefs about the malleability of other people’s emotions to identify which has the stronger relations to wellbeing (De Castella et al., 2013; see Section 2.9.1). Identifying whether beliefs about specific emotions, and beliefs relating to the self or other people differ in their associations with wellbeing is important; it can inform the design of interventions which promote the idea that emotions are malleable to improve wellbeing (e.g., Smith et al., 2018). For instance, we can answer questions such as ‘*should interventions promote the idea that happiness, or anxiety, is malleable to improve a young person’s wellbeing?*’ or, ‘*should interventions teach students’ that people can change their emotions, or that one’s own emotions can change, to improve wellbeing?*’

Third, much of the evidence to date has relied on inferences from cross-sectional studies which does not allow for examination of the directionality of relations between constructs. Indeed, most studies have focused on how emotion malleability beliefs and emotion regulation *predict* wellbeing, rather than examining reciprocal relations. In addition, mediation is a process that unfolds across time (MacKinnon, 2008) thus for the most reliable estimates it requires sequential time points where the predictor, mediator and outcome variable are all measured on separate occasions, spaced equally (Cole & Maxwell, 2003; O’Laughlin et al., 2018). Cross-sectional studies require the predictor, mediator and outcome data to be collected at the same time point, and longitudinal studies which collect data at only two time points have at least one path that reflects the relation between two variables which exists at the same moment in time. To enable results to provide the most reliable estimates of mediation, this study employs *three-wave* cross-lagged panel analyses

to investigate whether cognitive reappraisal is the mechanism by which emotional malleability beliefs are linked to wellbeing.

Finally, even fewer studies have examined relations between these constructs in young people, being mostly concerned with adult samples. However, young people are at a unique developmental stage (Jaworska & MacQueen, 2015) thus relations between constructs may differ to those seen in studies with adults. For instance, young people may not be as effective in using cognitive reappraisal compared to adults because their brains still need to develop and mature (see Section 2.3.4). In addition, cognitive reappraisal may be harder for young people to implement during adolescence because they tend to experience emotions with greater intensity than children or adults (Bailen et al., 2019; Hollenstein & Loughheed, 2013), and intense emotions have the potential to override regulatory abilities (Riediger & Klipker, 2014). Indeed, in studies with adults, reappraisal has been shown to be used less in high intensity situations (e.g., Sheppes et al., 2014). As such, young people may not be able to implement cognitive reappraisal in the same way as adults. and as it may show unique relations to factors which predict, or are a consequence of, its usage in young people.

1.7 Research Questions

The RQs were developed after a review of the literature (see Chapter 2) and after considering its current limitations (see Section 1.6). They are as follows:

RQ1: How is school-related wellbeing associated with cognitive reappraisal in secondary school and 6th form college students?

RQ2: How is cognitive reappraisal related to beliefs about the malleability of one's own emotions in secondary school and 6th form college students'?

RQ3: How is school-related wellbeing related to beliefs about the malleability of one's own emotions in secondary school and 6th form college students'?

RQ4: Do beliefs about the malleability of one's own emotions show stronger relations with school-related wellbeing than beliefs about the malleability of other people's emotions?

1.8 Structure of Thesis

This thesis is divided into 7 chapters. Chapter 2 presents a review of the relevant literature relating to emotion malleability beliefs, emotion regulation and wellbeing, which aims to form the background to this doctoral research. Chapter 3 explores the researcher's philosophical positioning. It also outlines the design and the ethics procedure, discussing relevant considerations. Finally, it describes the methodology adopted to answer the research questions, providing details relating to the sample, procedure, and measures. Chapter 4 presents the results of the research for examining RQs 1–3, and Chapter 5 presents the results for answering RQ4. Chapter 6 discusses findings in relation to the literature presented in Chapter 2 and considers its relevance to the research questions. It also discusses limitations of the study and makes recommendations for future research. Chapter 7 provides conclusions from this doctoral research by reviewing each research question and revisiting findings. It finishes by making some suggestions and considerations for the application of findings to education.

1.9 Chapter Summary

This chapter provided an overview of the key areas addressed in this doctoral project. These areas include malleability beliefs, emotion regulation and wellbeing. It also identified limitations across the current literature. Chapter 2 will expand on the research and findings presented in Chapter 1 in more detail.

Chapter 2:
Literature Review

2.1 Introduction

This literature review will expand upon key theories relating to emotion malleability beliefs, emotion regulation (specifically cognitive reappraisal) and wellbeing, and will present empirical evidence related to the associations between these constructs. First, it will begin by exploring how wellbeing is defined and conceptualised, and will present the theories which underpin emotion regulation. It will then provide theoretical explanations for link between wellbeing and cognitive reappraisal, and present empirical evidence related to the associations between the constructs. Second, this review will discuss the domain specificity of implicit beliefs, and present empirical evidence and theoretical reasoning for how emotion malleability beliefs might relate to cognitive reappraisal and wellbeing, including school-related wellbeing. Finally, this section will discuss how first-person and third-person emotion malleability beliefs are important to consider when exploring the link between emotion malleability beliefs and wellbeing, and will examine empirical evidence which has compared both types of beliefs to their relation with wellbeing. Throughout this section, the importance of investigating the emotion malleability beliefs, cognitive reappraisal and wellbeing of secondary school and 6th form students is discussed; and explanations of how relations between these constructs might be relevant for young people's education is highlighted.

2.2 Wellbeing

2.2.1 Defining and Conceptualising Wellbeing

There is much debate in the literature about how to define and conceptualise wellbeing (Cooke et al., 2016; Dodge et al., 2012; McLellan & Steward, 2015). Indeed, researchers have not been able to define and measure wellbeing successfully due to the complexity and multi-faceted nature of the construct (Pollard & Lee, 2003). With no

common agreement of what constitutes wellbeing, terms such as ‘life satisfaction’ and ‘happiness’ are often used interchangeably (Calquist et al., 2017). This problem partly arises from different disciplinary areas (e.g., psychology, sociology, economics, philosophy) disagreeing with what being *well* should mean (Watson et al., 2012). For instance, psychological approaches to wellbeing are typically concerned with individual reports of feelings or emotions, whereas sociological approaches are more objective and typically focus on the impact of society on the individual (Fegter et al., 2010; McLellan & Steward, 2015).

When looking historically at attempts to define wellbeing, in 1948 the World Health Organisation (WHO) suggested that health should be defined as “a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity” (Bickenbach, 2015). Despite this definition, the typical medical model of minimising disease and disability still prevailed for many years with little attention given to positive elements of health and wellbeing (Cooke et al., 2016). However, different approaches to conceptualising wellbeing were also beginning to emerge during the 1950s, and in the 1960’s researchers began to think about what factors were associated with happiness (McLellan & Steward, 2015; Wilson, 1967) which gave rise to the first work on subjective wellbeing (McLellan & Steward, 2015).

2.2.1.1 Subjective Wellbeing

Diener and colleagues (2018) define subjective wellbeing as the *assessment of the quality of one’s life from his or her own point of view*. This assessment reflects the person’s overall prevalence of positive emotions (e.g., enjoyment, excitement) and negative emotions (e.g., anger, sadness) and their cognitive appraisal of overall life satisfaction (Diener et al., 2002); a person who experiences high subjective wellbeing would experience more frequent

positive emotions relative to negative emotions (Diener et al., 2002). In contrast, objective wellbeing would typically be assessed by other factors that might affect an individual's health and development such as parenting, environment, and socioeconomic status (Axford et al., 2014). As such, subjective wellbeing should be considered distinct from objective wellbeing as it is based on the evaluation of one's own life irrespective of objective circumstances (Diener, 2009).

It can be argued that subjective evaluations of one's life can be a better indicator of wellbeing than objective measures due to being representative of a broader measure of wellbeing (Diener et al., 2018). Indeed, objective indicators presumed to measure wellbeing (e.g., physical health for instance), may not adequately capture an individual's own view on how they feel their life is going. This is due to different individuals placing greater or lesser weight how the objective indicators contribute to their wellbeing, which is dependent on factors such as their culture, goals and values (Diener et al., 2018). For instance, some people might judge their lack of physical health is a big contributor to their low wellbeing, whereas others may judge that it is not.

2.2.1.2 Hedonic and Eudaimonic Wellbeing

The concept of subjective wellbeing can be regarded as a 'hedonic' perspective. The hedonic tradition focuses on happiness and pleasure (Ryan & Deci, 2001) including elements such as life satisfaction, happiness, pleasure and positive affect (Deci & Ryan, 2008). It can also be defined in terms of avoiding pain and attaining pleasure (Ryan & Deci, 2001). On the other hand, the eudaimonic tradition emphasises living a life according to one's true potential (Ryan & Deci, 2001). There is less agreement on what constitutes to eudaimonic wellbeing, however one prominent model proposes that wellbeing consists of personal growth, purpose in life, environmental mastery, positive relationships, autonomy

and self-actualisation (Ryff, 1989; Ryff & Keyes, 1995), and another suggests that autonomy, competence, and relatedness are necessary for wellbeing (Deci & Ryan, 2008). The eudaimonic perspective of wellbeing typically focuses on what one must have, and what one must do, to have wellbeing whereas the hedonic perspective focuses on the outcome (Ryan et al., 2008).

Although hedonic and eudaimonic perspectives can be described as distinct, individuals will typically experience hedonic wellbeing (e.g., pleasure) whilst living eudaimonically (e.g., being autonomous; Ryan et al., 2008). Nevertheless, the ingredients which constitute to wellbeing (e.g., positive relationships), cannot be equated to the subjective evaluation of one's life overall. Rather, subjective wellbeing researchers would describe positive relationships as a *predictor* of overall subjective wellbeing rather than an outcome of the evaluation (Diener et al., 2018). Thus, there is a distinction between the *ingredients* of what constitutes to wellbeing (eudaimonic wellbeing) and the *subjective evaluation* of one's life overall (Diener et al., 2018).

2.2.2 Measuring Subjective Wellbeing in Young People

To gain an accurate description of what it means for a young person to have a sense of wellbeing, it is necessary to gather information relating to how the individual is subjectively experiencing the world (Ben-Arieh, 2005). Measures to capture the wellbeing of children and young people are increasingly incorporating a subjective component. For instance, in 2013 the OECD introduced guidelines for measuring subjective wellbeing, as an indicator of wellbeing, deeming it an essential component of quality of life (OECD, 2013). In addition, The Good Childhood Report (The Children's Society, 2021) emphasised the importance of measuring varying elements of subjective wellbeing to determine the overall wellbeing of a young person, with the aim to gather information on children's own views

about their happiness, life satisfaction, and how much they feel what they do in life is worthwhile. Moreover, to assess the wellbeing of pupils with Special Educational Needs, the DfE makes use of a subjective measure of wellbeing to assess how happy students feel with aspects of their lives (e.g., school, friends) together with an indicator to measure psychological distress (Barnes & Harrison, 2017). As such, asking a young person to evaluate their wellbeing by reporting information relating to how they are subjectively experiencing the world, is considered crucial by many researchers, organisations and charities.

2.2.3 School-Related Wellbeing

There are two major theories which may explain the relation between domain-general wellbeing (e.g., satisfaction with one's life overall) and domain-specific wellbeing (e.g., school-related wellbeing). Bottom-up theories assume that domain-general wellbeing is based on the assessment of satisfaction with life in various domains (e.g., education, social relationships; Oishi & Diener, 2001). Thus, increased (or decreased) school-related wellbeing *causes* increased (or decreased) satisfaction with life overall. Alternatively, top-down approaches suggest that increases (or decreases) in general wellbeing cause individuals to evaluate wellbeing in specific domains (e.g., school) more positively (or negatively). It is difficult to determine whether relations between general wellbeing and domain-specific wellbeing are due to bottom-up or top-down processes (Headey et al., 1991) however much of the literature suggests that top-down processes cannot explain why there are differences in correlations of general wellbeing (e.g., life satisfaction) with different domains of wellbeing (health, friendships, academic; e.g., Schimmack & Oishi, 2005), and why there are small to moderate correlations between satisfaction in specific domains (Schimmack, 2008). As such, much of the literature points towards bottom-up

processes to explain the link between general and domain-specific wellbeing. As such, students' changes in school wellbeing are likely to impact the evaluation of their general overall wellbeing.

Context-specific wellbeing (e.g., one's wellbeing at school) may not, however, be influenced by the same factors as general wellbeing (Oishi & Diener, 2001). For instance, being comfortable at school may be an indicator of subjective wellbeing at school but may not necessarily be an indicator of satisfaction with one's life overall. In addition, there are likely differences in the association between domain-specific vs. general measures of subjective wellbeing, and domain-specific outcomes. For instance, college wellbeing has been found to be a stronger predictor of students' academic achievement than general wellbeing (Renshaw & Bolognino, 2016). Thus, school-related wellbeing may be associated with regulating emotions at school in a different way to how general wellbeing is associated with students' emotion regulation. As such, enabling an individual to evaluate their subjective wellbeing *in relation to a specific context* can deepen our understanding of what factors (e.g., emotion regulation, emotion malleability beliefs) contribute to the wellbeing of persons within a given environment. To understand subjective wellbeing at school, it is therefore necessary to use a school-related measure of wellbeing.

2.2.3.1 Defining and Conceptualising School-Related Wellbeing

To evaluate how school life contributes to the wellbeing of a young person, the school environment needs to be taken into account (Hascher, 2008). In this work, I define school-related wellbeing as "...an emotional experience characterised by the dominance of positive feelings towards school, persons in school and the school context in comparison to negative feelings and cognitions towards school life" (Hascher, 2003, p. 129). Specifically, Hascher (2003, 2008) describes school-related wellbeing as one's perception of the balance

between positive and negative elements of school life. The positive elements are school enjoyment (e.g., being actively engaged during a lesson), positive academic self-concept (e.g., meeting standard assessment targets), and positive attitudes about school (e.g., seeing school as an opportunity to achieve personal goals). The negative aspects are social problems at school (e.g., bullying), worrying about school (e.g., anxiety related to grades), and physical complaints in school (e.g., headaches).

2.2.3.2 Factors associated with School-Related Wellbeing

Students who have positive and trustworthy relationships with adults at their school and healthy relationships with their peers are more likely to feel that they are valued and belong at school (Oberle, 2018). Indeed, positive school environments can be characterized by elements such as students' sense of connectedness and feeling of belonging to the school, and teacher support (Kidger et al., 2012; Leurent et al., 2021). There are many other factors which could be related to school-related wellbeing, such as intrinsic success beliefs (Gill et al., 2021), effective school mental health interventions (Kuosmanen et al., 2019), and student self-efficacy (Olivier et al., 2019), to name a few. More broadly, enjoyment of school appears to be a crucial element to school wellbeing (Hascher, 2003, 2004, 2007).

There have been relatively few studies which have examined the antecedents and outcomes of school-related wellbeing using a *school-related measure* of wellbeing. In the studies that have used a school-related measure of wellbeing, negative relations were found between anxiety (general school anxiety and test anxiety) and school-related subjective well-being ($r_s = .15-.41$) in a sample of 2,014 secondary school students aged 12 to 17 years (Hascher, 2007). One longitudinal study found that school-related wellbeing promotes greater adaptability ($\beta = .18$), academic achievement ($\beta = .15$), and positive behavioural conduct ($\beta = .17$), in a sample of 539 6th form college students (Putwain et al., 2020). In

another study with adolescents aged 16 to 19 years, Putwain and colleagues (2021) found higher school-related wellbeing predicted subsequent lower risk of developing an emotion disorder ($\beta = .12$), and lower subsequent test anxiety ($\beta = -.06$); and increased risk of developing an emotion disorder predicted lower subsequent school-related wellbeing ($\beta = .12$). No studies to date have specifically examined relations between emotion malleability beliefs, emotion regulation strategies and school-related wellbeing.

2.2.3.3 Gender Differences in School-Related Wellbeing

It is difficult to determine whether there are gender differences in school-related wellbeing from previous studies as researchers typically measure school wellbeing in different ways. For instance, The Good Childhood Report (The Children's Society, 2017) found that there were no gender differences in young people's (aged 8 to 17) self-reported *satisfaction* with school, however, girls reported being significantly happier than boys with their *schoolwork*, and were significantly less happy than boys with their lives as a whole. In addition, Putwain et al. (2021) found that female 6th form students (aged 16 to 19) reported significantly *lower* school-related wellbeing than males in October of the Autumn term but higher school-related wellbeing than males in May of the Summer term; this suggests that gender differences in school-related wellbeing could fluctuate across the academic year. It is also necessary to consider that from Year 8 to Year 11 of secondary school mental health problems in girls rises sharply, and at the end of secondary school the rate is double that of for boys (Jerrim, 2021). As such, if girls have more mental health problems during secondary school than boys, they may be likely to report lower levels of school-related wellbeing than males (see Section 2.4.2 for an explanation of how mental health problems are likely related to wellbeing). As such, I deemed it crucial to control for the effect of

gender when examining relations between school-related wellbeing, emotion regulation and emotion malleability beliefs in this study.

2.2.3.4 Age Differences in School-Related Wellbeing

There is scant research which has examined how *school-related wellbeing* might increase or decrease as students move through secondary school. However, there has been some variation shown in reporting of school-wellbeing depending on the time of year when data is collected. For instance, Putwain et al. (2021) found that older students (aged 16 to 19) reported lower school-related wellbeing in October but there was no effect of age on school-related wellbeing in March. However, mental health distress has been shown to increase as students get older, with an increased risk of mental health problems between the ages of 11 and 14 (Yoon et al., 2022); this increase in the incidence of mental health problems is likely to lead to lower wellbeing (See Section 2.4.2). Thus, I statistically controlled for the effect of age when estimating relations between school-related wellbeing, emotion regulation and emotion malleability beliefs in this study.

2.3 Emotion Regulation

Emotion regulation refers to the active processes that enable individuals to influence the *type* of emotions that are experienced, *when* the emotions are experienced, and *how* the emotions are to be expressed and experienced (Gross, 1998). The idea that people can change their emotions has been around for centuries (Grube & Reeve, 1974). However, up until the 1990s there were few publications each year which contained the term *emotion regulation* (Gross, 2014). Before this time, investigations into emotion regulation concentrated on ideas such as psychological defences (e.g., Freud, 1959), coping and stress (e.g., Lazarus, 1974), and attachment (Bowlby, 1969). Since the turn of the century,

however, emotion regulation research has grown rapidly (e.g., Gross, 2014; Tamir, 2011). In the past, emotion regulation investigations were largely limited to the down-regulation of negative emotions (e.g., fear, anxiety) however now emotion regulation is known to be used to down-regulate and up-regulate negative and positive emotions to meet one's regulatory goals (McRae & Gross, 2020).

2.3.1 Definitions and Features of Emotions

In 1981, Kleinginna, and Kleinginna (1981) presented a list of 92 definitions of *emotion* which they sourced from the literature up until this time point. One might have assumed in the preceding years that scientists, psychologists, and those working within the field of emotion might have reached a consensus on how to define the term, however there is still no agreement on how it should be defined (Gendron, 2010; Gross, 2015). The consensus has not been reached because it has not been possible to scientifically determine how emotions (e.g., anger, sadness, pride, shame, to name a few) are distinguished from each other (e.g., Barrett, 2006; Maus & Robinson, 2009). In addition, emotions give rise to a vast number of responses such as low intensity vs. high intensity, short vs. long, shared vs. individualistic, or simple vs. complicated (Gross, 2014). Mauss and Robinson (2009) concluded in their review that *'there is no "thing" that defines emotion, but rather that emotions are constituted by multiple, situationally and individually variable processes.'*

There has, however, been some agreement about what are the typical features of emotions. First, emotions are thought to arise when a person pays attention to and evaluates a situation to have relevance to a goal which they hold (e.g., Scherer, 2001). The goals might be unconscious and basic (e.g., eating breakfast with a spoon), deliberate and complicated (e.g., wanting to become a doctor), social (e.g., wanting a partner to apologise after an argument), biological (e.g., avoiding injury to oneself), self-focused (e.g., wanting

to hand an essay in on time), enduring (e.g., keeping oneself alive), brief (desiring a chocolate biscuit), or culturally derived (e.g., winning a game in tennis; Gross, 2014; Gross et al., 2011). In addition, one or many goals can be active or in competition at one particular time (e.g., one might want to eat a chocolate biscuit but wishes to refrain from eating junk food to lose weight; Gross et al., 2011). Ultimately, if meaning is attributed to the situation in view of the goal they are aiming to pursue, it is this that gives rise to the emotion (Gross, 2014). For instance, one refrains from eating a chocolate biscuit as they want to lose weight which gives rise to pride for adhering to the long-term weight loss goal.

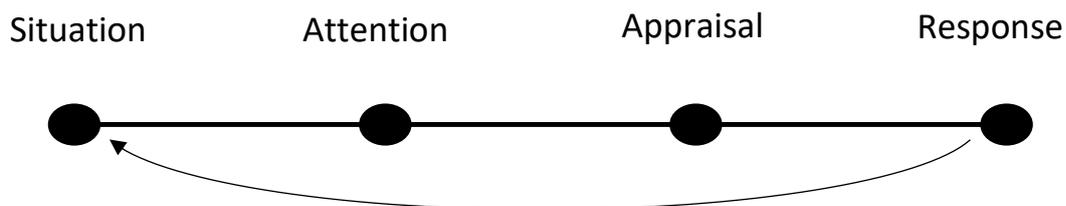
Second, subjective experience, behaviour and physiology all contribute to the multifaceted nature of emotions which are experienced and expressed through the whole body (Mauss et al., 2005). An individual feels the emotion (subjective experience) it produces changes in the facial and body muscles, and speech (Gross et al., 2011), as well as an inclination for an action (or withdrawal) within the given environment (Frijda, 1986). Third, these experiential and behavioural changes impact on the individuals' physiology by influencing neuroendocrine responses that anticipate and follow the emotion, providing metabolic support for the anticipated and actual motor activity (Lang & Bradley, 2010; Levenson, 1999). As such the experiential, behavioural and physiological components of emotions are useful, in many situations, to allow individuals to achieve their initial goal (Levenson, 1999). For instance, if someone was late getting to a work meeting and a person stood in their way, they might feel irritated (subjective experience of emotion) which results in them asking the person to move aside (behavioural), adrenaline is released to allow them to walk past faster (physiological) which allows them to get to their meeting quicker (moving towards achieving the initial goal).

2.3.2 The Modal Model of Emotion

The modal model of emotion (Gross, 2014; see Figure 2.1) describes four key elements that can account for the generation of emotion. It represents (in basic form) the situation-attention-appraisal-response sequence that makes up an emotional response. First, the process begins with a relevant external (e.g., a car pulling out in front of you) or internal (e.g., suspecting the door was not locked) situation. Second, attention is given to the situation which result in meaningful appraisals being made due to relevance to one's goal or goals (Ellsworth & Scherer, 2003). An emotional response is then generated (experiential, behavioural and physiological) which has the potential to lead to changes in the environment (loop back to situation) which may then change the likelihood of experiencing that emotion or alternative emotions as the process begins again (Gross, 2014; Gross & Thompson, 2007). For example, a teacher asks a student to stay behind at the end of a lesson (situation), the student notices the teacher appears stressed (attention), interprets this as displeasure with his test mark (threat appraisal), and experiences fear, and shortness of breath (response). The teacher tells him that he did well on the test, and asks if he will help other classmates with their work in the next lesson (changing the situation), and the emotion generation cycle repeats again (Gross, 2014).

Figure 2.1

The Modal Model of Emotion



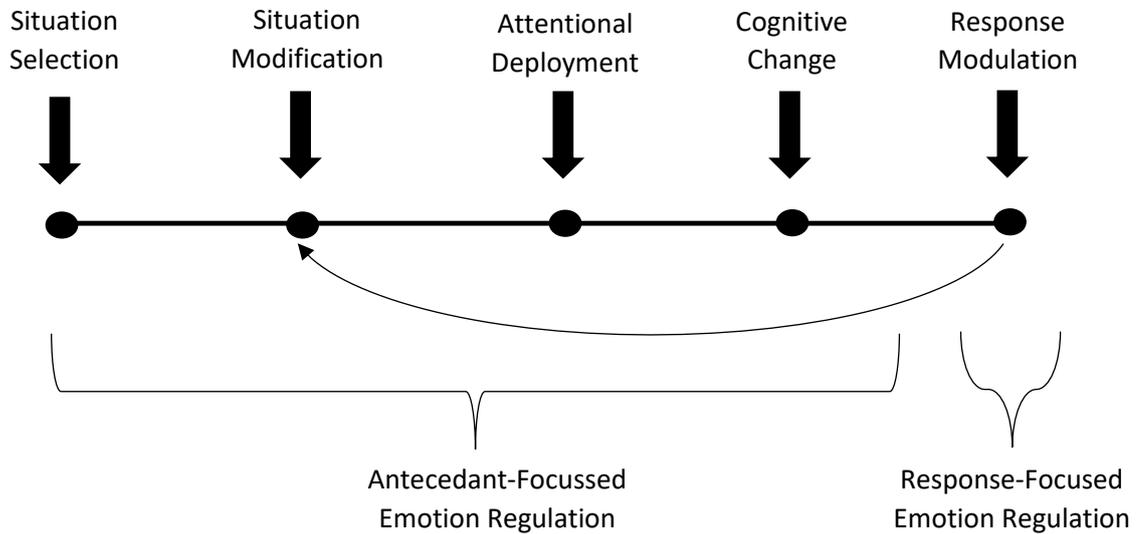
Note. Adapted from Gross (2014).

2.3.3 Gross' Process Model of Emotion Regulation

Extending the modal model of emotion (see Section 2.3.2) Gross' process model of emotion regulation (1998; see Figure 2.2) postulates that each stage in the emotion generative process specified in the modal model can be a possible target for emotion regulation (Gross, 2014). However, as emotion regulatory strategies differ in the point at which they are implemented in the emotion generative process, Gross' process model of emotion regulation presents these strategies on a timeline in the different points at which they are typically implemented. There are five families of emotion regulatory strategies which can be located on a timeline according this model: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Moreover, emotion regulation strategies can be separated into two groups: 'antecedent-focused' and 'response-focused' strategies. Antecedent-focused strategies are emotion regulation strategies which are implemented prior to the onset, or just after activation, of the emotional response ('situation selection' through to 'cognitive change' on Gross's timeline). Response-focused strategies, which are implemented after the emotional response has occurred, are situated at the end of Gross's timeline (Gross, 1998, 2014).

Figure 2.2

The Process Model of Emotion Regulation



Note. Adapted from Gross (2015).

Extending the early process model of emotion regulation (1998), Gross (2015) proposed that there are three stages in the emotion regulation cycle which affect the other in a continuous cycle until an emotion regulatory goal is achieved. Each of the three stages represent different decision points. First, the individual decides whether to regulate an emotion (Identification Stage) depending on its perceived value to the context; if the person deems it necessary to regulate the emotion, then a goal to regulate is activated. Second, the individual considers and evaluates the usefulness of emotion regulation strategies that are within their repertoire (in relation to the context which the person is in), and then a strategy is chosen to regulate the emotion (Selection Stage). Third, tactics to implement the strategy are perceived, the individual evaluates the tactics, and selects a tactic to implement (Implementation Stage). The individual will then also monitor the success of their regulatory efforts, possibly switching emotion regulation strategies if deemed necessary.

The emotion regulatory goal is achieved when the individual's emotional state matches their desired emotional state.

2.3.4 The Development of Emotion Regulation in Young People

Young people learn how to regulate their emotions more effectively during adolescence compared to childhood which is facilitated by the development of their cognitive abilities (Steinberg, 2005). Cognitive control likely plays a key role in effective emotion regulation (e.g., Braver et al., 2007) due to it being associated with similar activation of brain regions as those associated with the regulation of emotions (e.g., Mauss et al., 2007; Ochsner & Gross, 2005). These brain regions likely become more activated as they mature by eliminating unused neural connections (termed synaptic pruning; Riediger & Klipker, 2014). Indeed, individuals with better cognitive control (represented by working memory capacity) demonstrate improved self-regulation of emotional expression and experience (Schmeichel et al., 2008). Maturation of the prefrontal cortex is likely to be involved with the development of emotion regulation strategies such as cognitive reappraisal (e.g., Vijayakumar et al. 2014; see Section 2.4 for details relating to cognitive reappraisal); however, recent research suggests that cognitive reappraisal is also linked to regions involved in social cognition and semantics (Ferschmann et al., 2021), As such, brain regions which process emotional information, and the coordination between the prefrontal cortex and these other regions, may explain how emotion regulation develops (e.g., Steinberg, 2008).

Interactions with the social environment can also play a key role the development of emotion regulation in young people (Riediger & Klipker, 2014), and can promote or restrict the development of emotion regulation (Bariola et al., 2011). For instance, the family context may influence its development through, (1) modelling of emotion regulatory skills

by the parent, (2) parental behaviour and attitudes towards their offspring's emotion regulation, and, (3) parental instructions and practices for coaching emotion regulation skills (Morris et al., 2007). Importantly, parenting influences on the development of emotion regulation in young people during adolescence continue to be important even though influences outside of the family (e.g., peers, media) increasingly influence emotion regulation (Bariola et al., 2013). There are also other factors such as attachment style (Shaver & Mikulincer, 2014) and culture (Mesquita et al., 2014), to name a few, that are likely to influence the development of emotion regulation in young people (Riediger & Klipker, 2014).

2.4 Cognitive Reappraisal

One emotion regulation strategy that has been given much attention in the literature is cognitive reappraisal, which involves changing the way one thinks about a situation to alter its emotional impact (Gross & John, 2003). For instance, if a person is stuck in traffic they may think of it as an opportunity to enjoy the beautiful scenery to prevent becoming angry.

2.4.1 The Use of Cognitive Reappraisal

Cognitive reappraisal is well-known for its positive psychological, social and cognitive outcomes such as increased life satisfaction, closer relationships with friends, and greater self-esteem (e.g., English et al., 2012, Gross & John, 2003, Haga et al., 2009; Schwerdtfeger et al., 2019). This is due to cognitive reappraisal being an antecedent focussed strategy (see Section 2.3.3), thus by 'shutting down' the emotional response before it is activated or developed, it thereby eliminates or reduces the physiological, expressive, and subjective consequences of negative emotions such as sadness and anger (Gross & John,

2003). As such, it is considered an effective strategy for regulating emotions which can be applied relatively effortlessly (Gross & Thompson, 2007).

2.4.1.1 Gender Differences in Cognitive Reappraisal

Typically, no gender differences have been found for the use of cognitive reappraisal in studies with adults (Gross & John, 2003). However, some studies with young people have shown differences. For instance, in a two-year longitudinal study measuring the development of cognitive reappraisal in young people aged 9 to 15, males reported less use of cognitive reappraisal compared to females (Gullone et al., 2010). Moreover, cognitive reappraisal in adolescent females has been shown to be associated with maturation of the prefrontal brain regions associated with cognitive control, however the same is not true for males (Vijayakumar et al., 2014). Indeed, it may be the case that males are able to use cognitive reappraisal in a less effortful and more automatic way, whereas females make use of the prefrontal brain regions, putting more effortful conscious control into using the strategy (McRae et al., 2008). Given these findings from Gullone et al. (2010) and the neuroimaging research suggesting that cognitive reappraisal may be influenced by different processes in females than males, the effect of gender on cognitive reappraisal has been controlled for in this study.

2.4.1.2 Age Differences in Cognitive Reappraisal

Research which has investigated age-related changes in cognitive reappraisal with young people has found mixed results (Zimmerman & Iwanski, 2018). For instance, in cross-sectional studies, when comparing early to middle adolescents with older adolescents and young adults, the use of cognitive reappraisal has been shown to increase with age (Garnefski & Kraaij, 2006; Seiffge-Krenke & Beyers, 2005). In addition, in a review of 118

studies with young people aged 3-18, most studies showed that reappraisal use typically increased through adolescence (Willner et al., 2022). However, in one longitudinal study with young people aged 9 to 15 years, there was no increase (or decrease) in the use of cognitive reappraisal over two years (Gullone et al., 2010). Nevertheless, compared to children, adolescents tend to use more sophisticated emotion regulation strategies such as reappraisal, and become better at tailoring regulation efforts to the situation (Zimmer-Gembeck & Skinner, 2011). As such, it is possible, due to the wide age range of young people in this study (aged 11 to 19), cognitive reappraisal use will be affected by the age of participants. Thus, the effect of age on cognitive reappraisal was controlled for in this doctoral work.

2.4.2 Linking Cognitive Reappraisal to Wellbeing

Much of the previous literature has yet to investigate the link between cognitive reappraisal and subjective wellbeing. As such, it is useful to draw on studies of emotion regulation and mental health in adolescents, namely psychopathology. Previous work has shown that individuals can show moderate wellbeing in the presence of psychopathology, and low wellbeing in absence of psychopathology (e.g., Antaramian et al., 2010; Lyons et al., 2013; Suldo et al., 2016) as shown in The Dual-Factor Model of Mental Health (DFM; Suldo & Shaffer 2008). However, although important findings to consider, in the aforementioned studies most participants with high wellbeing are free of psychopathology or have low wellbeing and show symptoms of psychopathology. Thus, most participants are either flourishing or languishing, with only a smaller number of participants being content in the presence of psychopathology, and discontent in absence of psychopathology (Black et al., 2019). As such, all things being equal, psychopathology may relate to emotion regulation in a similar way as subjective wellbeing relates to emotion regulation, as there is

likely overlap between the two constructs of subjective wellbeing and psychopathology (Bartels et al., 2013). This literature review will, therefore, draw on the literature linking emotion regulation to psychopathology to provide some insight into how cognitive reappraisal might relate to subjective wellbeing.

Three noteworthy reviews (Aldao et al., 2010; Compas et al., 2017; & Schäfer et al., 2017) have been concerned with examining links between emotion regulation strategies and psychopathology in young people. Concerning cognitive reappraisal, research has demonstrated that cognitive reappraisal is linked to lower levels of psychopathology. For instance, in a review of 114 studies (6 concerning children and 108 concerning adults), Aldao et al. (2010) found cognitive reappraisal related negatively to symptoms of anxiety and depression showing a small to medium association ($r = -.14$). Schäfer et al. (2017) found similar results in a review of 35 studies with adolescents, with a small to medium association for cognitive reappraisal ($r = -.30$). Conversely, in a more recent review of 212 studies concerning both children and adolescents, Compas et al. (2017) found no significant association of psychopathology with cognitive reappraisal, although the authors note that their review concentrated on how children and adolescents regulate or cope with emotions and stressors, whereas the reviews by Aldao et al. (2010) and Schäfer et al. (2017) focused on how young people typically respond (e.g., habitual use) to a stressor, which could account for the difference in findings (Compas et al., 2017).

2.4.2.1 Linking Wellbeing to Cognitive Reappraisal

Gross' Process Model assumes that cognitive reappraisal *predicts* positive outcomes for wellbeing due to it being implemented early in the emotion-generative process, however, wellbeing might also impact on using cognitive reappraisal in the first place. Indeed, Chervonsky and Hunt (2019) found lower levels of depression in adolescent boys was

associated with increased use of reappraisal, concurrently ($r = -.32$) and 1 year later ($r = -.26$). According to Fredrickson's Broaden-and-Build Theory (Fredrickson, 1998) positive emotions broaden attention and cognition enabling individuals to derive positive meaning from every day, as well as adverse, events (Folkman & Moskowitz, 2000; Fredrickson, 2000, Fredrickson & Joiner, 2002). This positive meaning leads to an increase in levels of wellbeing (Fredrickson & Joiner, 2002). Subsequently, the increase in wellbeing again broadens attention and cognition, and increases the likelihood of an individual finding positive meaning in subsequent events (Fredrickson, 2000).

Although Fredrickson did not refer specifically to cognitive reappraisal as a strategy used to interpret events as having a positive meaning, it is likely that individuals who do interpret situations positively are using cognitive reappraisal to do so, for this is a strategy used to reinterpret the meaning of a situation. As such, I propose that individuals who are experiencing a greater balance of positive emotions compared to negative emotions (and thus are experiencing greater levels of wellbeing), are more likely to have broadened cognition (e.g., flexible, creative, and unusual thinking; Fredrickson & Branigan, 2005). As the scope of attention and thought is broadened, individuals are then more likely to use cognitive reappraisal to reinterpret situations positively. Thus, they are more likely to experience wellbeing through this positive interpretation, which again leads to greater use of cognitive reappraisal, and so on.

Another adjacent theory to support this notion, which details *how* students might interpret situations as having a positive meaning, can be derived from the Emotion Regulation in Achievement Situations model (ERAS; Harley et al., 2019). In this model, which combines insight from Gross's Process Model of Emotion Regulation (Gross 1998, 2015) and Pekrun's Control Value Theory of Achievement Emotions (CVT; Pekrun 2006, 2018; Pekrun & Perry, 2014) individuals use control and value appraisals to influence the

generation and regulation of emotions at the cognitive change stage of Gross's model. For example, students may appraise a boring lesson as being necessary to pay attention to as it contains useful information for an upcoming exam (a value appraisal), or remind oneself that they can contribute meaningfully to a class discussion because they have prior knowledge of the topic (a control appraisal). In doing so, appraisals can decrease negative emotions (such as boredom), or increase positive emotions (such as the enjoyment of a class discussion). The decrease of negative emotions and/or increase in positive emotions means wellbeing is achieved, and it can then impact on subsequent control and value appraisals. For instance, increased wellbeing from actively participating in a class discussion makes the student more likely to perceive that they have meaningful contributions to make in subsequent class discussions thereby further increasing subsequent wellbeing, creating a reciprocal loop between cognitive appraisals (reappraisal) and wellbeing.

2.4.3 Linking Cognitive Reappraisal to School-Related Wellbeing

Empirical evidence is lacking for the effectiveness of using cognitive reappraisal to improve subjective wellbeing within an environment where education is the priority, for example in secondary schools. However, it is necessary to consider the links between cognitive reappraisal and educational outcomes when considering how cognitive reappraisal may be linked to school-related wellbeing. For instance, one experimental study has showed that when 6- to 13-year-old children use cognitive reappraisal to reappraise sadness, it improves memory for subsequent educational information (Davis & Levine, 2013). A further experimental study found that young people (aged 13 to 22) with math anxiety were better at solving math problems when using reappraisal to alleviate their anxiety (Pizzie et al., 2020). In addition, a recent mixed-methods study showed that cognitive reappraisal was associated with self-regulated learning in children aged 8 to 11 (Losenno et al., 2020). This

is likely due to cognitive reappraisal freeing up cognitive resources, as it regulates emotions before or just after the emotional response has occurred; and through not having to focus on regulating a full-blown emotional response, cognitive resources remain intact, leaving the individual more able to focus on learning. As such, young people who make use of cognitive reappraisal are likely to remember information they have learnt in school, self-regulate their learning during educational tasks, and have improved academic performance. It is likely students will then evaluate their school experiences positively, and this will contribute to an increase in school-related wellbeing.

2.4.3.1 Linking School-Related Wellbeing to Cognitive Reappraisal

Only one study has investigated how educational factors might predict cognitive reappraisal. In a sample of 1,450 adolescents, Xu et al. (2019) found higher prior achievement was associated with increased subsequent cognitive reappraisal 7.5 months later, but not vice versa. However, authors did not control for autoregressive effects in this study thus making causal assumptions problematic. Nonetheless, considering the aforementioned Broaden-and-Build and ERAS theories (Friedrickson, 1998; Harley et al., 2019; see Section 2.4.2.1) which account for why there might be a reciprocal link between cognitive reappraisal and subjective wellbeing, it is plausible to suggest that school-related wellbeing will positively predict cognitive reappraisal. This may be due to individuals with higher levels of school-related wellbeing being more likely to interpret situations positively (or perceive greater value or control in academic situations) than those who are experiencing low levels of wellbeing. Thus, they make greater use of cognitive reappraisal (e.g., by using control or value appraisals) to regulate their emotions. For instance, a student who receives positive feedback on their classwork and therefore experiences positive emotions (e.g., pride) will have higher school wellbeing, and thus may perceive greater controllability over

their final exam outcome. This appraisal may then further enhance wellbeing, which further increases the capacity for cognitive reappraisal (e.g., subsequent control and value appraisals) to regulate subsequent emotions. As such, the relation between school-related wellbeing and cognitive reappraisal is reciprocal.

2.4.3.2 The Importance of Examining the Bidirectional Link

Examination of the bidirectional link between cognitive reappraisal and wellbeing in young people has been neglected in previous research. Awareness of these associations is important for school leaders and educators to consider when finding ways to promote secondary students' wellbeing (e.g., through interventions to develop the use of emotion regulation strategies), or when considering how the subjective experience of school-life might be impacting on students' emotion regulation capabilities, as this can influence their psychological, emotional and social development, and capacity for learning. Knowledge of which factors impact on the regulation of emotions (e.g., what factors could contribute to increasing positive emotions and decreasing negative emotions) not only has benefits for improving wellbeing but also has potential upstream benefits for improving academic outcomes. The present longitudinal study with secondary school and 6th form college students targets gaps in the literature by examining reciprocal relations between school-related wellbeing and cognitive reappraisal.

2.5 Implicit Emotion Beliefs

Implicit beliefs refer to underlying beliefs about how the world works (Ford et al., 2018; see Section 1.4.2 for definitions and terms relating to implicit theories and beliefs). They are referred to as implicit as they are sometimes held outside of an individual's conscious awareness (De Castella et al., 2015; Dweck, 1999) and are not usually made

explicit (Dweck & Leggett, 1988; Kneeland et al., 2016a). Previous studies have been concerned with investigating implicit beliefs relating to a broad range of attributes and abilities such as intelligence (Blackwell et al., 2007), relationships (Knee et al., 2003), personality (Chiu et al., 1997), willpower (Dweck & Leggett, 1988) and even one's desire for fame (Maltby et al., 2008).

2.5.1 The Domain-Specificity of Implicit Beliefs

Implicit beliefs have been found to be domain specific. An individual may hold implicit beliefs in one domain (e.g., emotion) which may be different from implicit beliefs in another domain (e.g., intelligence; Dweck et al., 1995). Studies have provided evidence for the domain-specific nature of implicit beliefs, for example in showing that implicit theories of intelligence differ from implicit theories of morality and personality (Chiu et al., 1997; Dweck et al., 1995; Huges, 2015) and emotion (Tamir et al., 2007). In addition, recent research has begun to investigate implicit beliefs *within* a domain. For instance, within the domain of intelligence, implicit beliefs about math ability (Good et al., 2012, Rattan et al., 2012); within the domain of personality, beliefs about shyness (Beer, 2002), and within the domain of emotion beliefs about anxiety (e.g., Schroder et al., 2019). Individuals can also hold conflicting beliefs (incremental vs. entity) about attributes or traits that belong to the same domain. For instance, within the domain of mental health, Schroder et al. (2016) examined the latent factor structure of mental health related mindsets and found individuals held different implicit beliefs about the malleability of specific mental health issues (e.g., anxiety vs. depression). In addition, implicit beliefs in one specific area (e.g., anxiety) can be psychometrically distinguished from implicit beliefs in other domains such as personality, intelligence and emotion (Schroder et al., 2015, 2016).

Domain-specific implicit theories have been shown to be related to different outcomes. For instance, implicit theories of intelligence are typically found to be associated with outcomes such as academic achievement (e.g., Romero et al., 2014) however they are not associated with emotional and social outcomes such as emotional regulation and social support (e.g., Romero et al., 2014; Tamir et al., 2007). Similarly, implicit beliefs about emotion are not associated with academic outcomes (Romero et al., 2014; Tamir et al., 2007). These considerations are important as interventions which aim to improve outcomes by promoting incremental beliefs (e.g., teaching students that personality can change to improve symptoms of depression; Miu & Yeager, 2015) need to target specific implicit theories (e.g., personality) to achieve the desired outcome (e.g., improvement in depressive symptoms); an intervention which promotes incremental beliefs about the malleability of personality is unlikely to improve academic outcomes.

2.5.2 Emotion Malleability Beliefs

Emotion malleability beliefs refer to how much a person believes that emotions can be changed in the moment, whereas malleability beliefs in other domains, such as personality or intelligence, focus on whether the trait or attribute can be developed and change over time (Dweck, 1999). This doctoral thesis focuses on beliefs about the malleability of emotions, that is, to what extent an individual believes emotions can be changed and controlled when undergoing an emotional experience.

2.5.2.1 Anxiety and Happiness Malleability Beliefs

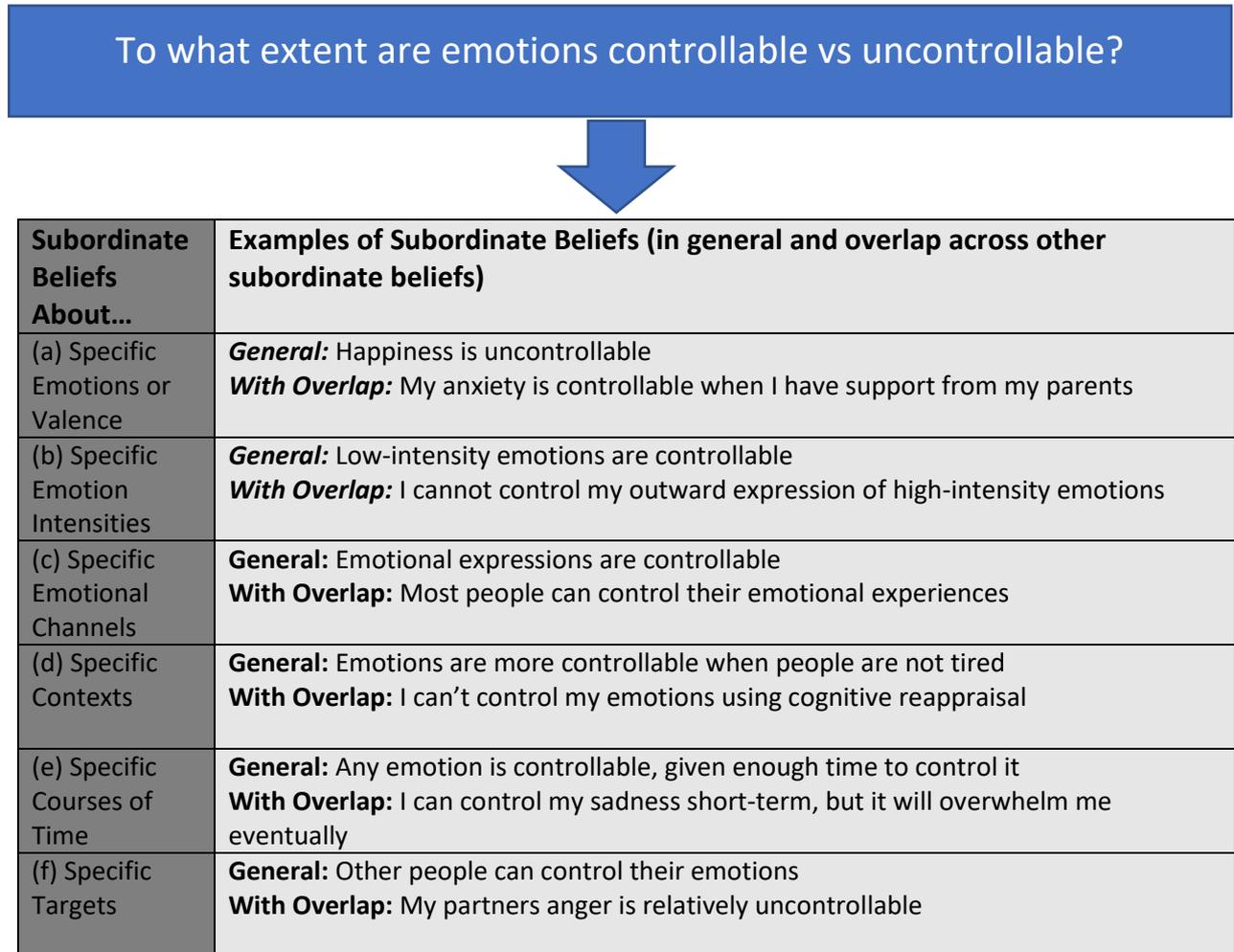
It is possible for individuals to have different beliefs about the malleability of specific emotions. For instance, an individual might believe that happiness is controllable, however they may not hold the same incremental view about anxiety. Ford and Gross

(2019) presented a framework for conceptualising subordinate emotion beliefs, focusing on two central subordinate beliefs, goodness and controllability, as the authors suggested both are important for understanding how people view emotion (Mikulincer, & Ben-Artzi, 1995) and are typically unrelated to each other (Dweck, 2017; Ford & Gross, 2019). Ford and Gross' framework representing subordinate beliefs related to controllability is presented in Figure 2.4 (features of goodness beliefs is also represented in the original framework however they are not included in the figure as they are not relevant to this doctoral thesis).

Ford and Gross' (2019) conceptual framework shows how subordinate beliefs about the controllability of emotion differ across a variety of subordinate features, including: (1) specific emotions or valence (e.g., happiness, sadness; positive or negative affect); (2) intensity of emotion (e.g., low vs. high emotional intensity); (3) channel of emotion (e.g., expression of emotion, internal subjective experience); (4) contexts, such as specific places (e.g., school), when in pursuit of a specific goal (e.g., aiming for a reward), or when one has particular resources for emotional regulation (e.g., when supported by friends, specific strategies for regulation); (5) period of time (e.g., short, long-lasting); (6) target (e.g., the self, other people, students). Moreover, the authors note that individuals differ in their emotional granularity (e.g., Barrett, 2017), and this is likely to influence their beliefs. For instance, an individual who uses a more specific set of words to describe their feelings (e.g., overjoyed, exuberant, pleased, to describe being happy) may have more specific and refined emotion beliefs than an individual who is low in emotional granularity and has less vocabulary to describe their emotional states (Ford & Gross, 2019).

Figure 2.3

Conceptual Framework Depicting Subordinate Beliefs about the Controllability of Emotion



Note. Adapted from Ford and Gross (2019). Subordinate beliefs about the goodness of emotions are included in the original framework but for simplicity are not included here.

2.5.2.2 The Formation of Anxiety and Happiness Malleability Beliefs

Studies have shown that when regulating emotions such as anger, sadness and fear, persons usually use different emotion regulatory strategies (e.g., Dixon-Gordon et al., 2015; Southward et al., 2019; Zimmerman & Iwanski, 2014). In addition, dysregulation (intense emotional reactions which are inappropriate to the context or long-term goals; Cole & Deater-Deckard, 2009) is thought of as an ineffective emotion regulatory strategy

(Zimmerman & Iwanski, 2018) and its usage differs between anger, fear or sadness situations in adolescents (Zimmerman & Iwanski, 2014). As such, if young people are showing differences in the effectiveness of regulating specific emotions (due to using ineffective strategies such as dysregulation for instance), depending on the type of emotion in question, then it is plausible to assume that emotion malleability beliefs will differ depending on the type of emotion. This is because when a young person consistently attempts to regulate an emotion and fails, or succeeds, this may then reinforce the belief that they are unable, or able, to control that specific emotion, resulting in different beliefs being formed about the controllability of specific emotions (see Bandura's Theory of Reciprocal Determinism, 1978 in Section 2.6)

2.5.2.3 Gender Differences in Emotion Malleability Beliefs

Previous research has found no gender differences in endorsement of emotion malleability beliefs with adults (e.g., Tamir et al., 2007) and young people (e.g., Romero et al., 2014). However, other longitudinal studies have showed that adolescent girls have stronger entity beliefs about emotion (Ford et al., 2018; Schleider & Weisz, 2016b). In addition, girls' entity beliefs have been shown to become more pronounced over one school year, however the endorsement of entity beliefs by boys did not grow stronger (Schleider & Weisz, 2016b). It may be the case that early gender socialisation explains the gender difference: girls are taught that emotions are natural for them (e.g., '*females are emotional*') whereas boys are taught that they should keep their emotions to themselves (e.g., '*boys don't cry*'); Ford et al., 2018). Indeed, in traditional Western culture, limited emotional expression has been found to be a social expectation for males (Fischer & LeFrance, 2014). As such, girls internalise the belief that their emotional expressions are not controllable, and boys internalise the belief that they are controllable. These instructions relating to the

importance of controlling emotional expressions (or not) could lead to beliefs being formed that emotions themselves (e.g., the subjective experience of them) are, in fact, controllable, or not (Ford et al., 2018). Thus, boys receive more messages about the importance of controlling their emotions, so internalise the belief that they are controllable, whereas girls do not receive these messages so believe they are not controllable. Considering the gender differences in emotion malleability beliefs with young people in the aforementioned studies, I controlled for the effect of gender on emotion malleability beliefs in this study.

2.5.2.4 Age Differences in Emotion Malleability Beliefs

There is scant evidence to determine whether emotion malleability beliefs increase or decrease with age. In addition, reporting greater malleability beliefs over time may be due to completing a survey multiple times, as the tendency for reporting greater malleability beliefs can be found in individuals who complete surveys about malleability items on multiple occasions (Dweck, 2006). In the few studies that have examined malleability beliefs over time, Romero et al. (2014) found that students reported more malleable emotion beliefs over two years, suggesting that this could be due to the young person's improved metacognitions about emotions (Harris, 1989; Harris et al., 1981). Conversely, Ford et al. (2018) found that entity beliefs about emotions grew stronger over 1.5 years, and were stronger in older adolescents than younger adolescents. The authors suggest that stronger entity beliefs may be due to puberty, as entity beliefs were not stronger in their adult sample compared to their older adolescent sample. Indeed, it may be the case that during puberty adolescents have not undergone brain development in critical areas involved with emotional control (see Section 2.3.4), and experience intense emotions more frequently than non-pubescent adolescents; this means they cannot control their emotions as much as they would like, and so form beliefs about emotions being uncontrollable. As such, considering the

findings from Romero et al. (2014) and Ford et al. (2018), the effect of age on emotion malleability beliefs was controlled for in this doctoral study with young people aged 11 to 19.

2.6 Linking Emotion Malleability Beliefs to Cognitive Reappraisal

Individuals who believe that emotions can be controlled are more likely to actively engage in emotion regulation using antecedent-focussed strategies such as cognitive reappraisal (Gross 2008; Tamir et al., 2007). One explanation for this is that individuals who hold incremental emotion controllability beliefs are more motivated to change their emotional experience, and thus make greater attempts to regulate the experience before or just after the onset of the emotion. However, individuals who believe that emotions cannot be changed are more likely to engage in emotion regulation strategies which focus on changing the emotion once it has fully presented, believing it is not possible to change emotions when they first manifest (Gross, 2008; Kneeland et al., 2016a). Indeed, believing emotions are relatively uncontrollable has been linked to engagement in avoidant or passive emotion regulatory strategies such as avoidance and rumination (De Castella et al., 2018; Kneeland & Dovidio., 2020).

Bandura's reciprocal determinism theory (Bandura, 1978) suggests that personal factors (such as beliefs) and behaviour reciprocally determine each other. For instance, a person's emotion malleability beliefs will influence the action to regulate an emotion (behaviour), and the action of regulating the emotion will then alter beliefs and expectations about the controllability of that emotion. As such, increased use of cognitive reappraisal may predict incremental emotion malleability beliefs: individuals who use cognitive reappraisal more frequently may be more likely to believe that it is possible to control their emotions, as the action of successfully regulating the emotion reinforces the belief that

emotions are controllable. In contrast, individuals who do not use cognitive reappraisal often, may have less success in regulating their emotions; this reinforces the belief that emotions are uncontrollable, leading to less engagement in cognitive reappraisal to regulate emotions on future occasions. As such, the link between emotion malleability beliefs and cognitive reappraisal is reciprocal.

2.6.1 Studies linking Emotion Malleability Beliefs to Cognitive Reappraisal

Supporting the theory that emotion malleability beliefs are associated with increased use of cognitive reappraisal, Hong and Kangas (2021) in their systematic review of 16 studies (with adult samples) found a positive relationship between emotion malleability beliefs and emotion regulation in most studies, specifically, the more malleable an individual's emotion beliefs, the more they were likely to engage in 'active' emotion regulation strategies (e.g., cognitive reappraisal). Additionally, in studies with adults, cognitive reappraisal is a strategy that has been found to be selected more often by individuals who hold incremental emotion controllability beliefs, rather than entity emotion controllability beliefs (De Castella et al., 2013; Ford et al., 2018; Gutentag et al., 2017; King & Rosa, 2019; Kneeland et al., 2016a; Kneeland et al., 2016b; Kneeland et al., 2020; Schroder et al., 2015; Tamir et al., 2007; Vuillier et al., 2021). Moreover, in their longitudinal study, Kneeland and Dovidio (2020) found that university students' beliefs in the malleability of emotions at the beginning of a semester were associated with an increase in cognitive reappraisal at the end of a semester, and this association was significant even when controlling for baseline levels of cognitive reappraisal ($\beta = .24$).

There have been relatively few studies that have investigated the relation between emotion malleability beliefs and cognitive reappraisal in an adolescent population however studies that did found positive associations. De France and Hollenstein (2020) assessed

early adolescents (aged 13 to 15) self-reported belief in the malleability of emotions (where the target was the self) in a laboratory, and then they were prompted by an app for two weeks, three times a day, following the visit to reflect on how they responded to strong negative emotions. The authors found that individuals who believed emotions were malleable were significantly more likely to use cognitive reappraisal to regulate responses to negative emotions ($\beta = .16$). Similarly, in their longitudinal study, Ford et al. (2018) found that self-reported entity beliefs about emotions were significantly related to less self-reported cognitive reappraisal 18 months later in young people aged 8–16 years. ($\beta = -.19$). The two aforementioned studies, however, used relatively small samples ($ns = 183, 227$, respectively); thus we cannot make assumptions about the relation between the two constructs without conducting further studies with larger samples of adolescents. There have been no studies which have examined if cognitive reappraisal *predicts* emotion malleability beliefs in adults or young people (for an exception related to mediation analysis see Ford et al. 2018, Section 2.8.2)

2.6.1.1 Studies Linking Anxiety Malleability Beliefs to Cognitive Reappraisal

A few cross-sectional studies have shown that believing one's own negative emotions such as anger and distress are controllable, is linked to increased engagement in cognitive reappraisal (e.g., Backenstrass et al., 2010; Guzenhauser et al. 2013). However, most studies do not ask participants to rate the malleability of specific emotions. With exception, Schroder and colleagues (2015) considered anxiety malleability beliefs, using a sample of 477 undergraduate students; the findings showed that believing anxiety was controllable was related to increased reappraisal ($\beta = .14$). However, in their subsequent study with 210 female undergraduates, anxiety malleability beliefs were not significantly associated with cognitive reappraisal, however believing emotions (in general) were

controllable was associated with increased reappraisal (Schroder et al., 2015). The aforementioned studies, however, were cross-sectional therefore we cannot make assumptions about causality, and participants were adults so we cannot generalise findings to young people. However, the study does highlight the importance of considering how specific emotion malleability beliefs, such as those of anxiety, relate to emotion regulation strategies, as they may not be related in the same way as general emotion malleability beliefs.

2.6.1.2 Studies Linking Happiness Malleability Beliefs to Cognitive Reappraisal

Emotion malleability beliefs relating to positive emotions has received little attention in the literature. However, reappraisal can be implemented to increase positive emotions, as well as downregulate negative emotions, and vice versa (Tamir et al., 2015). This doctoral thesis is concerned with the upregulation of positive emotions (e.g., happiness) and the downregulation of negative emotions (e.g., anxiety). In the scant literature that has investigated emotion malleability beliefs related to positive emotions, one cross-sectional study showed that beliefs about the controllability of one's own positive emotions was positively associated with cognitive reappraisal (Gunzenhauser et al., 2013); however, the expression and experience of emotions was measured in the same scale, and happiness was not considered specifically. Nevertheless, this study proposes that when individuals believe their happiness can be controlled and changed, they are more likely to engage in cognitive reappraisal to reappraise situations in a positive manner to increase their happiness (see Section 2.4.2.1 for a more detailed explanation for Fredrickson's broaden and build theory, 1998).

2.7 Linking Emotion Malleability Beliefs to Wellbeing

There are several mechanisms which may account for why individuals with incremental emotion malleability beliefs are likely to have higher wellbeing. An explanation for how cognitive reappraisal might explain the link between emotion malleability beliefs and wellbeing is detailed in Section 2.8. An alternative reason could be that young people who hold incremental emotion malleability beliefs are more likely to use interpersonal emotion regulation strategies (e.g., social support), and seek out social support when they are stressed (Tamir et al., 2007), and this social support would likely lead to increases in wellbeing. As such, young people who have incremental emotion beliefs may be more likely to use interpersonal emotion regulation strategies (e.g., social support), and/or intrapersonal strategies (e.g., cognitive reappraisal; Kneeland et al., 2016a).

Another possibility is that lower wellbeing predicts fixed emotion beliefs. One reason for this could be that individuals who have low wellbeing have repeated failed attempts at changing their emotions, leading them to conclude that emotions are indeed fixed and not amenable to change. According to Leahy (2002) depression is related to persons believing their own emotions are uncontrollable and different from the emotions of other people. This means that individuals engage in response-focused (maladaptive) regulation strategies such as rumination, substance use and avoidance (Kneeland et al., 2016a) which reinforces the belief that one's emotions are uncontrollable (but other people have control of their emotions) leading to further depression (Leahy, 2002). Therefore, believing that one's emotions are uncontrollable is reciprocally linked to depression, and as psychopathology is likely to be equated to wellbeing (see Section 2.4.2), believing one's own emotions are uncontrollable is also likely to be reciprocally related to wellbeing.

2.7.1 Studies linking Emotion Malleability Beliefs to Wellbeing

Research shows that holding entity beliefs about emotions is linked to a number of negative outcomes. For instance, cross-sectional studies have shown that believing emotions are not controllable has been linked to reduced self-esteem (De Castella et al., 2013), increased symptoms of depression (De Castella et al., 2013; King & Rosa, 2019; Ford et al., 2018; Schroder et al., 2015), higher stress (De Castella et al., 2013) lower life satisfaction (De Castella et al., 2013; King & Rosa, 2019), symptoms of anxiety (King & Rosa, 2019; Schroder et al., 2015), less positive emotions (King & Rosa, 2019), and more negative emotions (King & Rosa, 2019). Alternatively, in the aforementioned studies, believing that emotions are controllable is linked to higher self-esteem; lower depression, anxiety and stress; higher life satisfaction; and more positive and less negative emotions.

There have also been some longitudinal studies which have linked emotion malleability beliefs to wellbeing outcomes in undergraduates. Tamir and colleagues (2007) recruited students transitioning to college in the U.S. (the equivalent of university in the U.K.) and found that before entering college, individuals who held entity (vs. incremental) theories of emotion, and thus believed emotions were uncontrollable, had less favourable emotion experiences throughout their first academic term. Moreover, by the end of their first-year incremental emotion theorists had higher wellbeing ($r = .24$), lower depression ($r = -.15$), more positive emotions ($r = .16$) and less negative emotions ($r = -.18$); however, the authors did not control for baseline levels of these variables therefore cannot be certain that incremental emotion beliefs caused these outcomes. However, Kneeland and Dovidio (2020) did control for baseline levels of depression and distress in their study and found that undergraduates who had more malleable emotion beliefs at the beginning of a semester had lower symptoms of depression ($\beta = -.18$) and distress ($\beta = -.15$) at the end of the semester.

Several experimental studies with undergraduate students have also provided evidence for the link between emotion malleability beliefs and wellbeing. Gutentag et al. (2017) found that students who believed emotions were uncontrollable were more likely to feel negative emotions (anger and disgust) when recalling details from an emotion eliciting film clip; however, this was only evident for individuals who frequently used cognitive reappraisal. Another experimental study found that undergraduates who believed emotions were uncontrollable were more likely to feel more intense negative emotions (e.g., distress, fear) when watching a film clip (Kappes & Schikowski, 2013). In addition, Bigman et al., (2016) found that students who were led to believe that they could regulate their emotions successfully were more likely to feel more positive and less negative emotions when watching a distressing film clip.

It cannot, however, be assumed that findings from studies with older (university) students or adult populations can be extrapolated to secondary school students, as research in the domain of neuroscience, for instance, has shown that processing of emotions differs between adult and adolescent populations. For instance, adolescents may have limited ability, when compared with adults, for engaging relevant areas of the brain for goal-directed attention when processing emotionally evocative stimuli (Monk et al., 2003). However, studies investigating the link between emotion malleability beliefs and wellbeing with adolescents have shown similar findings to those with adults. Romero et al. (2014) found that adolescents who had low levels of wellbeing at the beginning of middle school saw an improvement in their wellbeing over the course of two years if they believed that their emotions were malleable, however students who believed that emotions were not malleable didn't show this improvement. Interestingly, the authors did not find the same effect over time for incremental emotion malleability beliefs reducing symptoms of depression. Ford et al. (2018), however, found that adolescents who had entity beliefs about

emotion had more depressive symptoms 18 months later ($\beta = .19$), and this association held when controlling for prior levels of depressive symptoms ($\beta = .15$).

2.7.1.1 Studies Linking Wellbeing to Emotion Malleability Beliefs

The aforementioned studies suggest that holding fixed emotion beliefs leads to lower wellbeing, however another possibility is that lower wellbeing predicts fixed emotion beliefs. Findings from studies which have investigated relations in the alternate direction have been mixed. In their longitudinal study, Ford et al. (2018) found that depression did not predict entity emotion beliefs; however, another longitudinal study with young people aged 11 to 14 showed that symptoms of psychopathology predicted stronger entity theories of thoughts, feelings and behaviours over one school year, but entity theories did not predict symptoms of psychopathology (Schleider & Weiz, 2016a). The directional ordering of relations between emotion malleability beliefs and wellbeing is important to consider as it carries different implications for approaches to treatments for improving wellbeing. Interventions which focus on changing implicit emotion beliefs to improve wellbeing would only be successful if implicit beliefs lead to greater wellbeing; if low wellbeing leads to the development of entity beliefs, this intervention approach to treatment would not be supported.

2.7.1.2 Studies Linking Anxiety Malleability Beliefs to Wellbeing

There have been two studies that have investigated if beliefs about the controllability of anxiety are related to wellbeing outcomes. Schroder et al. (2015) in their cross-sectional study with 477 undergraduates found that believing that anxiety was controllable was negatively associated with mental health problems, including symptoms of worry, anxiety, depression, and perfectionism (β s = $-.23$ to $-.40$), such that holding incremental anxiety

malleability beliefs was associated with fewer symptoms. In addition, Schroder et al. (2019), in their longitudinal study with undergraduates, found that believing anxiety was fixed predicted future weekly distress, even after controlling for the previous week's distress. Specifically, the study showed that students with a more incremental view of anxiety had approximately a third of a standard deviation less distress over time. There have been no studies which have examined if anxiety malleability beliefs are associated with subjective wellbeing specifically.

2.7.1.3 Studies Linking Happiness Malleability Beliefs to Wellbeing

No studies have examined the link between happiness malleability beliefs and wellbeing. However, Caprara et al. (2008) measured self-efficacy in experiencing and allowing oneself to express positive emotions such as pride, joy and enthusiasm in a large sample of young adults across three countries. The authors found it was positively related to self-esteem, positive affect and prosocial behaviour ($r_s = .33$ to $.40$) and negatively related to negative affect, irritability, aggression and symptoms of psychopathology ($r_s = -.12$ to $-.25$). Similarly, Gunzenhauser (2013) found self-efficacy in expressing and experiencing positive emotions was positively related to life satisfaction in Study 1 ($r = .36$) and Study 2 ($r = .21$) in their work with undergraduate students in Germany. Nonetheless, it is difficult to know whether it was the *experience* or *expression* of positive emotions that was related to positive outcomes in the aforementioned studies. In addition, directionality of relations cannot be assumed from these cross-sectional studies.

2.7.2 Studies Linking Emotion Malleability Beliefs to School-Related Wellbeing

Only one study has investigated the relation between emotion malleability beliefs and wellbeing related to the school. Smith et al. (2018) delivered a randomized control trial

intervention to 1,645 middle school students in the USA. The intervention taught students that they could change emotions, improve changing their emotions with practice, and these strategies could be used to improve wellbeing. The authors measured wellbeing in school by asking participants to rate the degree of positive and negative emotions felt during school, and measured school belonging and school satisfaction. Findings showed that students assigned to the intervention had more adaptive theories of emotion (which included emotion malleability beliefs and reappraisal efficacy) than the control group, and had greater emotional wellbeing and belonging in school. Moreover, the intervention reduced the decline in young people's school wellbeing by 58%. It is necessary to note, however, that the intervention did not increase students' satisfaction with their school environment or life satisfaction in general. To my knowledge there have been no longitudinal studies linking emotion, anxiety or happiness malleability beliefs to school-related wellbeing.

2.8 Linking Emotion Malleability Beliefs to Wellbeing via Cognitive Reappraisal

Individuals who hold incremental emotion malleability beliefs may be more motivated to regulate their emotions using antecedent-focused strategies such as cognitive reappraisal (see Section 2.6). This increased use of cognitive reappraisal may then lead to increased wellbeing (see Section 2.4.2). As such, cognitive reappraisal is one of the mechanisms which links emotion malleability beliefs to wellbeing. This link may also be explained by drawing on the biopsychosocial (BPS; Blascovich, 2008a; Blascovich & Tomaka, 1996) model. Individuals experience threat when the demands of a situation outweigh the perceived resources they have to deal with it. Or, perceived resources may outweigh the demands of the situation but the individual remains threatened in a situation which requires instrumental action to be taken. This results in a prolongation of the threat response and higher levels of cortisol (e.g., Seery, 2013; Zijlmans et al., 2013). As such,

young people who believe they do not have the resources they need to regulate their emotions, may experience threat. The high intensity of the negative emotions (e.g., anxiety), resulting from a threat appraisal, may mean that the individual has less cognitive resources to implement strategies known to be beneficial for wellbeing such as cognitive reappraisal. Indeed, cognitive reappraisal has been shown to be harder to apply in high intensity situations (e.g., Sheppes et al., 2014). Many aspects of young people's daily lives consist of experiencing intense negative emotions (Silk et al., 2003), thus the prolongation and intensity of negative emotions from the threat response may contribute to lower wellbeing. Alternatively, young people who believe they do have the resources to regulate their emotions (the strategies) would not experience the threat response as they successfully regulate their emotions (by using cognitive reappraisal) before the onset of the threat response.

2.8.1 Linking Happiness Malleability Beliefs to Wellbeing via Cognitive Reappraisal

Upregulating happiness involves modulating the intensity or arousal evoked by a stimulus or experience (Silton et al., 2020) so that the experience of positive emotions is heightened (Bryant & Veroff, 2007). As such, when individuals believe that their happiness is malleable, they are likely to attempt to engage in cognitive reappraisal, to regulate their responses to subsequent negative stimuli, to prolong the intensity and arousal of happiness. For instance, consider a student who is happy because she got a good mark on a science test, but at her next lesson she finds she has not done well in her math test. The student still wants to prolong the happiness she feels from receiving the mark from her science test, so she uses cognitive reappraisal to change the way she feels about the math test to prolong her initial happiness. If the student did not believe happiness was malleable, she would be unlikely to attempt to downregulate the negative emotion felt from the math test to control

(and prolong) the happiness she felt from the science test. Downregulating negative emotion to prolong positive emotions, using cognitive reappraisal, is likely to result in increased wellbeing. I do not know of any studies which have tested this theoretical reasoning, however it is plausible to assume that this is how happiness malleability beliefs, cognitive reappraisal and wellbeing are related. In this doctoral thesis I do not consider the mechanism by which happiness malleability beliefs and cognitive reappraisal may be related (e.g., by the downregulation of negative stimuli) I will only consider the direct link between happiness malleability beliefs and cognitive reappraisal.

2.8.2 Studies Linking Between Emotion Malleability Beliefs to Wellbeing via Cognitive Reappraisal

There have been several studies which have examined indirect relations between emotion malleability beliefs, cognitive reappraisal and facets of wellbeing. In their cross-sectional study with undergraduates, De Castella et al. (2013) found that there was an indirect effect of emotion malleability beliefs via cognitive reappraisal on depression ($\beta = .31$), stress ($\beta = .07$), satisfaction with life ($\beta = -.24$), and self-esteem ($\beta = -.03$). Supporting these findings, King and Rosa (2019) found that believing emotions were not malleable was significantly related to life satisfaction and positive emotions via cognitive reappraisal (indirect effects, β s = $-.02$, & $-.03$, respectively). However, there was no relation found for negative emotions, depression and anxiety, indicating that reappraisal may be more efficient at upregulating positive states rather than downregulating negative affect (King & Rosa, 2019). Concerning studies with young people, in a cross-sectional study with individuals aged 14 to 18, Ford et al. (2018) found entity beliefs about emotion were linked to depression via cognitive reappraisal ($\beta = .24$). In addition, Ford et al. (2018) employed a longitudinal design in their second study with young people, aged 8 to 16 years, and found

the same (albeit smaller) indirect effects when testing several mediation models which controlled for prior depressive symptoms 18 months and 36 months earlier ($\beta_s = .03$ -.04).

Interestingly, Ford et al. (2018) also tested whether depressive symptoms predicted entity emotion beliefs via cognitive reappraisal, thus testing a reverse directional indirect effect, and also controlling for prior entity beliefs; however, the authors found no significant indirect effect suggesting that the effect of emotion malleability beliefs on wellbeing via cognitive reappraisal is likely to be unidirectional. The aforementioned studies in this section, however, employed cross-sectional designs (except for Ford et al.'s 2018 longitudinal study however this was concerned with how emotion malleability beliefs predict depression rather than wellbeing), and typically three time points are needed to reduce bias in mediation analyses (Maxwell & Cole, 2007; see Section 1.6). There are no studies which have used three time points to test the indirect mediational effect of emotion malleability beliefs on wellbeing via cognitive reappraisal.

2.8.3 Studies Linking Emotion Malleability Beliefs to School-Related Wellbeing via Cognitive Reappraisal

There have been no studies which have specifically investigated the relation between emotion malleability beliefs and *school-related* wellbeing via cognitive reappraisal. However, it is likely that students who believe their emotions are controllable are more likely engage in cognitive reappraisal (see Section 2.6); and engaging in cognitive reappraisal is linked to greater wellbeing (see Section 2.4.2). Specifically, school-related wellbeing is likely to be positively influenced by cognitive reappraisal (see Section 2.4.3 for an explanation of how this may occur). As such, I examine the indirect link between emotion malleability beliefs and school-related wellbeing via cognitive reappraisal in this doctoral thesis.

2.9 First-Person vs. Third-Person Emotion Malleability Beliefs

Believing *people* can control their emotions is not necessarily the same as believing one has the ability to personally control their *own* emotions (De Castella et al., 2014). The literature has become complicated with some studies assessing emotion malleability beliefs by asking individuals to reflect on third-person items (e.g., '*People* can control their emotions'; Tamir et al., 2007), or first-person items (e.g., '*I* can control my emotions'; De Castella et al., 2014). To complicate matters further, some studies have referred to targets in the second-person asking participants to endorse items such as '*You* can control your emotions' which is ambiguous as the participant does not know if the target relates to oneself or people in general (Ford et al., 2018). General beliefs about emotion (reflecting on third-person items), and personal beliefs about emotion (reflecting on first-person items) reflect concepts that are likely related (e.g., De Castella et al., 2013) but conceptually distinct (Ford et al., 2018). This is because first-person items likely assess one's efficacy beliefs, and third-person items likely assess one's implicit emotion beliefs (Ford et al., 2018).

2.9.1 Studies Comparing First-Person and Third-Person Emotion Malleability Beliefs

There have been some studies with adults which have investigated the difference between beliefs in the malleability of one's own emotions with beliefs in the malleability of the emotions of others, in relation to wellbeing. De Castella et al. (2013) found that first-person entity emotion malleability beliefs were more strongly associated with self-esteem ($\beta = .37$), life satisfaction ($\beta = -.24$), the appraisal of stressful live events ($\beta = .38$), and depression ($\beta = .27$) than third-person malleability beliefs (β s = $-.26, -.18, .31, .15$, respectively). In addition, when controlling for first-person emotion beliefs, third-person

emotion beliefs were not related to psychological stress and wellbeing. In another study, Vuillier et al. (2021) investigated the relation between emotion malleability beliefs (first-person and third-person) and psychological health (specifically eating disorder psychopathology). Supporting findings from De Castella et al. (2013), there were stronger relations for the link between first-person emotion malleability beliefs and eating disorder psychopathology ($\beta = -.23$) than for third-person emotion beliefs and eating disorder psychopathology ($\beta = -.11$). Although the findings of the two aforementioned studies have to be interpreted with caution due to their cross-sectional nature, findings from both studies show that first-person emotion malleability beliefs have stronger relations with psychopathology and facets of wellbeing than third-person emotion malleability beliefs.

2.9.1.1 First-Person vs. Third-Person Emotion Malleability Beliefs in Young People

The aforementioned studies, however, have used adult samples. Young people may not endorse incremental and entity beliefs of themselves and others in a similar way to an adult population. De Castella and colleagues (2014) found that their non-clinical participants rated incremental items higher when asked about their own emotion malleability beliefs compared to when asked about the emotion malleability beliefs of other people. However, the reverse result was found for participants who had Social Anxiety Disorder. Participants with Social Anxiety Disorder rated entity items higher on the first-person emotion beliefs scale than the third-person emotion beliefs scale, suggesting they thought that they had less controllability over their own emotions compared to other people. In addition, in patients with Social Anxiety Disorder third-person emotion beliefs was found to be associated with perceived stress (indicated by how much life events were appraised as stressful in the past month), however first-person emotion beliefs were found to be associated with perceived stress *and* trait anxiety. The difference in endorsement of first-person vs. third-person

emotion beliefs in different populations (in the case of De Castella et al. 2014 clinical vs. non-clinical) is necessary to consider because all the studies examining first-person and third-person emotion beliefs have been conducted with adult populations. Indeed, the findings from De Castella et al. (2014) highlight that findings relating to first-person and third-person emotion malleability beliefs can differ across populations, and thus the strength of relations when comparing first-person and third-person emotion beliefs to wellbeing may be distinct for young people.

Young people may differ in their endorsement of first-person malleability beliefs compared to third-person malleability beliefs as if brain regions have not yet matured, which enables the young person to control their own emotions successfully (e.g., see Section 2.3.4), they may believe that other people are better able to control their emotions than they can themselves. Alternatively, they may have learnt optimal regulatory skills from parents, for instance (see Section 2.3.4) which means that compared to other individuals, such as their peers, they may perceive that they have more advanced regulatory capabilities. As such, they think they have more control over their emotions than others do. It is important to consider the target (e.g., ‘people’ vs. ‘I’) of the controllability belief because they carry different implications for approaches to treatments such as interventions. Interventions which teach that *people* can change may not necessarily produce the same outcome as interventions which teach that one *personally* can change. For instance, if a person has internalised the belief that they cannot change their emotions, but still believes other people can change their emotions, then undergoing an intervention which teaches them that people can change their emotions to improve wellbeing is not likely to produce a change in one’s personal beliefs, and is subsequently unlikely to improve wellbeing. As such, it is necessary to consider how the target of the belief relates to the desired outcome for developing and delivering interventions which aim to promote malleability beliefs to improve wellbeing.

2.10 Chapter Summary

This chapter provided the reader with an overview of the literature related to emotion malleability beliefs, emotion regulation and wellbeing. It is apparent that there is an emerging body of work which has begun to establish the link between emotion malleability beliefs and cognitive reappraisal, cognitive reappraisal and wellbeing, and emotion malleability beliefs and wellbeing. However, emotion malleability research is a relatively new area of investigation, thus there are gaps in the literature, such as exploring the link between subordinate features of emotion malleability beliefs (see Section 2.5.2.1; Ford & Gross, 2019), emotion regulation and wellbeing. Moreover, previous research has not investigated how emotion malleability beliefs and emotion regulation relates to context-specific measures of wellbeing, such as school-related wellbeing, and few studies have examined the bidirectionality of relations between constructs. Most studies that have attempted to infer causality are either cross-sectional or do not control for autoregressive effects of constructs, therefore causality cannot be reliably assumed. As such, the present doctoral thesis collects data at three time points and employs robust structural equation models to analyse data. In addition, it can reliably examine the mediational effect of emotion malleability beliefs on school-related wellbeing via cognitive reappraisal by collecting data on three separate occasions. The analyses will produce the most reliable estimates within the literature to date for evidence of the links between emotion malleability beliefs, cognitive reappraisal, and school-related wellbeing in young people aged 11 to 19.

Chapter 3:

Method

3.1 Introduction

First, this chapter will describe the researcher's philosophical positioning and describe the design of the study. It will also describe the study's ethics procedure and how relevant ethical issues were addressed. Then, it will provide details relating to the number of study participants, demographic characteristics of the sample, and how the educational institutions were recruited. Next, it will describe the procedure, and provide information related to administering the questionnaire. It will also give details of the measures and the questionnaire layout. Next, it will describe how the data were inputted and preliminary analysed. Then, it will provide information relating to the sources of missing data and will justify using the Full Information Maximum Likelihood (FIML) for dealing with this data. Finally, it will end with a summary of the chapter.

3.2 Researcher's Philosophical Positioning

Researchers must determine which methods to use for an investigation, and they will typically choose a method of inquiry based on their assumptions. These assumptions are related to: (1) the nature of reality, (2) what can be known about that reality, and (3) how to build the knowledge of that reality (Punch, 2013). A person's assumptions are usually implicit. However, it is necessary for a researcher to make their assumptions explicit as they have significant implications for every decision made in the investigation, including choice of methods (Kivunja & Kuyini, 2017). Researchers' assumptions (i.e., beliefs and worldviews) that guide their research investigations and actions are referred to as a paradigm (Guba & Lincoln, 1994). A paradigm consists of four elements: ontology, epistemology, methodology, and axiology (Lincoln & Guba, 1985).

Ontology is concerned with the researcher's beliefs about the nature of being and existence (Richards, 2003). In considering ontology, a researcher might ask: Is reality

objective or created by one's own mind? Ontology gives rise to epistemology which refers to what counts as knowledge within the world (Cooksey & McDonald, 2011). It is concerned with what the nature of knowledge is, how it can be acquired, formed, and communicated to other people (Cohen et al., 2007). For instance, in considering the epistemology of research, a researcher might ask: Is knowledge something which can be personally experienced or acquired? In addition, epistemology gives rise to methodology which refers to the approaches, methods, design, and procedures used in a study (Keeves, 1997). Thus, it is concerned with how the study should be undertaken (Grix, 2018; e.g., measuring tools, data analysis). When considering one's methodology the researcher may ask questions such as: How do I get the data and knowledge to answer my research question? Finally, axiology is concerned with the philosophical approach to making the right decisions, or decisions of value (Finnis, 1980). It is concerned with the ethical issues that need to be addressed when planning a study. It answers the question: What is the nature of ethics or ethical behaviour? (Kivunja & Kuyini, 2017).

3.2.1 Critical Realism

The researcher adopted a pragmatic approach as the starting point for this doctoral work. As such, research questions were devised after a review of the literature (e.g., relating to wellbeing, emotion regulation, and emotion malleability beliefs). They were also created to find a solution to a problem: the problem being the low wellbeing of young people, and the solution was to identify factors (e.g., emotion malleability beliefs) that impact on students' wellbeing. Thus, the research questions were not initially driven by a paradigm. Indeed, it is not necessary for all research questions to be driven by paradigm considerations (Punch, 2013). However, after the research questions were devised, the researcher adopted a critical realist approach as the method of inquiry for this study. Critical realists argue that

quantitative methods can reveal how causal mechanisms operate in specific conditions and identify links between variables that are not observable (Mingers, 2004). This study aimed to identify the causal mechanisms and associations between emotion malleability beliefs, emotion regulation and wellbeing, thus following the critical realist paradigm. How critical realism further underlies this research is described below.

Critical Realism pays attention to ontological realism, epistemological relativism and judgmental rationality (Bukowska, 2021). It originated in the 1970s through the work of Roy Bhaskar. It assumes that there is an independent reality which science can study (i.e., ontological realism) however there can be multiple ways to understand reality (i.e., it assumes a subjectivist epistemology). In addition, ontological events can be understood through the domain of the real (structures and mechanisms that generate events), actual (events and actions), and empirical (experiences that can be observed). Critical realism implies that the causes of events occur in the 'real' (e.g., there are mechanisms and structures which cause events). This philosophical positioning underlies the research as it looks for causal mechanisms which act as tendencies to generate events. For instance, this study assumes that students can have high or low school wellbeing (an event), it then asks what are the causal mechanisms that can explain this event (e.g., incremental malleability beliefs), and then asks how incremental malleability beliefs influence wellbeing (e.g., by emotion regulation).

The critical realist position also assumes that social structures influence the behaviour of individuals, but individuals also have agency over their behaviours and actions (Fryer, 2020). For instance, it is the expected norm that secondary school students regulate their emotions within the context of the school (i.e., the social structure). Thus, students' decisions to regulate their emotions (e.g., via the use of emotion regulation strategies that could be beneficial or detrimental to their education and wellbeing) is influenced by this norm. Through their agency, students have a choice of whether to attempt to conform to this norm

(regulate their emotions) or not, which will reproduce or transform the norm of regulating emotions through their actions (i.e., if all students regulate their emotions then it becomes the norm to regulate emotions at school, however if many students do not regulate their emotions at school then it may become the norm to not attempt to regulate them). In turn, the action to regulate emotions strengthens the norm that students should be able to regulate their emotions in school. Thus, students may be regulating their emotions at school to conform with social norms, however they are likely to be using different mechanisms to regulate them which could have beneficial or detrimental effects on their wellbeing and education.

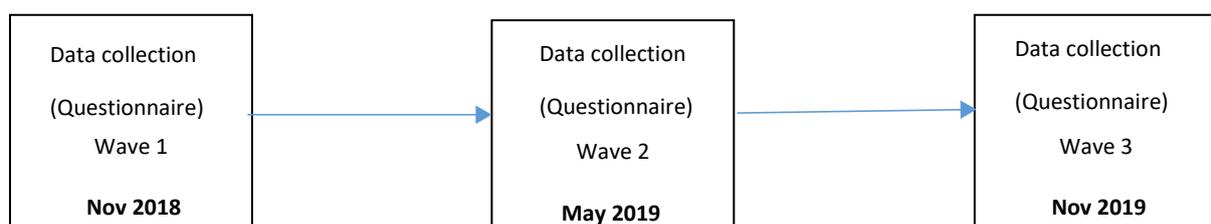
The self-report methodology used in this study enabled the researcher to capture the subjectivity of individual participants as per the domain of the actual (e.g., by self-reporting their malleability beliefs, emotion regulation and wellbeing). However, it also assumed, to some degree, that there will be an element of objectivity in students' self-reports (i.e., students who report that they are subjectively experiencing low wellbeing are also likely to be observed by others as not being happy at school), thus their actions and behaviour will also be represented in the empirical domain. The empirical domain was also captured using objective variables as covariates (e.g., gender, age). The analyses of the data then informed a representation of the real domain in which potential mechanisms (e.g., malleability beliefs, cognitive reappraisal) for influencing the outcome (e.g., wellbeing) were explored. In summary, the researcher adopted a critical realist approach to this doctoral work as it explored the causal mechanisms (e.g., emotion regulation) and how they act as tendencies to influence the world (e.g., wellbeing), and acknowledged that the social structure (e.g., the social context of the school) and agency (e.g., students' choice whether to regulate their emotions) exist relationally to influence outcomes.

3.3 Design

The data were collected in three waves (see Figure 3.1). The reason for the three-wave design was to determine causation implied by mediation. For one variable to have an effect another variable, it is necessary to allow time gaps between the cause and effect, thus collect data on the cause, the mediator, and the effect at each wave (Cole & Maxwell, 2003). Cross-sectional data which infers mediational processes can be misleading and biased (Cole & Maxwell, 2003; Reichardt & Gollob, 1986), and longitudinal data which only relies on two data collection points can also produce biased outcomes of cause and effect (Cole & Maxwell, 2003). The robust three-wave longitudinal design used in this study allowed for the control of prior levels of the outcome variables (e.g., the autoregressive effect of T₁ & T₂ school-related wellbeing on T₃ school-related wellbeing). It also allowed for the control of concurrent relations of the predictor variable with prior levels of the outcome variable (e.g., controlling for the concurrent effects of T₂ cognitive reappraisal with T₂ school-related wellbeing when estimating the effect of T₂ cognitive reappraisal on T₃ school-related wellbeing). I spaced the data collection points in 6-month intervals to allow for any change to occur over time, such as cognitive reappraisal usage which is likely to increase in the adolescent years (Garnefski & Kraaij, 2006; see Section 2.4.1.2). In addition, this design would allow sufficient time to collect, analyse and report findings, keeping within the timeframe allocated to complete my PhD.

Figure 3.1

Three-Wave Panel Design for Study 1



3.4 Ethical Considerations

It is necessary to consider and explore the ethical issues which may arise at every stage of the research process before carrying out research (Cohen et al., 2007). The researcher's institution (Liverpool John Moores University, LJMU) ensures that researchers have fully considered any ethical issues, and the research is justified, before ethical approval is granted. The researcher is required to submit an ethics application, including all documentation (e.g., participant information sheet, informed consent forms) for scrutiny by the university ethics panel. The ethics application asks the research team to describe how they will address the main ethical issues (e.g., how participants will be protected from harm, obtaining informed consent, how participants' confidentiality will be protected). Before completing the ethics application for this study, the researcher consulted the British Educational Research Association (BERA) guidelines (BERA, 2018) to ensure that relevant ethical issues were identified and included in the ethics application for this project. These guidelines support educational researchers to abide by the highest ethical standards when conducting research. The ethics application for this doctoral work is presented in Appendix A. The research was approved by Liverpool John Moores University Research Ethics Committee (18/EDN/017).

To ensure consent was obtained for students to take part in the study, a gatekeeper information sheet, participant information sheet, gatekeeper consent form, parent/carer information sheet, parent/carer consent form, and a copy of the questionnaire were sent to the principals of the schools and college (see Appendix B–F). They were asked to read the information, and sign and return the gatekeeper consent form if they agreed for their school or college to participate in the study. When they had granted their permission, a member of staff at the institution who had opted to oversee the facilitation of the research, sent the

parent/carer information sheet and a parent/carer consent form to the parents by email (see Appendix C). One school opted to put the information online on their Virtual Learning Platform. As the 6th form college students were all aged 16 or above, these participants were considered sufficiently mature to provide informed consent for themselves. Thus, 6th form college students' parents were not required to give permission for their child to participate in the study.

To allow participants to be withdrawn from the study, the parents were asked to inform their child's form tutor or head of year if they wished for their child to be withdrawn. The member of staff overseeing the project at each school dealt with any parental requests for students to opt out. Six students were opted out of the study, as requested by their parent, in one of the three schools. When the questionnaire was administered to students, each participant was provided a participant information sheet which contained information related to the purpose of the research, details relating to the right to withdraw, information related to protecting confidentiality (including data protection information) and details of who to contact for support if any issues were raised by completing the questionnaire (see Appendix D). It was made clear on the participant information sheet that students did not have to take part in the study.

To protect the students' anonymity, the questionnaire did not ask students to state their name. Alternatively, students were required to create a code on the front page which would be used to match up questionnaires completed on subsequent occasions. The code was created from the first two letters of their surname, the first two letters of their first name, the first two letters of their mother's first name, and digits for the day of the month in which they were born (see Appendix E & F). The participant information sheet and the teacher guidance sheet informed students that the code would not be used to identify them in any way. In addition, participants who completed the paper questionnaire were also given a blank

envelope together with their questionnaire and participant information sheet, and after completing the questionnaire they placed it in the envelope and sealed it. The students were informed of the purpose of this in the participant information sheet (for confidentiality reasons). The teacher administration guidance (see Appendix G) also instructed the teachers to remind the students to use the envelopes. Questionnaires were then returned to the teacher in their blank envelopes. Paper and electronic data were stored in a locked filing cabinet and on a locked computer at the researcher's university to protect participants' confidentiality.

3.5 Participants

The questionnaire was completed by 2,365 secondary school and 6th form college students who completed at least one of the three questionnaires which were administered over a 12-month period in 6-month lags. On the first measurement occasion, 1,756 students completed the questionnaire. On the second measurement occasion, 1,428 students completed the questionnaire. On the third measurement occasion, 1,228 students completed the questionnaire.

Participants were aged 11 to 19 (mean age = 14.1 years, $SD = 1.98$). A wide age range was chosen to allow many students to participate in the study. More than 1,200 students were needed at each wave to model the data (see Section 3.5.1 for the sample size calculation). If schools had only asked students to participate from allocated year groups, or had only asked students of a specific age, this would have reduced the sample size considerably. In addition, although brain regions mature and develop during adolescence (e.g., Riediger & Klipker, 2014) investigating age-related changes in cognitive reappraisal with young people has found mixed results (Zimmerman & Iwanski, 2018; see Section 2.4.1.2). Thus, there was sparse evidence to justify recruiting adolescents who were of a particular age to investigate relations between constructs in this doctoral work.

3.5.1 Sample Size

The proposed sample size was calculated using a sample size estimation for latent modelling analysis (Kline, 2015). The estimation was derived considering that each wave of data collection consisted of 40 parameters in per wave, within the 40 parameters there were 40 sets of residual variance, 39 sets of factor loadings, 9 individual factors, 9 sets of variance, and 22 sets of covariance. Thus, 1 parameter would need 10 participants, and 40 parameters will need 400 participants at each wave. There were 3 waves therefore 1200 participants would be needed in total over 3 waves. A limited number of variables would be used in a single analytic model therefore a sample size of 1,200 participants was deemed sufficient. I recruited more than 1,200 students at each wave which was a sufficient sample size to model my data.

3.5.2 Ethnic Background

The ethnic background of students was predominantly white Caucasian $n = 2081$ (91.0%), with smaller numbers from black $n = 24$ (1.0%), Asian $n = 53$ (2.3%), dual heritage $n = 61$ (2.7%), and other backgrounds $n = 52$ (2.3%). Seventeen participants (0.7%) did not report their ethnic background. Table 3.1 compares the numbers of white Caucasian participants with the number of participants from other backgrounds who completed the questionnaire at each time point. When comparing the sample with national data, collected at the same time as our first wave of data collection, the sample had a greater proportion of white participants (national figure of 69.7%; study sample 91.2%) than was typical for England (DfE, 2018).

Table 3.1*Frequencies and Percentages for Ethnic Background of Participants*

	White		Non-White ^a		Did not disclose		Total <i>n</i> of participants
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Time 1	1614	91.9	133	7.6	9	0.5	1,756
Time 2	1303	91.2	117	8.2	8	0.6	1,428
Time 3	1125	91.6	100	8.1	3	0.2	1,228

Note. ^aNon-White' refers to participants who disclosed their ethnic background as 'Black', 'Asian', 'Dual heritage' or 'Other'.

3.5.3 Gender

In total 1,127 (47.7%) of participants were male and 1,164 (49.2%) were female. There were 74 (3.1%) of participants who did not disclose their gender. Table 3.2 shows the number of males and females who completed the questionnaire at each time point. At each time point, more females than males completed the questionnaire. The questionnaire completed on the third measurement occasion showed the largest gender difference: 5.8% more females than males completed the questionnaire on this measurement occasion.

Table 3.2*Frequencies and Percentages for Gender of Participants*

	Females		Males		Did not disclose		Total <i>n</i> of participants
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Time 1	872	49.7	848	48.3	36	2.0	1,756
Time 2	711	49.8	687	48.1	30	2.1	1,428
Time 3	637	51.9	566	46.1	25	2.0	1,228

3.5.4 Socio-Economic Status (SES)

In this study participants' eligibility for Free School Meals (FSM) was used a proxy for students' socio-economic status (SES). FSM is widely used as a marker for SES in UK educational research (Hobbs & Vignoles, 2010). It has been shown to be a very good indicator when used to assess whether a participant is socio-economically disadvantaged (Taylor, 2018). In total, 682 (28.8%) of participants were eligible for FSM, 1,626 (68.8%) were not eligible, and 57 (2.4%) did not report their eligibility. Table 3.3 shows the numbers of students eligible for FSM at each time point. At all 3 time points, between 27% and 32% of participants were eligible for FSM, and slightly more participants were eligible for FSM on the second measurement occasion compared with other time points. When comparing the sample with national data, collected at the same time as our first wave of data collection, the sample had a greater proportion of students from deprived backgrounds (national figure of 12.4%; study sample 28.8.%) based on FSM eligibility, than was typical for England (DfE, 2018).

Table 3.3*Frequencies and Percentages for Free School Meal (FSM) Eligibility of Participants*

	Yes		No		Did not report		Total <i>n</i> participants
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Time 1	485	27.6	1,240	70.6	31	1.8	1,756
Time 2	454	31.8	942	66.0	32	2.2	1,428
Time 3	341	27.8	872	71.0	15	1.2	1,228

3.5.5 Year Group

Students from Years 7–10 and 12 were asked to participate in the study at the first and second measurement occasion. On the third measurement occasion, the same students were then in the following academic year when completing the questionnaire (Years 8–11 & 13). As there were 3 waves of data collection that spanned across two school years, students from Years 11 and 13 were not recruited. The reason for this being that less than half of Year 11 students continue onto a school 6th form (DfE, 2019). Thus, the retention rate was likely to be low for this year group completing the questionnaire again at the third measurement occasion if they had not remained at their school. In addition, it would not have been possible to collect data from Year 13 at their school or college in the next academic year (for the third measurement occasion) as they would have left the educational institution. On the first measurement occasion, 65.9% of participants were from year groups 7 to 10, and 61.2% and 58.0% of participants were from these year groups on the second and third measurement

occasion, respectively (see Table 3.4). A small number of Year 11 and 13 students did complete the questionnaire at on the first and second measurement occasion (see Table 3.4), possibly due to being present in other year group classes when the questionnaire was administered. The age of students belonging to each year group were as follows: Year 7 (aged 11–12), Year 8 (aged 12–13), Year 9 (aged 13–14), Year 10 (aged 14–15), Year 11 (aged 15–16), Year 12 (aged 16–17) and Year 13 (aged 17–18).

Table 3.4*Frequencies and Percentages for Participants in each Year Group*

	Year 7		Year 8		Year 9		Year 10		Year 11		Year 12		Year 13		Total <i>n</i> of participants
	<i>n</i>	%	<i>n</i>												
Time 1	301	17.1	283	16.1	292	16.6	282	16.1	1	<0.1	570	32.5	13	0.7	1,756
Time 2	193	13.5	297	20.8	245	17.2	139	9.7	0	<0.1	525	36.8	15	1.1	1,428
Time 3	5	0.4	224	18.2	226	18.4	258	21.0	89	7.2	0	<0.1	415	33.8	1,228

3.6 Schools

Data were collected from participants at three secondary schools and one 6th form college. Two of the three schools and the 6th form college were located within the Merseyside region, and one school was located in the county of Cheshire East. All three of the secondary schools provided 6th form provision for students continuing their education after Year 11. The participating 6th form college was an organisation which funded a proportion of the bursary for my PhD (approximately 30%), and I had been working at the college to develop a wellbeing programme for students in the first year of my PhD. Thus, I already had access to the premises, and had a PhD advisor located at the college who agreed to help with the facilitation of the study.

To gain access to the first school (located within the same borough as the 6th form college), the Principal of the 6th form college facilitated communication between myself and staff members at the school so I could ask the school to participate. For the second school, I had connections with the Head of Year 11 who was willing to assist with the facilitation of my study if the headteacher gave his consent. For the third school, located within Cheshire, my PhD supervisor had been working closely with staff and students at the school and was able to facilitate a meeting with the Head of Year 11, who then agreed to oversee the research providing the principal gave his consent for the students to participate. As such, four educational institutions were recruited: three schools allowed the recruitment of students from several year groups, and the 6th form college facilitated the recruitment of all Year 12 students.

3.7 Procedure

Two of the schools and the 6th form college opted to complete a paper version of the questionnaire, and one school chose to complete an online version. Both versions took approximately 15 minutes to complete. The online version was identical to the paper version and was created in the Bristol Online Survey (BOS) Tool. For the online version, a link was sent to form tutors at the school who emailed it to their students to complete; students completed the questionnaire on their own personal tablet which was provided for them by the school. All of the schools opted to administer the questionnaire to students during form time (in the morning or afternoon) which is a period of the schools' timetable used for registration of students and for undertaking administrative matters. The 6th form college asked students to complete the questionnaire at the beginning their scheduled 'tutorial' session which takes place once a week and is used for educating students about issues related to their health and social wellbeing, and future career options. The form time sessions and tutorial sessions at the schools and college require compulsory attendance from the students. The questionnaires were administered in a classroom by teachers or tutors responsible for the group of students at that time. Teachers and tutors were given a guidance sheet with instructions on how to administer the questionnaire (see Appendix G). The member of staff overseeing the study requested that tutors or teachers provided the withdrawn students with an alternative task to complete whilst other students were completing the questionnaire.

3.8 Measures

The questionnaire given to students on the first and second measurement occasion contained 53 items, (19 scales) and the questionnaire on the third measurement occasion contained 41 items (16 scales; see Appendix E). The third questionnaire was reduced by 12 items as data collected from the first and second measurement occasion was sufficient to

answer RQ4, therefore the items relating to third-person beliefs about the malleability of emotion, anxiety and happiness were not needed in the third questionnaire (see Appendix F). In addition, after inputting the data from the second measurement occasion, I found many of the questionnaires had incomplete responses on the final page. This may have been due to students having limited time to complete the questionnaire, or because they lost interest in completing it. As such, I deemed it worthwhile to use a questionnaire containing fewer items on the third measurement occasion; this would result in one page less for the students to complete and, presumably, show a greater response rate than on previous occasions for the items placed near the end of the questionnaire.

The questionnaire, administered on all measurement occasions, contained 13 items (3 scales) which were not included in the analysis: a 9-item sub-scale to measure social anxiety from The Revised Children's Anxiety and Depression Scale (RCADS; Chorpita et al., 2005), and 4 items from the Emotion Regulation Questionnaire designed to measure respondents' tendency to regulate their emotions by use of expressive suppression (Gross & John, 2003). These scales were linked to additional hypotheses unrelated to those addressed in this PhD thesis, therefore it is not necessary to discuss their relevance further in this section. However, expressive suppression is an emotion regulation strategy which deserves attention when reviewing and discussing emotion regulation research (see Section 6.3.1).

On the first and second measurement occasion, three versions of the questionnaire were created to eliminate the possibility of question order effects. In version 1, students answered questions relating to their first-person malleability beliefs first (emotion, anxiety, and happiness), and questions relating to cognitive reappraisal last. In version 2, students answered questions relating to their third-person malleability beliefs (emotion, anxiety, and happiness) first, and first-person malleability beliefs last. In version 3, students answered questions related to cognitive reappraisal first, and questions concerning third-person

malleability beliefs last. For the questionnaire administered on the third measurement occasion, two versions were created: one questionnaire which asked questions relating to cognitive reappraisal first and first-person malleability beliefs last, and another which asked questions relating to first-person malleability beliefs first and cognitive reappraisal last.

The school-related wellbeing scale was not counterbalanced as it was positioned on the front page, with demographics questions. This was due to difficulties I had when attempting to reorder the scales to create the additional two versions. I found that positioning the school-related wellbeing scale at another point in the questionnaire would have needed an additional page to be added, which would have resulted in the questionnaire being printed on 3 pages of A4. I anticipated this would lead to a reduced response rate as participants were likely to be discouraged from answering all of the questions due its length. It also may have resulted in incomplete or inaccurate answers for the items towards the end of the questionnaire if participants lost interest in answering the questions. As such, I expected that placing this scale on the front page of every version would result in greater response rates and produce more accurate answers than an additional page being added.

It is necessary to note that it would not have been possible to completely randomise the questions, as instructions needed to be given before each scale was presented. The instructions informed the participants about the scale content, and gave them advice on how to rate the items. Randomising the questions completely would have caused confusion as it would have not been possible to place instructions before every question. For instance, the first-person malleability belief scales needed to have the following introductory statement, *'The following questions will ask you about your emotional experience or what you feel like inside'*. Conversely, the introductory statement for the third-person malleability belief scales read, *'These questions will ask you about the emotional experience of people or what you think they feel like inside'*. The statements differed as the first-person malleability belief

scales referred to one's own emotional experience and the third-person malleability belief scales referred to the experience of other people. As such, it was necessary to keep items belonging to the same scale clustered together.

3.8.1 School-Related Wellbeing

School-related wellbeing was assessed using a six-item self-report scale (Loderer et al., 2016) to measure students' global judgments of their overall wellbeing in school settings (e.g., 'I feel comfortable at school' & 'School is going well for me'). For the questionnaire administered to college students, I changed the wording of the items to refer to 'college' rather than 'school'. Students were given instructions to rate how they 'Usually' think and feel about school/college, and rated their responses on a 5-point Likert Scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree) so that a higher the score on the scale represented better school-related wellbeing. The scale showed good internal consistency when used in previous research with adolescents, $\alpha = .84-.87$ (Loderer et al., 2016; Putwain et al., 2020).

3.8.2 Cognitive Reappraisal

Cognitive reappraisal was measured using 6 items from the 10-item Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA), designed to measure participants' (aged 9 to 18) tendency to regulate their emotions by use of cognitive reappraisal (Gullone & Taffe, 2012). The ERQ-CA questionnaire is structured in the same way as the adult Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), with 6 items measuring cognitive reappraisal and 4 items measuring expressive suppression; however, in the ERQ-CA the wording of the items is simplified to be more relevant for younger participants. For example, *'When I want to feel less negative emotion, I change the way I'm thinking about'*

(item 10 on the ERQ) is changed to ‘*When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I’m thinking about it*’ (item 10 on the ERQ-CA). In addition, when completing the ERQ participants rate their responses on a 7-point Likert scale, however on the ERQ-CA the Likert scale has been reduced to five points (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). Higher scores represent greater use of using cognitive reappraisal as an emotion regulation strategy.

The ERQ-CA has demonstrated acceptable to good internal consistency for the 6-item cognitive reappraisal scale when used with samples of adolescents, $\alpha = .83-.89$ (Gullone & Taffe, 2012; Ng et al., 2019; Queen & Ehrenreich-May, 2014), and scalar invariance over a 1-year interval (Ng et al., 2019). The ERQ-CA has also displayed discriminant and convergent validity with wellbeing measures such as depression (Chambers et al., 2015; Liu et al., 2017) and self-esteem (Tatnell et al., 2014).

3.8.3 First-Person Malleability beliefs

First-person malleability beliefs (emotion, anxiety, and happiness) were assessed using three versions of the Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007). Two items on each scale measured incremental beliefs, and two items measured entity beliefs. The subject of the statements was changed (from the wording on the third-person malleability beliefs scales; see Section 3.8.4) to reflect a first person claim about belief in their ability to control or change emotions (e.g., ‘*People can learn to control their emotions*’ was changed to ‘*I can learn to control my emotions*’). The wording was also changed in the anxiety and happiness malleability belief scales to reflect the type of emotion. For instance, ‘*The truth is, I have very little control over my emotions*’ on the emotion malleability belief scale was changed to ‘*The truth is, I have very little control over my anxiety*’ on the anxiety malleability belief scale. Participants were asked to rate their agreement on a 5-point Likert

scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree), and entity items were reverse-scored so that higher scores reflected more malleable beliefs. In previous research with undergraduates, the scale showed good internal consistency when measuring first-person malleability beliefs about emotion ($\alpha = .79$; De Castella et al., 2013).

3.8.4 Third-Person Malleability beliefs

On the questionnaire administered on the first and second measurement occasion, third-person malleability beliefs for emotion, anxiety and happiness were assessed using three versions of the Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007). One scale measured emotion malleability beliefs, one measured anxiety malleability beliefs, and one measured happiness malleability beliefs. Two items on each 4-item scale measured incremental beliefs (e.g., 'If they want to, people can change the emotions that they have' and 'People can learn to control their emotions') and two measured entity beliefs (e.g., 'The truth is, people have very little control over their emotions' & "No matter how hard they try, people can't really change the emotions that they have'). The wording was modified on all four items of the anxiety malleability belief scale and the happiness malleability belief scale to represent the distinct emotions of anxiety or happiness, for instance 'People can learn to control their *emotions*' was replaced with 'People can learn to control their *anxiety/happiness*.' Items were rated on a 5-point Likert scale with 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. The entity items were reverse scored so that higher scores reflected more malleable emotion, anxiety or happiness beliefs. In past research with undergraduates, the scale showed good internal consistency when measuring third-person emotion malleability beliefs ($\alpha = .77$, De Castella et al., 2013; $\alpha = .75$, Tamir et al., 2007).

3.8.5 Demographics

Demographic information was reported by the students on the first page of the questionnaire at each measurement occasion. Students were asked to report information related to their gender (0 = male, 1 = female), age, year group (0 = Year 7, 1 = Year 8, 2 = Year 9, 3 = Year 10, 4 = Year 11, 5 = Year 12, 6 = Year 13), ethnic background (0 = Asian, 1 = Black, 2 = White, 3 = Other, 4 = Dual Heritage) and whether they were eligible for FSM (FSM; 0 = not eligible, 1 = eligible).

3.9 Data Input and Analyses

Paper questionnaire data were entered manually on a computer on SPSS (Version 25) by the researcher. I verified the data entry accuracy by entering the data and then visually checking the input against the original paper questionnaire. The questionnaires from the second and third measurement occasion were matched with a participant's questionnaire from the first measurement occasion, or a questionnaire from the third measurement occasion was matched with the questionnaire from the second measurement occasion (if the student had not completed the questionnaire at T₁) using their unique identifier code. The demographic information was checked to ensure it matched the information given at the previous time point, and if any demographic information was missing it was entered when inputting the data on the subsequent measurement occasion. If there were new participants on the second or third measurement occasion, the demographic information was entered for the first time. Usually, the demographic information collected at the second or third measurement occasion matched with the information reported on the first measurement occasion, or the information collected on the third measurement occasion matched with reports from the second measurement occasion, with expected increases in age and year group at subsequent waves of data collection.

There were some discrepancies between questionnaires for the same participant on the FSM question (answering ‘Yes’ or ‘No’ to eligibility) presumably resulting from a change in eligibility for FSM since the first measurement occasion. Thus, if the reporting of eligibility for FSM had changed, this was edited in the participants’ demographic information so that the most current FSM status was reported. If there were any other inconsistencies in demographic information on the questionnaires completed at different time points (e.g., for the reporting of gender) the demographic information was used from when the participant completed the questionnaire for the first time.

Cronbach’s α and McDonald’s ω reliability tests (McDonald, 1999) were conducted in JASP (Version 0.14). I used McDonald’s ω as it has been found to be a more accurate indicator of scale reliability than Cronbach’s α (Yang & Green, 2011). This is because there may be significant differences in the α and ω level when the scale contains correlated errors, when differences between the individual factor loadings and the average loading are more than 0.2, and when the average factor loading is below 0.7 (Raykov & Marcoulides, 2015). This is likely to be the case in some of the scales used in this study. As such, I deemed it worthwhile to run both reliability tests.

The SPSS software program was used to examine sources of missing data, frequencies, and to calculate the school-level variance for each scale. The SPSS file was then prepared for use in *Mplus* v.8 (Muthén & Muthén, 2017) and this software was used to examine assumptions and descriptives (e.g., skewness, kurtosis, means, bivariate correlations). Skewness greater than three is considered extreme, and kurtosis values greater than ten are likely problematic (Chou & Bentler, 1995; Kline, 2015). All statistical analyses from this point forward (e.g., confirmatory factor analyses, structural equation models) were conducted in *Mplus* (see Chapter 4 and 5 for results of the above analyses).

3.10 Missing data

There was a reduction in the number of participants who completed the questionnaire on the second and third measurement occasion ($T_1 n = 1,756$, $T_2 n = 1,428$, $T_3 n = 1,228$ participants). This is likely due to some students being absent from school or college when the questionnaire was administered on the second or third measurement occasion, therefore they were unable to complete the questionnaire. In addition, some students may have chosen not to participate in the study when it was administered. Indeed, when inputting the data I found a number of blank questionnaires had been placed in the envelopes, which may indicate that these students chose to withdraw by not completing the questionnaire.

Before the questionnaires were due to be administered to the students on the second and third measurement occasion, I sent an email to the member of staff overseeing the research at each school or college reminding them of which year groups needed to complete the questionnaire on the second and third occasion; this was to ensure that the same students who completed the questionnaire on the first measurement occasion were given the questionnaire to complete again on the second and third measurement occasion. Despite this, some students who did not complete the questionnaire on the first occasion were given the questionnaire to complete on the second and/or third occasion. In addition, some students who were given the questionnaire on the first occasion were not given the questionnaire again, or were given the questionnaire only on the third occasion. It is likely that this was due to confusion when distributing the questionnaires to classes or year groups. As such, a large proportion of the missing data in the study is likely to be due to circumstances outside of the students' control.

To assess whether there was bias in the data which was missing on the second and third measurement occasion, I used Little's Missing Completely at Random test (MCAR) omnibus test (Little, 1998). This test was statistically significant ($p < .001$) therefore I could

not assume the data was MCAR. To determine the source of missingness, I investigated whether the variable with complete data on the first measurement occasion was related to the missingness for that variable on the second measurement occasion, and whether the variables with complete data on the first and second measurement occasion were related to the missingness for that variable on the third measurement occasion. To examine this, I conducted a series of *t*-tests to examine differences in school-related wellbeing, cognitive reappraisal, first-person malleability beliefs (emotion, anxiety, and happiness), third-person happiness malleability beliefs (emotion, anxiety, and happiness) and age. I also conducted chi-square difference tests (χ^2 ; Bollen, 1989) to examine missingness for gender, nationality and FSM.

Table 3.5 shows the results from the *t*-tests which located the score of the missing data on the school-related wellbeing and cognitive reappraisal scales on the second measurement occasion. Participants who scored lower on the T₁ school-related wellbeing scale, the T₁ cognitive reappraisal scale, and the T₁ third-person happiness malleability beliefs scale were less likely to complete the school-related wellbeing and cognitive reappraisal scale at T₂, and younger students at T₁ were less likely to complete these scales at T₂, compared with older students.

Table 3.6 shows results from the *t*-tests to locate the source of missing data on the second measurement occasion by examining the first-person malleability beliefs scales (emotion, anxiety, and happiness) and the third-person happiness malleability belief scale. Students who had lower scores on the third-person happiness beliefs scale at T₁ were less likely to complete the third-person happiness beliefs scale at T₂. In addition, students who scored lower on the T₁ school-related wellbeing scale, and the T₁ cognitive reappraisal scale were less likely to complete the T₂ first-person malleability belief scales (emotion, anxiety, and happiness) and the T₂ third-person happiness malleability belief scale. Younger students

were less likely than older students to complete all first-person T₂ malleability belief scales, and the T₂ third-person happiness malleability belief scale.

Examination of the chi-square (χ^2) difference tests revealed students who had FSM were more likely to complete the questionnaire on the second measurement occasion than students who did not have FSM ($p < .001$): 74.7% of missing questionnaires on the second measurement occasion were from students who had stated they had FSM on the first measurement occasion, whereas 25.3% of missing questionnaires on the second measurement occasion were from students who reported not being eligible for FSM on the first measurement occasion. All other differences were not statistically significant ($ps > .05$).

Table 3.5*Results of T-Tests for Examining Sources of Missing Data for T₂ School-Related Wellbeing and T₂ Cognitive Reappraisal*

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₂ School-Related Wellbeing</i>					
T ₁ School-Related Wellbeing	-.238	.035	-6.805	1,513	<.001
T ₁ Cognitive Reappraisal	-.096	.036	-2.717	1,714	.007
T ₁ Third-Person Happiness Beliefs	-.068	.034	-1.984	1,696	.047
Age	-.347	.083	-4.181	2,355	<.001
<i>T₂ Cognitive Reappraisal</i>					
T ₁ School-Related Wellbeing	-.249	.035	-7.160	1,552	<.001
T ₁ Cognitive Reappraisal	-.105	.035	-2.959	1,714	.003
T ₁ Third-Person Happiness Beliefs	-.072	.034	-2.097	1,696	.036
Age	-.358	.081	-4.414	2,213	<.001

Note. Mean difference refers to the difference in means for participants who had missing data at T₂ compared with participants who did not having missing data at T₂ (0 = missing, 1 = completed).

Table 3.6*Results of T-Tests for Examining Sources of Missing Data for the T₂ Malleability Belief Scales*

Variables	Mean	Std. Error	<i>t</i>	df	<i>p</i>
	Difference	Difference			
<i>T₂ First-Person Emotion Malleability Beliefs</i>					
T ₁ School-Related Wellbeing	-.249	.035	-7.169	1558	<.001
T ₁ Cognitive Reappraisal	-.100	.035	-2.835	1714	.005
Age	-.431	.081	-5.304	2181	<.001
<i>T₂ First-Person Anxiety Malleability Beliefs</i>					
T ₁ School-Related Wellbeing	-.250	.035	-7.192	1569	<.001
T ₁ Cognitive Reappraisal	-.102	.035	-2.885	1714	.004
Age	-.456	.081	-5.623	2206	<.001
<i>T₂ First-Person Happiness Malleability Beliefs</i>					
T ₁ School-Related Wellbeing	-.251	.035	-7.223	1564	<.001
T ₁ Cognitive Reappraisal	-.101	.035	-2.865	1714	.004
Age	-.439	.081	-5.406	2206	<.001

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₂ Third-Person Happiness Malleability Beliefs</i>					
T ₁ School-Related Wellbeing	-.255	.035	-7.353	1563	<.001
T ₁ Cognitive Reappraisal	-.093	.035	-2.623	1714	.009
T ₁ Third-Person Happiness beliefs	-.071	.034	-2.070	1696	.039
Age	-.464	.081	-5.727	2231	<.001

Note. Mean difference refers to the difference in means for participants who had missing data at T₂ compared with participants who did not having missing data at T₂ (0 = missing, 1 = completed).

Tables 3.7 and 3.8 show *t*-tests for determining the sources of missing data for school-related wellbeing and cognitive reappraisal on the third measurement occasion. Participants who scored lower on the T₁ and T₂ school-related wellbeing scale, T₁ and T₂ cognitive reappraisal scale, T₂ first-person anxiety malleability belief scale, T₂ first-person emotion malleability belief scale, and T₁ and T₂ third-person happiness malleability belief scale were less likely to complete the school-related wellbeing scale at T₃. In addition, students who scored lower on the T₁ and T₂ school-related wellbeing scale, T₁ and T₂ cognitive reappraisal scale, T₁ first-person happiness malleability belief scale, T₂ first-person emotion malleability belief scale, and T₁ and T₂ third-person happiness malleability belief scale were less likely to complete the cognitive reappraisal scale at T₃.

Results of the missing data *t*-tests for the T₃ first-person malleability beliefs scales (emotion, anxiety, and happiness) are reported in Tables 3.9, 3.10, and 3.11. Participants were less likely to complete each of the three malleability beliefs scales at T₃ if they had scored lower on the T₁ and T₂ school-related wellbeing scale, T₁ and T₂ cognitive reappraisal scale, T₁ first-person happiness malleability belief scale, T₁ and T₂ third-person happiness malleability belief scale, T₂ first-person emotion malleability belief scale, and T₂ first-person anxiety malleability belief scale. Table 3.12 shows the results from the χ^2 difference test for examining gender as the source of missing data for T₃ variables. Males were less likely than females to participate in completing all scales on the questionnaire at T₃. All other differences were not statistically significant (*ps* >.05).

Since the missing data could be accounted for by the aforementioned variables, I treated the data as missing at random (MAR) and used FIML estimation. The use of FIML has been found to be appropriate for managing missing data in large longitudinal studies (Jeličić et al., 2009), and for studies with large amounts of missing data it is preferable to listwise deletion (Enders, 2001). It has also been shown to result in unbiased standard errors

and parameter estimates under MAR (Enders & Bandalos, 2001), As such, I deemed FIML appropriate to use in my analyses.

Table 3.7*Results of T-Tests for Determining Sources of Missing Data for T₃ School-Related Wellbeing*

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₃ School-Related Wellbeing</i>					
T ₁ School-Related Wellbeing	-.188	.034	-5.487	1746	<.001
T ₁ Cognitive Reappraisal	-.120	.035	-3.423	1714	.001
T ₁ Third-Person Happiness beliefs	-.069	.034	-2.023	1696	.043
T ₂ School Wellbeing	-.247	.042	-5.811	1098	<.001
T ₂ Cognitive Reappraisal	-.121	.044	-2.766	1086	.006
T ₂ First-Person Emotion Beliefs	-.104	.048	-2.153	1379	.032
T ₂ First-Person Anxiety Beliefs	-.103	.051	-2.006	1368	.045
T ₂ Third-Person Happiness Beliefs	-.097	.041	-2.383	1359	.017

Note. Mean difference refers to the difference in means for participants who had missing data at T₃ compared with participants who did not having missing data at T₃ (0 = missing, 1 = completed).

Table 3.8*Results of T-Tests for Determining Sources of Missing Data for T₃ Cognitive Reappraisal*

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₃ Cognitive Reappraisal</i>					
T ₁ School-Related Wellbeing	-.185	.034	-5.404	1751	<.001
T ₁ Cognitive Reappraisal	-.107	.035	-3.054	1714	.002
T ₁ First-Person Happiness Beliefs	-.083	.039	-2.119	1687	.034
T ₁ Third-Person Happiness Beliefs	-.071	.034	-2.097	1696	.036
T ₂ School Wellbeing	-.245	.042	-5.818	1149	<.001
T ₂ Cognitive Reappraisal	-.121	.043	-2.800	1135	.005
T ₂ First-Person Emotion Beliefs	-.106	.048	-2.218	1379	.027
T ₂ Third-Person Happiness Beliefs	-.098	.041	-2.411	1359	.016

Note. Mean difference refers to the difference in means for participants who had missing data at T₃ compared with participants who did not having missing data at T₃ (0 = missing, 1 = completed).

Table 3.9*Results of T-Tests for Determining Sources of Missing Data for T₃ First-Person Emotion Malleability Beliefs*

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₃ First-Person Emotion Malleability beliefs</i>					
T ₁ School-Related Wellbeing	-.187	.034	-5.479	1750	<.001
T ₁ Cognitive Reappraisal	-.119	.035	-3.389	1714	.001
T ₁ First-Person Happiness Beliefs	-.088	.039	-2.240	1687	.025
T ₁ Third-Person Happiness Beliefs	-.077	.034	-2.265	1696	.024
T ₂ School-Related Wellbeing	-.242	.042	-5.754	1141	<.001
T ₂ Cognitive Reappraisal	-.119	.043	-2.764	1138	.006
T ₂ First-Person Emotion Beliefs	-.112	.048	-2.333	1379	.020
T ₂ First-Person Anxiety Beliefs	-.103	.051	-2.019	1368	.044
T ₂ Third-Person Happiness Beliefs	-.112	.041	-2.768	1359	.006

Note. Mean difference refers to the difference in means for participants who had missing data at T₃ compared with participants who did not having missing data at T₃ (0 = missing, 1 = completed).

Table 3.10*Results of T-Tests for Determining Sources of Missing Data for T₃ First-Person Anxiety Malleability Beliefs*

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₃ First-Person Anxiety Malleability beliefs</i>					
T ₁ School-Related Wellbeing	-.194	.034	-5.696	1751	<.001
T ₁ Cognitive Reappraisal	-.117	.035	-3.337	1714	.001
T ₁ First-Person Happiness Beliefs	-.094	.039	-2.403	1687	.016
T ₁ Third-Person Happiness Beliefs	-.079	.034	-2.329	1696	.020
T ₂ School-Related Wellbeing	-.247	.042	-5.901	1166	<.001
T ₂ Cognitive Reappraisal	-.126	.043	-2.937	1157	.003
T ₂ First-Person Emotion Beliefs	-.110	.048	-2.291	1379	.022
T ₂ First-Person Anxiety Beliefs	-.104	.051	-2.031	1368	.042
T ₂ Third-Person Happiness Beliefs	-.111	.041	-2.727	1359	.006

Note. Mean difference refers to the difference in means for participants who had missing data at T₃ compared with participants who did not having missing data at T₃ (0 = missing, 1 = completed).

Table 3.11*Results of T-Tests for Determining Sources of Missing Data for T₃ First-Person Happiness Malleability Beliefs*

Variables	Mean Difference	Std. Error Difference	<i>t</i>	df	<i>p</i>
<i>T₃ First-Person Happiness Beliefs</i>					
T ₁ School-Related Wellbeing	-.190	.034	-5.571	1751	<.001
T ₁ Cognitive Reappraisal	-.120	.035	-3.420	1714	.001
T ₁ First-Person Happiness Beliefs	-.090	.039	-2.286	1687	.022
T ₁ Third-Person Happiness Beliefs	-.075	.034	-2.213	1696	.027
T ₂ School-Related Wellbeing	-.249	.042	-5.934	1151	<.001
T ₂ Cognitive Reappraisal	-.120	.043	-2.783	1157	.005
T ₂ First-Person Emotion Beliefs	-.112	.048	-2.344	1379	.019
T ₂ First-Person Anxiety Beliefs	-.109	.051	-2.136	1368	.033
T ₂ Third-Person Happiness Beliefs	-.108	.041	-2.665	1359	.008

Note. Mean difference refers to the difference in means for participants who had missing data at T₃ compared with participants who did not having missing data at T₃ (0 = missing, 1 = completed).

Table 3.12*Frequencies, Percentages and Chi-square significance Level for Examining T₃ Missing Data for Males and Females*

T ₃ variable	Missing Females		Missing Males		χ^2 difference test
	<i>n</i>	%	<i>n</i>	%	
T ₃ School-Related Wellbeing	524	48.2%	563	51.8%	.018
T ₃ Cognitive Reappraisal	536	48.3%	574	51.7%	.019
T ₃ Emotion Malleability Beliefs	538	48.5%	571	51.5%	.033
T ₃ Anxiety Malleability Beliefs	542	48.5%	576	51.1%	.030
T ₃ Happiness Malleability Beliefs	539	48.3%	577	51.7%	.019

Note. Participants who did not disclose their gender or declared their gender as ‘Other’ are not represented in the table. Percentages refer to % of males or females with missing data within the variable.

3.11 Chapter Summary

To summarise, this chapter began by describing the researcher's philosophical (critical realist) position, the design of the study, the ethical process and main ethical issues that were addressed in this project. The chapter then described the sample size, participants' ethnic background, gender, eligibility for FSM, and year group. Next, it provided details related to the participating schools and college, the procedure, and measures. Finally, it described how data were prepared for analysis with SPSS, JASP and Mplus software, and detailed how and where the sources of missing data were identified and located.

Chapter 4:
**Results — Malleability Beliefs, Reappraisal
and Wellbeing**

4.1 Introduction

Chapter 4 of this doctoral thesis is concerned with examining relations between malleability beliefs (emotion, anxiety, and happiness), cognitive reappraisal and school-related wellbeing. It aims to answer the following RQs:

RQ1 – How is school-related wellbeing associated with cognitive reappraisal in secondary school and 6th form college students?

RQ2 – How is cognitive reappraisal related to beliefs about the malleability of one's own emotions in secondary school and 6th form college students?

RQ3 – How is school-related wellbeing related to beliefs about the malleability of one's own emotions in secondary school and 6th form college students?

First, the chapter will give an overview of the plan of analysis. Second it will report the descriptive statistics. Third, in the preliminary analyses section it will describe the latent variable modelling approach, and give details of the correlated residuals and the model fit indices used to evaluate the models. It will also describe the procedure used for demonstrating measurement invariance and present findings from the measurement invariance tests. Fourth, for emotion, anxiety, and happiness malleability beliefs, it will present the model fit indices of the measurement models which were tested, and describe the rationale for determining which measurement models to use to create the SEMs. Fifth, it will compare the reciprocal relations SEMs for each malleability belief (emotion, anxiety, and happiness) with nested models. In addition, it will give model fit indices for the reciprocal relations and nested models, and present the rationale for selecting a model (reciprocal relations or one of the nested models) to create the final SEM. Finally, an SEM for all three malleability beliefs (emotion, anxiety, and happiness) will be presented, with descriptions of

the results for relations between constructs. The chapter will end with a summary of this work.

4.2 Plan of Analysis

First, I examined descriptive statistics (means, standard deviations, reliabilities, intraclass correlation coefficients, skewness, kurtosis and item-factor loadings) for all study variables, and I tested for measurement invariance in all scales across the 3 time points. Next, I took each malleability belief in turn (emotion, anxiety, and happiness) and tested a number of measurement models for each, examining model fit indices to ascertain which measurement model was the best fit to my data for that belief. The measurement models were tested to determine if I should analyse the data in a model with only one malleability belief (e.g., anxiety malleability beliefs, cognitive reappraisal, and school-related wellbeing), two malleability beliefs (e.g., anxiety malleability beliefs, emotion malleability beliefs, cognitive reappraisal and school-related wellbeing), or three malleability beliefs (e.g., emotion malleability beliefs, anxiety malleability beliefs, happiness malleability beliefs, cognitive reappraisal, and school-related wellbeing).

Second, I took each best-fitting measurement model in turn (emotion, anxiety, and happiness) and constructed a reciprocal relations SEM for that measurement model. Then, I compared a reciprocal relations SEM (for emotion, anxiety and happiness malleability beliefs) with three SEMs nested under the reciprocal relations SEMs. The nested models were tested to determine whether it would be most suitable to analyse some constructs assuming reciprocal relations (e.g., where emotion malleability beliefs predict wellbeing, and where wellbeing predicts emotion malleability beliefs), or whether there was a preference for modelling the constructs unidirectionally (e.g., where emotion malleability beliefs predict wellbeing, but wellbeing does not predict emotion malleability beliefs).

Third, I examined and reported relations between variables for each SEM by presenting the standardised beta coefficients, standard errors and correlation coefficients. Where appropriate, size of standardised regression coefficients were compared using a Z-transformation (Clogg, et al., 1995), and estimates of indirect (mediated) paths were examined by creating a 95% confidence interval around the estimate of the indirect effect. A statistically significant indirect effect is found if the confidence interval does not cross zero ($p < 0.05$).

4.3 Descriptive Statistics

Descriptive statistics are reported in Table 4.1. All scales had skewness and kurtosis within ± 1 . Internal reliability was acceptable for all variables (Cronbach's α and McDonald's $\omega \geq 0.72$). Factor loadings, reported from confirmatory factor analyses, were all satisfactory with items loading substantively onto their specified factors ($\lambda_s \geq .50$). Intra-class correlation coefficients (ICC_1 or ρ_1) showed the amount of variance that could be accounted for by school membership for emotion malleability beliefs, anxiety malleability beliefs, happiness malleability beliefs and cognitive reappraisal, was below 1%. The amount of variance that could be accounted for by school membership was 6% or less for school-related wellbeing.

Table 4.1*Descriptive Statistics for Malleability Beliefs, Cognitive Reappraisal and School-Related Wellbeing*

	Scale Range	Mean	SD	α / ω	ICC ₁	Skewness	Kurtosis	Factor Loadings
T ₁ Emotion Malleability Beliefs	1–5	3.20	1.29	0.75 / 0.75	<0.01	- 0.24	-0.62	0.54–0.66
T ₂ Emotion Malleability Beliefs	1–5	3.20	1.30	0.78 / 0.78	<0.01	-0.21	-0.68	0.59–0.71
T ₃ Emotion Malleability Beliefs	1–5	3.21	1.29	0.81 / 0.81	<0.01	-0.24	-0.68	0.66–0.72
T ₁ Anxiety Malleability Beliefs	1–5	3.01	1.34	0.79 / 0.79	<0.01	-0.04	-0.69	0.60–0.63
T ₂ Anxiety Malleability Beliefs	1–5	3.00	1.39	0.81 / 0.81	<0.01	0.02	-0.75	0.60–0.68
T ₃ Anxiety Malleability Beliefs	1–5	2.91	1.38	0.85 / 0.85	<0.01	0.01	-0.80	0.69–0.75
T ₁ Happiness Malleability Beliefs	1–5	3.33	1.18	0.72 / 0.72	<0.01	-0.29	-0.42	0.50–0.60
T ₂ Happiness Malleability Beliefs	1–5	3.32	1.23	0.75 / 0.75	<0.01	-0.30	-0.47	0.54–0.60
T ₃ Happiness Malleability Beliefs	1–5	3.29	1.16	0.79 / 0.79	<0.01	-0.25	-0.44	0.60–0.67
T ₁ Cognitive Reappraisal	1–5	3.21	0.98	0.82 / 0.82	<0.01	-0.36	-0.17	0.50–0.76
T ₂ Cognitive Reappraisal	1–5	3.21	1.05	0.85 / 0.85	<0.01	-0.37	-0.25	0.57–0.76
T ₃ Cognitive Reappraisal	1–5	3.22	0.98	0.85 / 0.85	<0.01	-0.37	-0.08	0.52–0.81
T ₁ School-Related Wellbeing	1–5	3.44	0.90	0.85 / 0.86	0.06	-0.54	0.34	0.53–0.84
T ₂ School-Related Wellbeing	1–5	3.35	0.98	0.87 / 0.87	0.03	-0.48	0.11	0.58–0.86
T ₃ School-Related Wellbeing	1–5	3.25	0.90	0.86 / 0.87	0.02	-0.45	0.06	0.57–0.85

4.4 Preliminary Analyses

A latent variable modelling approach was used to analyse measurement models using confirmatory factor analysis in *Mplus* v.8 (Muthén & Muthén, 2017). I used the maximum-likelihood estimator (ML) which is appropriate for data that is normally distributed (Bryant & Satorra, 2012). Through examining the residual variance on the modification indices, I found that two items on each malleability beliefs scale (emotion, anxiety, and happiness) that refer to incremental beliefs (e.g., ‘If I want to, I can change the emotions I have’ and ‘I can learn to control my emotions’) and the two items referring to entity beliefs (e.g., ‘The truth is I have very little control over my anxiety’ and ‘No matter how hard I try, I can’t really change the anxiety that I have’) showed large correlations between residuals. This is likely due to the items representing the same type of belief (incremental or entity) and the wording of both items referring to the changeability or controllability of emotion, anxiety, or happiness. Correlating residual variance is justified on the basis of method-effect (Cole et al., 2007; i.e. both items refer to incremental or entity beliefs, and change/controllability). As such, I correlated the residuals of the two incremental items and the two entity items on each malleability beliefs scale on each measurement occasion (see Table 4.2)

In addition, previous studies examining the factor structure of the ERQ-CA recommend correlating the residuals for items 1 and 3 on the cognitive reappraisal sub-scale (‘When I want to feel happier I think about something different’ and ‘When I want to feel less bad... I think about something different’) because the items show large correlations between residuals (Gullone & Taffe, 2012; Ng et al., 2019), likely due to the items having similar wording even though they represent contrasting emotional states (Ng et al., 2019). As such, correlating the residuals of these items on the cognitive reappraisal scale is also justified based on method-effect (Cole et al., 2007), and they were allowed to correlate at each time point (see Table 4.2)

Model fit was evaluated from indices including the Comparative fit index (CFI), the Tucker-Lewis index (TLI), the Root mean square error of approximation (RMSEA), and the Standardised root mean squares residual (SRMR). A good fitting model is indicated by CFI/TLI values $>.95$, RMSEA values of $<.08$, and SRMR values $<.06$ (Hu & Bentler, 1999), although when working with complex data it has been advised to avoid strictly adhering to recommended cut-off values (Heene, et al., 2011). The Akaike Information Criteria (AIC) relative fit index was also used to examine model fit, with lower AIC values indicating a better fitting model (Hix-Small et al., 2004). Correlation coefficients $<.1$ were classified as small, $<.3$ were classified as medium, and $<.5$ were classified as large (Cohen, 1988).

Table 4.2

Items with Correlated Residuals on the Malleability Belief Scales and the Cognitive Reappraisal Scale

Scale	Correlated Residuals
Emotion Malleability Belief Scale	Item 1: ‘If I want to, I can change the emotions I have’ <i>with</i> Item 2: ‘I can learn to control my emotions’
	Item 3: ‘The truth is, I have very little control over my emotions’ <i>with</i> Item 4: ‘No matter how hard I try, I can’t really change the emotions that I have’
Anxiety Malleability Belief Scale	Item 1: ‘If I want to, I can change the anxiety I have’ <i>with</i> Item 2: ‘I can learn to control my anxiety’
	Item 3: ‘The truth is, I have very little control over my anxiety’ <i>with</i> Item 4: ‘No matter how hard I try, I can’t really change the anxiety that I have’
Happiness Malleability Belief Scale	Item 1: ‘If I want to, I can change the amount of happiness that I have’ <i>with</i> Item 2: ‘I can learn to control my happiness’
	Item 3: ‘The truth is, I have very little control over my happiness’ <i>with</i> Item 4: ‘No matter how hard I try, I can’t really change the amount of happiness that I have’
ERQ-CA Scale (cognitive reappraisal items)	Item 1: ‘When I want to feel happier I think about something different’ <i>with</i> Item 3: ‘When I want to feel less bad (e.g., sad, angry or worried) I think about something different’

4.4.1 Measurement Invariance

When modelling longitudinal data, it is necessary to demonstrate measurement invariance to ensure the same construct is being measured across time points (Widaman et al., 2010). Accordingly, I examined measurement invariance of all scales applying a series of strict constraints (Meredith, 1993). For each scale, I constructed a configural model by specifying the measurement model at each time point and correlating the corresponding indicators across T₁, T₂ and T₃ following recommendations of Marsh et al. (1999). Model fit indices were then examined. I assessed changes in model fit when factor loadings were constrained to be equal (metric invariance), and when item intercepts were constrained to be equal (scalar invariance). Finally, I assessed model fit when error residuals were constrained to be equal (error invariance). Measurement invariance is demonstrated when CFI and TLI indices are reduced by $<.01$, changes in RMSEA are $<.015$, and changes in SRMR are $\leq .30$ (Chen, 2007).

Tests of measurement invariance are shown in Table 4.3. All of the three malleability beliefs scales (emotion, anxiety, and happiness) and the cognitive reappraisal scale demonstrated metric, scalar, and error invariance, showing that the same construct is represented in each of the scales at each measurement occasion. The school-related wellbeing scale showed partial scalar invariance, as the item intercepts were the same across the 3 time points for only three of the six items on the scale. The items on the scale not displaying scalar invariance were *'School is going well for me,' 'I feel good at school,'* and *'I like going to school.'* It is possible that these three items refer to feelings about school that can change on a day-to-day (or month-to-month) basis as opposed to items such as *'I feel better at school than my classmates'* which could be a feeling held constant over a long period of time. If this were the case, I would assume some variation in reporting for these items when measured at different time points. Nonetheless, as the scale did demonstrate metric invariance and partial

scalar invariance, and metric invariance is sufficient to model structural paths over time (Widaman et al., 2010), I ascertained that the school-related wellbeing scale was suitable to use in my longitudinal model. Thus, I proceeded with further analyses without imposing any item constraints on the indicators.

Table 4.3*Tests of Measurement Invariance for Study Variables*

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	Δ RMSEA	Δ CFI	Δ TLI
<i>Emotion Malleability Beliefs</i>								
Configural	124.592 (33)	.035	.023	.984	.968			
Metric Invariance	128.983 (39)	.032	.025	.984	.973	-.003	<.001	+.005
Scalar Invariance	135.780 (47)	.029	.026	.984	.978	-.003	<.001	+.005
Residual Invariance	165.739 (55)	.029	.034	.981	.977	<.001	-.003	-.001
<i>Anxiety Malleability Beliefs</i>								
Configural	65.202 (33)	.021	.021	.996	.991			
Metric Invariance	69.222 (39)	.018	.022	.996	.993	-.003	<.001	+.002
Scalar Invariance	100.399 (47)	.022	.028	.993	.990	+.004	-.003	-.003
Residual Invariance	152.033 (55)	.028	.032	.987	.985	+.006	-.006	-.005
<i>Happiness Malleability Beliefs</i>								
Configural	121.722 (33)	.034	.030	.984	.968			
Metric Invariance	130.737 (39)	.032	.033	.984	.972	-.002	<.001	+.004
Scalar Invariance	142.891 (47)	.030	.034	.983	.976	-.002	-.001	+.004
Residual Invariance	178.496 (55)	.031	.041	.978	.973	-.001	-.005	-.003

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	Δ RMSEA	Δ CFI	Δ TLI
<i>Cognitive Reappraisal</i>								
Configural	282.515 (111)	.026	.037	.983	.976			
Metric Invariance	295.551 (121)	.025	.039	.983	.978	-.001	<.001	-.002
Scalar Invariance	306.275 (133)	.024	.041	.983	.980	-.001	<.001	+.002
Residual Invariance	339.385 (145)	.024	.041	.981	.979	<.001	-.002	-.001
<i>School-Related Wellbeing</i>								
Configural	299.697 (114)	.026	.026	.985	.980			
Metric Invariance	312.239 (124)	.025	.028	.985	.982	-.001	<.001	+.002
Scalar Invariance	468.947 (136)	.032	.051	.974	.970	+.007	-.011	-.012
Partial Scalar Invariance ^a	416.867 (136)	.031	.044	.977	.973	+.006	-.008	-.009

Note. χ^2 Statistic for all models statistically significant at $p < .001$.

^a Equality constraint relaxed on three items: 'School is going well for me', 'I feel good at school' and 'I like going to school'

4.5 Measurement Models

4.5.1 Emotion Malleability Beliefs

Four emotion malleability belief measurement models were examined to determine which model would be the best fit to my data (see Table 4.4). Gender (0 = male, 1 = female) and age were entered as covariates (see Sections 2.5.2.3 & 2.5.2.4).

Table 4.4

Measurement Models for Emotion Malleability Beliefs

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	AIC
Fifteen-factor model (All Three Beliefs)	5625.50 (2287)***	.025	.042	.932	.920	269513.36
Twelve-factor model A (Emotion & Anxiety Beliefs)	3961.54 (1666)***	.024	.040	.943	.936	225930.93
Twelve-factor model B (Emotion and Happiness Beliefs)	3685.27 (1666)***	.023	.039	.947	.940	225651.20
Nine-factor model (Emotion Beliefs)	2142.32 (1066)***	.021	.035	.964	.959	181691.13

Note. ‘Emotion Beliefs’ refers to ‘Emotion Malleability Beliefs’, ‘Anxiety Beliefs’ refers to ‘Anxiety Malleability Beliefs’, and ‘Happiness Beliefs’ refers to ‘Happiness Malleability Beliefs’. *** $p < .001$.

A measurement model with 15 latent factors (emotion malleability beliefs, anxiety malleability beliefs, happiness malleability beliefs, cognitive reappraisal and school-related wellbeing, each factor at T₁, T₂ and T₃) was first tested. The CFI and TLI values in this 15-factor model were <.95 indicating less than optimal model fit. However, even in a correctly

specified model high numbers of factors or indicators can lead to a worsening decline in CFI and TLI values (Anderson & Gerbing, 1984; Kenny & McCoach, 2003); this may suggest that even if this model was specified correctly, it may contain too many factors and indicators to obtain satisfactory CFI and TLI values. Thus, to ascertain whether the 15-factor model was correctly specified, and the low CFI and TLI values were not a result of the large numbers of factors and indicators in the model, I examined the RMSEA, CFI and TLI indices in a series of 12-factor models. If the RMSEA value was lower in the 15-factor model compared to subsequent 12-factor models, this would be a sign that the 15-factor model was a good fitting model even with low CFI and TLI values (Kenny & McCoach, 2003). As such, the low CFI and TLI values could be attributed to the large number of variables in the 15-factor model. This would indicate that I should accept the 15-factor model as a good-fitting model even with the low CFI and TLI values. Thus, a series of three 12-factor models were examined, each model containing the emotion malleability belief scale and another malleability belief scale (anxiety or happiness), as well as cognitive reappraisal and school-related wellbeing.

A 12-factor model with T₁, T₂ and T₃ emotion malleability beliefs, T₁, T₂ and T₃ anxiety malleability beliefs, T₁, T₂ and T₃ cognitive reappraisal and T₁, T₂ and T₃ school-related wellbeing was examined (model A). This model showed a better fit to the data than the 15-factor model. A subsequent 12-factor model was examined with T₁, T₂ and T₃ emotion malleability beliefs, T₁, T₂ and T₃ happiness malleability beliefs, T₁, T₂ and T₃ cognitive reappraisal and T₁, T₂ and T₃ school-related wellbeing (model B). This model also fit the data well. In each of the three 12-factor models, the CFI and TLI indices had increased, the RMSEA index had decreased, and the AIC value was lower compared to the values in the 15-factor model, indicating these 12-factor models were a better fit to the data. Due to the improvements on the RMSEA index in the 12-factor models, I concluded that the low CFI and TLI indices in the 15-factor model were not a consequence of the large number of

variables in this model, therefore it was not justified to accept the 15-factor model as a better fit to the data than the 12-factor models.

To examine if model fit could be further improved, it was necessary to test a measurement model with fewer factors to determine if a simpler measurement model would be the best fit to my data. As such, a 9-factor measurement model was tested (including T₁, T₂ and T₃ emotion malleability beliefs, T₁, T₂ and T₃ cognitive reappraisal, and T₁, T₂ and T₃ school-related wellbeing). This model showed improvement in the CFI and TLI indices, and had lower RMSEA, SRMR and AIC values indicating that it was superior to the 12-factor and 15-factor measurement models. Thus, I proceeded to perform further analyses using this 9-factor measurement model.

Bivariate correlations for the 9-factor measurement model are reported in Table 4.5. Emotion malleability beliefs, cognitive reappraisal and school-related wellbeing were all positively correlated at each time point, and between time points. Gender was negatively correlated with all variables showing that male students reported more malleable emotion beliefs, use of cognitive reappraisal, and increased school-related wellbeing, compared to females. Age was positively correlated with T₁, T₂, and T₃ school-related wellbeing, showing older students reported higher wellbeing compared to younger students.

Younger students may have lower school-related wellbeing compared to older students because they have recently transitioned from primary to secondary school. The transition from primary to secondary school has been identified as a stressful and significant event for young people (Mackenzie et al., 2012). Students who have recently transitioned may be worried by or experience situations which impact negatively on their wellbeing such as bullying, difficulties forming relationships with peers, or a high workload (Zeedyk et al., 2003). Conversely, older students may be more settled at school, have stable peer relations,

and have developed strategies for managing their workload, all of which may impact positively on their school-related wellbeing.

Table 4.5*Latent Bivariate Correlations between Emotion Malleability Beliefs, Cognitive Reappraisal, School-Related Wellbeing, Gender, and Age for the Measurement Model*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. T ₁ Emotion Beliefs	-	.62***	.57***	.46***	.30***	.23***	.45***	.36***	.30***	-.22***	-.02
2. T ₂ Emotion Beliefs		-	.68***	.32***	.52***	.35***	.32***	.44***	.40***	-.18***	.01
3. T ₃ Emotion Beliefs			-	.32***	.41***	.50***	.29***	.37***	.46***	-.20***	.01
4. T ₁ Cognitive Reappraisal				-	.53***	.42***	.35***	.32***	.23***	-.06*	.01
5. T ₂ Cognitive Reappraisal					-	.57***	.27***	.35***	.34***	-.07*	.05
6. T ₃ Cognitive Reappraisal						-	.23***	.32***	.44***	-.06*	.05
7. T ₁ School-Related Wellbeing							-	.69***	.55***	-.06*	.12***
8. T ₂ School-Related Wellbeing								-	.66***	-.08**	.06*
9. T ₃ School-Related Wellbeing									-	.11***	.10***
10. Gender										-	-
11. Age											-

Note. ‘Emotion Beliefs’ refers to ‘Emotion Malleability Beliefs’. A higher score on the emotion malleability beliefs scale indicates belief in the malleability of one’s own emotions. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.5.2 Anxiety Malleability Beliefs

I tested three anxiety malleability belief measurement models: a 15-factor model, a 12-factor model, and a 9-factor model to determine which model would be the best fit to my data. Gender and age were included as covariates (see Section 2.5.2.3 & 2.5.2.4). Model fit indices are reported in Table 4.6.

Table 4.6

Measurement Models for Anxiety Malleability Beliefs

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	AIC
Fifteen-factor model (all Three Beliefs)	5625.50 (2287)***	.025	.042	.932	.920	269513.36
Twelve-factor model D (Anxiety and Happiness Beliefs)	3695.96 (1666)***	.023	.038	.949	.942	224681.00
Nine-factor model (Anxiety Beliefs)	2036.47 (1066)***	.020	.034	.970	.965	180432.38

Note. ‘Emotion Beliefs’ refers to ‘Emotion Malleability Beliefs’, ‘Anxiety Beliefs’ refers to ‘Anxiety Malleability Beliefs’, and ‘Happiness Beliefs’ refers to ‘Happiness Malleability Beliefs’.

*** $p < .001$.

First, a measurement model with 15 latent factors (emotion malleability beliefs, anxiety malleability beliefs, happiness malleability beliefs, cognitive reappraisal and school-related wellbeing, each factor at T₁, T₂ and T₃) was tested. From my previous testing of 12-factor models for the emotion malleability beliefs measurement model (see Section 4.5.1), I ascertained that the low CFI and TLI values in the 15-factor model were not due to the large

number of variables in the model. In addition, I found that a model which paired emotion malleability beliefs with anxiety malleability beliefs (see Table 4.4) did not show optimal fit to the data (CFI & TLI <.95). Thus, on this occasion, I proceeded to test one 12-factor model including anxiety malleability beliefs, happiness malleability beliefs, cognitive reappraisal, and school-related wellbeing, at T₁, T₂ and T₃.

This model showed a better fit to the data than the 15-factor model: the CFI and TLI had increased, the SRMR and RMSEA value had decreased, and the AIC index was lower. However, the CFI and TLI values were still less than optimal (<.95) so I proceeded to test a 9-factor model to determine if this model would be a better fit to the data. The 9-factor measurement model (T₁, T₂ and T₃ anxiety beliefs, T₁, T₂ and T₃ cognitive reappraisal and T₁, T₂ and T₃ school-related wellbeing) showed an excellent fit to the data, CFI and TLI indices were above .95 and the AIC index had improved. Therefore, I concluded that this 9-factor model, containing only one malleability belief scale (anxiety malleability beliefs), was the best fit to this data, and I proceeded with further analyses using this measurement model.

Bivariate correlations are reported in Table 4.7. Anxiety malleability beliefs, cognitive reappraisal and school-related wellbeing were all positively correlated at each time point, and between time points. Gender was negatively correlated with all variables showing that male students reported more malleable anxiety beliefs, use of cognitive reappraisal, and increased school-related wellbeing, compared to females. Age was positively correlated with T₁, T₂, and T₃ school-related wellbeing, showing older students reported higher wellbeing compared to younger students (see Section 4.5.1 for a possible explanation). Age was negatively correlated with T₁ anxiety malleability beliefs indicating that at the first data collection point older students were less likely than younger students to believe their anxiety could be changed.

Older students may have reported more fixed entity beliefs about anxiety than younger students on the first measurement occasion because they were experiencing anxieties relating to upcoming exams (e.g., GCSEs and A-Levels). As such, they may have been more likely to believe that their anxiety was uncontrollable, compared to younger students who did not have the same concerns about exams. However, this does not explain why the same association between age and anxiety malleability beliefs was not found on the second and third measurement occasion. Alternatively, older, pubescent adolescents may experience some emotions (including anxiety) more intensely than younger, prepubescent adolescents (see also Section 2.3.4 & 2.5.2.4). As such, they may have formed beliefs that some emotions (i.e., anxiety) are uncontrollable (Ford et al., 2018). Puberty can begin as late as age 14 and 15 in females and males, respectively (Blakemore et al., 2010) and 37% of participants were in years 7–9 (aged 11–14). Thus, many participants may not have started puberty on the first measurement occasion. This would also explain why the same association was not found on the second and third measurement occasion: younger students may have started puberty between the first and second/third measurement occasion and therefore formed more fixed anxiety beliefs within this time.

Table 4.7*Latent Bivariate Correlations between Anxiety Malleability Beliefs, Cognitive Reappraisal, School-Related Wellbeing, Gender, and Age for the Measurement Model*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. T ₁ Anxiety Beliefs	-	.71***	.57***	.40***	.30***	.25***	.37***	.37***	.34***	-.22***	-.09**
2. T ₂ Anxiety Beliefs		-	.76***	.30***	.46***	.32***	.30***	.42***	.37***	-.22***	-.03
3. T ₃ Anxiety Beliefs			-	.21***	.39***	.45***	.27***	.35***	.47***	-.22***	-.04
4. T ₁ Cognitive Reappraisal				-	.53***	.42***	.36***	.32***	.23***	-.06*	.01
5. T ₂ Cognitive Reappraisal					-	.57***	.28***	.35***	.35***	-.07*	.05
6. T ₃ Cognitive Reappraisal						-	.23***	.32***	.44***	-.06*	.05
7. T ₁ School-Related Wellbeing							-	.69***	.55***	-.06*	.12***
8. T ₂ School-Related Wellbeing								-	.66***	-.08**	.06*
9. T ₃ School-Related Wellbeing									-	-.11***	.10***
10. Gender										-	-
11. Age											-

Note. ‘Anxiety Beliefs’ refer to ‘Anxiety Malleability Beliefs’. A higher score on the anxiety malleability beliefs scale indicates a belief in the malleability of one’s own anxiety. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.5.3 Happiness Malleability Beliefs

For happiness malleability beliefs, two measurement models were tested (see Table 4.8). Gender and age were included as covariates (see Sections 2.5.2.3 & 2.5.2.4). As with the emotion malleability beliefs model (see Section 4.5.1) and the anxiety malleability beliefs model (see Section 4.5.2), a measurement model with 15 latent factors (emotion beliefs, anxiety beliefs, happiness beliefs, cognitive reappraisal and school-related wellbeing, each factor at T₁, T₂ and T₃) was tested. This model showed CFI and TLI values <.95.

Then, I proceeded to directly test a 9-factor measurement model including T₁, T₂ and T₃ happiness malleability beliefs, T₁, T₂ and T₃ cognitive reappraisal, and T₁, T₂ and T₃ school-related wellbeing, as I had previously tested 12-factor models (which included happiness malleability beliefs) when testing the emotion malleability belief and anxiety malleability belief models (see Table 4.4 and Table 4.6 for model fit indices). These 12-factor models showed a better fit to the data than the 15-factor model but a worse fit than the 9-factor emotion malleability beliefs model and the 9-factor anxiety malleability beliefs model.

The 9-factor happiness malleability beliefs model showed an excellent fit to the data and improved model fit (higher CFI and TLI values, and lower RMSEA, SRMR and AIC values), superior to the 15-factor model, and 12-factor models which included happiness malleability beliefs. As such, I proceeded with further analyses using this 9-factor model.

Table 4.8*Measurement models for Happiness Malleability Beliefs*

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	AIC
Fifteen-factor model (all Three Beliefs)	5625.50 (2287)***	.025	.042	.932	.920	269513.36
Nine-factor model (Happiness Beliefs)	2011.67 (1066)***	.019	.033	.968	.964	180077.80

Note. 'Happiness Beliefs' refers to 'Happiness Malleability Beliefs'. *** $p < .001$.

Bivariate correlations are reported in Table 4.9. There were positive correlations between all variables (happiness malleability beliefs, cognitive reappraisal and school-related wellbeing) at each time point, and between time points. Gender was negatively correlated with all variables showing that male students reported more malleable happiness beliefs, use of cognitive reappraisal, and higher school-related wellbeing. Positive correlations were found between age and school-related wellbeing, showing older students reported higher wellbeing compared to younger students (see Section 4.5.1 for a possible explanation). Age was negatively correlated with T₁ and T₃ happiness malleability beliefs indicating that younger students were more likely to believe their happiness could be changed and controlled than older students on the first and third measurement occasion.

Younger students might be more likely to believe that their happiness is malleable compared to older students because they may have yet to experience (or may have only just recently started) puberty. Thus, they feel that they have more control over their emotions than older, pubescent adolescents, and form beliefs about emotions (including happiness) being uncontrollable (Ford et al., 2018; also see Section 4.5.2 for a more detailed explanation). However, this does not explain why younger students were not more likely to believe that

their happiness could be changed and controlled compared to older students on the second measurement occasion.

Alternatively, it may be that younger students were more optimistic that they could increase their happiness near the beginning of the school year (when the questionnaire was administered in November 2018 and 2019) compared to older students who may be worried about upcoming exams (e.g., GCSEs and A-Levels). Older students might have believed that their happiness was not controllable due to the stressful experiences which lay ahead of them in that academic year (e.g., the worry and pressure of exams) which would likely impact negatively on their happiness. Indeed, students' worries related to test-taking has been found to negatively impact their wellbeing (e.g., Steinmayr et al., 2016).

Table 4.9*Latent Bivariate Correlations between Happiness Malleability Beliefs, Cognitive Reappraisal, School-Related Wellbeing, Gender, and Age for the Measurement Model*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. T ₁ Happiness Beliefs	-	.57***	.55***	.50***	.35***	.23***	.39***	.33***	.27***	-.11***	-.15***
2. T ₂ Happiness Beliefs		-	.64***	.37***	.49***	.36***	.40***	.44***	.35***	-.10**	-.04
3. T ₃ Happiness Beliefs			-	.31***	.48***	.55***	.29***	.34***	.46***	-.12***	-.06*
4. T ₁ Cognitive Reappraisal				-	.53***	.42***	.36***	.32***	.23***	-.06*	.01
5. T ₂ Cognitive Reappraisal					-	.57***	.27***	.34***	.34***	-.07*	.05
6. T ₃ Cognitive Reappraisal						-	.23***	.33***	.44***	-.06*	.05
7. T ₁ School-Related Wellbeing							-	.69***	.55***	-.06*	.12***
8. T ₂ School-Related Wellbeing								-	.66***	-.08**	.06*
9. T ₃ School-Related Wellbeing									-	-.11***	.10***
10. Gender										-	-
11. Age											-

Note. ‘Happiness Beliefs’ refers to ‘Happiness Malleability Beliefs’. A higher score on the happiness malleability beliefs scale indicates a belief in the malleability of one’s own happiness. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.6 Structural Equation Modelling

The SEMs were created and analysed in *Mplus* version 8 (Muthén & Muthén, 2017) using the ML estimator, suitable for analysing data that is normally distributed (Bryant & Satorra, 2012). Figure 4.1a shows the reciprocal relations model. The reciprocal models assumed *all* reciprocal pathways between *all* variables in each 9-factor model.

I then compared the reciprocal relations model with a baseline model (see Figure 4.1b) in which all paths linking malleability beliefs, cognitive reappraisal and school-related wellbeing were set to zero. This model represents the view that there are no meaningful cross-lagged relations (only autoregressive and concurrent relations) between study variables. Second, I tested a unidirectional model (model A; see Figure 4.1c) estimating the effect of malleability beliefs and cognitive reappraisal on wellbeing, and emotion beliefs on cognitive reappraisal, but fixing the effect to zero for the effect of wellbeing on cognitive reappraisal and emotion beliefs, and cognitive reappraisal on emotion beliefs. This is reflective of the current literature where malleability beliefs (emotion malleability beliefs specifically) have been shown to predict wellbeing (see Section 2.7.1) and cognitive reappraisal (see Section 2.6.1) however there is little evidence of wellbeing predicting emotion malleability beliefs (with the exception of Schleider & Weiz, 2016a; See Section 2.7.1.1), or cognitive reappraisal predicting emotion beliefs. In addition, much of the evidence suggests cognitive reappraisal predicts wellbeing (see Section 2.4.2) not vice versa (with exception see Chervonsky & Hunt, 2019, in Section 2.4.2.1).

Third, I compared a model which estimated the effect of school-related wellbeing and cognitive reappraisal on emotion beliefs, and school-related wellbeing on cognitive reappraisal, but fixing the effect to zero for the effect of emotion beliefs on cognitive reappraisal and school-related wellbeing, and cognitive reappraisal on school-related wellbeing (model B; see Figure 4.1d). This model was tested to compare with unidirectional

model A, with pathways being assumed in the alternate direction, as the study by Schleider and Weiz (2016a) found evidence suggesting that wellbeing (specifically psychopathology) predicted entity theories (see Section 2.7.1.1); therefore I deemed it necessary to estimate a model linking pathways in the alternate direction in order to eliminate the possibility that this alternative model would be a better fit to the data.

Finally, I tested a model which estimated the reciprocal relations between cognitive reappraisal and school-related wellbeing, and the unidirectional effect of emotion beliefs on cognitive reappraisal and school-related wellbeing, but fixing the effect of cognitive reappraisal and school-related wellbeing on malleability beliefs to zero (model C; see Figure 4.1e). This model is an extension of the unidirectional model A, and is also reflective of the current literature, but assumes the relations between cognitive reappraisal and school-related wellbeing are reciprocal (see Section 2.4.2), thus addressing RQ1 (see Section 4.1) examining if students with higher wellbeing are more likely to use cognitive reappraisal to regulate their emotions, and vice versa.

The models were compared using the chi-square difference test ($\Delta \chi^2$; Bollen, 1989) which is appropriate for use with the ML estimator (Bryant & Satorra, 2012). A statistically significant χ^2 difference test ($p < 0.05$) indicates that the model with the greater number of parameters is a better fit to the data (Pavolv, 2020). Models were also compared using the Akaike Information Criteria (AIC) relative fit index. Lower AIC values indicate improved model fit (Hix-Small et al., 2004), and an AIC value which increases >10 indicates a substantively worse model fit (Burnham & Anderson, 2002).

Figure 4.1

Pathways for the Reciprocal Relations and Nested SEMs

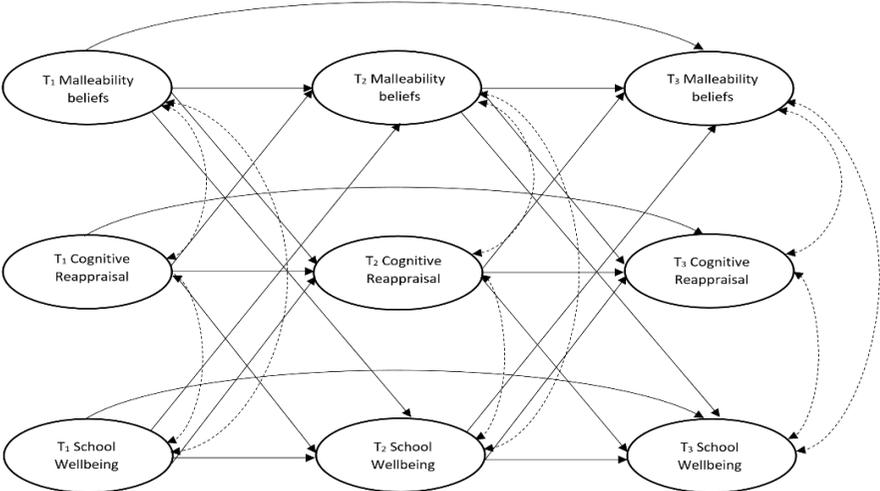


Fig. 4.1a. Reciprocal relations model. Structural paths are represented as solid lines and covariates as dotted lines. Pathways between related variables from T₁ to T₃ are assumed but for parsimony are not included in the model. The model controls for age and gender.

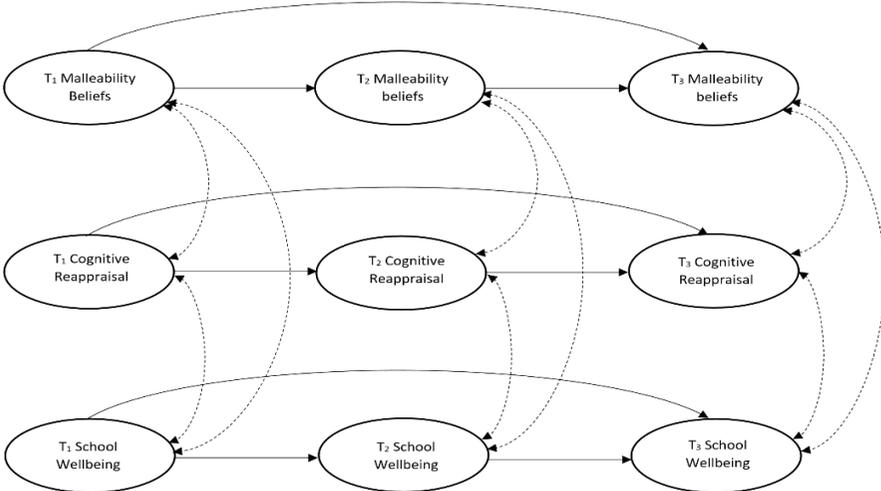


Fig. 4.1b. Baseline model. Structural paths are represented as solid lines and covariates as dotted lines. Age and gender are controlled for in the model.

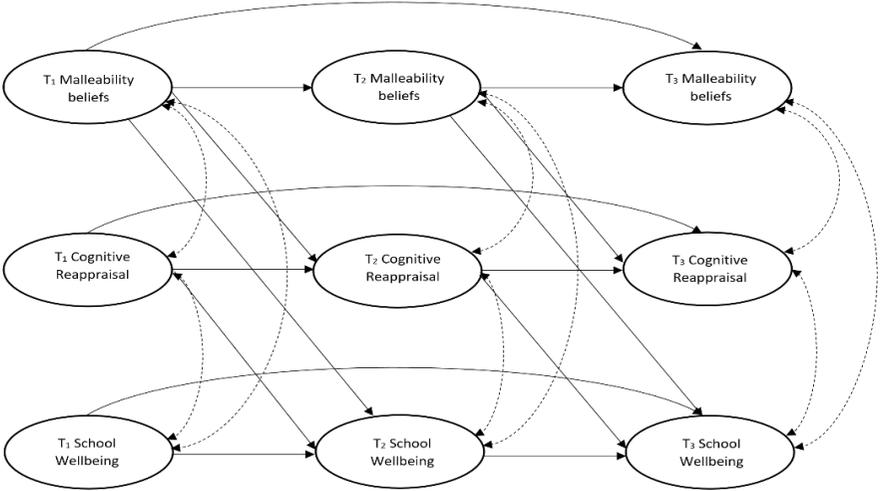


Fig 4.1c. Unidirectional model A. This model estimates the effect of malleability beliefs on cognitive reappraisal and wellbeing, and cognitive reappraisal on wellbeing. Structural paths are represented as solid lines and covariates as dotted lines. Pathways between related variables from T₁ to T₃ are assumed but for parsimony are not included in the model. The model controls for age and gender.

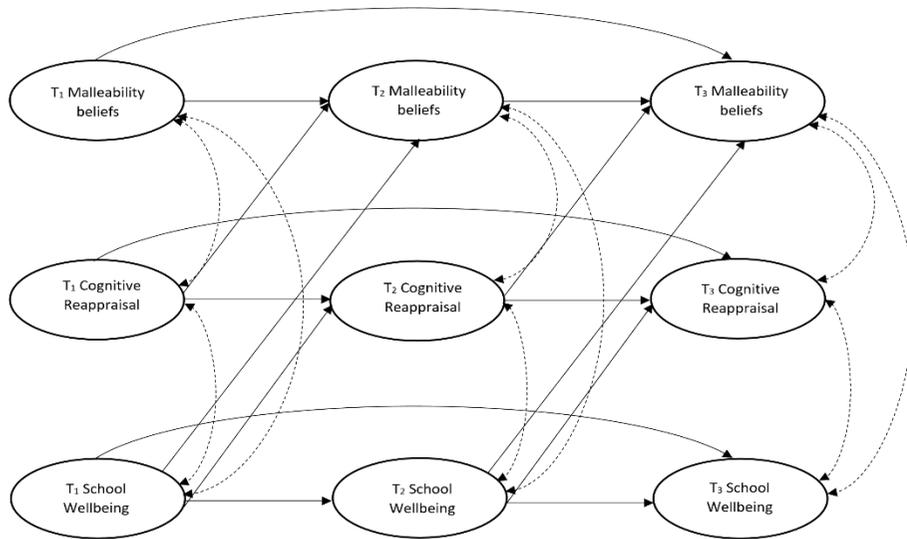


Fig 4.1d. Unidirectional model B. This model estimates the effect of wellbeing on cognitive reappraisal and malleability beliefs, and cognitive reappraisal on malleability beliefs. Structural paths are represented as solid lines and covariates as dotted lines. Pathways between related variables from T₁ to T₃ are assumed but for parsimony are not included in the model. The model controls for age and gender.

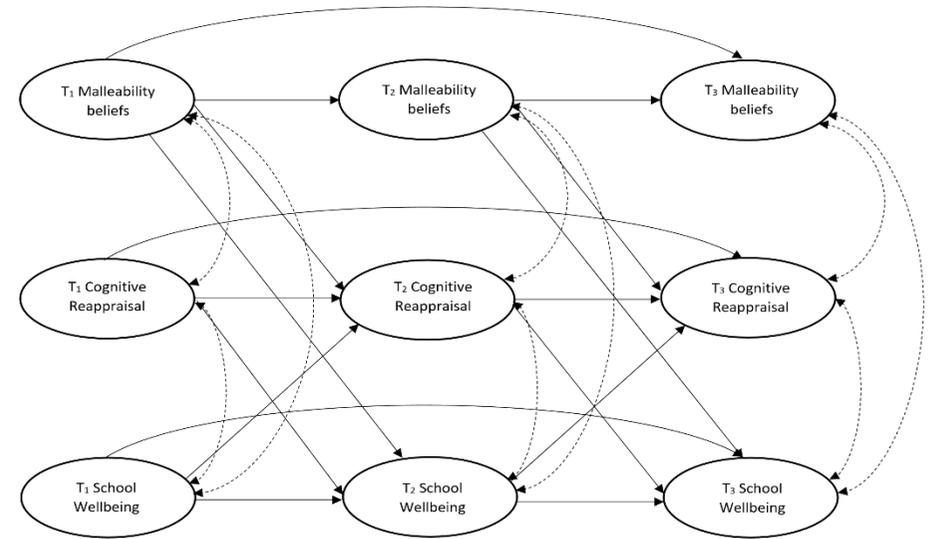


Fig 4.1e. Model C. This model estimates the effect of malleability beliefs on cognitive reappraisal and wellbeing, cognitive reappraisal on wellbeing, and wellbeing on cognitive reappraisal. Structural paths are represented as solid lines and covariates as dotted lines. Pathways between related variables from T₁ to T₃ are assumed but for parsimony are not included in the model. The model controls for age and gender.

4.6.1 Emotion Malleability Beliefs

Model fit indices for the reciprocal relations and nested models for emotion malleability beliefs are reported in Table 4.10. The reciprocal relations model showed good fit to the data. By comparison, the baseline model showed a statistically significant decline in model fit (as indicated by the significant χ^2 difference test) and an increase in the AIC index ($\Delta\text{AIC} > .10$), indicating that this was a worse-fitting model for the data. Unidirectional model B also showed an increase in the AIC index, and the decline in model fit was statistically significant, demonstrating this model was also a worse fit to the data than the reciprocal relations model. Conversely, Unidirectional model A and model C showed an improvement in the AIC indices and the χ^2 difference tests were not significant, indicating these two models were a better fit to the data than the reciprocal relations model. Model C showed the most improvement in model fit compared to unidirectional model A as indicated by the lowest AIC value. Thus, I proceeded to conduct further analyses using Model C, thereby adjusting the reciprocal relations model to fix the effect of cognitive reappraisal and school-related wellbeing on emotion beliefs to zero. Notably, in the reciprocal relations model pathways for the effect of cognitive reappraisal and school-related wellbeing on emotion beliefs did not reach statistical significance ($p < .05$). Statistically significant relations for this SEM (Model C) are shown in Figure 4.2. Standardised path coefficients are shown in Table 4.11. For clarity, Figure 4.3 shows only the statistically significant cross-lagged relations from the emotion malleability beliefs SEM.

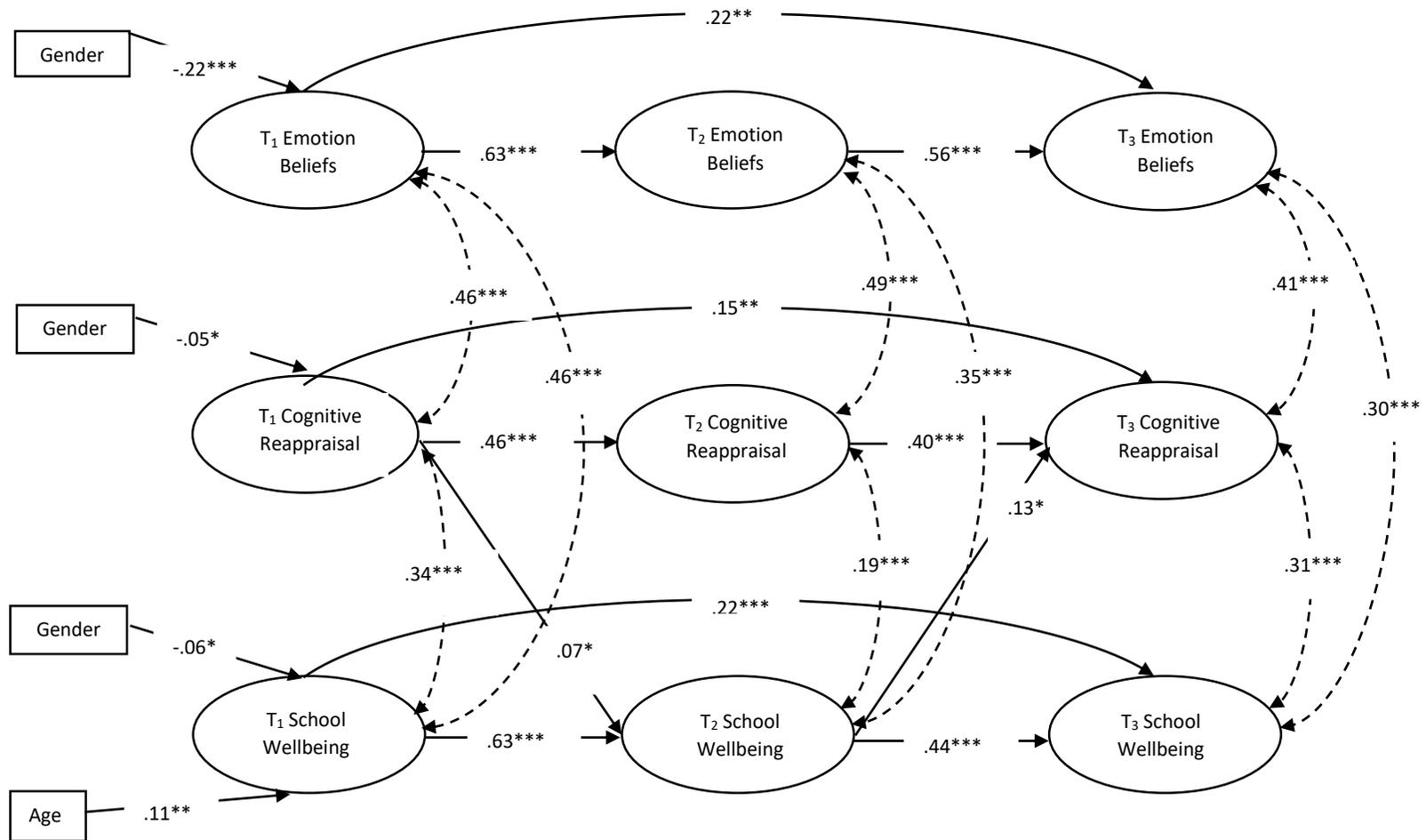
Table 4.10*Comparison of the Reciprocal Relations Model to the Baseline Model, Unidirectional Model A, Unidirectional Model B, and Model C for Emotion Malleability**Beliefs*

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	AIC	Δ AIC	$\Delta\chi^2$ (df)
Reciprocal relations model	2102.47 (1065)***	.021	.034	.965	.959	164,608.85	-	-
Baseline model	2158.51 (1083)***	.021	.045	.963	.958	164,628.89	20.04	56.04 (18)***
Unidirectional model A	2118.02 (1074)***	.021	.037	.964	.959	164,606.41	-2.44	15.56 (9)
Unidirectional model B	2128.67 (1074)***	.021	.037	.964	.959	164,617.05	8.20	26.20 (9)**
Model C	2109.11 (1071)***	.021	.035	.964	.959	164,603.49	-5.36	6.64 (6)

** $p < .01$. *** $p < .001$.

Figure 4.2

The CLPM Depicting Significant Relations Between Emotion Malleability Beliefs, Cognitive Reappraisal, and School-Related Wellbeing



Note. This figure shows significant autoregressive, cross-lagged and concurrent relations between emotion malleability beliefs, cognitive reappraisal and school-related wellbeing at T₁, T₂ and T₃, controlling for age and gender. Structural paths are represented as solid lines and covariates as dotted lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

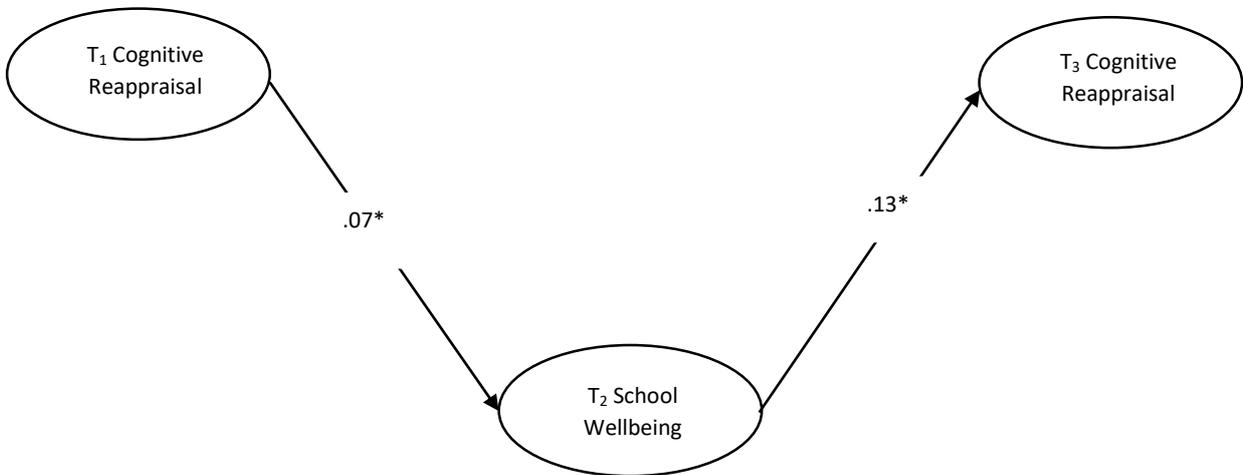
Table 4.11*Standardized Path Coefficients for the Emotion Malleability Beliefs SEM (Standard Errors in Parentheses)*

	T ₁ Emotion Beliefs	T ₂ Emotion Beliefs	T ₁ Cognitive Reappraisal	T ₂ Cognitive Reappraisal	T ₁ School-Related Wellbeing	T ₂ School-Related Wellbeing	T ₃ Emotion Beliefs	T ₃ Cognitive Reappraisal	T ₃ School-Related Wellbeing
T ₁ Emotion Beliefs		.63*** (.04)		.06 (.05)		.04 (.04)	.22** (.07)	-.04 (.08)	-.06 (.07)
T ₂ Emotion Beliefs							.56*** (.06)	.08 (.08)	.14 (.07)
T ₁ Cognitive Reappraisal				.46*** (.04)		.07* (.04)		.15** (.06)	-.09 (.05)
T ₂ Cognitive Reappraisal								.40*** (.06)	.10 (.06)
T ₁ School-Related Wellbeing				.06 (.04)		.63*** (.03)		-.05 (.06)	.22*** (.05)
T ₂ School-Related Wellbeing								.13* (.06)	.44*** (.05)
Gender	-.22*** (.03)	-.04 (.03)	-.05* (.03)	-.03 (.03)	-.06* (.03)	-.03 (.03)	-.05 (.03)	-.01 (.03)	-.05 (.03)
Age	-.02 (.03)	.02 (.03)	<.01 (.03)	.04 (.03)	.11** (.03)	-.02 (.02)	.01 (.03)	.02 (.03)	.04 (.03)

Note. 'Emotion Beliefs' refers to 'Emotion Malleability Beliefs'. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.3

Statistically Significant Cross-Lagged Relations in the Emotion Malleability Beliefs CLPM



* $p < .05$.

4.6.1.1 Relations Between T₁ Cognitive Reappraisal and T₂ School-Related Wellbeing

T₁ cognitive reappraisal was a positive predictor of T₂ school-related wellbeing ($\beta = 0.07, p = 0.043$) after controlling for the autoregressive effect of T₁ school-related wellbeing ($\beta = 0.63, p < 0.001$), and concurrent relations between T₁ school-related wellbeing and T₁ cognitive reappraisal ($r = 0.34, p < 0.001$).

4.6.1.2 Relations Between T₂ School-Related Wellbeing and T₃ Cognitive Reappraisal

T₂ school-related wellbeing was a positive predictor of T₃ cognitive reappraisal ($\beta = 0.13, p = 0.033$), after controlling for the autoregressive effect of T₁ cognitive reappraisal ($\beta = 0.15, p = 0.007$), and T₂ cognitive reappraisal ($\beta = 0.40, p < 0.001$), and concurrent relations between T₂ cognitive reappraisal and T₂ school-related wellbeing ($r = 0.19, p < 0.001$).

4.6.1.3 Comparing the Size of Reciprocal Relations from T₁ to T₂, and T₂ to T₃

The size of the standardised regression coefficient from T₁ cognitive reappraisal to T₂ school-related wellbeing ($\beta = 0.07$) was smaller than the standardised regression coefficient

from T₂ school-related wellbeing to T₃ cognitive reappraisal ($\beta = 0.13$). This indicates that school-related wellbeing is a stronger predictor of cognitive reappraisal than cognitive reappraisal is of school-related wellbeing. To test this assumption, I compared the size of the standardised regression coefficients using a Z- transformation. The effect of T₂ school-related wellbeing on T₃ cognitive reappraisal was not significantly larger than the effect of T₁ cognitive reappraisal on T₂ school-wellbeing ($Z = -0.84$, $p = 0.395$), indicating that the link between cognitive reappraisal and school-related wellbeing is not stronger in one direction than the other.

4.6.1.4 Estimates of the Indirect (Mediated) Path from T₁ Cognitive Reappraisal to T₃ Cognitive Reappraisal

An indirect path was examined from T₁ to T₃ cognitive reappraisal to examine if this relation was mediated by T₂ school-related wellbeing. Relations from T₁ cognitive reappraisal to T₃ cognitive reappraisal were not mediated by school-related wellbeing (indirect effect: $\beta = 0.012$, $SE = 0.007$, 95% CIs [-0.000; 0.024]; direct effect: $\beta = 0.154$, $SE = 0.057$, 95% CIs [0.060; 0.248]; total effect: $\beta = 0.369$ $SE = 0.045$, 95% CIs [0.295; 0.443]), indicating that school-related wellbeing is not an underlying mechanism linking T₁ cognitive reappraisal to T₃ cognitive reappraisal.

4.6.1.5 Summary

The findings from the SEM examining relations between emotion malleability beliefs, cognitive reappraisal, and school-related wellbeing showed that emotion malleability beliefs had no relation with cognitive reappraisal or school-related wellbeing. However, cognitive reappraisal predicted school-related wellbeing from the first to second measurement wave, and school-related wellbeing predicting cognitive reappraisal from the second to third

measurement wave. The mediation analysis showed that the effect of T₁ cognitive reappraisal on T₃ cognitive reappraisal was not explained by T₂ school-related wellbeing.

4.6.2 Anxiety Malleability Beliefs

Model fit indices for the anxiety malleability belief SEMs are shown in Table 4.12. The model fit indices for the reciprocal relations model showed good model fit. The baseline model showed a significant χ^2 difference test, a higher AIC index (with $\Delta\text{AIC} > .10$) indicating that it was a worse fit to the data than the reciprocal relations model.

Unidirectional model B also showed $\Delta\text{AIC} > 0.10$, a larger AIC value, worsening model fit in the CFI, TLI, and SRMR indices, and a significant chi-square difference test; therefore, I also rejected this model as being a better fit to the data than the reciprocal relations model. Unidirectional model A and model C showed little change in model fit (CFI, TLI, RMSEA, and SRMR indices) compared to the reciprocal relations model. However, both of the models showed lower AIC values and the χ^2 difference tests were not significant. This indicated that these two models were preferable to the reciprocal relations model. Model C showed the lowest AIC value and the best model fit. As such, I conducted further analyses using model C, thereby adjusting the reciprocal relations model to fix the effect of cognitive reappraisal and school-related wellbeing on anxiety malleability beliefs to zero (notably, in the reciprocal relations model these pathways did not reach significance, $p < .05$). The anxiety malleability beliefs SEM is shown in Figure 4.4, and standardised path coefficients for the SEM are shown in Table 4.13. For clarity, Figure 4.5 shows only the statistically significant cross-lagged relations from the anxiety malleability beliefs SEM.

Table 4.12

Comparison of the Reciprocal Relations Model to the Baseline Model, Unidirectional Model A, Unidirectional Model B, and Model C for Anxiety

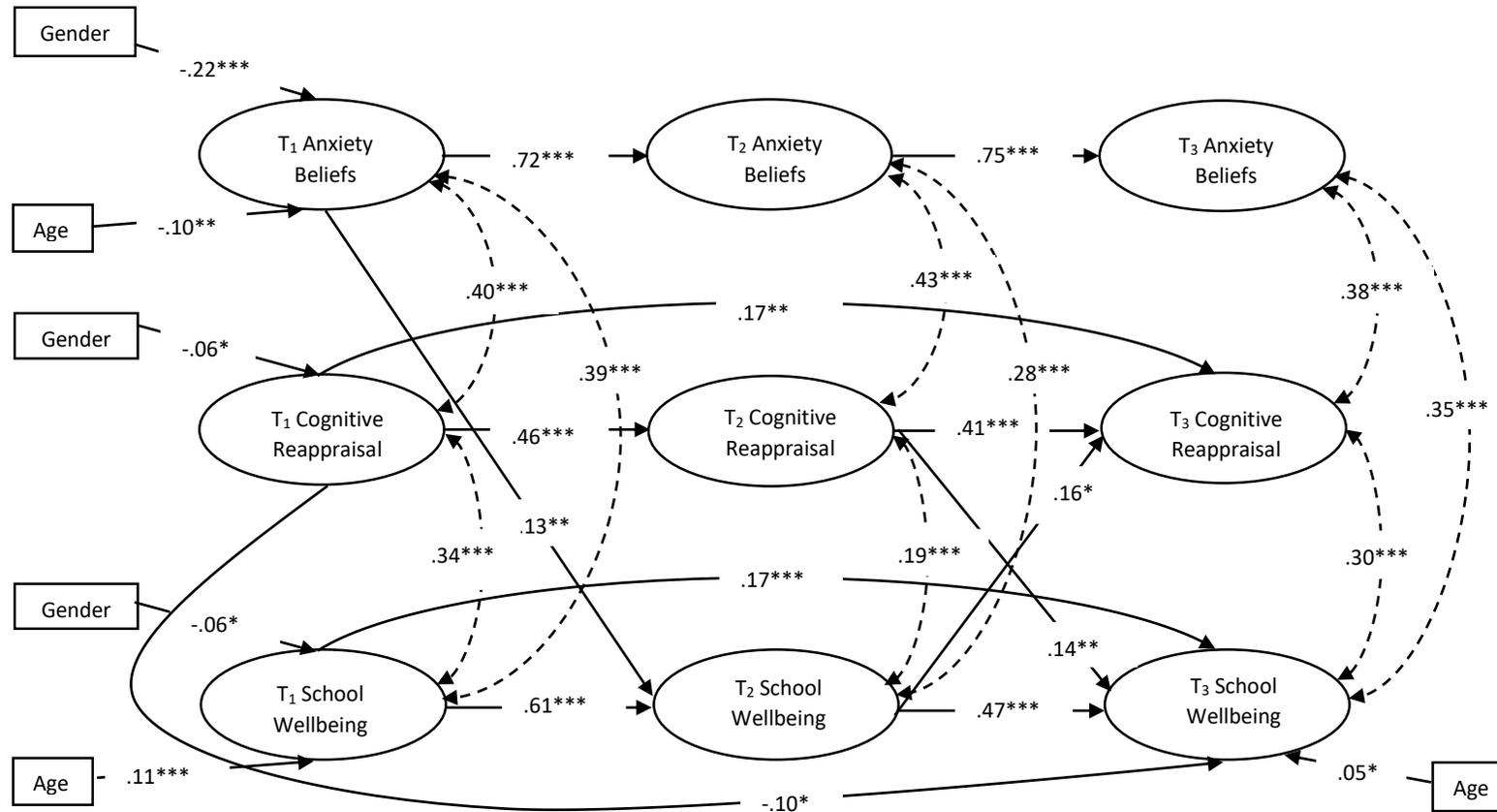
Malleability Beliefs

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	AIC	Δ AIC	$\Delta \chi^2$ (df)
Reciprocal relations model	2000.48(1065)***	.020	.033	.970	.965	163,378.36	-	-
Baseline model	2066.97 (1083)***	.020	.044	.968	.964	163,408.84	30.48	66.48 (18)***
Unidirectional model A	2015.42 (1074)***	.020	.035	.970	.965	163,375.30	-3.06	14.94 (9)
Unidirectional model B	2038.98 (1074)***	.020	.037	.969	.964	163,398.85	20.49	38.50 (9)***
Model C	2005.90 (1071)***	.020	.033	.970	.965	163,371.78	-6.58	5.42 (6)

*** $p < .001$.

Figure 4.4

The CLPM Depicting Significant Relations Between Anxiety Malleability Beliefs, Cognitive Reappraisal, and School-Related Wellbeing



Note. This figure shows significant autoregressive, cross-lagged and concurrent relations between anxiety malleability beliefs, cognitive reappraisal and school-related wellbeing at T1, T2 and T3, controlling for age and gender. Structural paths are represented as solid lines and covariates as dotted lines.

* $p < .05$. ** $p < .01$. *** $p < .001$.

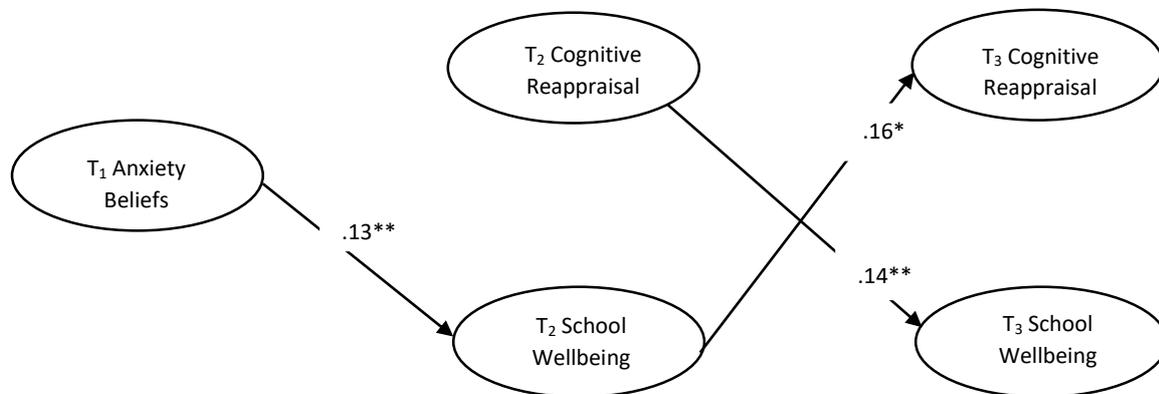
Table 4.13*Standardized Path Coefficients for the Anxiety Malleability Beliefs SEM (Standard Errors in Parentheses)*

	T ₁ Anxiety Beliefs	T ₂ Anxiety Beliefs	T ₁ Cognitive Reappraisal	T ₂ Cognitive Reappraisal	T ₁ School-Related Wellbeing	T ₂ School-Related Wellbeing	T ₃ Anxiety Beliefs	T ₃ Cognitive Reappraisal	T ₃ School-Related Wellbeing
T ₁ Anxiety Beliefs		.72*** (.04)		.09 (.05)		.13** (.04)	.01 (.09)	-.03 (.10)	.06 (.09)
T ₂ Anxiety Beliefs							.75*** (.08)	.06 (.10)	.03 (.09)
T ₁ Cognitive Reappraisal				.46*** (.04)		.05 (.03)		.17** (.06)	-.10* (.05)
T ₂ Cognitive Reappraisal								.41*** (.06)	.14*** (.05)
T ₁ School-Related Wellbeing				.06 (.04)		.61*** (.03)		-.07 (.06)	.17*** (.05)
T ₂ School-Related Wellbeing								.16* (.06)	.47*** (.05)
Gender	-.22*** (.03)	-.06 (.03)	-.06* (.03)	-.02 (.03)	-.06* (.03)	-.01 (.03)	-.06 (.03)	-.01 (.03)	-.04 (.03)
Age	-.10** (.03)	.04 (.03)	<.01 (.03)	.05 (.03)	.11*** (.03)	-.01 (.02)	-.01 (.03)	.02 (.03)	.05* (.03)

Note. 'Anxiety Beliefs' refers to 'Anxiety Malleability Beliefs'. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.5

Statistically Significant Cross-Lagged Relations in the Anxiety Malleability Beliefs CLPM



Note. The statistically significant relation from T₁ cognitive reappraisal to T₃ school-related wellbeing is not depicted. $*p < .05$. $**p < .01$.

4.6.2.1 Relations Between T₁ Anxiety Malleability Beliefs and T₂ School-Related Wellbeing

T₁ anxiety malleability beliefs positively predicted T₂ school-related wellbeing ($\beta = 0.13$, $p = 0.001$) after controlling for the variance accounted for by T₁ school-related wellbeing ($\beta = 0.61$, $p < 0.001$), and concurrent relations between T₁ anxiety beliefs and T₁ school-related wellbeing ($r = 0.39$, $p < 0.001$)

4.6.2.2 Relations Between T₂ Cognitive Reappraisal, T₂ School-Related Wellbeing, T₃ Cognitive Reappraisal and T₃ School-Related Wellbeing

T₂ school-related wellbeing positively predicted T₃ cognitive reappraisal ($\beta = 0.16$, $p = 0.010$), after controlling for the autoregressive effect of T₁ cognitive reappraisal ($\beta = 0.17$, $p = 0.002$), and T₂ cognitive reappraisal ($\beta = 0.41$, $p < 0.001$). T₂ cognitive reappraisal was a positive predictor of T₃ school-related wellbeing ($\beta = 0.14$, $p = 0.009$), after controlling for the autoregressive effect of T₁ school-related wellbeing ($\beta = 0.17$, $p = 0.001$) and T₂ school-related wellbeing ($\beta = 0.47$, $p < 0.001$), and the variance accounted for by T₁ cognitive

reappraisal ($\beta = -0.10, p = 0.042$), and concurrent relations between T₂ school-related wellbeing and T₂ cognitive reappraisal ($r = 0.19, p < 0.001$).

It is necessary to note that the direction of the beta coefficient for T₁ cognitive reappraisal to T₃ school-related wellbeing is the opposite of the Pearson's r coefficient ($r = 0.23$) shown in Table 4.7, and the reverse of what would be theoretically predicted. This is likely to be a result of statistical suppression. I can interpret this coefficient by reversing the sign (Kessler & Greenberg, 1981), therefore the standardised coefficient of this pathway is $\beta = 0.10$ ($p = 0.042$).

4.6.2.3 Comparing the Size of Reciprocal Relations from T₂ Cognitive Reappraisal to T₃ School-Related Wellbeing, and T₂ School-Related Wellbeing to T₃ Cognitive Reappraisal

The size of the standardised regression coefficient from T₂ cognitive reappraisal to T₃ school-related wellbeing ($\beta = 0.14, p = 0.009$) was smaller than the standardised regression coefficient from T₂ school-related wellbeing to T₃ cognitive reappraisal ($\beta = 0.16, p = 0.010$). A Z-transformation showed that the relation from T₂ cognitive reappraisal to T₃ school-related wellbeing was not significantly smaller than from T₃ school-related wellbeing to T₂ cognitive reappraisal ($Z = -0.19, p = 0.842$), indicating that the effect of cognitive reappraisal on school-related wellbeing is not stronger than the effect of school-related wellbeing on cognitive reappraisal.

4.6.2.4 Summary

The findings from the SEM examining relations between anxiety malleability beliefs, cognitive reappraisal and school-related wellbeing showed that incremental anxiety malleability beliefs (i.e., belief in the malleability of one's own anxiety) predicted greater school-related wellbeing. However, this relation was only seen from the first to second

measurement wave. In addition, cognitive reappraisal was found to be reciprocally related to wellbeing: cognitive reappraisal predicted higher school-related wellbeing, and school-related wellbeing predicted higher cognitive reappraisal. However, this relation was only seen from the second to third measurement wave. No relations were found between cognitive reappraisal and school-related wellbeing from the first to second measurement wave. In addition, no relations were found between anxiety malleability beliefs and cognitive reappraisal.

4.6.3 Happiness Malleability Beliefs

Model fit indices for the happiness malleability belief SEMs are reported in Table 4.14. The reciprocal relations model showed an excellent fit to the data. Compared to the reciprocal relations model, the baseline model, Unidirectional model A and model C showed worsening model fit, a higher AIC value ($\Delta AIC > .10$), and significant χ^2 difference tests, indicating that these three models were not preferable to the reciprocal relations model. Unidirectional model B did not show $\Delta AIC > .10$, however it demonstrated worsening model fit, a significant χ^2 difference test, and a higher AIC value than the reciprocal relations model. The reciprocal relations model is, therefore, superior to the baseline model, Unidirectional model A, Unidirectional model B and Model C. As such, I conducted further analyses using the reciprocal relations model happiness malleability beliefs. The reciprocal relations SEM is diagrammed in Figure 4.4 and standardised path coefficients are reported in Table 4.15. For clarity, Figure 4.7 shows only the statistically significant cross-lagged relations from the happiness malleability beliefs SEM.

Table 4.14

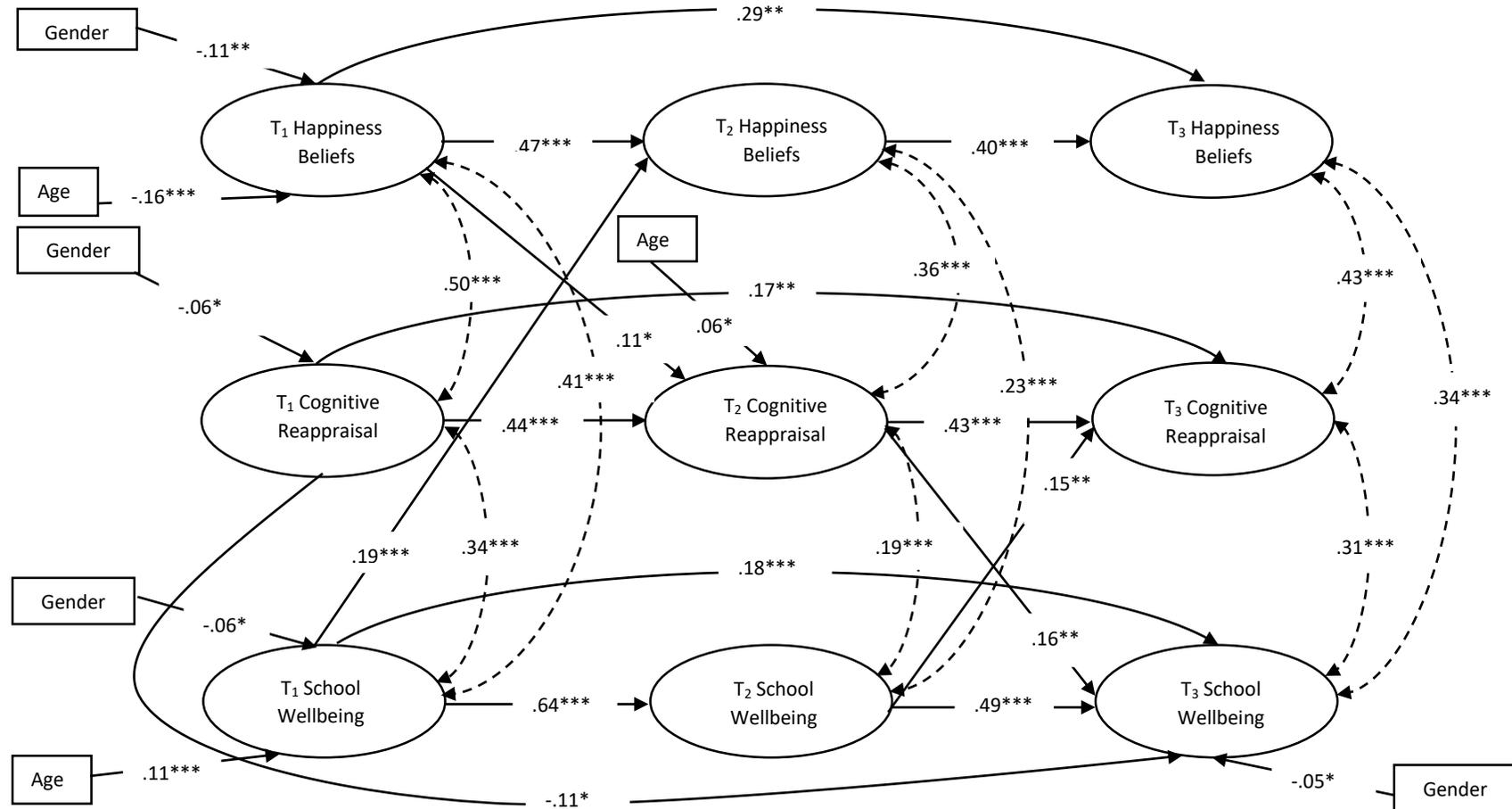
Comparison of the Reciprocal Relations Model to the Baseline Model, Unidirectional Model A, Unidirectional Model B, and Model C for Happiness Malleability Beliefs

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	AIC	Δ AIC	$\Delta \chi^2$ (df)
Reciprocal relations model	1989.18 (1065)***	.019	.033	.968	.963	163,091.39		
Baseline model	2068.12 (1083)***	.020	.044	.966	.961	163,134.32	42.93	78.94 (18)***
Unidirectional model A	2024.53 (1074)***	.020	.036	.967	.963	163,108.74	17.35	35.35 (9)***
Unidirectional model B	2016.29 (1074)***	.020	.036	.967	.963	163,100.49	9.10	27.11 (9)**
Model C	2016.83 (1071)***	.020	.034	.967	.963	163,107.03	15.64	27.65 (6)***

** $p < .01$, *** $p < .001$.

Figure 4.6

The CLPM Depicting Significant Relations Between Happiness Malleability Beliefs, Cognitive Reappraisal, and School-Related Wellbeing



Note. This figure shows significant autoregressive, cross-lagged and concurrent relations between happiness malleability beliefs, cognitive reappraisal and school-related wellbeing at T₁, T₂ and T₃, controlling for age and gender. Structural paths are represented as solid lines and covariates as dotted lines. **p* < .05. ***p* < .01. ****p* < .001.

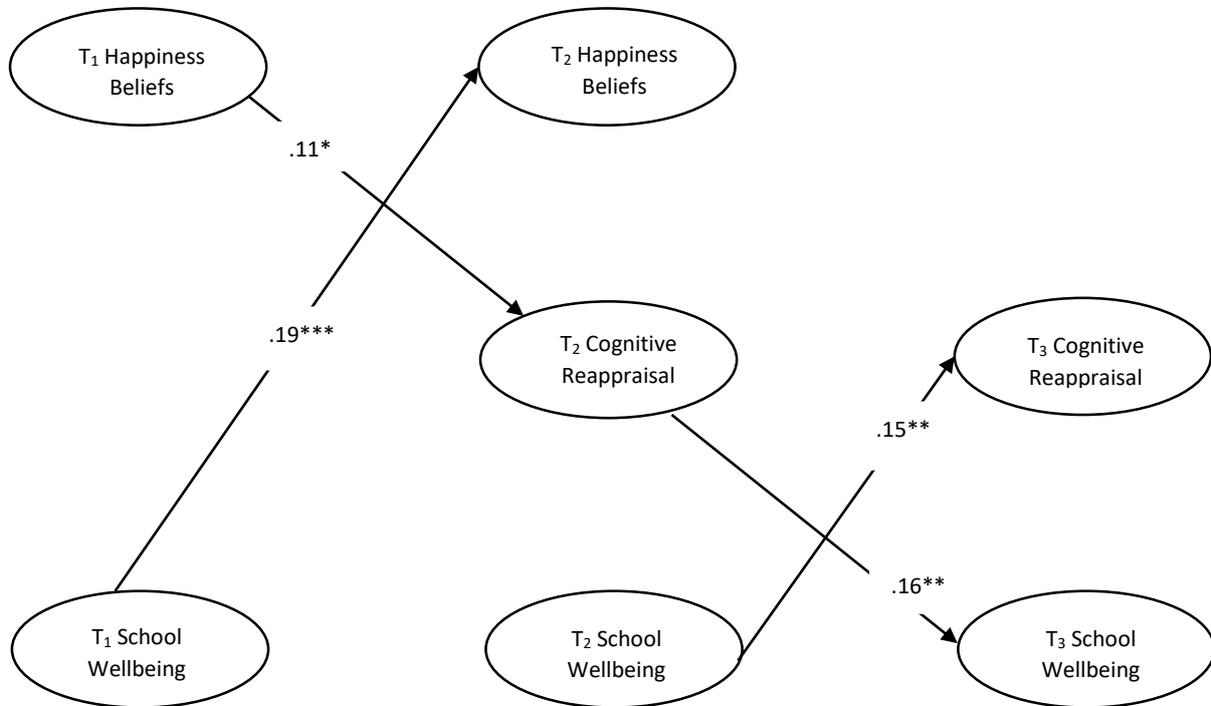
Table 4.15*Standardized Path Coefficients for the Happiness Malleability Beliefs SEM (Standard Errors in Parentheses)*

	T ₁ Happiness Beliefs	T ₂ Happiness Beliefs	T ₁ Cognitive Reappraisal	T ₂ Cognitive Reappraisal	T ₁ School- Related Wellbeing	T ₂ School- Related Wellbeing	T ₃ Happiness Beliefs	T ₃ Cognitive Reappraisal	T ₃ School- Related Wellbeing
T ₁ Happiness Beliefs		.47 (.07)		.11* (.05)		.04 (.05)	.29** (.08)	-.09 (.07)	.02 (.06)
T ₂ Happiness Beliefs			.06 (.05)		.19*** (.05)		.40 (.08)	.09 (.07)	<.01 (.06)
T ₁ Cognitive Reappraisal				.44 (.04)		.07 (.04)	-.12 (.06)	.17** (.06)	-.11* (.05)
T ₂ Cognitive Reappraisal							.23 (.06)	.43 (.05)	.16** (.05)
T ₁ School-Related Wellbeing				.05 (.04)		.64 (.03)	-.04 (.06)	-.06 (.06)	.18*** (.05)
T ₂ School-Related Wellbeing							.05 (.06)	.15** (.06)	.49 (.05)
Gender	-.11** (.03)	-.03 (.03)	-.06* (.03)	-.03 (.03)	-.06* (.03)	-.03 (.02)	-.04 (.03)	-.01 (.03)	-.05* (.03)
Age	-.16*** (.03)	<.01 (.04)	<.01 (.03)	.06* (.03)	.11*** (.03)	-.02 (.03)	-.01 (.03)	.01 (.03)	.04 (.03)

Note. 'Happiness Beliefs' refers to 'Happiness Malleability Beliefs'. * $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 4.7

Statistically Significant Cross-Lagged Relations in the Happiness Malleability Beliefs CLPM



Note. The statistically significant relation from T₁ cognitive reappraisal to T₃ school-related wellbeing is not depicted. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.6.3.1 Relations Between T₁ Happiness Malleability Beliefs and T₂ Cognitive Reappraisal, and T₁ School-Related Wellbeing and T₂ Happiness Malleability Beliefs

T₁ happiness malleability beliefs was a positive predictor of T₂ cognitive reappraisal ($\beta = 0.11, p = 0.043$) after controlling for the autoregressive effect of T₁ cognitive reappraisal ($\beta = 0.44, p < 0.001$) and concurrent relations between T₁ happiness malleability beliefs and T₁ cognitive reappraisal ($r = 0.50, p < 0.001$). T₁ school-related wellbeing was a predictor of T₂ happiness beliefs ($\beta = 0.19, p < 0.001$) even after controlling for the autoregressive effect of T₁ happiness malleability beliefs ($\beta = 0.47, p < 0.001$), and concurrent relations between T₁ school-related wellbeing and T₁ happiness malleability beliefs ($r = 0.18, p < 0.001$).

4.6.3.2 Relations Between T₂ Cognitive Reappraisal, T₂ School-Related Wellbeing, T₃ Cognitive Reappraisal and T₃ School-Related Wellbeing

T₂ school-related wellbeing positively predicted T₃ cognitive reappraisal ($\beta = 0.15, p = 0.009$) after controlling for the autoregressive effect of T₁ cognitive reappraisal ($\beta = 0.17, p = 0.003$), and T₂ cognitive reappraisal ($\beta = 0.43, p < 0.001$), and the concurrent relations between T₂ school-related wellbeing and T₂ cognitive reappraisal ($\beta = 0.19, p < 0.001$). T₂ cognitive reappraisal was a positive predictor of T₃ school-related wellbeing ($\beta = 0.16, p = 0.001$), after controlling for the autoregressive effect of T₁ school-related wellbeing ($\beta = 0.18, p < 0.001$) and T₂ school-related wellbeing ($\beta = 0.49, p < 0.001$), and the variance accounted for by T₁ cognitive reappraisal ($\beta = -0.11, p = 0.034$), and concurrent relations between T₂ school-related wellbeing and T₂ cognitive reappraisal ($r = 0.19, p < 0.001$).

As previously noted with the anxiety malleability beliefs SEM (see Section 4.6.2.2), the sign of the beta coefficient for T₁ cognitive reappraisal to T₃ school-related wellbeing is the opposite of the Pearson's r coefficient ($r = 0.23$) shown in Table 4.7, this likely to be a result of statistical suppression. I interpreted this coefficient by reversing the sign (Kessler & Greenberg, 1981), therefore the standardised coefficient of this pathway was $\beta = 0.11$ ($p = 0.034$).

4.6.3.3 Comparing the Size of Reciprocal Relations from T₂ Cognitive Reappraisal to T₃ School-Related Wellbeing, and T₂ School-Related Wellbeing to T₃ Cognitive Reappraisal

The size of the standardised regression coefficient from T₂ cognitive reappraisal to T₃ school-related wellbeing ($\beta = 0.16, p = 0.001$) was larger than the standardised regression coefficient from T₂ school-related wellbeing to T₃ cognitive reappraisal ($\beta = 0.15, p = 0.009$). A Z-transformation showed that the strength of the relation between T₂ cognitive reappraisal to T₃ school-related wellbeing was not significantly larger than from T₂ school-related

wellbeing to T₃ cognitive reappraisal ($Z = 0.02, p = 0.984$), indicating that the effect of T₂ cognitive reappraisal on T₃ school-related wellbeing is not stronger than the effect of T₂ school-related wellbeing on T₃ cognitive reappraisal.

4.6.3.4 Estimates of the Indirect (Mediated) Path from T₁ Happiness Malleability Beliefs to T₃ School-Related Wellbeing (via Cognitive Reappraisal)

An indirect path was examined from T₁ happiness malleability beliefs to T₃ school-related wellbeing to examine if this relation was mediated by T₂ cognitive reappraisal. The effect of T₁ happiness malleability beliefs on T₃ school-related wellbeing was found to be partially mediated by cognitive reappraisal (indirect effect: $\beta = 0.018, SE = 0.010, 95\% CIs [0.001; 0.035]$; direct effect: $\beta = 0.023 SE = 0.062, 95\% CIs [-0.080; 0.125]$; total effect: $\beta = 0.059 SE = 0.054, 95\% CIs [-.030; 0.148]$). This indicates that happiness malleability beliefs predict better school-related wellbeing partly through the underlying mechanism which is cognitive reappraisal.

4.6.3.5 Summary

The findings from the SEM examining relations between happiness malleability beliefs, cognitive reappraisal and school-related wellbeing showed that school-related wellbeing predicted happiness malleability beliefs (i.e., belief in the malleability of one's own happiness). However, this relation was only seen from the first to second measurement wave, and not from the second to third measurement wave. Happiness malleability beliefs did not predict school-related wellbeing across either wave. Happiness malleability beliefs predicted cognitive reappraisal from the first to second measurement wave, but not from the second to third wave. Cognitive reappraisal and school-related wellbeing were reciprocally related from the second to third measurement wave, in that cognitive reappraisal predicted

higher school-related wellbeing, and school-related wellbeing predicted higher cognitive reappraisal. However, no relations were found between cognitive reappraisal and school-related wellbeing from the first to second measurement wave. Mediation analysis revealed that happiness malleability beliefs predicted school-related wellbeing via cognitive reappraisal.

4.7 Chapter Summary

This chapter presented the findings from examining relations between emotion, anxiety and happiness malleability beliefs, cognitive reappraisal and school-related wellbeing. It presented information related to the descriptive statistics, preliminary analyses (including measurement invariance testing), and described the analytic processes undertaken to choose the most suitable measurement model and SEM for each type of malleability belief. Findings of the SEMs were presented (including standard path coefficients, standard errors and results from the mediation analyses). A summary of findings from each SEM was given following presentation of the statistical results for each type of malleability belief.

Findings from the SEMs showed that from the first to second measurement wave anxiety malleability beliefs predicted school-related wellbeing, school-related wellbeing predicted happiness malleability beliefs, and happiness malleability beliefs predicted cognitive reappraisal. The emotion malleability beliefs SEM showed that cognitive reappraisal predicted school-related wellbeing from the first to second measurement wave, and school-related wellbeing predicted cognitive reappraisal from the second to third measurement wave. The anxiety malleability beliefs SEM and the happiness malleability beliefs SEM showed that that cognitive reappraisal predicted school-related wellbeing, and school-related wellbeing predicted cognitive reappraisal from the second to third measurement wave (i.e., they were reciprocally related from the second to third measurement

wave). Statistically significant mediation analysis revealed that happiness malleability beliefs predicted wellbeing via cognitive reappraisal; however, happiness malleability beliefs did not directly predict school-related wellbeing. All other relations between constructs were not significant.

Chapter 5: Results —
First-Person vs.
Third-Person Malleability Beliefs

5.1 Introduction

Findings from the literature showed that a person's belief about the extent to which they can control their own emotions is more strongly linked to mental health outcomes (e.g., stress, depression, low self-esteem, and lower satisfaction with life) than a person's belief about the extent to which others can control their emotions (e.g., see De Castella et al., 2013 in Section 2.9.1). Thus, I examined how first-person malleability beliefs related to school-related wellbeing in this doctoral work (see Chapter 4). However, young people may endorse incremental and entity beliefs of themselves and others differently when compared to adults (for an explanation see Section 2.9.1.1). As such, it cannot be assumed that students' first-person malleability beliefs relate to school wellbeing in the same way as third-person malleability beliefs. Determining the target of the belief (i.e., first vs. third person) has important implications for interventions (see Section 2.9.1.1). As such, I asked students to report first-person *and* third-person malleability beliefs (on the first and second measurement occasion; see Section 3.8) to answer the following RQ:

RQ4 – Do beliefs about the malleability of one's own emotions show stronger relations with school-related wellbeing than beliefs about the malleability of other people's emotions?

After first examining relations between first-person malleability beliefs and school-related wellbeing it was shown that T₁ anxiety malleability beliefs positively predicted T₂ school-related wellbeing (see Section 4.6.2), and T₁ school-related wellbeing positively predicted T₂ happiness malleability beliefs (see Section 4.6.3). These were the only two significant findings between malleability beliefs and school-related wellbeing. As such, I chose next to examine relations between T₁ third-person anxiety malleability beliefs and T₂ school-related wellbeing, and T₁ school-related wellbeing and T₂ third-person happiness

malleability beliefs. This would allow me to juxtapose two sets of models to see if findings were equivalent: (1) first-person anxiety malleability beliefs and school-related wellbeing with third-person anxiety malleability beliefs and school-related wellbeing; and, (2) school-related wellbeing and first-person happiness malleability beliefs with school-related wellbeing and third-person happiness malleability beliefs.

5.2 Plan of Analysis

For each hypothesis, I examined descriptive statistics (means, SDs, reliabilities, ICCs, skewness, kurtosis and factor loadings) for the study variables. Next, I tested for measurement invariance in the school related wellbeing scale from T₁ to T₂, and in the first-person and third-person happiness malleability beliefs scales from T₁ to T₂. Then, I constructed two measurement models (one for anxiety malleability beliefs, and one for happiness malleability beliefs) using confirmatory factor analysis in *Mplus* v.8 (Muthén & Muthén, 2017), controlling for the effect of T₁ cognitive reappraisal, gender and age in both models. In the model which examined the effect of T₁ anxiety malleability beliefs on T₂ school-related wellbeing, I also controlled for T₁ school-related wellbeing. Similarly, in the model which examined the effect of T₁ school-related wellbeing on T₂ happiness malleability beliefs, I controlled for the effect of T₁ happiness malleability beliefs. Finally, I constructed four structural equation models (two for each measurement model) and compared the size of the effects of first-person and third-person anxiety malleability beliefs on school-related wellbeing, and the size of the effects of school-related wellbeing on first-person and third-person happiness malleability beliefs.

5.3 Preliminary Analysis

In both models, the two residuals on each of the six first-person and third-person malleability beliefs scales (T₁ first-person anxiety malleability beliefs, T₁ third-person anxiety malleability beliefs, T₁ first-person happiness malleability beliefs, T₂ first-person happiness malleability beliefs, T₁ third-person happiness malleability beliefs, and T₂ third-person happiness malleability beliefs) that refer to incremental beliefs (e.g., ‘If I want to, I can change the anxiety I have’ & ‘I can learn to control my anxiety’) were allowed to correlate, and the two items referring to entity beliefs (e.g., ‘The truth is people have little control over their happiness’ & ‘No matter how hard they try, people can’t really change the anxiety that they have’) were also allowed to correlate in each measurement model (see Table 5.1). In addition, the residuals for two items with similar wording on the T₁ cognitive reappraisal scale (‘When I want to feel happier I think about something different’ & ‘When I want to feel less bad... I think about something different’) were allowed to correlate (see Table 4.2). Section 4.4 presents details for the justification of correlating these residuals. I examined model fit indices for each of the measurement models, using CFI/ TLI values >.95, RMSEA values <.08, and SRMR values <.06, to indicate a good fitting model (Hu & Bentler, 1999).

Table 5.1

Items with Correlated Residuals on the First-Person and Third-Person Anxiety and Happiness Malleability Belief Scales

Scale	Correlated Residuals
First-Person Anxiety Malleability Belief Scale	Item 1: ‘If I want to, I can change the anxiety I have’ <i>with</i> Item 2: ‘I can learn to control my anxiety’
	Item 3: ‘The truth is, I have very little control over my anxiety’ <i>with</i> Item 4: ‘No matter how hard I try, I can’t really change the anxiety that I have’
Third- Person Anxiety Malleability Belief Scale	Item 1: ‘If they want to, people can change the anxiety that they have’ <i>with</i> Item 2: ‘People can learn to control their anxiety’
	Item 3: ‘The truth is, people have very little control over their anxiety’ <i>with</i> Item 4: ‘No matter how hard they try, people can’t really change the anxiety that they have’
First-Person Happiness Malleability Belief Scale	Item 1: ‘If I want to, I can change the amount of happiness that I have’ <i>with</i> Item 2: ‘I can learn to control my happiness’
	Item 3: ‘The truth is, I have very little control over my happiness’ <i>with</i> Item 4: ‘No matter how hard I try, I can’t really change the amount of happiness that I have’
Third-Person Happiness Malleability Belief Scale	Item 1: ‘If they want to, people can change the amount of happiness that they have’ <i>with</i> Item 2: ‘People can learn to control their happiness’
	Item 3: ‘The truth is, people have very little control over their happiness’ <i>with</i> Item 4: ‘No matter how hard they try, people can’t really change the amount of happiness that they have’

5.3.1 Measurement Invariance

I tested for measurement invariance in the school related wellbeing scale from T₁ to T₂, and in the first-person and third-person happiness malleability beliefs scales from T₁ to

T₂, assessing changes in model fit when factor loadings, item intercepts and error residuals were constrained to be equal (metric, scalar and error invariance). Measurement invariance is demonstrated when CFI and TLI indices are reduced by $\leq .01$, changes in RMSEA are $\leq .015$, and changes in SRMR are $\leq .30$ (Chen, 2007).

5.3.1.1 Measurement Invariance for School-Related Wellbeing

Model fit indices for the measurement invariance tests are shown in Table 5.2. The school-related wellbeing scale demonstrated metric, scalar and error invariance indicating that the same construct (school-related wellbeing) was being measured on both measurement occasions.

Table 5.2

Tests of Measurement Invariance between T₁ and T₂ for School-Related Wellbeing

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	Δ RMSEA	Δ CFI	Δ TLI
Configural	160.59 (47)	.033	.025	.987	.982			
Metric Invariance	167.95 (52)	.032	.028	.987	.983	-.001	.000	+.001
Scalar Invariance	229.10 (58)	.037	.041	.980	.978	+.005	-.007	-.005
Residual Invariance	242.08 (64)	.036	.046	.980	.979	-.001	.000	+.001

Note. χ^2 Statistic for all models statistically significant at $p < .001$.

5.3.1.2 Measurement Invariance for the First-Person and Third-Person Malleability Belief Scales

Tests of measurement invariance from T₁ to T₂ for the first-person and third-person happiness malleability beliefs scales are shown in Table 5.3. Both happiness malleability belief scales (first-person and third-person) demonstrated metric, scalar, and residual

invariance, therefore I ascertained that the same construct is represented in each of the scales at each measurement occasion, and proceeded to conduct further analyses.

Table 5.3*Tests of Measurement Invariance between T₁ and T₂ for First-Person and Third-Person Happiness Malleability Belief Scales*

	χ^2 (df)	RMSEA	SRMR	CFI	TLI	Δ RMSEA	Δ CFI	Δ TLI
<i>First-Person Happiness Malleability Beliefs</i>								
Configural	58.80 (11)	.045	.031	.987	.967			
Metric Invariance	65.80 (14)	.042	.034	.986	.972	-.003	-.001	+.005
Scalar Invariance	68.62 (18)	.036	.034	.986	.978	-.006	.000	+.006
Residual Invariance	73.21 (22)	.033	.037	.986	.982	-.003	.000	+.004
<i>Third-Person Happiness Malleability Beliefs</i>								
Configural	44.07 (11)	.038	.027	.991	.976			
Metric Invariance	44.13 (14)	.032	.027	.992	.983	-.006	+.001	+.007
Scalar Invariance	57.08 (18)	.032	.030	.989	.983	.000	-.003	.000
Residual Invariance	67.80 (22)	.031	.034	.987	.984	-.001	-.002	+.001

Note. χ^2 Statistic for all models statistically significant at $p < .001$.

5.4 First-Person vs. Third-Person Anxiety Malleability Beliefs

5.4.1 Descriptive Statistics.

Descriptive statistics are presented in Table 5.4. Skewness and Kurtosis values were within ± 1 . The internal consistency of self-report measures was good (Cronbach's α and McDonald's $\omega \geq 0.72$). Intra-class correlation coefficients (ICC_1 or ρ_1) showed the amount of variance that could be accounted for at the school level for first-person anxiety malleability beliefs, third-person anxiety malleability beliefs and cognitive reappraisal was below 1%, and the school-level variance for T₁ school-related wellbeing and T₂ school-related wellbeing was relatively small (6% and 3%, respectively). As such, it was not necessary to control for the clustering of students within schools when conducting further analyses.

Table 5.4

Descriptive Statistics, Internal Reliabilities, Intra-Class Correlation Coefficients, and Latent Bivariate Correlations for First-Person and Third-Person Anxiety Malleability Beliefs Measurement Model

	1.	2.	3.	4.	5.	6.	7.
1. T ₁ First-Person Anxiety Beliefs	-	.83***	.40***	.38***	.38***	-.22***	-.08**
2. T ₁ Third-Person Anxiety Beliefs		-	.25***	.24***	.26***	-.21***	-.19***
3. T ₁ Cognitive Reappraisal			-	.36***	.32***	-.06*	.01
4. T ₁ School-Related Wellbeing				-	.69***	-.06*	.13***
5. T ₂ School-Related Wellbeing					-	-.08**	.06**
6. Gender						-	-
7. Age							-
8. Mean	3.01	2.97	3.21	3.44	3.35	-	-
9. SD	1.34	1.04	0.98	0.90	0.98	-	-
10. α / ω	0.79 / 0.79	0.72 / 0.72	0.82 / 0.82	0.85 / 0.86	0.87 / 0.87	-	-
11. ICC ₁	<0.01	<0.01	<0.01	0.06	0.03	-	-
12. Skewness	-0.04	-0.06	-0.36	-0.54	-0.48	-	-
13. Kurtosis	-0.69	-0.29	-0.17	0.34	0.11	-	-
14. Factor Loadings	0.55–0.68	0.51–0.63	0.50–0.76	0.54–0.84	0.58–0.86	-	-

* $p < .05$. ** $p < .01$. *** $p < .001$.

5.4.2 Measurement Model

A measurement model with five latent factors (T₁ school-related wellbeing, T₂ school-related wellbeing, T₁ first-person anxiety malleability beliefs, T₁ third-person anxiety malleability beliefs, T₁ cognitive reappraisal), and gender and age at was tested. The fit of the measurement model was good: $\chi^2(321) = 997.17, p < .001, CFI = .962, TLI = .955, RMSEA = .030,$ and $SRMR = .033$. A confirmatory factor analysis showed items loaded substantively onto their specified factors ($\lambda_s \geq .50$; see Table 5.4). The intercorrelations between the latent variables and demographic variables are presented in Table 5.4.

First-person anxiety malleability beliefs was positively correlated with cognitive reappraisal and school-related wellbeing, and showed a strong positive correlation with third-person anxiety malleability beliefs. This indicated that students who believed their own anxiety could be changed were more likely to have higher cognitive reappraisal, school-related wellbeing, and believe that the anxiety of other people could be changed, than students who believed their anxiety could not be changed. Positive correlations were found between third-person anxiety malleability beliefs and cognitive reappraisal, and third-person anxiety malleability beliefs and T₁ and T₂ school-related wellbeing. This indicated that students who believed other people could change their anxiety were more likely to have higher cognitive reappraisal and school-related wellbeing than students who believed other people could not change their anxiety. T₁ school-related was positively correlated with T₂ school-related wellbeing, and cognitive reappraisal was positively correlated with T₁ and T₂ school-related wellbeing.

First-person anxiety malleability beliefs and third-person anxiety malleability beliefs were negatively correlated with gender showing that boys were more likely to believe that their own anxiety, and the anxiety of other people, could be changed. Age was negatively

correlated with first-person and third-person anxiety malleability beliefs, indicating that younger students are more likely than older students to believe anxiety (their own and that of others) can be changed. A negative correlation was found for cognitive reappraisal and gender, showing that boys are more likely to use cognitive reappraisal than females. Negative correlations were also found between school-related wellbeing and gender, indicating that boys report higher school-related wellbeing compared to girls. Finally, school-related wellbeing was positively correlated with age, showing that older students are more likely to have higher school-related wellbeing than younger students.

5.4.3 Structural Equation Modelling

First-person anxiety malleability beliefs and third-person anxiety malleability beliefs were highly correlated ($r = 0.83$, see Table 5.4), this is likely due to a high level of shared variance between the constructs, therefore their relations with cognitive reappraisal and school-related wellbeing were estimated in separate models. A structural equation model was created to test the contribution of T_1 first-person anxiety beliefs to T_2 school-related wellbeing, controlling for the effects of T_1 school-related wellbeing, cognitive reappraisal, gender and age (see Figure 5.1a). The model showed an excellent fit to the data: $\chi^2(230) = 617.85$, $p < .001$, CFI = .975, TLI = .970, RMSEA = .027, and SRMR = .030. An SEM was also created to test the contribution of T_1 third-person anxiety beliefs to T_2 school-related wellbeing, controlling for the effects of T_1 school-related wellbeing, cognitive reappraisal, gender and age (see Figure 5.1b). The model fit was excellent: $\chi^2(230) = 621.91$, $p < .001$, CFI = .975, TLI = .967, RMSEA = .027, and SRMR = .031.

Figure 5.1

Structural Equation Models for First-Person and Third-Person Anxiety Malleability Beliefs

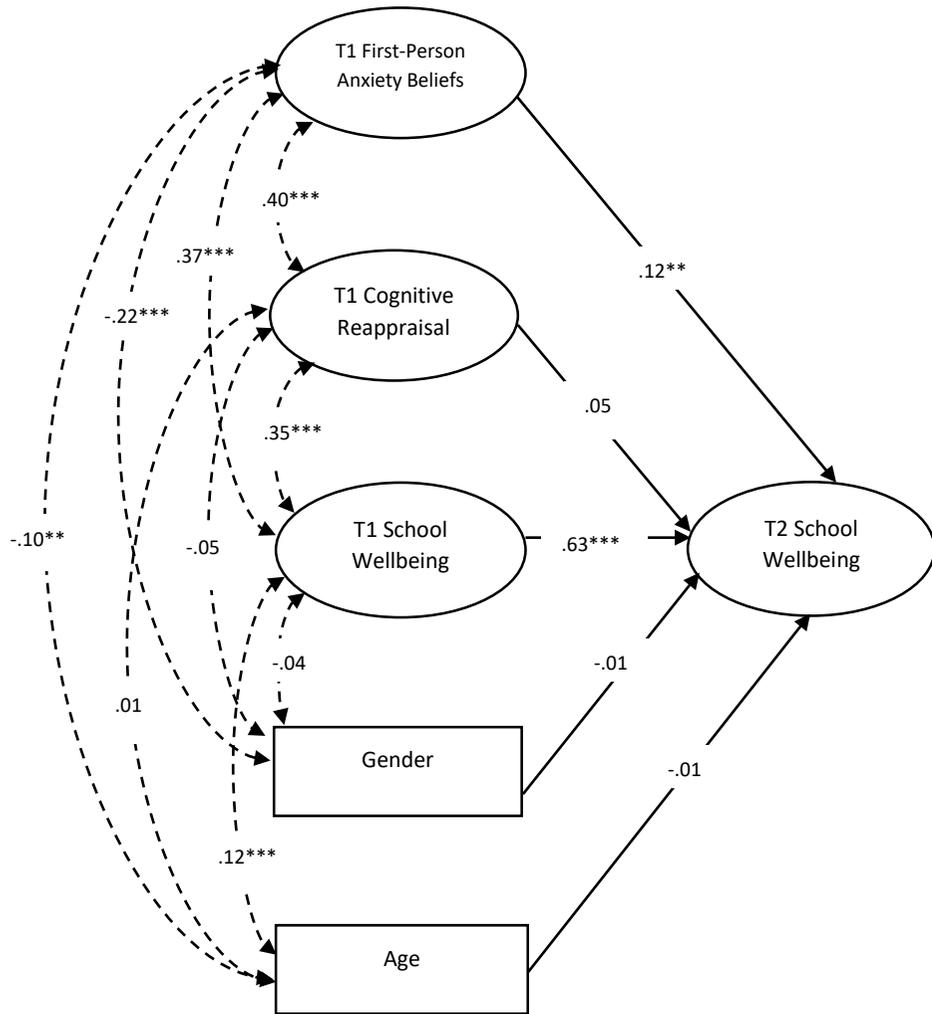


Fig 5.1a. This model shows the effect of T₁ first-person anxiety malleability beliefs on T₂ school-related wellbeing (standardised estimates). ‘First-Person Anxiety Beliefs’ refers to ‘First-Person Anxiety Malleability Beliefs’ * $p < .05$. ** $p < .01$. *** $p < .001$.

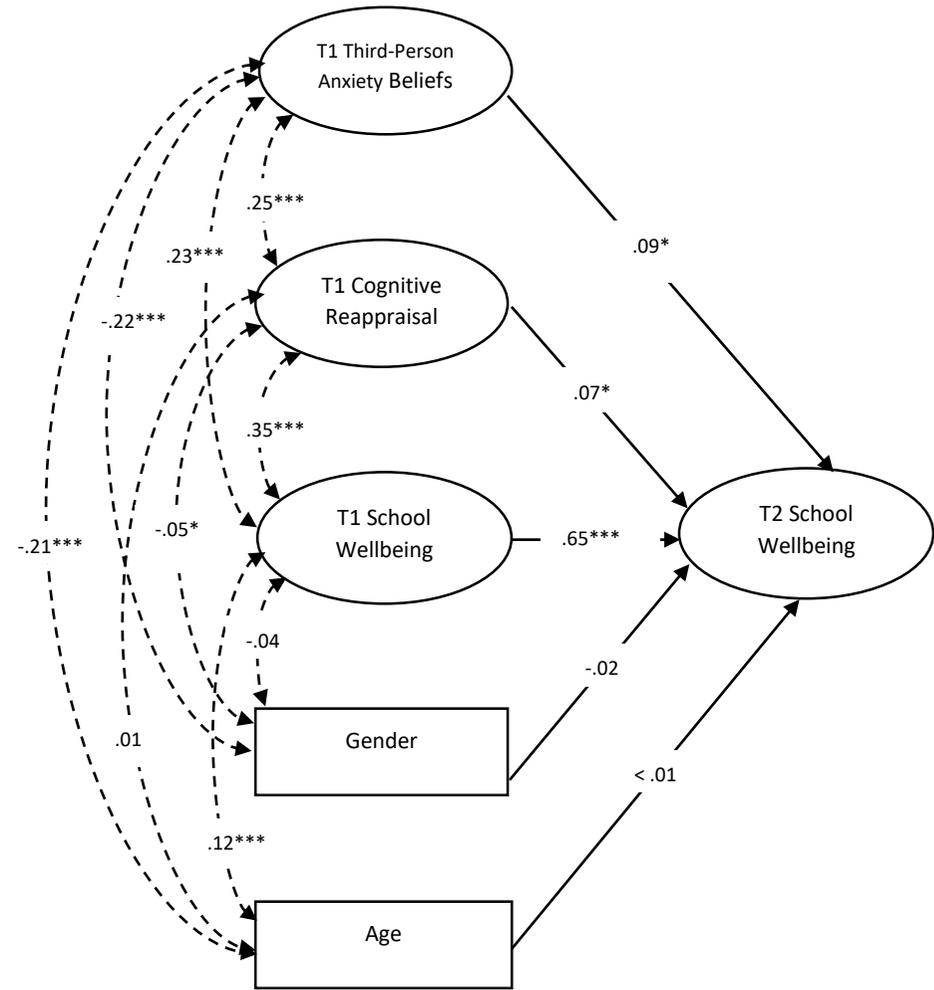


Fig 5.1b. This model shows the effect of T₁ third-person anxiety malleability beliefs on T₂ school-related wellbeing (standardised estimates). ‘Third-Person Anxiety Beliefs’ refers to ‘Third-Person Anxiety Malleability Beliefs’ * $p < .05$. ** $p < .01$. *** $p < .001$.

5.4.3.1 Comparing the Effect of First-Person Anxiety Malleability Beliefs on School-Related Wellbeing with the Effect of Third-Person Anxiety Malleability Beliefs on School-Related Wellbeing

First-person anxiety malleability beliefs positively predicted school-related wellbeing ($\beta = 0.12, p = 0.004$) after controlling for T₁ cognitive reappraisal ($\beta = 0.05, p = 0.185$), gender ($\beta = -0.01, p = 0.618$), and age ($\beta = -0.01, p = 0.775$), the substantial autoregressive effect of T₁ school-related wellbeing ($\beta = 0.63, p < 0.001$), and concurrent relations between T₁ first-person anxiety malleability beliefs and T₁ school-related wellbeing ($r = 0.37, p < 0.001$).

Third-person anxiety malleability beliefs also positively predicted school-related wellbeing ($\beta = 0.09, p = 0.036$), after controlling for T₁ cognitive reappraisal ($\beta = 0.07, p = 0.046$), gender ($\beta = -0.02, p = 0.417$), and age ($\beta = 0.00, p = 0.928$), the substantial autoregressive effect of T₁ school-related wellbeing ($\beta = 0.65, p < 0.001$), and concurrent relations between T₁ third-person anxiety beliefs and T₁ school-related wellbeing ($r = 0.23, p < 0.0010$).

5.4.3.2 Comparing the Effect of First-Person Anxiety Malleability Beliefs and Third-Person Anxiety Malleability Beliefs on School-Related Wellbeing

The size of the standardised regression coefficient from T₁ first-person anxiety malleability beliefs to T₂ school-related wellbeing ($\beta = 0.12$) was larger than the standardised regression coefficient from T₁ third-person anxiety malleability beliefs to T₂ school-related wellbeing ($\beta = 0.09$). A Z-transformation showed that the effect of T₁ first-person anxiety malleability beliefs on T₂ school-related wellbeing was not significantly larger than the effect of T₁ third-person anxiety malleability beliefs on T₂ school-related wellbeing ($Z = 0.05, p = 0.959$).

5.4.3.3 Summary

The results of the first-person and third-person anxiety malleability beliefs SEMs showed that both first-person and third-person anxiety malleability beliefs predict school-related wellbeing. In addition, although the size of the effect was higher for first-person malleability beliefs, further analysis showed that first-person and third-person anxiety malleability beliefs had equivalent power in predicting school-related wellbeing.

5.5 First-Person vs. Third-Person Happiness Malleability Beliefs

5.5.1 Descriptive Statistics.

Descriptive statistics are reported in Table 5.5. Skewness and Kurtosis values were within ± 1 . The internal consistency of self-report measures was good (Cronbach's α and McDonald's $\omega \geq 0.70$). Inspection of factor loadings from confirmatory factor analyses showed all items loaded substantively onto their specified factors ($\lambda_s \geq .40$). Intra-class correlation coefficients (ICC_1 or ρ_1) showed the amount of variance that could be accounted for at the school level for T₁ first-person happiness malleability beliefs, T₁ third-person happiness malleability beliefs, T₂ first-person happiness malleability beliefs and T₁ cognitive reappraisal was below 1%, and the school-level variance for T₂ third-person happiness malleability beliefs and school-related wellbeing was 2% and 6 %, respectively, indicating that only a small amount of variance was attributable to the school level.

5.5.2 The Measurement Model

A measurement model with five latent factors (T₁ school-related wellbeing, T₂ school-related wellbeing, T₁ first-person happiness malleability beliefs, T₁ third-person happiness malleability beliefs, T₁ cognitive reappraisal) and gender and age was tested. The

measurement model was a satisfactory fit to the data: $\chi^2(363) = 1183.59, p < 0.001$, CFI = .952, TLI = .942, RMSEA = .031, and SRMR = .042. Thus, I proceeded to conduct further analyses using this measurement model.

Bivariate correlations are reported in Table 5.5. First-person happiness malleability beliefs showed a large positive correlation with third-person happiness malleability beliefs at both time points, showing that those who believe their happiness can be changed are also likely to believe the happiness of others can be changed. T₁ first-person happiness malleability beliefs and T₂ first-person happiness malleability beliefs were positively correlated with cognitive reappraisal and school-related wellbeing, and T₁ third-person happiness malleability beliefs and T₂ third-person happiness malleability beliefs also showed positive correlations (albeit smaller than that of first-person happiness beliefs) with cognitive reappraisal and school-related wellbeing. This indicated that those who hold malleable first-person and third-person happiness beliefs are more likely to use cognitive reappraisal and have better wellbeing at school.

Gender showed negative correlations with first-person happiness malleability beliefs, third-person happiness malleability beliefs and school-related wellbeing, indicating that males are more likely to believe their own happiness and the happiness of others can be changed, and have higher school-related wellbeing, compared to females. Age showed negative correlations with T₁ first-person happiness malleability beliefs and T₁ third-person happiness malleability beliefs, showing that younger students reported more malleable happiness beliefs than older students at the first data collection point. Age was also positively correlated with school-related wellbeing, indicating that older students are more likely to have better school-related wellbeing compared to younger students.

Table 5.5

Descriptive Statistics, Internal Reliabilities, Intra-Class Correlation Coefficients, and Latent Bivariate Correlations for the First-Person and Third-Person Happiness Malleability Beliefs Measurement Model

	1.	2.	3.	4.	5.	6.	7.	8.
1. T ₁ First-Person Happiness Beliefs	-	.60***	.92***	.54***	.51***	.40***	-.12***	-.15***
2. T ₂ First-Person Happiness Beliefs		-	.64***	.93***	.38***	.40***	-.11**	-.04
3. T ₁ Third-Person Happiness Beliefs			-	.64***	.42***	.34***	-.13***	-.09**
4. T ₂ Third-Person Happiness Beliefs				-	.34***	.26***	-.12***	.021
5. T ₁ Cognitive Reappraisal					-	.35***	-.06	.02
6. T ₁ School-Related Wellbeing						-	-.06*	.14***
7. Gender							-	-
8. Age							-	-
Mean	3.33	3.32	3.33	3.29	3.21	3.44	-	-
SD	1.18	1.23	0.93	0.95	0.98	0.90	-	-
α / ω	0.72 / 0.72	0.75 / 0.75	0.70 / 0.70	0.76 / 0.76	0.82 / 0.82	0.85 / 0.86	-	-
ICC ₁	<0.01	<0.01	<0.01	0.02	<0.01	0.06	-	-
Skewness	-0.29	-0.30	-0.24	-0.19	-0.36	-0.54	-	-
Kurtosis	-0.42	-0.47	-0.02	-0.08	-0.17	0.34	-	-
Factor Loadings	0.41–0.69	0.47–0.70	0.40–0.61	0.50–0.69	0.51–0.76	0.53–0.84	-	-

* $p < .05$. ** $p < .01$. *** $p < .001$

5.5.3 Structural Equation Modelling

Due to the high intercorrelations between T₁ first-person happiness malleability beliefs and T₁ third-person happiness malleability beliefs ($r = .92$; see Table 5.5), and T₂ first-person happiness malleability beliefs and T₂ third-person happiness malleability beliefs ($r = .93$; see Table 5.5), modelling first-person and third-person happiness malleability beliefs together resulted in no significant relations between school-related wellbeing and first-person or third-person happiness malleability beliefs, most likely due to the high level of shared variance between first-person and third-person happiness malleability beliefs. As such, two structural equation models were constructed to show the effect of school-related wellbeing on first-person happiness malleability beliefs, and to show the effect of school-related wellbeing on third-person happiness malleability beliefs. By modelling them separately, I was able to construct two parsimonious SEMs that would clearly answer my research question.

The SEMs are shown in Figure 5.2. In both models T₁ happiness malleability beliefs (first-person or third-person), T₁ school-related wellbeing, T₁ cognitive reappraisal, gender and age were allowed to correlate. The first-person happiness malleability beliefs SEM showed a good fit to the data: $\chi^2 (187) = 489.91, p < 0.001, CFI = .975, TLI = .969, RMSEA = .026,$ and $SRMR = .032$. Likewise, the third-person happiness malleability beliefs SEM also fit the data well: $\chi^2 (187) = 490.35, p < 0.001, CFI = .974, TLI = .968, RMSEA = .026,$ and $SRMR = .032$.

Figure 5.2

Structural Equation Models for First-Person and Third-Person Happiness Malleability Beliefs

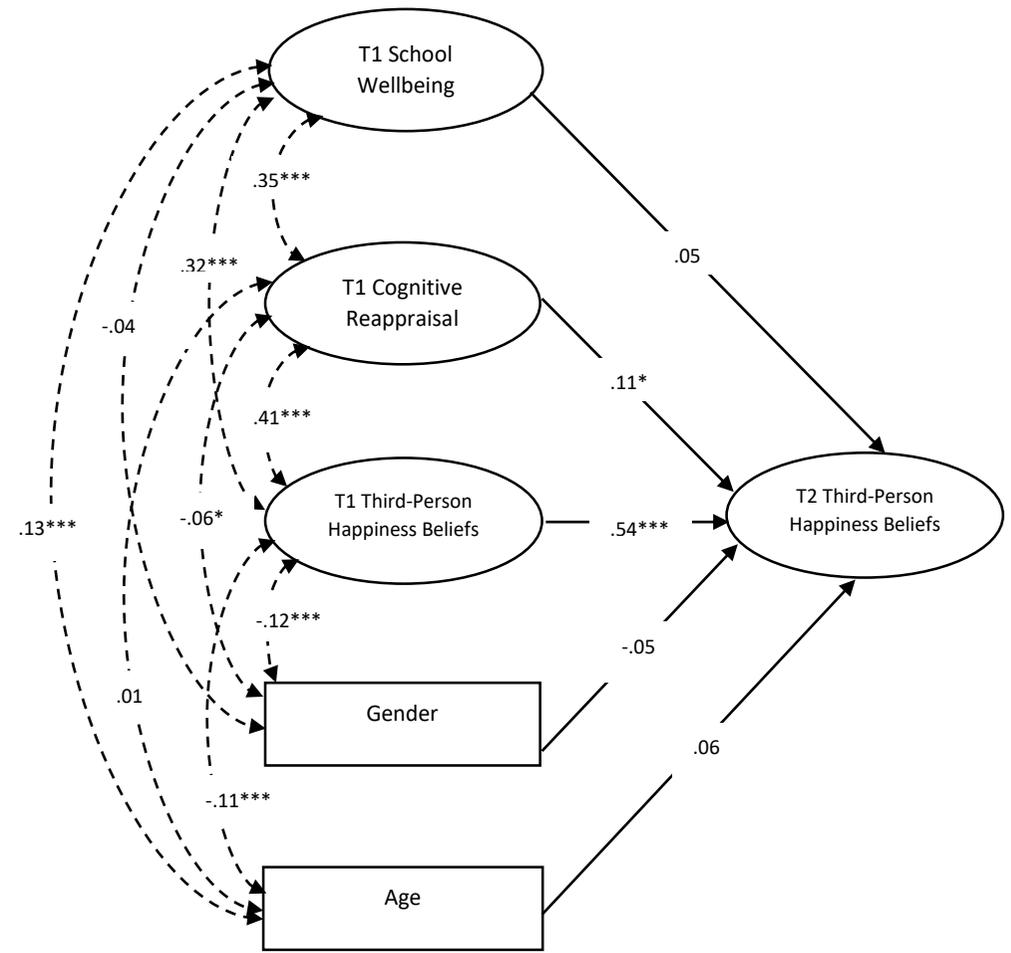
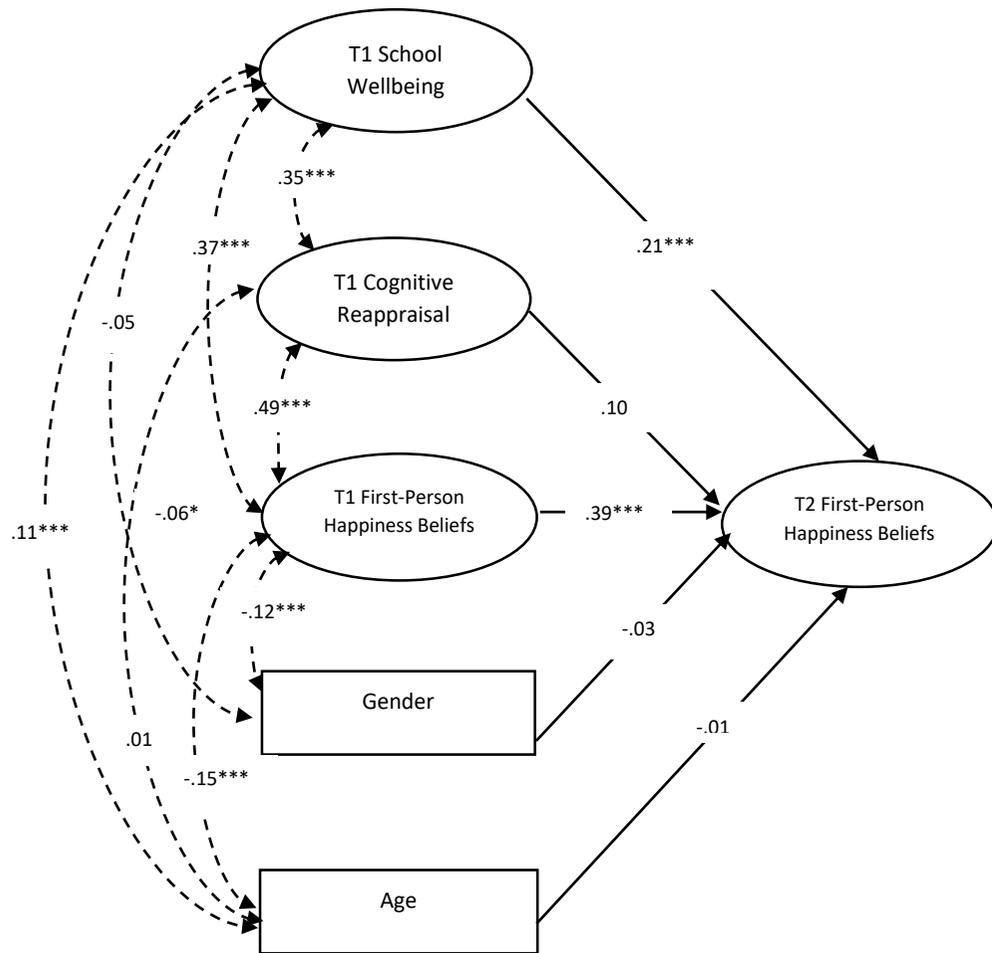


Fig 5.2a. This model shows the effect of T₁ school-related wellbeing on T₂ first-person happiness beliefs (standardised estimates). ‘First-Person Happiness Beliefs’ refers to ‘First-Person Happiness Malleability Beliefs.’ **p* < .05. ***p* < .01. ****p* < .001.

Fig 5.2b. This model shows the effect of T₁ school-related wellbeing on T₂ third-person happiness beliefs (standardised estimates). ‘Third-Person Happiness Beliefs’ refers to ‘Third-Person Happiness Malleability Beliefs.’ **p* < .05. ***p* < .01. ****p* < .001.

5.5.3.1 Comparing the Effect of T₁ School-Related Wellbeing on T₂ First-Person Happiness Beliefs, and T₁ School-Related Wellbeing on T₂ Third-Person Happiness Beliefs

T₁ School-related wellbeing positively predicted T₂ first-person happiness beliefs ($\beta = 0.21, p < 0.001$), after controlling for the effect of T₁ first-person happiness beliefs ($\beta = 0.39, p < 0.001$), and concurrent relations between T₁ school-related wellbeing and T₁ first-person happiness beliefs ($r = .37, p < 0.001$). Conversely, T₁ school-related wellbeing did not predict third-person happiness beliefs ($\beta = 0.05, p = 0.387$), after controlling for the substantial effect of T₁ third-person happiness beliefs ($\beta = 0.54, p < 0.001$), and concurrent relations between T₁ school-related wellbeing and T₁ third-person happiness beliefs ($r = 0.32, p < 0.001$).

5.5.3.2 Summary

The results of the first-person and third-person happiness malleability beliefs SEMs showed that school-related wellbeing positively predicted first-person happiness malleability beliefs, whereas school-related wellbeing did not predict third-person happiness malleability beliefs. As such, school-related wellbeing does not have equivalent power in predicting third-person happiness malleability beliefs, as it does in predicting first-person happiness malleability beliefs.

5.6 Chapter Summary

This chapter presented findings to show the difference in relations between first-person anxiety malleability beliefs and school-related wellbeing, and third-person anxiety malleability beliefs and school-related wellbeing. It also compared differences in the relations between school-related wellbeing and first-person happiness malleability beliefs, to school-related wellbeing and third-person malleability beliefs. It began by describing the plan of analysis, and then gave details of the preliminary analyses including results from the measurement invariance tests. Next, it presented the descriptive statistics, measurement model and SEMs for first-person and third-person anxiety malleability beliefs, and the first-person and third-person happiness malleability beliefs models. Findings showed that first-person anxiety malleability beliefs had equivalent power to third-person anxiety malleability beliefs at predicting school-related wellbeing. School-related wellbeing significantly predicted first-person happiness malleability beliefs; however, it did not significantly predict third-person happiness malleability beliefs.

Chapter 6:

Discussion

6.1 Introduction

This chapter begins with a discussion of the findings from the current study relating to the RQs. The findings from each RQ will be discussed with regard to relevant empirical research, possible reasons for the results will be considered, and ideas for future research will be made. The chapter will then consider the limitations of the study based on reference to the researcher's philosophical positioning, the sample, design, and measures. It will also suggest ways in which future research could overcome these limitations. Finally, it will present a summary of the chapter.

6.2 RQ1 – How is school-related wellbeing associated with cognitive reappraisal in secondary school and 6th form college students?

The present study examines reciprocal relations between the emotion regulation strategy cognitive reappraisal and a context-specific (school-related) measure of wellbeing using robust longitudinal modelling. The relations between school-related wellbeing and cognitive reappraisal were examined in each of the three malleability beliefs CLPMs (see Section 4.6). In the emotion malleability beliefs model, cognitive reappraisal predicted school-related wellbeing from the first to second measurement occasion, and school-related wellbeing predicted cognitive reappraisal from the second to third measurement occasion. Findings from the anxiety and happiness malleability beliefs models showed that cognitive reappraisal and school-related wellbeing were related reciprocally from the second to third measurement occasion. Thus, the significant relations showed that cognitive reappraisal contributes to school-related wellbeing, and school-related wellbeing contributes to increased use of cognitive reappraisal.

Findings of this doctoral study support much of the literature which suggests cognitive reappraisal positively impacts on mental health and wellbeing in adults and young

people (e.g., Aldao et al., 2010; Schäfer et al., 2017; see Section 2.4.2). However, the finding that higher (vs. lower) school-related wellbeing predicts increased (vs. decreased) use of cognitive reappraisal is particularly novel. This finding supports research by Chervonsky and Hunt (2019) who found that lower (vs. higher) depression in adolescent boys predicted cognitive reappraisal use one year later (see Section 2.4.2.1). There is no other research which shows wellbeing is a *precursor* to cognitive reappraisal rather than a consequence of it. In addition, the strength of relations in both directions between cognitive reappraisal and school-related wellbeing were equivalent which suggests that cognitive reappraisal predicts wellbeing to the same extent as wellbeing predicts cognitive reappraisal.

The statistically significant positive relations from cognitive reappraisal to school-related wellbeing might be explained by several reasons. First, students who use cognitive reappraisal are more likely to be efficient at regulating their emotions, for instance they may be better able to recover from stress if they are using this strategy (Shapero et al., 2017). Indeed, students are likely to experience stressors within the school environment (e.g., when doing a presentation in front of a class). Therefore, the inability to downregulate (or prevent) negative emotional experiences may mean the young person feels unable to cope with the pressures or stressors of school (e.g., presentations, examinations, fitting in with a peer group). Thus, they may experience low wellbeing. Conversely, students who use cognitive reappraisal to reduce the negative impact of stress are likely to feel able to cope with school, and thus experience higher school wellbeing. Second, using cognitive reappraisal results in positive psychological, social, and cognitive outcomes because it regulates the emotion before, or just after, it has occurred (Gross & John, 2003). As such, students who use cognitive reappraisal may be better able to direct attention away from emotionally relevant information to focus on learning, resulting in improved memory for educational material and

better school performance (e.g., Davis & Levine, 2013; Pizzie et al., 2020). This is likely to contribute to a greater sense of school-related wellbeing.

In turn, the findings may suggest that individuals experiencing high levels of wellbeing may be more likely to interpret a situation positively (e.g., through control or value appraisals; see Section 2.4.2.1) than those who are experiencing low levels of wellbeing. As such, they may be more efficient at using antecedent-focused strategies such as cognitive reappraisal, and are likely to experience more positive emotions as a result of using this strategy. Conversely, those experiencing lower levels of wellbeing may be more likely to engage in response-focused strategies such as rumination (Tortella-Feliu et al., 2010), and therefore may rely less on the use of cognitive reappraisal. It may also be that students who are low achievers at school (and thus are likely to have low school-related wellbeing) are less able to use cognitive reappraisal to regulate their emotions as their cognitive resources may already be taxed (Losenno et al., 2020). Thus, they may need to use emotion regulation strategies which are less cognitively taxing (e.g., distraction) but do not typically have positive outcomes for education (e.g., distracting oneself from the educational content of a lesson may result in not learning the information needed for a test). However, further research will be needed which incorporates measures of other emotion regulation strategies, such as distraction and rumination for instance, to test this claim.

Findings from this study support Fredrickson's (1998) broaden-and-build theory that positive emotions (as implied by wellbeing) and broadened cognition (i.e., use of reappraisal) influence each other reciprocally, leading to an upward spiral of increases in reappraisal and wellbeing over time. Extending this theory further, the findings suggest that cognitive broadening will likely influence how people choose to regulate their emotions. Individuals who regularly experience positive emotions may have greater access to adaptive cognitive emotion regulation strategies such as reappraisal, and using these strategies is likely to

enhance wellbeing. In addition, the findings support Harley et al.'s (2019) emotion regulation in achievement situations theory (ERAS). It proposes that using reappraisal (through control and value appraisals) to regulate emotional responses is likely to increase positive emotions, creating a reciprocal loop between reappraisal and wellbeing. The findings illuminate the theory further by highlighting the importance of positive emotions (i.e., wellbeing) in facilitating the use of cognitive appraisals. Thus, the achievement environment (e.g., one which enhances or diminishes students' wellbeing) may be particularly important to consider when examining what facilitates or constrains the use of cognitive reappraisals to regulate achievement emotions.

6.3. RQ2 – How is cognitive reappraisal related to beliefs about the malleability of one's own emotions in secondary school and 6th form college students'?

The relations between cognitive reappraisal and malleability beliefs (emotion, anxiety, and happiness) were examined in three CLPMs (see Section 4.6) thereby answering RQ2. This is the first study to model longitudinal relations between malleability beliefs and cognitive reappraisal across three waves using robust structural equation modelling with a large sample of adolescents. It is also the first study to account for the directionality of relations between constructs.

6.3.1 Emotion and Anxiety Malleability Beliefs

The findings from the emotion malleability beliefs model and anxiety malleability beliefs model (see Sections 4.6.1 & 4.6.2) showed that there were no significant relations between emotion malleability beliefs and cognitive reappraisal, or anxiety malleability beliefs and cognitive reappraisal. Students who believed that they could change and control their emotions or anxiety were not more or less likely to use cognitive reappraisal than students

who believed they could not change and control their emotions or anxiety. This does not support findings from much of the literature that individuals with incremental emotion beliefs are more likely to use cognitive reappraisal than individuals with entity emotion beliefs (e.g., Hong and Kangas, 2021; see Section 2.6.1).

One reason for the discrepancy between much of the literature and the findings from this doctoral work may be that there have been relatively few studies conducted with adolescent samples (for exceptions see De France and Hollenstein, 2020 & Ford et al., 2018 in Section 2.6.1); thus, emotion and anxiety malleability beliefs may not show the same relations with cognitive reappraisal in young people as they do with adults. Cognitive control likely plays a crucial role in effective emotion regulation (Gray & Braver, 2007). Young people may have a harder time at controlling their emotions as they may not have undergone brain development in critical areas concerning cognitive control (see Section 2.3.4). For instance, through undergoing life experiences or being exposed to life's challenges and working through them. This may be particularly true for this sample as there were more younger adolescent participants than older adolescent participants (see Section 3.5 and 3.5.5 for details of participants' ages), and younger adolescents are more likely to be lacking in cognitive control skills. Indeed, younger adolescents have been found to be less likely than older adolescents to use cognitive reappraisal (Garnefski & Kraaij, 2006; Seiffge-Krenke & Beyers, 2005). As such, they may prefer using other emotion regulation strategies such as avoidance to regulate their emotions or anxiety which require little cognitive control. Indeed, emotion malleability beliefs have been shown to predict intent to engage in behavioural and cognitive avoidance in an experimental manipulation study (De Castella et al., 2018), and behavioural and cognitive avoidance in university students at a 6-month follow-up (Zimmerman et al., 2021).

Anxiety malleability beliefs may, instead, be related to other emotion regulation strategies such as expressive suppression. Suppression is an emotion regulation strategy concerned with attempting to conceal the expression of emotion (Gross & Levenson, 1993). Indeed, research on the link between social anxiety, cognitive reappraisal and suppression shows that individuals with social anxiety over rely on suppression to regulate their emotions, and underutilise cognitive reappraisal (Dryman & Heimberg, 2018). In addition, Schroder et al. (2015) found that believing anxiety not malleable was positively associated with suppression. The authors suggest it is likely that emotion malleability beliefs have stronger relations with cognitive reappraisal, and anxiety malleability beliefs have stronger relations with expressive suppression (although I did not find any significant relations between emotion malleability beliefs and cognitive reappraisal in this study). Anxiety malleability beliefs may have relations with suppression and not cognitive reappraisal as anxiety is a ‘negative’ emotion. According to interpersonal theories of depression (Coyne, 1976), depressed individuals’ expression of negative affect (e.g., showing irritability; Larsen et al., 2013) may cause social rejection and difficulties in relationships. As such, young people may feel more inclined to hide their negative emotions from others as displaying behaviors related to negative affect may elicit social rejection from their peer group (Larsen et al., 2013). Thus, rather than reappraising, they find suppression more useful to maintain social connections. However, further research which incorporates other emotion regulation strategies, such as suppression, into longitudinal models would be needed to test this claim.

One further point to consider is that students may have been thinking about regulating their emotions or anxiety *after* the emotional response has occurred (e.g., when they are experiencing the emotions or the anxiety, rather than before the emotional response has been fully activated) when they were rating items on the emotion and anxiety malleability belief scales. Cognitive reappraisal has been found to be less effective at regulating negative

emotions once the response has occurred (Sheppes & Meiran, 2007). This is likely due to difficulty in overriding the already established negative thought-emotion pattern to minimise the negative emotion. As such, students may prefer to use other regulatory strategies to regulate their negative emotions when they have been fully felt, such as suppression, which is typically implemented after the emotional response has been activated (Webb et al., 2012). Thus, it may have been useful to ask participants about the degree to which they believed they could change and control their emotions or anxiety *before they had begun to feel the emotion*, and *after the emotional response has occurred* to assess whether they were thinking about changing and controlling the emotion before the onset of the response, or once the response has been fully activated. However, this claim suggests that students were thinking about changing or controlling *negative* emotions when rating items on the emotion malleability belief scale which may or may not have been the case (see next paragraph).

Concerning the items which assessed emotion malleability beliefs, the ambiguous nature of the term '*emotion*' may have meant students were unsure of what *type* of emotion the emotion malleability belief items were referring to. For instance, some students may have considered emotion malleability beliefs about positive *and* negative emotions (e.g., happiness and sadness), some students may have considered positive *or* negative emotions (e.g., happiness and excitement, or sadness and anxiety), and some students may have been thinking about controlling just one emotion (e.g., sadness). Persons typically use different emotion regulatory strategies depending on the type of emotion (e.g., Dixon-Gordon et al., 2015; Southward et al., 2019; Zimmerman & Iwanski, 2014; See Section 2.5.2); thus, it may be that the emotions students were thinking about changing and controlling do not have strong links with cognitive reappraisal. Future research should consider specifying the type of emotion when asking participants about their emotion beliefs, particularly as this doctoral research shows that anxiety and happiness malleability beliefs (see Section 6.3.2) show

different patterns of relations with cognitive reappraisal. Thus, it may be the case that other emotion malleability beliefs about negative and positive emotions (e.g., anger, amusement) relate to cognitive reappraisal in different ways.

6.3.2 Happiness Malleability Beliefs

Results from the happiness malleability beliefs model (see Section 4.6.3) showed that from the first to second measurement occasion students who believed their happiness was malleable were more likely to use cognitive reappraisal than students who believed their happiness was not malleable; and students who believed their happiness was fixed were less likely to use cognitive reappraisal than students who believed their happiness was malleable. The significant finding supports Gunzenhauser et al.'s (2013) cross-sectional study which showed that believing in the controllability of positive emotions was associated with cognitive reappraisal (see Section 2.6.1.2). As anxiety malleability beliefs had no relation to cognitive reappraisal (see Sections 4.6.2 & 6.3.1), this may suggest, more broadly, that findings from this study show believing positive emotions are malleable is related to cognitive reappraisal, however believing negative emotions are malleable is not related to cognitive reappraisal.

One reason for this could be that believing happiness can be controlled (and thus using cognitive reappraisal to up-regulate happiness) is less effortful than down-regulating negative emotions (e.g., anxiety, anger). As such, it may be that it is easier for students to use cognitive reappraisal to regulate their happiness, and thus they use it to regulate positive emotions more frequently compared to when regulating negative emotions. Indeed, individuals typically report that it is easier to regulate positive affect compared to negative affect (e.g., Kim & Hamann, 2007; Mak et al., 2009). Moreover, a cross-sectional study showed that cognitive reappraisal was associated with positive affect and life satisfaction, but

not associated with negative affect and depressed mood in adults (Haga et al., 2007). A further cross-sectional study showed that cognitive reappraisal was associated with positive indicators of wellbeing (positive emotions and life satisfaction) but not significantly associated with negative indicators of wellbeing (anxiety and negative emotions) in university students (King & dela Rosa, 2019). However, happiness malleability beliefs did not predict cognitive reappraisal from the second to third measurement occasion thus I cannot draw strong conclusions regarding this relation as the finding was not consistent across both waves of data collection.

Another reason which could account for why a significant relation was seen between happiness malleability beliefs and cognitive reappraisal, and not emotion and anxiety malleability beliefs and cognitive reappraisal is due to a difference in how the scale items were worded. The items on the happiness malleability belief scale varied slightly as one of the incremental items and one of the entity items used the term '*amount*' (If I want to, I can change the *amount* of happiness I have' & 'No matter how hard I try, I can't really change the *amount* of happiness that I have'). The emotion and anxiety malleability scale items did not use this term (e.g., If I want to, I can change the anxiety I have). Thus, by specifying how happiness could be changed or controlled (e.g., by implying that they could increase or decrease it by using the term 'amount') this may have primed students to think about this construct as something that could be controlled, or not (and thus has links with cognitive reappraisal which can serve this purpose). Conversely, students may have been unsure what was meant by changing or controlling emotions on the emotion or anxiety malleability belief items. For instance, they may have been thinking about eliminating the emotion/s rather than changing or controlling the *amount* of emotion. Future research should carefully consider the wording of items so that the wording is unambiguous and consistent across each type of

malleability belief scale. Future research should carefully consider the wording of items so that the wording is unambiguous and consistent across each type of malleability belief scale.

In addition, items on the happiness malleability beliefs scale asked participants about changing and controlling their happiness (e.g., ‘If I want to, I can change the amount of happiness I have’). Item 1 and 4 on the cognitive reappraisal scale (ERQ-CA) also asked participants about changing their happiness (‘When I want to feel happier, I think about something different’ & ‘When I want to feel happier about something, I change the way I’m thinking about it’). Thus, cognitive reappraisal and happiness malleability beliefs may have showed significant relations due to both scales referring to changing or controlling happiness specifically. However, I did not find substantially large concurrent correlations between happiness malleability beliefs and cognitive reappraisal ($r_s \leq .50$). In addition, four items on the reappraisal scale did not refer specifically to happiness. Thus, it may also be that shared wording on the two scales does not account for the significant relation between the two constructs. Future studies could change the wording to ensure only one scale is referring to happiness (e.g., change ‘happiness’ to ‘positive emotions’ on the reappraisal scale) to test this claim.

6.4 RQ3 – How is school-related wellbeing related to beliefs about the malleability of one’s own emotions in secondary school and 6th form college students?

The present study examined how students’ school-related wellbeing was related to beliefs about the malleability of their own emotions (emotion, anxiety, and happiness) thereby answering RQ3. To show the unique relation that each malleability belief had with school-related wellbeing, each of the malleability beliefs were modelled in three separate CLPMs (see Section 4.6). This is the first study to examine relations between emotion malleability beliefs and a context-specific measure of wellbeing using robust longitudinal

modelling. It also extends much of the literature by specifically considering anxiety and happiness malleability beliefs in an adolescent population. Each of the three malleability beliefs showed different patterns of associations with school-related wellbeing.

6.4.1 Emotion Malleability Beliefs

No relations were found between emotion malleability beliefs and school-related wellbeing. Emotion malleability beliefs did not predict school-related wellbeing, and school-related wellbeing did not predict emotion malleability beliefs. These results suggest that students who have an incremental (malleable) view of emotion are not more or less likely to have higher school-related wellbeing than those with an entity (fixed) view of emotion. This finding does not support much of the literature which has investigated the link between emotion malleability beliefs and wellbeing; with cross-sectional, longitudinal, and experimental findings showing a link between emotion malleability beliefs and indicators of wellbeing (e.g., Bigman et al., 2016; Ford et al., 2018; Tamir et al., 2007; see Section 2.7.1).

One study, however, found that entity theories of feelings over one school year did not predict symptoms of psychopathology in students aged 11 to 14 (Schleider and Weiz, 2016a; see Section 2.7.1.1); supporting findings from this work that entity beliefs about emotion does not predict school-related wellbeing. However, the authors did find that symptoms of psychopathology predicted entity theories of feelings, unlike this doctoral work which did not find evidence of wellbeing predicting emotion malleability beliefs.

Nevertheless, the study by Schleider and Weiz differed in several ways when compared to this study. First, ambiguous terms were used to specify the target of the belief (e.g., When *you* try, you can control how you feel') thus participants did not know whether they were answering questions about the emotions of people in general, or the controllability of one's own emotions (as specified in this study). Second, a small sample size was used which

limited the authors ability to employ more robust statistical forms of analysis (e.g., CLPMs). Indeed, using less ambiguous terms when specifying the target of the entity beliefs, a larger sample, and a more robust form of statistical analysis may have resulted in no effect of psychopathology on entity theories of feelings for Scheider and Weiz (2015).

Another reason which may account for the discrepancy in findings between this study and much of the literature is that previous studies have not used a school-related measure of wellbeing. With exception, Smith et al. (2018) in their randomised control intervention study (see Section 2.7.2) found that students with malleable emotion beliefs (as taught by an intervention) had greater school wellbeing than a control group. However, interestingly, this only was applicable to *emotional wellbeing* and *belonging* in school, the intervention did not result in greater *satisfaction with the school environment*. Indeed, it may be that emotion malleability beliefs have relations with some aspects of school wellbeing, and no relation with others. In the school-related wellbeing measure used in this study (Loderer et al., 2016; see Section 3.8.1) the scale may be measuring satisfaction with the school environment (e.g., ‘I feel comfortable at school’) to a greater degree than belonging in school or emotional wellbeing. In which case, findings of this study would reflect findings from Smith et al.’s (2018) study that incremental emotion malleability beliefs do not predict greater satisfaction with the school environment. However, whether the school-related wellbeing measure in this study does reflect satisfaction with the school environment is open to speculation. Further research would be needed to disentangle and explain relations between emotion malleability beliefs and different facets of school-related wellbeing, and to explore in greater depth what exactly is being measured by the school-related wellbeing scale which was used in this study.

Another important factor to consider is that the scale used to measure emotion malleability beliefs was not school specific. It is possible that context-matched emotion malleability belief and wellbeing scales would have yielded different findings. For instance,

if I had asked participants to report on the degree to which they believed they could control their emotions *at school* (e.g., with items such as ‘I can control my emotions at school’ and ‘No matter how hard I try, I cannot change my emotions at school.’) this may have shown a significant relation to school-related wellbeing. Indeed, the conceptual framework depicting subordinate beliefs about the controllability of emotions (Ford & Gross, 2019; see Section 2.5.2.1) suggests that emotion controllability beliefs can differ across contexts. Thus, students may believe they can control their emotions at school, however, have difficulty believing they can control their emotions at home (due to difficulties in family relations, for instance). Thus, believing in the ability to control emotions at school may be related to school wellbeing, however believing in one’s ability to control emotions at home might not be related to school wellbeing. I did not specify the context (e.g., school vs. home) when asking students about their beliefs in the malleability of their emotions thus I cannot determine whether students were thinking about controlling their emotions in school, at home, in other, or across several contexts. Nevertheless, the context of the wellbeing items (school-related) may have primed the academic setting, and students did complete the questionnaire whilst at school; thus, this may have meant they were thinking about controlling their emotions at school when rating items on the malleability belief scales.

6.4.2 Anxiety Malleability Beliefs

Findings from this study showed that anxiety malleability beliefs predicted school-related wellbeing from the first to second measurement wave. Students who had higher (vs. lower) anxiety malleability beliefs (i.e., an incremental view relating to changing or controlling their own anxiety) were more (vs. less) likely to have higher school-related wellbeing. The significant positive relation between anxiety malleability beliefs and school-related wellbeing in this study supports findings by Schroder et al. (2015, 2019; see Section

2.7.1.2) who found that anxiety malleability beliefs were associated with mental health problems and future weekly distress. However, this was the first study to examine relations between anxiety malleability beliefs and wellbeing in a large sample of adolescents using a context-specific measure of wellbeing.

Anxiety malleability beliefs may be predicting school-related wellbeing due to several reasons. First, students who believe that their anxiety can be changed and controlled may be more likely to seek out social support (e.g., from peers or teachers) when feeling worried (Tamir et al., 2007). This may mean that they feel better supported to deal with their worries, and thus have greater school-related wellbeing than those students who do not seek out social support. For instance, consider a student who is anxious about an upcoming exam but believes they can change and control their anxiety. The student may decide to speak to a teacher about their worries to decrease their anxiety; this may result in the teacher reassuring the student about the high likelihood of them passing the exam, which then leads to an increase in the student's school-related wellbeing. Alternatively, consider a student who is anxious about an upcoming exam but does not believe their anxiety can be changed or controlled; this student does not speak to a teacher about their worries as the student believes that it would not change their anxiety. As such, the student may suppress their worries and not seek social support. Suppression of feelings has negative relations with mental health (e.g., Gross, 2013). Thus, keeping worries and feelings to oneself is likely to lead to a decrease in school-related wellbeing.

Although I did not specifically examine whether social support mediates the link between anxiety malleability beliefs and school-related wellbeing in this doctoral work, it could explain why there was no significant relation found between anxiety malleability beliefs and school-related wellbeing from the second to third measurement occasion. During the second to third wave (March to November) there was a 6-week school break in which

students did not attend school. It is likely that during this time students did not have as many worries or anxieties (related to school) that they needed to change or control as they were not actually attending school. In addition, if students were not in school whilst having beliefs about changing or controlling their anxiety, the beliefs would be unlikely to impact on their school-related wellbeing as they were not undergoing the experience of being at school.

Anxiety malleability beliefs may, instead, have had a greater bearing on wellbeing in relation to other contexts (e.g., home, for instance) during this time. It would be useful for future research to replicate this study by examining malleability beliefs and wellbeing in relation to different contexts (e.g., school, home). In addition, it would be interesting to have more data collection points for students to complete the questionnaire when they are not attending school. This would enable researchers to examine if being out of the school environment impacts on relations between anxiety malleability beliefs and school-related wellbeing.

Results showed that there was no evidence of cognitive reappraisal being the mechanism which accounts for the link between anxiety malleability beliefs and school-related wellbeing. This is contrary to the literature which suggests that individuals who hold incremental emotion malleability beliefs may be more motivated to regulate their emotions using cognitive reappraisal, and this can increase wellbeing (e.g., De Castella et al., 2013; Ford et al., 2018; see Section 2.8). However, it is possible that the mediating effect of cognitive reappraisal does hold up over a shorter period of time. The constructs examined in this work represent processes which occur within the individual (see Section 6.6.3.2 for detailed information on between vs. within person analyses) and within-person relations typically are more pronounced when measured at shorter intervals (Lüdtke & Robitzsch, 2021). As such, if the time between data collection points had been shorter, I may have found that believing anxiety was malleable predicted increased use of cognitive reappraisal, and this increased use of cognitive reappraisal may have predicted an increase in wellbeing. Further

studies could investigate relations between these constructs across shorter time periods to test this claim.

6.4.3 Happiness Malleability Beliefs

Findings from this study showed that school-related wellbeing predicted happiness malleability beliefs from the first to second measurement occasion, but not from the second to third measurement occasion. The significant finding provides support for the few correlational studies which have shown a relation between happiness malleability beliefs and facets of wellbeing (e.g., Caprara et al, 2008; Gunzenhauser, 2013; see Section 2.7.1.3) however, these studies do not differentiate between the experience and expression of happiness, and do not provide evidence for directionality of relations. There were no relations found for happiness malleability beliefs predicting school-related wellbeing, directly, across any of the time points. This finding is surprising considering that much of the literature provides support for emotion malleability beliefs being a *precursor* to symptoms of psychopathology and wellbeing, rather than a *consequence* of them (see Section 2.7.1). However, no previous studies have examined relations between happiness malleability beliefs, specifically, and psychopathology or wellbeing.

The finding that school-related wellbeing predicted happiness malleability beliefs, but not vice versa, provides support for the theory that wellbeing is a *precursor* to the formation of happiness malleability beliefs, rather than a consequence of the beliefs. This finding is supported by Schleider and Weiz, 2015 (see Section 2.7.1.1) where psychopathology predicted entity theories of feelings, but entity theories of feelings did not predict psychopathology. One explanation for this finding is that students who have higher school-related wellbeing (and thus are experiencing more positive emotions) are more likely to have broadened cognition (see Fredrickson's broaden-and-build theory, 1998, in Section 2.4.2.1)

and this broadened cognition may enable students to contemplate and implement strategies to increase their happiness. For instance, a student may decide to seek out social support from peers or teachers, or engage in relaxation techniques such as meditation. By having several techniques to increase happiness at their disposal (due to having broadened cognition which has enabled the identification of these techniques) the student may be more likely to use one, or a combination, of these strategies to increase their happiness. This increase in happiness then may reinforce their belief that happiness is something which can be changed and controlled.

There may also be other strategies which students may be using to increase their happiness. Howell et al. (2016) showed that university students who were experimentally manipulated to have an incremental view of wellbeing (e.g., the experiment made them believe that their wellbeing is something that could be changed and controlled) were more likely to be open to, and participate in, lifestyle changes such as being involved with nature, recreation, and exercise. Thus, although I measured happiness malleability beliefs rather than wellbeing malleability beliefs in this doctoral work, both are concerned with the malleability of positive affect, thus there are likely to be similar mechanisms which individuals use to upregulate their happiness and wellbeing. As such, students in this study who are experiencing high school-related wellbeing may engage in healthier lifestyle exercises (e.g., exercise, walks in nature, enjoying hobbies) which may positively impact on their happiness, leading to reinforcing the belief that their happiness is something which can be changed and controlled. Conversely, young people who are experiencing low wellbeing relative to their school may not feel motivated to engage in such activities, and thus their happiness does not increase, which may reinforce the belief that happiness is fixed.

As relations were not seen from happiness malleability beliefs to school-related wellbeing, it may be the case that believing one's own happiness is malleable is not enough

to increase positive emotions (and thus wellbeing). Indeed, there may be other malleability beliefs which need to be considered. For instance, school-related wellbeing may also rely on the student believing negative emotions, such as anxiety, can be changed and controlled (see Section 6.4.2). Indeed, it may be difficult for students who believe their happiness is malleable to maintain their wellbeing if they do not believe that negative emotions such as anxiety can be changed or controlled. As such, students may need to have strong incremental beliefs about the malleability of other emotions, as well as happiness, for malleability beliefs to influence their wellbeing. Future studies could examine how specific emotion malleability beliefs interact to predict students' wellbeing to explore this avenue further. In addition, studies could examine how the cumulative effect of holding specific malleability beliefs impact on wellbeing.

Other school-related factors may also be impacting on students' school-related wellbeing which may 'override' the positive effect that happiness malleability beliefs could potentially have on wellbeing. For instance, exam preparation or peer relations may be more predictive of school wellbeing than happiness malleability beliefs. Indeed, worrying about test-taking has been shown to impact negatively on students' subjective wellbeing (e.g., Steinmayr et al., 2016), and higher school peer connectedness has been associated with increased subjective wellbeing (e.g., Moore et al., 2018). On the other hand, once students have a sense of school related wellbeing, it may be that the impact of other school-related factors do not have much impact on changing the belief that happiness is malleable, as this belief has been internalised through the experience of having high wellbeing. It would be useful for future work to identify students who have incremental and fixed happiness malleability beliefs and examine how these beliefs may or may not be impacting on their school wellbeing. Qualitative data collection methods such as interviews or focus groups may suit this purpose.

6.4.3.1 The Indirect Effect of Cognitive Reappraisal

There was a small significant indirect effect of happiness malleability beliefs predicting school-related wellbeing via cognitive reappraisal. Thus, students with incremental (vs. entity) happiness malleability beliefs had higher (vs. lower) school-related wellbeing but only when the underlying mechanism linking the two constructs was cognitive reappraisal. This supports literature which suggests cognitive reappraisal is the underlying mechanism which links malleability beliefs to wellbeing (De Castella et al., 2013; King & Rosa, 2019; Ford et al., 2018; see Section 2.8.2). However, no research to date has considered happiness malleability beliefs specifically. When experiencing positive emotional states individuals usually want to maintain them (Kashdan et al., 2015). Thus, students who believe their happiness is malleable may be more likely to prolong their happiness by upregulating it, or by downregulating subsequent negative responses, using cognitive reappraisal. This use of cognitive reappraisal to upregulate happiness and downregulate subsequent negative emotional responses may then lead to an increase in school-related wellbeing. Conversely, students who do not believe their happiness is malleable may not attempt to upregulate their happiness or downregulate subsequent negative emotional responses, using cognitive reappraisal, which may negatively impact wellbeing. Cognitively up-regulating positive emotions has been shown to have the same experiential and physiological effects as if the positive emotion had been generated without the effort of regulation (Giuliani et al., 2008). As such, if students are undergoing stressful experiences at school, using cognitive reappraisal to upregulate positive emotions such as happiness (as well as downregulating subsequent negative emotions) is likely to be hugely beneficial for physical and psychological health. It is worthwhile to note, however, that the size of the indirect effect was small therefore more studies are needed which examine how cognitive reappraisal may

mediate the link between happiness malleability beliefs and wellbeing to explore this link further.

6.5 RQ4 – Do beliefs about the malleability of one’s own emotions show stronger relations with school-related wellbeing than beliefs about the malleability of other people’s emotions?

Anxiety malleability beliefs positively predicted school-related wellbeing (from the first to second measurement occasion; see Sections 4.6.2 & 6.4.2), and school-related wellbeing positively predicted happiness malleability beliefs (from the first to second measurement occasions; see Sections 4.6.3 & 6.4.3). To answer RQ4, using data from the first and second measurement occasion, I compared the effect of first-person and third-person anxiety malleability beliefs on school related wellbeing. In addition, I compared the effect of school-related wellbeing on first-person and third-person happiness malleability beliefs. These analyses examined whether students’ beliefs about the malleability of their own anxiety predicted school-related wellbeing to the same degree as their beliefs about the malleability of other people’s anxiety; and whether students’ school-related wellbeing predicted beliefs about the malleability of their own happiness to the same extent as it predicted their beliefs about the malleability of other people’s happiness. This is the first study of its kind to compare consider the *target* (the self vs. people) of anxiety and happiness malleability beliefs, and investigate whether beliefs related to different targets are associated with wellbeing in the same way.

6.5.1 Anxiety Malleability Beliefs

The findings from this study showed that first-person and third-person anxiety malleability beliefs both predicted school-related wellbeing. Students who had incremental

(vs. entity) beliefs about their own anxiety were likely to have higher (vs. lower) school-related wellbeing. Similarly, students who had incremental (vs. entity) beliefs about the anxiety of other people were likely to have higher (vs. lower) school-related wellbeing. In addition, although the size of the beta coefficient was higher for first-person anxiety malleability beliefs predicting school-related wellbeing, than third-person anxiety malleability beliefs predicting school-related wellbeing, further analyses showed that first-person and third-person anxiety malleability beliefs both predicted school-related wellbeing equally (there was no significant difference in the size of the effects; see Section 5.4.3.1). This is contrary to the literature which has compared first-person and third-person malleability beliefs as findings showed that first-person emotion malleability beliefs are more strongly related to facets of wellbeing (e.g., self-esteem, psychopathology) than third-person emotion malleability beliefs (e.g., De Castella et al., 2013; Vuillier et al., 2021; see Section 2.9.1). However, these studies were cross-sectional therefore findings need to be interpreted with caution, and they examined beliefs about emotion rather than anxiety specifically.

One reason to explain why first-person and third-person anxiety malleability beliefs had equal power in predicting school-related wellbeing may be because people hold the same incremental (or entity) views about their own anxiety and the anxiety of other people. Thus, first-person and third-person anxiety malleability beliefs are related in the same way to wellbeing. Although Ford and Gross (2019) suggest that the target of the emotion belief may be a way in which beliefs about emotions can vary (see Section 2.5.2.1), no studies have specifically addressed if beliefs about the malleability of *anxiety* differ in relation to their target. As such, it may be that one's beliefs about the malleability of their own and other people's anxiety are similar and thus have the same strength of relation with school-related wellbeing. However, I cannot assume that this theory applies to other groups of participants. De Castella et al. (2014) found that non-clinical participants rated incremental items higher

when asked about their own emotion malleability beliefs compared to when asked about the emotion malleability beliefs of other people. However, participants with Social Anxiety Disorder rated entity items higher on the first-person emotion beliefs scale than the third-person emotion beliefs scale, suggesting they thought that they had less controllability over their own emotions compared to other people. Thus, first-person and third-person anxiety malleability beliefs may only hold the same, comparable, predictive power for wellbeing in non-clinical (i.e., non-anxious) populations.

6.5.2 Happiness Malleability Beliefs

Results from the happiness malleability beliefs models which compared school-related wellbeing with predicting first- and third-person malleability beliefs (see Section 5.5.3) showed that school-related wellbeing significantly predicted first-person happiness malleability beliefs. However, school-related wellbeing did not significantly predict third-person happiness malleability beliefs. No previous studies have compared the effect of wellbeing on first-person and third-person malleability beliefs. Thus, this study is the first to demonstrate that students who have higher school-related wellbeing are more likely to believe their own happiness is malleable than students who have lower school-related wellbeing; however, students with higher school-related wellbeing are not more or less likely than students with lower school wellbeing to believe that the happiness of other people is malleable. As such, one's own wellbeing predicts beliefs about the malleability of one's own happiness, however one's own wellbeing has no impact on an individual's beliefs about the malleability of the happiness of others.

One reason for this finding could be that young people who have low wellbeing at school, and cannot improve it despite their efforts, may come to believe that their happiness is something which they themselves cannot change or control. Conversely, young people who

have high wellbeing may attempt to change or control their happiness and succeed, leading to the belief that their happiness is malleable (for further discussion see Section 6.4.3).

However, consistently attempting to improve wellbeing, and failing or succeeding, may not have a direct impact on changing beliefs about the happiness of others. Thus, it may be that one's own efforts to change and control happiness do not influence one's schematic knowledge about how the world works (which is what implicit beliefs are based on). As such, although related, the controllability of one's own happiness and the happiness of others are linked to wellbeing in different ways. This finding is the first to demonstrate that wellbeing can influence malleability beliefs but may not influence *all* malleability beliefs. Thus, it is important to consider the target of the malleability belief when examining how wellbeing might impact on the formation and maintenance of happiness malleability beliefs.

6.6 Limitations and Future Directions

6.6.1 Researcher's Philosophical Positioning

The researcher adopted a critical realist approach to this doctoral study after formulation of the research questions (see Section 3.2). According to critical realists, quantitative methods can identify how causal mechanisms operate in specific conditions and reveal patterns of associations between variables that are not observable (Mingers, 2004). The aim of this study was to identify the causal mechanisms which generate wellbeing in young people at school, and to identify patterns of associations between constructs. Thus, the researcher's method of enquiry follows the critical realist paradigm. Critical realists would also argue that there are multiple mechanisms which interact with each other to create an event. Thus, to extend this research further, it may be necessary to test for interaction effects in the SEM models (Modell & Baker, 2021) which may provide insight into the effects of more than one mechanism (e.g., emotion malleability beliefs and reappraisal) on an event

(e.g., wellbeing) in a particular context (e.g., school). For instance, it may be that students' anxiety malleability beliefs have a stronger association with school wellbeing for students who have low (vs. high) reappraisal at school.

In addition, many critical realists argue that a combination of quantitative and qualitative methods is the most effective approach to solving a research problem (Olsen, 2002). According to critical realists, qualitative methods can identify concepts and relationships which may not be captured by quantitative methods (McEvoy & Richards, 2006) and can discover processes through which phenomena occur (e.g., Porpora, 2015). For instance, qualitative methods such as interviews may reveal how multiple mechanisms (e.g., academic achievement, SES, emotion regulation) interact to influence students' wellbeing. Qualitative techniques may also be useful for explaining how mechanisms (e.g., reappraisal) manifest in specific contexts (Danermark et al., 2002; e.g., school). Thus, this research would benefit from being extended to incorporate qualitative methods to investigate these causal processes (see also Section 6.6.4.1). In doing so, this study would align further with the critical realist paradigm.

6.6.2 Sample

The sample used in this doctoral work had a greater proportion of white students from deprived backgrounds than was typical for England (for details see Sections 3.5.2 & 3.5.4), and all students were educated in the NW of England (see Section 3.6 for how the schools and college were recruited). In addition, less than 1% of participants were from Years 11 to 13 (see Section 3.5.5). Students from these year groups were not recruited as many would have been unable to complete the final questionnaire due to leaving school or continuing upper secondary education at a different educational establishment. Thus, these year groups were underrepresented in the study. Replications and extensions of the study should aim to

recruit greater numbers of participants from ethnic minority backgrounds, from non-deprived backgrounds, and other areas of England. Future studies could also include more students from Years 11 and 13 as these year groups may be particularly vulnerable to fluctuations in wellbeing during stressful periods such as their GCSE or A-Level examinations.

The study sample belonged to an individualistic, Western culture. Culture may play a critical part in how individuals perceive emotions and emotion regulation. For instance, collectivist cultures such as the East Asian culture deem it important to change emotions to maintain group harmony, whereas individualistic cultures such as Western cultures place greater emphasis on expressing one's own emotions (Markus & Kitayama, 1991). In addition, East Asians tend to adapt their behaviour more often than Europeans and Americans to fit in with their social environment (Qu & Telzer, 2017); thus, they view their personality and self as more flexible than Europeans and Americans (Norenzayan et al., 2002). As such, it is likely that if individuals from collectivist cultures practice more emotion regulation to preserve group harmony, they are more likely to believe that emotions are something which can be changed and controlled than persons from individualistic cultures. Indeed, Chinese persons have been shown to use cognitive reappraisal more often in their daily lives than Americans, which is partly explained by their belief in the malleability of emotion (Qu & Telzer, 2017). Thus, relations between malleability beliefs and cognitive reappraisal may vary between cultures if persons perceive and regulate their emotions in different ways. For instance, if Chinese participants had been recruited for the study, I may have found significant relations between emotion or anxiety malleability beliefs and cognitive reappraisal, if the strength of the association between malleability beliefs and emotion regulation is stronger for individuals from collectivist cultures.

Even in other European countries, there may be differences in how students rate their wellbeing, and how wellbeing relates to emotion regulation and malleability beliefs. For

instance, English and Spanish children have different conceptualisations of what it means to be happy at school. English children define happiness at school as positive relationships with teachers, having autonomy and non-violence, whereas Spanish children conceptualise happiness at school as having leisure time and harmony (López-Pérez et al., 2022). As such, items on the school-related wellbeing scale such as *'I feel better at school than my classmates'* may not be a reliable indicator to measure overall subjective school-related wellbeing for Spanish pupils. Rather, an item to assess how much students feel in harmony with their classmates may be more appropriate. Thus, it would be fruitful to replicate this study in different countries and cultures to identify whether results can be generalised to other populations. However, careful consideration would be needed to ensure the measures are appropriate.

Students in this study were all secondary school aged children (aged 11 to 19) thus I cannot assume that findings can be generalised to younger children. However, taking into account the developmental nature of emotion regulation, it would be useful to replicate this study with primary-school aged children as they may benefit greatly from interventions which target their malleability beliefs. Teaching younger students to have a malleable view of anxiety or happiness may *prevent* fixed malleability beliefs from forming; if fixed beliefs about anxiety and happiness are prevented from forming, students may be less likely to have lower school wellbeing and cognitive reappraisal during their secondary school years. Indeed, it is surely easier to prevent fixed emotion beliefs from forming in the first place rather than attempting to change them once they are already formed. Recent research also suggests that there is a need to invest in the *prevention* of emotional problems, and early intervention support, to reduce risks and amplify protective factors for mental health (Clarke et al., 2021). Indeed, teaching students how to regulate their emotions using cognitive reappraisal at primary-school age may positively impact on their wellbeing at secondary school by teaching

them essential emotion regulation skills. It is necessary to note, however, that if this study were to be replicated with younger participants, careful consideration would need to be given to the wording of scale items to ensure students understand what the items are referring to (e.g., use the term '*worry*' instead of '*anxiety*' on the anxiety malleability belief scale).

The sample of participants in this study were from a community sample. It will be important to examine whether links between malleability beliefs, cognitive reappraisal and school-related wellbeing can be generalised to young people from clinical populations, such as students with anxiety disorders or clinical depression. Indeed, there have been some differences observed in emotion malleability beliefs in clinical populations. De Castella et al. (2014) found that patients with social anxiety disorder held more entity beliefs about their own emotions and anxiety than about the emotions of other people. In addition, entity emotion beliefs were not associated with life satisfaction or positive affect in patients with social anxiety disorder (De Castella et al., 2014) which does not support findings from studies which have shown links between emotion malleability beliefs and facets of well-being (e.g., De Castella et al., 2013; Tamir et al., 2007). Increasing perceived control over emotions may play a crucial role in treating individuals with clinical disorders (e.g., Hofmann, 2007). Thus, replicating this study with clinical populations to identify links between malleability beliefs, emotion regulation and indicators of wellbeing and psychopathology would be extremely valuable.

Pupils who scored lower on the school wellbeing scale, the cognitive reappraisal scale, and those who were male were less likely to complete the questionnaire on the second measurement occasion. In addition, participants who scored lower on the school wellbeing scale, the cognitive reappraisal scale, and malleability belief scales were less likely to complete the questionnaire on the third measurement occasion. These results may indicate that male students and those participants scoring lower on the aforementioned scales may be

less likely to participate in and complete optional classroom-based tasks. As such, they were less motivated to complete the questionnaire for the second or third time. Thus, I must exercise caution in assuming that findings can be generalised to all students. The sample may be more representative of female students and those students who have more incremental emotion beliefs, make use of reappraisal more frequently, and have higher school-related wellbeing. Further research could focus on recruiting male students with low malleability beliefs, reappraisal and wellbeing to determine if findings are equivalent to those in this study.

6.6.3 Design

6.6.3.1 Self-Report Questionnaires

An important methodological consideration which limits this study is the use of self-report questionnaires to collect data. Students may have been unwilling to give an honest rating on the scale items if they were not certain that their answers would be kept confidential (i.e., they may have thought that their answers would be read by a teacher). Students were assured in the participant information sheet, before completing the questionnaire, that their answers would be kept confidential. Nevertheless, I cannot be certain whether the students completely trusted the information and research procedure. In addition, as the researcher was not present when students were completing the questionnaire, it is unclear to whether students were able to see the answers of their classmates whilst completing the questionnaire. Moreover, it is unclear whether students completed the questionnaires individually (although they were instructed to do so). Some students may have completed the questionnaire with a peer, thus were influenced by another person's view and responses. This may have been particularly true for students who have not yet developed the metacognitive skills to reflect on their own beliefs and may have relied on the ratings of others to decide which is the 'best'

answer to provide. Future studies could consider expansion of the research team to administer the questionnaire to students in person to ensure fidelity.

Students' current mood at the time of completing the questionnaire could have influenced their ratings on the scales. Indeed, moods are thought to be an important component of subjective well-being (Diener et al, 1999). Demonstrating how mood may impact on subjective wellbeing ratings, Schwarz and Clore (1983) exposed some participants to a positive mood induction procedure, and others to a negative mood induction procedure, before completing a life satisfaction scale. Participants exposed to the positive mood induction reported significantly higher life satisfaction than participants who received the negative mood induction. As such, participants in this doctoral study who had a good morning at school (and thus were in a good mood) may have rated school wellbeing higher than they would usually do, and students who had a bad morning (and thus were in a bad mood) may have rated school wellbeing lower than they would usually do. If this were the case, ratings would not accurately reflect students' usual wellbeing at school.

Some research, however, has shown that mood effects are not important in self-reported subjective wellbeing. Eid and Diener (2004) investigated fluctuations in mood and life satisfaction over three months by collecting participants' ratings on three measurement occasions. Findings showed that associations between mood ratings and global subjective wellbeing judgements were small. In addition, Yap et al. (2017) replicated nine past studies which tested the effects of mood on life satisfaction judgement and found most of the studies had non-significant effects (or much smaller) than previously stated in the original studies. The instructions at the beginning of the school-related wellbeing scale in this study asked students to rate how they '*USUALLY think and feel about school*'. Thus, this sentence (drawing attention to the word 'usually') may have mitigated some of the effects that students' mood may have had on scale ratings; it may have prompted them to consider how

they typically feel about school, regardless of their current mood at the time of completing the questionnaire.

One possible source of bias in response ratings is that participants may answer differently to questions depending on the order in which they are asked. To minimise response bias in this study, there were three versions of each questionnaire which were given to schools in their questionnaire pack (for paper versions), and three separate online questionnaire links were sent via email to schools to allocate to their students. In each questionnaire version, the scales were asked in a different order (see Section 3.8 for details) although the school-related wellbeing scale was placed first in each questionnaire. Questions about wellbeing may be sensitive to context, with previous questions with similar content influencing ratings on the subjective wellbeing scales (Deaton & Stone, 2013); thus, placing the school-related wellbeing scale at the beginning of the questionnaire may have eliminated priming effects (e.g., it may have avoided students answering higher on the wellbeing scale because they rated items higher on the happiness malleability belief scale, for instance). Nevertheless, ratings on the wellbeing scale may have primed students to answer differently on the subsequent scales (e.g., higher ratings of wellbeing may have meant students overestimated how much they could control their emotions). Future methodological studies could examine how changing the order of the scales might impact on participants' response ratings.

6.6.3.2 CLPM

An important methodological issue to consider is that this study used cross-lagged panel models (CLPMs) to examine relations between constructs. A CLPM examines the prospective relation between individual differences in one specific construct and change in individual differences in a different construct (Orth et al., 2021). For example, the CLPM

tests whether individuals who use cognitive reappraisal frequently (relative to others) will subsequently show increased school-related wellbeing, compared to individuals who do not use cognitive reappraisal very often. The CLPM framework has been widely used in educational research to describe longitudinal relationships between constructs. However, it has been criticized for not distinguishing within-person from between-person effects (e.g., Hamaker, 2015). In addition, causal mechanisms generating an influence of one construct on another construct occur within rather than between persons (Keijsers, 2016; Murayama et al., 2017; Schenk et al., 2021). As such, I cannot be certain that the results from the CLPMs also represent within-person processes. Thus, it would be useful to extend these CLPMs to model data using CLPMs with random intercepts (RI-CLPMs).

The RI-CLPM extends the CLPM by examining whether the within-person temporary deviation from the person-average level in one specific construct influences change in the within-person temporary deviation from the person-average level in a different construct (Orth et al., 2021); thereby it can disentangle the within-person and between-person variance, identifying if relations between the constructs are also evident at the within-person level. Although a RI-CLPM was not modelled in this doctoral work, a CLPM and a RI-CLPM has been modelled with cognitive reappraisal and school-related wellbeing from this dataset; findings were consistent across the two modelling approaches in that cognitive reappraisal and school-related wellbeing showed relations between- and within-persons (Beaumont et al., 2022). Thus, it is likely that the CLPMs in this doctoral work do represent within-person processes for the relations between cognitive reappraisal and school-related wellbeing. However, this study could be replicated with RI-CLPM models to investigate further if the relations between malleability beliefs, and cognitive reappraisal and wellbeing represent within-person processes.

Another limitation of the CLPM is that it does not consider the duration of time intervals between measurement occasions. Results will be biased if time intervals are unequal (Kuiper & Ryan, 2018). In addition, lagged effects will differ depending on the time lapsed between measurement occasions (Gollob & Reichardt, 1987). Different time-intervals between constructs may produce different estimates of the same effects, and in some cases the sign and strength of relations may differ (Kuiper & Ryan, 2018). Although the questionnaire was sent to schools in 6-month intervals, there were some delays with schools administering it to students. As such, the 6-month interval between measurement occasions was only approximate. Some students may have completed the questionnaire with a 7-month interval between the first and second measurement occasion, and a 6-month interval between the second and third measurement occasion. Whether this influenced the cross-lagged estimates is open to speculation; as the interval gap between data collection points was fairly large (months, compared to days or weeks) an extra 4 weeks between measurement occasions may have had no effect on parameter estimates. However, future studies could ensure data is collected at more precise intervals, and further research could determine if findings from this study can be applied to shorter or longer time intervals between measurement occasions. Alternatively, a Continuous-Time (CT) Modelling approach could be employed to solve the time-interval dependency issues (e.g., Boker et al., 2004; Kuiper & Ryan, 2018; Voelkle et al., 2012).

6.6.4 Measures

6.6.4.1 School-Related Wellbeing

In this study, school-related wellbeing is defined as the balance of more positive emotions over negative emotions (Hascher, 2008; see Section 2.2.3). However, I am aware that this definition of wellbeing may not be universally accepted. For instance, school-related

wellbeing may be defined in other ways such as how much students ascribe meaning and value to their school life. Nevertheless, finding meaning and value in school life is likely positively related to experiencing positive (vs. negative) emotions (e.g., a student who believes their lessons are valuable is likely to experience more positive emotions and thus have greater school wellbeing than a student who does not see the value in lessons). The school-related wellbeing scale used in this study may have tapped into these ideas by asking students whether school was going well for them, and whether they were content with their day-to-day school experiences. However, it may be that other definitions of school wellbeing have different relations to emotion regulation and malleability beliefs than how wellbeing is defined in this doctoral work. Thus, studies which define and measure wellbeing in different ways may yield other findings.

It would be advantageous to use multiple research methods, for example conducting follow-up interviews with participants, to gain deeper insight into how emotion regulation strategies and emotion malleability beliefs are related to school-wellbeing. For instance, investigating in which contexts students use cognitive reappraisal (e.g., when completing individual tasks, after receiving feedback on tests, or when socializing with peers), and in what ways it might enhance their wellbeing; or to ask them to consider times when they are experiencing low or high wellbeing at school, and find out how and why they regulate their emotions on these occasions. Nonetheless, the principle aim of the present study was not to provide such in-depth insight, but rather to first establish whether the links between malleability beliefs, cognitive reappraisal, and school-related wellbeing exist at all. I foresee future studies elaborating on these findings by using other methods of data collection to explore the relations more deeply, and to paint a more nuanced picture of what factors might be precursors and consequences of school-related wellbeing.

6.6.4.2 Cognitive Reappraisal

The items on the cognitive reappraisal scale asked students about the up-regulation and down-regulation of negative and positive emotions in general; it does not assess the up-regulation or down-regulation of specific emotions. In adolescents, down-regulating negative emotions has been shown to have a greater impact on increasing subsequent positive emotions, compared to up-regulating positive emotion (Deng et al., 2013). However, it is uncertain whether using emotion regulation strategies to down-regulate negative emotions (such as sadness) or upregulate positive emotions (such as pride) has stronger relations to school-related wellbeing. It may be the case that students who are making greater use of down-regulating specific negative emotions, such as sadness, by using cognitive reappraisal, have greater school-related wellbeing than those who use cognitive reappraisal to up-regulate positive emotions, such as excitement. In addition, it is likely that the regulation of some emotions has stronger associations with school-related wellbeing than others. For instance, regulating boredom may have a stronger association with school-related wellbeing than regulating guilt, due to boredom being an emotion which has greater relevance in academic situations. As such, it would be useful to explore the consequences of the up-regulation or down-regulation of specific emotions using cognitive reappraisal.

Future studies could consider specifying the *type* of cognitive reappraisal. *Positive* cognitive reappraisal involves individuals attempting to reinterpret the meaning of a situation whilst simultaneously engaging with the emotional content, whereas *detached* cognitive reappraisal involves reinterpreting the meaning of the situation whilst removing oneself from the emotion eliciting content (Gurera & Isacowitz, 2019). Cognitive reappraisal is likely dependent on cognitive control abilities (Oschner & Gross, 2005). Studies have shown that positive cognitive reappraisal requires less cognitive control than detached cognitive reappraisal (e.g., Opitz et al., 2012; Shiota & Levenson, 2009). Positive cognitive reappraisal

requires an individual to remain focused on the emotional event while reappraising, whereas detached cognitive reappraisal involves a degree of detachment from the emotional stimulus, which may require more effort (Gurera & Isacowitz, 2019). Both positive and detached cognitive reappraisal have positive associations with wellbeing (e.g., Gross & John, 2003; Qi et al., 2017). However, as adolescents' cognitive control abilities may still be developing, they may engage more in positive cognitive reappraisal than detached cognitive reappraisal. This may be important to consider for the development of interventions. For instance, students who need to improve their cognitive reappraisal skills to increase wellbeing may be more likely to benefit from interventions which focus on enhancing detached cognitive reappraisal if this is a skill which they are yet to develop. However, it is necessary to consider if young people have enough cognitive control ability to engage in detached cognitive reappraisal for it to be incorporated into an intervention.

In this study, cognitive reappraisal was identified and measured as an emotion regulation strategy which involves reinterpreting the meaning of a situation. However, cognitive reappraisal may also involve reconsidering one's ability to cope with a situation (Gross, 2015). In addition, some other emotion regulation strategies may be thought of as cognitive reappraisal such as *arousal cognitive reappraisal* which involves reconstruing emotional responses as beneficial for coping (Jamieson et al., 2017; e.g., reappraising the physiological signs of stress as helpful). This type of cognitive reappraisal has been shown to impact positively on academic performance and reduce anxiety by increasing students' ability to handle stressful testing situations (Jamieson et al., 2016). Thus, further exploration of how students may use this type of cognitive reappraisal to improve their wellbeing and academic outcomes could be a fruitful avenue for future investigation. Moreover, as achievement goals have been shown to be linked to achievement emotions (Pekrun et al., 2009), switching to mastery goals instead of performance goals may also be considered a type of cognitive

reappraisal (e.g., goal reappraisal) which can help to improve educational outcomes; however, the literature has yet to name this process specifically as cognitive reappraisal (Uusberg et al., 2019).

In this study, I measured the frequency of students' cognitive reappraisal use; I did not specifically examine students' cognitive reappraisal *ability*. Cognitive reappraisal frequency and ability have been shown to be positively related, however the constructs do not fully overlap (McRae et al., 2012). It may be that some students rarely use cognitive reappraisal but have frequent success at regulating their emotions when they do, or some students use cognitive reappraisal often and have little success at regulating their emotions using this strategy. Both cognitive reappraisal frequency and ability have been found to be positively related to wellbeing (e.g., Gross & John, 2003; McRae et al., 2012) thus even though I did not measure cognitive reappraisal ability specifically, it is likely to also show positive associations with school-related wellbeing. However, examining cognitive reappraisal ability would be a fruitful avenue for investigation in future studies.

Like most empirical studies that have investigated cognitive reappraisal, this study examined cognitive reappraisal as a trait; specifically, it measured the natural disposition of participants to use cognitive reappraisal to regulate their emotions. However, results from trait measures cannot always be equated to those measured at the state level (e.g., Kashdan & Nezlek, 2012), and there may be discrepancies between trait emotion regulation and state emotion regulation (e.g., daily emotion regulation; e.g., Brockman et al., 2017). In this doctoral work, I did not examine the relation between malleability beliefs, cognitive reappraisal and wellbeing in students' day-to-day lives. As such, I cannot determine whether the 'trait' measure of cognitive reappraisal can be equated to students' daily cognitive reappraisal, and whether daily use of cognitive reappraisal will be related in the same way to malleability beliefs and wellbeing. However, providing some support that malleability beliefs

may be related to daily cognitive reappraisal, Ford et al. (2018) found that entity beliefs predicted trait *and* daily cognitive reappraisal. Thus, it may be that believing happiness is malleable also predicts daily cognitive reappraisal for the students in this study. However, further research which incorporates daily measures would be needed to test this claim and examine whether trait measures can be equated to daily measures of cognitive reappraisal.

Some studies have shown that cognitive reappraisal is linked to positive indicators of wellbeing (e.g., life satisfaction), and not negative indicators of wellbeing (e.g., negative emotions; Haga et al., 2009; King & Rosa, 2019), and it has been shown to be a strong predictor of *daily* positive (not negative) affect (Brockman et al., 2017). The items on the school-related wellbeing scale used in this study likely reflect students' *positive* affect (e.g., liking school, feeling content, feeling comfortable, feeling good). The items did not ask students to rate negative feelings about school (e.g., not liking school, feeling discontent, feeling uncomfortable, feeling bad). As such, even though I did not measure students' *daily* wellbeing, as cognitive reappraisal has been shown to predict daily positive affect (Brockman et al., 2017), it may be assumed that students' cognitive reappraisal would also predict their *daily* school wellbeing (if measured as indicating positive affect). As some studies have shown that cognitive reappraisal has no relation to decreased negative affect in daily life (Brans et al., 2013; Brockman et al., 2017), it may be that students are not actually using cognitive reappraisal to down-regulate negative emotions to improve their school wellbeing in their day-to-day lives. It would be useful for future studies to examine whether cognitive reappraisal is associated with positive and/or negative indicators of trait *and* daily wellbeing.

I also acknowledge that caution must be taken in assuming that cognitive reappraisal will always be linked to greater wellbeing in all situations. Even typically adaptive emotion regulation strategies can have negative consequences when used in ways which are not sensitive to the context (Ford & Troy, 2019). For instance, using cognitive reappraisal in

situations where the stressor is controllable can increase depression (Troy et al., 2013). To highlight this point, consider that a student begins to feel anxious about failing an upcoming test and therefore decides to spend longer revising; in this case the onset of the negative emotion (anxiety) is useful as it motivates the student to revise more to avoid failing the test. However, consider a student who uses cognitive reappraisal to decrease their anxiety (e.g., “It doesn’t matter if I don’t revise, the test will be easy anyway”), the student may decrease their anxiety in the short term but is no longer motivated to revise, which can lead to negative consequences (e.g., failing the test). In this situation action (e.g., preparation) rather than cognitive reappraisal was needed because the stressor was controllable (Troy et al., 2013). Consequently, the student may have failed to pass the test, which would have led to a decrease in school wellbeing over and above the momentary increase in wellbeing that the reduction in anxiety had in the short term. Indeed, when considering how emotion regulation strategies relate to wellbeing, it is necessary to be aware that emotion regulation is a dynamic, context-dependent process. Many situational factors can influence the efficacy of strategies, such as personality/demographic factors, the nature of the stimulus, how the regulation strategies are chosen and implemented, and how the outcome of the regulation is evaluated (Aldao, 2013; Bonanno & Burton, 2013).

This doctoral work only focused on one emotion regulation strategy. However, individuals frequently use more than one strategy to regulate an emotional episode (Ford et al., 2019). Recently, the notion of polyregulation has been proposed which suggests individuals use multiple regulatory approaches within emotional episodes (e.g., adopting different regulation goals, using multiple strategies or tactics); and this approach may provide a more nuanced explanation for how emotion regulation is played out in day-to-day life (Ford et al., 2019). For instance, consider a student who feels embarrassed because he didn’t know the answer to his teacher’s question in class. The student may attempt to engage in a short-

term response focused strategy to hide his embarrassment (e.g., suppression), whilst also using other strategies (e.g., engages in cognitive reappraisal by telling himself that this kind of thing happens to every pupil). Individuals who can use polyregulation may have higher levels of wellbeing than persons who do not use polyregulation (Ford et al., 2019). As such, to further expand knowledge of the antecedents and consequences of emotion regulation it would be useful for research to investigate how effective emotion regulation strategies are for malleability beliefs and wellbeing when used together and in sequence. Experimental studies may be particularly helpful for investigating polyregulation by examining which strategies participants use to regulate their emotions when presented with an emotion eliciting stimulus.

This study only examined one potential mechanism (cognitive reappraisal) which may account for the link between malleability beliefs and wellbeing. However, there are other strategies which are used to prolong and intensify positive emotions which likely impact positively on wellbeing. For instance, people may use savouring to increase or prolong a positive reaction to an event by increasing the duration or intensity of the positive experience (Bryant & Veroff, 2007). To savour feelings and experiences, 10 types of savouring strategies have been identified: congratulating oneself, appreciating the good things in life, sharing with other people, sharpening sensory perceptions, memory building, absorption, comparing, abstaining from killjoy thinking, expressive behaviour, and increasing one's awareness of their own existence in time (Bryant & Veroff, 2007). Savouring has been associated with increased positive affect, happiness and satisfaction with life (Byrant 2003; Smith et al., 2014;) and decreases in negative emotions (Smith & Hanni, 2019). As such, students who believe their emotions can be controlled may be using savouring strategies to maintain and increase positive emotions experienced at school. For instance, when receiving a good grade on a test, the student might maintain or intensify the feeling of happiness by reflecting on other occasions when they got a good grade on a test. This may lead to increases in school-

related wellbeing. Conversely, students who do not savour positive moments are likely to have less positive affect and more negative emotions, and thus have lower school-related wellbeing. Indeed, lack of savouring is negatively associated with negative outcomes for wellbeing such as depression and hopelessness (Byrant, 2003). It would be useful for future studies to consider how savouring positive emotions might increase school-related wellbeing.

6.6.4.3. Malleability Beliefs

This work assumes that beliefs about the controllability and changeability of emotions are relatively stable in young people as they rely on schematic knowledge about the world (e.g., Dweck & Leggett, 1988). However, recent research into the stability of beliefs suggests that beliefs about emotion shift with their changing emotional states (Veilleux et al., 2021a; Veilleux et al., 2021b). This could be because when people are in a rational state of mind individuals are aware of their beliefs and endorse them, however during strong emotional states individuals use heuristic and impulsive thinking (Gyurak et al., 2011). As such, in this study it is possible that the emotional state of the participant may have influenced their ratings on the malleability beliefs scales (e.g., when experiencing strong anxiety, a person believes that their anxiety is uncontrollable, but when feeling happy one believes that their anxiety is controllable). Thus, I cannot be certain that the mood of the participant had no impact on their ratings on the malleability beliefs scales. Although it is worthwhile to note that it will have been unlikely that students were experiencing strong emotional states as the questionnaire was completed during class or form time as part of the students' daily school routine. Thus, students are likely to have been in a relatively calm and familiar environment where there will have been less possibility of stimuli eliciting strong emotional responses which may have had the potential to affect their malleability belief ratings.

This doctoral work focused on examining how beliefs about the *malleability* of emotions is associated with emotion regulation and wellbeing. However, the literature has also begun to examine how beliefs about the *goodness* of emotions may have links to facets of wellbeing (e.g., Ford & Gross, 2019; Karnaze & Levine, 2017). Thus, examining how beliefs about the goodness of emotions *and* controllability of emotions interact to both predict emotion regulation and wellbeing may be a fruitful avenue for future research. In addition, there are many other components of malleability beliefs that could be considered such as other emotions and contexts (see Ford & Gross, 2019 for a complete overview in Section 2.5.2.1) which may have different relations with emotion regulation and wellbeing. Examining how these different beliefs influence and interact with each other to influence emotion regulation and wellbeing would provide a more nuanced picture about how emotion beliefs are related to emotion regulation and wellbeing.

Entity (vs. incremental) theories may not always be detrimental (or beneficial) for wellbeing. For instance, believing that happiness is uncontrollable has been associated with greater empathy towards others (Tullett & Plaks, 2016). Thus, entity beliefs may improve relations with people if they result in greater empathetic concern for others, and these improved social relations could lead to an increase in wellbeing. In addition, individuals who believe their intelligence is fixed are more willing to move on to a task that measures a different ability (e.g., intelligence task to a mental imaging task), and perform better on this subsequent task than those who believe their intelligence is malleable (Park & Kim, 2015). Thus, it is a possible that individuals who do not believe their emotions can be changed or controlled may be more willing to try different emotion regulation strategies or activities to improve their wellbeing. In addition, they may have more success in regulating their emotions or improving their wellbeing when employing a different emotion regulation or wellbeing strategy than the one initially used. However, this is purely speculation and there is

a substantial body of literature which demonstrates that, overall, fixed emotion beliefs are generally detrimental for emotion regulation and wellbeing.

6.6.4.4 Covariates

The analyses controlled for the gender and age of students on all constructs at each time point. Socio-economic status was obtained through reporting of FSM eligibility; however, it was not included as a covariate as it had no relation to study variables. With the exception of age showing significant relations with cognitive reappraisal on the second measurement occasion, and gender showing significant relations with school-related wellbeing on the third measurement occasion, the effects of gender and age on the study variables were only significant on the first measurement occasion. One reason for this could be that after controlling for gender and age on the first measurement occasion the effects on the variables carried forwards to the second and third measurement occasion. Indeed, once the covariates are accounted for at the first time point, they may not impact directly on constructs on subsequent measurement occasions (Little et al., 2007). Other unidentified covariates may have also impacted on study variables. Psychiatric illnesses, such as depression, have been shown to have a genetic component (e.g., Lohoff et al., 2010). Thus, a genetic predisposition to low wellbeing may have influenced the wellbeing of students. In addition, parents' mental health could also affect the wellbeing of young people as children who have a parent with a mental disorder are more likely to have a mental illness themselves (e.g., Apter et al., 2017). It would be interesting for future studies to consider how other confounding factors such as genetics and parents' mental health may contribute to malleability beliefs, emotion regulation and school-related wellbeing.

It would also be useful for future studies to collect an indicator for students' academic achievement to include as a covariate as this may be related to emotion regulation and

school-related wellbeing (e.g., higher achieving students may have greater school wellbeing than lower achieving students). Indeed, there is research to suggest that higher (vs. lower) student wellbeing at ages 11 to 14 is positively associated with later achievement of GCSE grades (Smith et al., 2019). In addition, it would have been useful to determine if students' grades are related to the study variables to provide support for my theoretical claims (e.g., students who make use of cognitive reappraisal are better able to focus on their learning, thus they have better academic achievement and school wellbeing). It may also provide an incentive for schools to find ways to promote school wellbeing, cognitive reappraisal, or malleability beliefs. For instance, if anxiety malleability beliefs had predicted increased academic achievement *and* school-related wellbeing, educators and leaders may be more motivated to fund and support interventions which focus on changing fixed anxiety beliefs. Moreover, obtaining an objective measure of achievement would have meant the study did not purely rely on self-report measures which may be susceptible to bias.

Age was not significantly correlated with cognitive reappraisal. Findings support Gullone et al. (2010) who showed no age-related change in the frequency of reappraisal for adolescents aged 9-15 years. However, this is contrary to much of the literature which suggests that reappraisal increases through adolescence (e.g., Willner et al., 2022; see Section 2.4.1.2). One reason why age and cognitive reappraisal were not correlated may be because the type of reappraisal was not taken into account. Positive cognitive reappraisal requires less cognitive control than detached cognitive reappraisal (e.g., Opitz et al., 2012; Shiota & Levenson, 2009; for an explanation of positive and detached reappraisal see Section 6.6.4.2). Thus, younger students (who are still developing cognitive control) may be using positive reappraisal more frequently than older students, and reported on using this type of reappraisal. Conversely, older students (who have more cognitive control) may be using detached reappraisal more frequently than younger students, and reported on using this type

of reappraisal. As such, younger and older students both reported using reappraisal (albeit different types) to the same extent. However, this is purely speculation and further research is warranted to confirm whether self-reported reappraisal frequency increases, decreases, or stays the same, throughout adolescence.

There were no correlations found between emotion malleability beliefs and age. One reason for this could be that the formation of emotion malleability beliefs does not follow a developmental trajectory. Other factors may contribute to the formation of emotion malleability beliefs such as, (1) parents' beliefs about emotion malleability (e.g., if parents believe their child's emotions are uncontrollable, the child may also adopt this view); (2) emotion regulation support from parents when participants were infants or young children (e.g., the more support given, the more the child believes emotions are controllable), (3) gender (e.g., girls may show stronger entity beliefs than boys due to gender socialization; see Section 2.5.2.3). Findings from this study are contrary Ford et al. (2018) who found that older adolescents had more entity emotion beliefs than younger adolescents, and Romero et al. (2014) who found adolescents developed more incremental emotion beliefs as they got older. However, the inconsistency of findings suggests that more research is needed to determine whether young people develop more incremental or entity emotion beliefs throughout adolescence, or whether age is not a contributing factor to the formation of these beliefs.

6.7 Chapter Summary

This chapter presented and discussed the results of the study in relation to each of the four RQs. Suggestions were made for the possible reasons for the significant or non-significant relations between constructs, and ideas for future research studies were suggested. The limitations of the participant sample, design and measures were stated, and recommendations were made for future research to address some of the issues raised.

Chapter 7:

Conclusion

7.1 Introduction

This final chapter provides an overview of the thesis and summarises the findings from the study in the context of responding to the RQs. It also suggests and discusses how the results might inform educational interventions and practices. The chapter ends with a conclusion and chapter summary.

7.2 Thesis Summary

The researcher adopted a critical realist approach to this study (e.g., Bukowska, 2021; see Section 3.2) as it allowed the researcher to consider the causal mechanisms that explain why some students have tendencies for incremental (vs. entity) malleability beliefs, increased (vs. decreased) use of cognitive reappraisal, and high (vs. low) school-related wellbeing. It also implies that students have individual agency in choice over their beliefs, emotion regulation and wellbeing, and these constructs can be influenced by social structures. The study drew upon longitudinal self-report data to investigate the relation between secondary school students' malleability beliefs (emotion, anxiety, and happiness), emotion regulation (cognitive reappraisal) and school-related wellbeing.

This is the first study to use robust structural equation modelling to examine longitudinal relations between malleability beliefs, cognitive reappraisal and wellbeing in a large sample of young people on three measurement occasions. It also the first study which has used a context-specific measure of wellbeing to investigate how wellbeing is related to students' emotion, anxiety and happiness malleability beliefs, and cognitive reappraisal. Previous research, as presented in Chapter 2, suggests that holding incremental (vs. entity) beliefs about the changeability and controllability of emotions is linked to increased use of the emotion regulation strategy cognitive reappraisal. and is linked positively to facets of

wellbeing (e.g., De Castella et al., 2013; Ford & Gross, 2019). There is a growing body of literature which links cognitive reappraisal to positive emotions and greater wellbeing (e.g., Gross & John, 2003; Schäfer et al., 2017; Webb et al., 2012). However, much of the research has been conducted with adult samples which makes it difficult to generalise findings to a younger population. In addition, many studies do not provide evidence for the directionality of relations between constructs. Studies which have examined potential mediating variables (e.g., investigating if cognitive reappraisal accounts for the link between emotion malleability beliefs and wellbeing) are typically based on a cross-sectional data (e.g., De Castella et al., 2013) which can be misleading and biased (Cole & Maxwell, 2003). The three-wave longitudinal cross-lagged panel design of this study makes it ideally suited for testing mediational processes. This design is a substantial improvement from many of the previous cross-sectional and longitudinal studies which have only one or two data collection points (e.g., De Castella et al., 2013; Tamir et al., 2007).

Much of the literature has examined malleability beliefs by asking participants about how much they believe *people* can change their emotions. However, beliefs about the malleability of emotions can vary depending on the target (Ford & Gross, 2019). It was important to investigate whether beliefs related to the self or others hold stronger predictive power for wellbeing to suggest how interventions might be informed to target belief change (e.g., do interventions need to focus on changing personal malleability beliefs, or general malleability beliefs, or does it not matter). Previous work has suggested that first-person emotion beliefs and third-person emotion beliefs are likely related (e.g., Tamir et al., 2007), and believing one's own emotions can change is more strongly related to indicators of wellbeing than believing the emotions of others can change (e.g., De Castella et al., 2013; Vuillier et al., 2021; see Section 2.9.1). However, no studies have examined whether first-

person or third-person malleability beliefs (anxiety, and happiness) have stronger relations with school-related wellbeing.

7.3 Summary of Findings

There were four RQs linked to this doctoral work. The following sections present the key findings from the RQs, and briefly outline the significance and implications of the findings from each RQ.

7.3.1 RQ1 – How is school-related wellbeing associated with cognitive reappraisal in secondary school and 6th form college students?

This research question investigated if school-related wellbeing and cognitive reappraisal were related. Cognitive reappraisal is important for wellbeing because it regulates an emotional response before it has become activated or developed which reduces or eliminates the consequences of negative emotions (Gross & John, 2003; see Section 2.4). This research question was derived based on previous literature which linked cognitive reappraisal to improved mental health and wellbeing (e.g., Aldao et al., 2010; Schäfer et al., 2017; see Section 2.4.2). However, much of the literature shows that cognitive reappraisal *causes* improved wellbeing, and studies do not allow for the examination of reciprocal relations. Reciprocal relations between cognitive reappraisal and school-related wellbeing were modelled across all three malleability beliefs models (emotion, anxiety, and happiness). In each of the models, there were positive relations seen: students with higher cognitive reappraisal had higher subsequent school-related wellbeing, and students with higher school-related wellbeing had higher subsequent cognitive reappraisal. Moreover, the strength of the relations were equivalent: school-related wellbeing effects cognitive reappraisal just as strongly as cognitive reappraisal effects school-related wellbeing.

7.3.1.1 Educational Implications

Findings suggest that interventions and strategies to encourage students to develop their cognitive reappraisal skills can enhance a sense of school-related wellbeing. Targeting cognitive reappraisal through cognitive behavioural interventions may be one way to improve students' school-related wellbeing. Cognitive behavioural therapy (CBT) aims to identify and challenge negative or unrealistic thought patterns, and ways of behaving, that can contribute to psychological difficulties (Hawton et al, 2006). Universal and targeted CBT interventions have been found to be effective for improving adolescent mental health, including improving symptoms of anxiety and depression (Clarke et al., 2021; Keles & Idsoe, 2018). Moreover, CBT interventions have been found to reduce depression in the short and medium term even when the young person is showing minimal symptoms of depression (Clarke et al., 2021). Emotion regulation likely relates to psychopathology in a similar way as emotion regulation relates to subjective wellbeing (Bartels et al., 2013; see Section 2.4.2). As such, as well as improving symptoms of depression and anxiety, CBT interventions are also likely to have a positive impact on improving school-related wellbeing. In addition, participating in CBT interventions may predict other positive outcomes for young people such as improved academic performance and social functioning (e.g., Wood, 2006). CBT interventions delivered in schools by external providers such as psychologists (rather than teachers) have been shown to be the most effective means of improving mental health outcomes for students (Clarke et al., 2021).

Curriculum-based and whole-school social and emotional learning (SEL) interventions can also positively impact on students' wellbeing and academic outcomes (Chris & Rusu, 2019; Cilar et al., 2020, Clarke et al., 2021; Kuosmanen et al., 2019). Indeed, students who have low levels of social and emotional development aged 11 to 14 are less

likely to gain 5 GCSEs at grade C or above than those with higher social and emotional development (Smith et al., 2019). SEL interventions support students' social and emotional development by teaching them how to identify emotions, how to regulate them, goal setting, perspective taking and empathy, amongst other skills. Interventions are typically classroom-based and usually consist of 10 to 21 sessions lasting 45–90 minutes (Clarke et al., 2021). Unlike CBT interventions, SEL interventions have been shown to have positive outcomes when delivered by a teacher, thus schools do not have to rely on external providers to teach students these skills. As such, SEL interventions could be a cost-effective way for schools to enhance students' emotion regulation skills and wellbeing.

Results from the study also suggest that a sense of school-related wellbeing can promote the development of cognitive reappraisal. Increased use of cognitive reappraisal is likely to have positive outcomes for education such as increasing memory for educational information, promoting self-regulated learning, and improving academic performance (e.g., Davis & Levine, 2013; Losenno et al., 2020; Pizzie et al., 2020). Positive school environments which enhance wellbeing, characterized by elements such as students' sense of connectedness to the school and teacher support (Kidger et al., 2012), are likely to have downstream benefits for the development of cognitive reappraisal ability, which is likely to have a positive impact on educational outcomes. Indeed, schools which adopt a whole-school approach to improving young people's wellbeing by creating supportive school environments which promote positive relationships, and a sense of purpose and belonging are likely to see greater improvements in students' wellbeing and achieve positive intervention outcomes (Clarke et al., 2021). Moreover, developing strong connections to mental health providers and with parents and carers at home can also help to support the wellbeing of the most vulnerable pupils (Clarke et al., 2021).

7.3.2 RQ2 – How is cognitive reappraisal related to beliefs about the malleability of one’s own emotions in secondary school and 6th form college students?

RQ2 investigated how cognitive reappraisal is associated with students’ beliefs about the malleability of their own emotions, anxiety and happiness. This research question was derived on the basis that much of the literature has shown that believing emotions are malleable is linked to greater use of cognitive reappraisal (e.g., Hong and Kangas, 2021; see Section 2.6.1). As cognitive reappraisal is considered an essential skill which can have beneficial outcomes for education and wellbeing (see Sections 2.4.2 & 2.4.3), investigating which factors predict its use (e.g., malleability beliefs) can help to determine how it might be promoted. Findings showed that emotion and anxiety malleability beliefs had no relation with cognitive reappraisal. Students who believed their happiness was malleable (vs. fixed) were more likely (vs. less likely) to use cognitive reappraisal. Thus, students who believe they can change and control their happiness are more likely to use cognitive reappraisal which could help them to regulate their emotions in adaptive ways and will likely have a positive impact on wellbeing. However, students who do not believe they can change and control their happiness are less likely to use cognitive reappraisal which may have a negative impact on their wellbeing. However, findings need to be interpreted with caution as the relation between happiness malleability beliefs and cognitive reappraisal was only seen from the first to second measurement occasion.

7.3.2.1 Educational Implications

Students who do not believe their happiness is malleable may be missing important opportunities to practise and gain essential emotion regulation skills such as cognitive reappraisal. Cognitive reappraisal has been shown to have positive outcomes for education (e.g., Davis & Levine, 2013; see Section 2.4.3). To allow students to implement cognitive

reappraisal to a greater degree, schools may consider targeted cognitive-behavioural interventions for those who have fixed happiness beliefs (see Section 7.3.1.1) which promote the idea that happiness is something which can be changed and controlled. Students' happiness malleability beliefs could be assessed using a self-report questionnaire to identify students who have fixed happiness beliefs, thus identifying who may benefit from targeted interventions.

7.3.3 RQ3 – How is school-related wellbeing related to beliefs about the malleability of one's own emotions in secondary school and 6th form college students?

This RQ explored how emotion, anxiety and happiness malleability beliefs might be related to school wellbeing. There is a growing body of research to suggest that emotion beliefs really do matter in the context of enabling individuals to maintain psychological health (e.g., Ford & Gross, 2019). In addition, emotion regulation may be an important mechanism which accounts for the link between malleability beliefs and wellbeing (see Section 2.8). This research question has two parts. It aimed to investigate whether malleability beliefs (of emotions, anxiety, and happiness) were related to school-related wellbeing via cognitive reappraisal. It also aimed to investigate whether malleability beliefs were directly related to school-related wellbeing. There is some preliminary evidence that suggests wellbeing might be a precursor to malleability beliefs, and not vice versa (e.g., Schleider & Weiz, 2016a; see Section 2.7.1.1). Thus, the longitudinal design of the study allowed for the examination of the directionality of relations between malleability beliefs and wellbeing.

The findings showed that believing one's own emotions were malleable had no relation with school wellbeing. However, students who believed their anxiety was malleable (vs. fixed) were likely to have higher (vs. lower) school-related wellbeing. In addition,

students who had higher (vs. lower) school-related wellbeing were likely to believe that their happiness was malleable (vs. fixed). However, these relations were evident only across the first two points of data collection. Interestingly, although happiness malleability beliefs did not predict school-related wellbeing, it did predict school-related wellbeing partly through the proposed mechanism which is cognitive reappraisal. Thus, students who believed their happiness was malleable were more likely to have higher school-related wellbeing, partly by using cognitive reappraisal to regulate their emotions; and students who believed their happiness was fixed were more likely to have lower school wellbeing through limited use of cognitive reappraisal to regulate their emotions.

7.3.3.1 Educational Implications

Findings from this work suggest that students who do not believe their anxiety is malleable may not be able to maximise their wellbeing at school. School interventions which target anxiety malleability beliefs may improve students' school-related wellbeing. An intervention that teaches students their anxiety can be changed and controlled might be a promising strategy for preventing low school-related wellbeing, or increasing school-related wellbeing. There is no research which has manipulated anxiety malleability beliefs and observed consequences for wellbeing; however, Smith et al. (2018) showed that teaching students that they could change their *emotions* improved their emotional wellbeing (see Section 2.7.2). Smith et al.'s (2018) two-session intervention taught students what emotions were and how they form, the importance of recognising emotions, that it is normal to have difficulties in regulating emotions, adaptive emotion theories, and how emotions can be modified using emotion regulation strategies. Thus, future studies aiming to target students' anxiety malleability beliefs to improve wellbeing could design interventions based on the

materials by Smith et al. (2018) but modified to teach students how to change their anxiety rather than their emotions.

Happiness malleability beliefs could be predicting school-related wellbeing via the use of cognitive reappraisal. As such, schools could consider using interventions to promote the idea that happiness is malleable, which is likely to promote cognitive reappraisal and thus enhance wellbeing. Strategies to promote the malleability of happiness could be incorporated into CBT or SEL interventions (see Section 7.3.1.1). As school-related wellbeing was shown to *directly* predict happiness malleability beliefs, interventions targeting theories of happiness may be especially helpful to young people who are already experiencing low levels of school-related wellbeing, who are likely to view their happiness as unchangeable. These interventions may help prevent further decreases in school-related wellbeing, and thus mitigate against the negative effects that poor wellbeing can have on academic outcomes.

7.3.4 RQ4 – Do beliefs about the malleability of one’s own emotions show stronger relations with school-related wellbeing than beliefs about the malleability of other people’s emotions?

This RQ extended significant findings from RQ3. It examined whether first-person anxiety malleability beliefs predicted school-related wellbeing to the same extent as third-person malleability beliefs, and whether school-related wellbeing predicted first-person happiness malleability beliefs to the same extent as it predicted third-person happiness malleability beliefs. This research question was derived from previous research which indicated that first-person and third-person emotion malleability beliefs may not be related to facets of wellbeing in the same way (see Section 2.9.1; De Castella et al., 2013; Vuillier et al., 2021). First-person anxiety malleability beliefs did predict school-related wellbeing to the same extent as third-person anxiety malleability beliefs. However, although school-related

wellbeing predicted first-person happiness malleability beliefs, school-related wellbeing did not predict third-person malleability beliefs.

7.3.4.1 Educational Implications

Findings from RQ4 suggest that interventions aiming to improve school-related wellbeing through teaching students that anxiety is malleable do not have to discriminate between the target of the belief (e.g., self vs. people). Teaching students that their own anxiety can be changed, and that of other people, is likely to have the same effect on increasing school-related wellbeing. Indeed, it could be that integrating both targets of belief into an intervention may have the optimal impact on improving wellbeing, although this is open to speculation and further research would be needed to investigate this claim. However, interventions which target happiness malleability beliefs to youths already experiencing low school-related wellbeing, should focus on addressing how one's own happiness is amenable to change, rather than the happiness of others, to prevent further decreases in wellbeing.

7.4 General Educational Considerations and Suggestions

Interventions, such as those suggested in section 7.3.1.1, may not be met with enthusiasm by all parents, educators, leaders and policy makers. Schools are already stretched in terms of allocating time and resources to ensure the learning and psychological needs of students are met. Thus, it may be difficult to find the time and funding to facilitate an intervention, particularly if schools are already running interventions to increase student wellbeing. In addition, such interventions mean time is taken away from students gaining specialist subject knowledge (Ecclestone & Hayes, 2009). Some persons working in education also suggest therapeutic interventions taking place in educational establishments may make learners too dependent on educators for maintaining their wellbeing (Ecclestone &

Hayes, 2009). Thus, students may not feel the need to take responsibility for their own wellbeing if they believe it is the responsibility of educators to ensure it is maintained. Nevertheless, interventions to improve wellbeing are likely to promote ways in which students can *take* responsibility for their wellbeing (i.e., by teaching skills which promote it such as cognitive reappraisal), thus are likely to empower students to take ownership over their wellbeing.

Schools do not necessarily have to invest large amounts of funding into facilitating interventions to improve student wellbeing. Indeed, number of sessions in youth psychological therapy has not been found to be linked to the treatment result (Weisz et al., 2017). Low-cost, brief interventions, which require less intensive training of facilitators, could successfully address the risk factors associated with emotional wellbeing (Schleider & Weisz, 2018). Studies have shown that psychological problems in adolescents can be addressed by short interventions which reduce social anxiety and improve general mental health (Parr & Cartwright-Hatton, 2009; Perkins, 2006). Moreover, Schlieder and Weisz (2017) conducted a meta-analysis of 50 randomised control trials which used single session interventions to address youth psychiatric problems, and found youths in a treatment group (vs. control group) were 58% more likely to benefit from the treatment compared to individuals in the control group. Concerning emotion beliefs interventions, Smith et al. (2018) showed that adaptive theories of emotion and emotional wellbeing at school improved after just two sessions.

There are also other ways in which malleability beliefs, cognitive reappraisal and wellbeing can be promoted in schools. First, schools which adopt a whole school growth-mindset approach (e.g., believing and promoting the idea that emotions can be changed) can empower students to be motivated to question their beliefs and adopt more incremental mindsets, which are likely to positively impact on cognitive reappraisal and wellbeing.

Teachers' own mindset beliefs are key to supporting students to consider their own mindsets (Seaton, 2017). Thus, teacher training to empower teachers to implement growth mindsets may also have downstream benefits for changing students' mindsets. Second, educators and leaders can develop instructional practices which enable young people to use cognitive reappraisal in the classroom. Students can then use cognitive reappraisal to remain focused on learning and will be less likely to be distracted by negative emotions which can hinder learning and deplete task-related processing resources (Meinhardt & Pekrun, 2003). This is likely to impact positively on school-related wellbeing.

School and college leaders could also integrate the growth mindset approach, and the idea that school or college is a place for enhancing emotion regulation skills and wellbeing, into their school or college ethos. For instance, leaders may incorporate the vision into their mission statement, and ensure it is kept at the forefront of all strategic decisions. The language used to describe these concepts (e.g., growth mindset, cognitive reappraisal) could be purposefully used in interactions and communications between students, staff, and parents. In addition, the vision could be made visible to the school's wider community by incorporating it into external communications (e.g., newsletters, websites, staff handbooks). Meetings and events (e.g., assemblies, parents' evenings) could also be an opportunity to communicate the school or college's vision and how it is being achieved. Ultimately, schools which support these approaches, values and beliefs are more likely to succeed in facilitating positive changes in students' wellbeing and emotion regulation skills, and this will likely have a positive impact on their educational achievement.

7.5 Conclusion

For decades, research has shown cognitive reappraisal is advantageous for mental health (e.g., Gross & John, 2003). The data from this study supports previous research in

identifying that cognitive reappraisal is also beneficial for the school-related wellbeing of secondary school and 6th form college students. Thus, students who use cognitive reappraisal more frequently are likely to have better wellbeing in relation to the school. A novel finding of this research is that cognitive reappraisal and school-related wellbeing are reciprocally related. Students with higher levels of school-related wellbeing are likely to use cognitive reappraisal to regulate their emotions more frequently than students with low school-related wellbeing. Thus, students with higher levels of school-related wellbeing are likely to gain more practice in developing their cognitive reappraisal skills; this may be important for regulating emotions later in life and is likely to impact positively on education outcomes. Findings may inform the design of whole-school, universal and targeted interventions, such as CBT or SEL interventions, to improve the emotion regulation skills and wellbeing of young people.

While previous research suggests that believing emotions (in general) are malleable is linked positively to cognitive reappraisal and wellbeing (e.g., De Castella et al., 2013; Ford & Gross, 2019; see Sections 2.6 & 2.7), data from this study does not support these claims. However, when specifying the *type* of emotion malleability belief, this doctoral work shows that anxiety malleability beliefs predict school-related wellbeing, happiness malleability beliefs predict cognitive reappraisal, and school-related wellbeing predicts happiness malleability beliefs. Happiness malleability beliefs also predict school-related wellbeing via cognitive reappraisal. Interventions which promote the idea that anxiety is malleable are likely to positively impact students' wellbeing. In addition, interventions which target happiness malleability beliefs may have a positive impact on school-wellbeing via cognitive reappraisal. Students who have low wellbeing are likely to benefit from targeted interventions to change their fixed happiness beliefs.

This study showed that first-person anxiety malleability beliefs have the same power as third-person anxiety malleability beliefs in predicting school-related wellbeing; however, school-related wellbeing predicts first-person happiness malleability beliefs, but does not predict third-person happiness malleability beliefs. Targeted interventions for students with low school-related wellbeing, which aim to change fixed happiness beliefs, should concentrate on delivering interventions which focus on changing malleability beliefs related to one's *own* happiness. Findings highlight the importance for future studies to specify the type and target of the emotion belief when investigating how emotion beliefs are related to emotion regulation and wellbeing. Results show that one's own beliefs about the controllability and changeability of anxiety and happiness are likely to be important precursors and consequences of emotion regulation and school wellbeing, and thus likely impact on education outcomes. Interventions for young people (e.g., CBT, SEL) should aim to address malleability beliefs in their design to promote adaptive emotion regulation skills and optimal wellbeing for young people.

7.6 Chapter Summary

This chapter concludes the thesis. A summary of the thesis and RQs were provided. After the summary of each RQ, suggestions were given for informing educational practice. Barriers to implementing interventions within schools, which may be informed by this data, were considered and discussed. Suggestions were made for additional ways in which schools can promote the wellbeing of students. Finally, the chapter ended with conclusions from the doctoral work.

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APPENDICIES

APPENDIX A



Date received	Initials	LJMU REC Ref

Application for Ethical Approval

No research must be started without full, unconditional ethical approval. There are a number of routes for obtaining ethical approval depending on the potential participants and type of study involved – please complete the checklists below to determine which is the most appropriate route for your research study.

A. Pedagogic Research (ROUTE FOR STAFF ONLY)

To find out if your study can be conducted under the University's Code of Practice for Pedagogic Research please answer the questions below.			
1.	Is the proposed study being undertaken by a member of LJMU staff?		N/A
2.	Is the purpose of the study to evaluate the effectiveness of LJMU teaching and learning practices by identifying areas for improvement, piloting changes and improvements to current practices or helping students identify and work on areas for improvement in their own study practices?		N/A
3.	Will the study be explained to staff and students and their informed consent obtained?		N/A
4.	Will participants have the right to refuse to participate and to withdraw from the study?		N/A
5.	Will the findings from the study be used solely for internal purposes? <i>e.g. there is no intention to publish or disseminate the findings in journal articles or external presentations</i>		N/A
If you have answered Yes to all Qs1-4 your study may be eligible for consideration under the University's Code of Practice for Pedagogic Research. You should not complete this application form but seek further guidance at http://www2.ljmu.ac.uk/RGSO/114123.htm or by contacting Dave Harriss D.Harriss@ljmu.ac.uk .			
If you have answered No to any of Qs1-4 you should complete the checklists below to determine which route you should use to apply for ethical approval of your study.			

B. National Research Ethics Service (NRES)

To find out if your study requires ethical approval through NRES answer the questions below. Does your study:			
1.	Involve access to NHS patients or their data, or involve participants identified from, or because of, their past or present use of NHS services?		No
2.	Include adults who lack capacity to consent as research participants?		No
3.	Involve the collection and/or use of human tissue as defined by the Human Tissue Act 2004? **		No
If you have answered Yes to any of Qs1-3 you should not complete this application form. You must seek approval for your study through the NHS National Research Ethics Service (NRES). For further information and details of how to apply to NRES can be found at http://www.hra.nhs.uk/ Please complete the IRAS form – ensure that you include Dave Harriss' details as the sponsor's representative.			
If you have answered No to Qs1-3 complete the checklist below to determine whether your application is eligible for proportionate review or if a full review by the University's REC is required.			
** <i>Studies involving the use of human tissue from healthy volunteers which are taking place within the University's Research Institute for Sports and Exercise Sciences (RISES) can apply for approval through the University REC (for further information contact Dave Harriss: D.Harriss@ljmu.ac.uk)</i>			

C. Full versus Proportionate Review

Does the proposed study:

1.	Expose participants to high levels of risk, or levels of risks beyond those which the participant is likely to experience whilst participating in their everyday activities? These risks may be psychological, physical, social, economic, cause legal harm or devalue a person's self-worth. <i>e.g. untrained volunteers exposed to high levels of physical exertion; participants purposefully exposed to stressful situations; research where participants are persuaded to reveal information which they would not otherwise disclose in the course of everyday life.</i>			No
2.	Involve the administration of drugs, medicines or nutritional supplements as part of the research design?			No
3.	Include adults who may be classed as vulnerable? <i>e.g. adults with learning disabilities or mental illness; drug/substance users; young offenders; prisoners/probationers; those in a dependent relationship with the researcher</i>			No
4.	Include children or young adults (below 18) where parental consent will not be sought?			No
5.	Involve the discussion or disclosure of topics which participants might find sensitive or distressing? <i>e.g. sexual activity; criminal activity; drug use; mental health; previous traumatic experiences; illness; bereavement</i>			No
6.	Use questionnaires which focus on highly sensitive areas? <i>e.g. illegal activity; criminal activity; disclosure and analysis of findings based on sensitive personal information as defined by Data Protection Act e.g. racial or ethnic origin; political opinions; religious beliefs; trade union membership; physical or mental health; sexual life</i>			No
7.	Incorporate interviews or focus groups which involve the discussion of highly sensitive areas? <i>e.g. illegal activity; criminal activity; disclosure and analysis of findings based on sensitive personal information as defined by Data Protection Act e.g. racial or ethnic origin; political opinions; religious beliefs; trade union membership; physical or mental health; sexual life</i>			No
8.	For research accessing and analysing existing datasets. Will the dataset include information which would allow the identification of individual participants?			NA
9.	Involve deliberately misleading participants in any way?			No
10.	Involve recruiting participants who have not been provided with a participant information sheet and asked to sign a consent form? <i>Please note that for questionnaire based studies a consent form is generally not request as consent is implied by the completion of the questionnaire. Applicants conducting questionnaire-only studies should answer NO</i>			No
11.	Involve the collection and/or use of human tissue from healthy volunteers? <i>Under these circumstances human tissue is as defined by the Human Tissue Act 2004 - "Any, and all, constituent part/s of the human body formed by cells." Research studies involving the use of plasma or serum are not covered by the HTA.</i>			No
12.	Involve high levels of risks to the researcher? <i>e.g. lone working at night; interviewing in your own or participants homes, observation in potentially volatile or sensitive situations</i>			No
<p>If you have answered No to all Qs1-12 your study is eligible for proportionate review. You should complete the following application form and submit it electronically with any supporting documentation e.g. participant information sheets, recruitment letters, consent forms to EthicsPR@ljmu.ac.uk . Your application will be reviewed by a sub-committee of the University REC</p>				

and you will be informed of the outcome within 2 weeks. Please note that if the allocated reviewer finds that your application has been wrongly submitted for proportionate review you will be notified and your application will be forwarded for consideration at the next University REC.

If you have answered **Yes to any of Qs1-12** your study is not eligible for proportionate review and will be considered at the next meeting of the University REC. You should complete the following application form and submit it electronically with any supporting documentation e.g. participant information sheets, recruitment letters, consent forms to researchethics@ljmu.ac.uk .

Please note that applications involving the use of human tissue originating from the School of Sports and Exercise Science should complete the Research Ethics Application Form for Studies Involving the Use of Human Tissue available at <https://www2.ljmu.ac.uk/RGSO/93085.htm>

Guidance on completing the LJMU REC application form can be found at <https://www2.ljmu.ac.uk/RGSO/93044.htm>

Visit <https://www2.ljmu.ac.uk/RGSO/93126.htm> for REC submission and meeting dates.

Where teaching practices involve invasive (psychological or physiological) procedures on students or others staff should refer to the guidance provided at <https://www2.ljmu.ac.uk/RGSO/93087.htm> regarding the development of departmental/faculty codes of practice.

Research Mode

Undergraduate – specify course

Postgraduate

<input type="checkbox"/>	MRes
<input type="checkbox"/>	MPhil
<input checked="" type="checkbox"/>	PhD
<input type="checkbox"/>	Prof Doc e.g. EdD or DBA
<input type="checkbox"/>	Other taught Masters programme – specify course

<input type="checkbox"/>	Postdoctoral
<input type="checkbox"/>	Staff project
<input type="checkbox"/>	Other – please specify

Has this application previously been submitted to the University REC for review? – **No**

If yes please state the original REC Ref Number

SECTION A – THE APPLICANT

A1. Title of the Research

A2. Principal Investigator (PI) (Note that the in the case of postgraduate or undergraduate research the student is designated the PI. For research undertaken by staff inclusive of postdoctoral researchers and research assistants the staff member conducting the research is designated the PI.)

Title Forename Surname

Post

School / Faculty

Email Telephone

Relevant experience / Qualifications

A3. Co-applicants (including student supervisors)

Co-applicant 1 / Academic Supervisor 1 (where the application is being submitted by a student, either undergraduate or postgraduate, details of their main dissertation supervisor must be included. The form must be submitted with a letter or email from their named supervisor indicating that they have read the application and are willing to supervise the student undertaking the proposed study – **STUDENT APPLICATIONS WILL NOT BE REVIEWED UNTIL NOTIFICATION OF REVIEW BY THE NAMED SUPERVISOR IS RECEIVED**

Title Forename Surname

Post

Department / School / Faculty

Email Telephone

Relevant experience / Qualifications

12 years post-doctoral experience of designing educational psychological research, collecting data and publishing findings into student wellbeing

Co-applicant 2 / Academic Supervisor 2

Title Forename Surname

Post

Department / School / Faculty

Email Telephone

Relevant experience / Qualifications

9 years as a senior lecturer at LJMU. 1 previous completion (PhD) and undergraduate supervisor (ongoing).

Where there are more than 2 co-applicants please append an additional page to your application containing the relevant details

SECTION B – PROJECT DETAILS

B1. Proposed Date for Commencement of Participant Recruitment (Please enter the date when you propose to start recruiting participants – note that no recruitment can take place without full, unconditional ethical approval)

Start Date

B2. Scientific Justification. State the background and why this is an important area for research (Note this must be completed in language comprehensible to a lay person. Do not simply refer to the protocol. Maximum length – 1 side of A4)

A wide range of emotions are experienced in the school or college environment and these emotions can influence learning and academic outcomes, and impact on pupils' academic development (Pekrun, Goetz, Titz, & Perry, 2002). Positive emotional experiences have been found to improve overall wellbeing (Steinmayr, Crede, McElvany, & Wirthwein, 2016), and have a significant impact on pupils' academic success (Pekrun, Elliot, & Maier, 2009). However, it is not only the experience of emotions that is linked to wellbeing and academic outcomes, the ability to regulate these emotions allows the individual to adjust to new experiences and changes, which is essential for healthy cognitive and emotional functioning. Thus, Emotion regulation (ER) involves learning how to identify, monitor, evaluate and change reactions to an emotional stimulus (Thompson, 1994).

Studies have supported the notion that strategies used to regulate emotions are either adaptive or maladaptive (Aldao & Nolen-Hoeksema, 2012). A large body of literature demonstrates that cognitive reappraisal (changing the way one thinks about a situation) is an adaptive ER strategy whereas expressive suppression (hiding, inhibiting or reducing the expression of emotion) is maladaptive (e.g., Srivastava, Tamir, McGonigal, John, & Gross, 2009). Confirming these findings, Seibert, Bauer, May, and Fincham (2017), found that undergraduate students who engaged in higher levels of cognitive reappraisal and lower levels of expressive suppression to regulate academic-related stress had less cynicism towards their studies, lower levels of chronic exhaustion from academic work, and greater self-belief that they were able to accomplish their academic objectives.

Implicit Theories and Emotion Regulation

Implicit theories are concerned with an individuals' beliefs about the malleability of particular attributes and traits such as personality and intelligence. People holding incremental beliefs view a particular attribute or trait as having the potential to change and develop over time, whereas those holding entity beliefs typically believe the attribute or trait is fixed and unchangeable. Dweck (2006) defined those with incremental beliefs as having a 'growth mindset' (changing over time), and those holding entity beliefs as having a 'fixed mindset' (not changing over time).

Researchers have also begun to highlight the importance of implicit beliefs about emotions. For instance, Manser, Cooper and Trefusis (2012) linked particular beliefs about negative emotions (e.g., that they were uncontrollable, damaging, overwhelming) to depression and anxiety in undergraduates. Additionally, Tamir and colleagues (2007) recruited students transitioning to college in the U.S (the equivalent of university in the U.K.) and found that before entering college, individuals who held entity (vs. incremental) theories of emotion made less use of cognitive reappraisal, and throughout their first academic term had less favourable emotion experiences. Moreover, by the end of their first year entity theorists had lower wellbeing and reported more symptoms of depression than the incremental theorists. Subsequently, De Castella et al. (2013) found that undergraduates who held incremental emotion beliefs had better wellbeing and lower psychological distress than those who endorsed entity emotion beliefs.

However, an important gap in the literature has to do with *why* emotion beliefs have affective correlates. Research to date has investigated two ER strategies that may explain this link: cognitive reappraisal and expressive suppression. Research suggests that individuals holding entity beliefs are less likely to use cognitive reappraisal as an ER strategy (Tamir et al., 2007). Conversely, those with incremental emotion

beliefs are more likely to use cognitive reappraisal in daily life, thus report fewer mental health problems (De Castella et al., 2013; Schroder, Dawood, Yalch, Donnellan, & Moser, 2015). However there are contradictory findings in the literature linking emotion beliefs to effective suppression. Schroder et al. (2015) found that implicit emotion beliefs were related to suppression, and this strategy has been linked to negative mental health outcomes (e.g., Gross & John, 2003), however the relationship was only statistically significant in 1 of their 2 studies. Further work by Tamir et al. (2007) demonstrated that endorsing an entity theory of emotion is not linked to expressive suppression.

Social anxiety

Social anxiety disorders (SADs) typically onset in adolescence (Sadock, Sadock, & Ruiz, 2017), and young people who are socially anxious often have fear of reading, writing, speaking or eating in public (APA, 1994). Anxiety disorders in adolescents, particularly social anxiety disorders are linked to academic underachievement, and premature withdrawal from school (Van Ameringen, Mancini, & Farvolden, 2003), and these individuals are likely to experience difficulties gaining employment and in their personal relationships later in adulthood (Mancini, Van Ameringen., Bennett, Patterson, & Watson, 2005).

Previous research has demonstrated that people with SAD are more likely than those without the disorder to believe that their anxiety and emotions cannot be controlled (De Castella., Goldin, Jazaieri, Ziv, Heimberg, & Gross, 2014), and are more likely to use the maladaptive emotion regulation strategy expressive suppression (Werner, Goldin, Ball, Heimberg, & Gross, 2011). This may be because if people believe their emotions can't be controlled, they may assume that hiding their emotional expressions is the only way to control them (De Castella et al., 2014). Additionally, as previously discussed, research has shown that those who hold entity beliefs about emotions are less likely to use cognitive reappraisal (De Castella et al., 2013); thus, these individuals may be more likely to develop SAD if they do not make attempts to change the way they perceive stressful social situations. As such, investigating whether holding entity beliefs about emotions cause symptoms of SAD (via less frequent use of cognitive reappraisal and more frequent use of expressive suppression) is a fruitful avenue for future research.

How the research contributes to knowledge in the field

At present, no research has been conducted which examines an individual's emotion beliefs (incremental vs. entity) and how this is linked to wellbeing in adolescents aged 11-19 years. Additionally, no work has been conducted to investigate whether implicit beliefs about emotions, anxiety and emotional expression, are related to emotion regulation strategies and, therefore, impact on school-related wellbeing and SAD. Moreover, examining if student's beliefs about their ability to control *their own* emotions (personal beliefs) are a better predictor of psychological wellbeing than their beliefs about the controllability of emotions in general (general beliefs) may become important in the context of wellbeing interventions. Knowing that change is possible for *some* may not be the same as believing in one's ability to *personally* change. Thus, interventions which focus on attempting to change implicit beliefs about emotions may need to consider whether it is necessary to address personal or general emotion beliefs. As such, we suggest that investigating these discrepancies will contribute extensively to the literature on wellbeing.

Finally, our work can make further contributions to the literature by identifying whether it is necessary to integrate topics concerned with emotion beliefs and emotion regulation strategies within current school wellbeing interventions or adolescent mental health programmes. Additionally, the potential wider impact of the project may give insight for participating institutions to inform their policies and practices for student wellbeing, and influence national educational and health policy over the direction of strategy to improve wellbeing.

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Van Ameringen, M., Mancini, C., & Farvolden, P. (2003). The impact of anxiety disorders on educational achievement. *Journal of anxiety disorders*, 17(5), 561-571.

Werner, K. H., Goldin, P. R., Ball, T. M., Heimberg, R. G., & Gross, J. J. (2011). Assessing emotion regulation in social anxiety disorder: The emotion regulation interview. *Journal of Psychopathology and Behavioral Assessment*, 33(3), 346-354.

B3. Give a summary of the purpose, design and methodology of the planned research

(Note this must be completed in language comprehensible to a lay person. Do not simply refer to the protocol. Maximum length – 1 side of A4)

Purpose

To investigate whether secondary school and 6th form college students' implicit emotion beliefs are related to their emotional wellbeing. Additionally, to identify if beliefs about their own emotions and emotions in general are related to emotional wellbeing via emotion regulation (ER), and to determine if their beliefs about the malleability of their own emotions are a better predictor of their emotional wellbeing than their beliefs about emotions in general.

Design and methodology

This is a three-wave panel design consisting of 3 data points, spaced equally by 6 months:

- 1) Data collection (questionnaire) Wave 1 October 2018
- 2) Data collection (questionnaire) Wave 2 April 2019
- 3) Data collection (questionnaire) Wave 3 October 2019

The questionnaires will be completed on paper or online (a method chosen by the participant's school/college) in the participant's class at a time convenient for the school/college which will be decided by the gatekeeper/appointed contact (e.g., during form time) on 3 occasions- in October 2018, April 2019 and October 2019, each questionnaire taking 10-15 minutes to complete.

Measures

Questionnaire Measures

General implicit emotion beliefs: Assessed using the Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007). Two items measure incremental beliefs and two measure entity beliefs. Responses are rated on a 5-point Likert scale. In past research with undergraduates, the scale showed good internal consistency ($\alpha = .75$; Tamir et al., 2007).

Personal implicit emotion beliefs: Assessed using a variant of the original four-item measure (Tamir et al., 2007). Items are changed to reflect a first-person claim about the malleability of one's own emotions. Responses are rated on a 5-point Likert scale. In past research, the scale had good internal consistency ($\alpha = .79$; De Castella et al., 2013).

Anxiety/emotional expression beliefs: Assessed using a variant of the original four-item measure (Tamir

et al., 2007). Items are changed to reflect anxiety/emotional expression beliefs. Responses are rated on a 5-point Likert scale. In past research, the scale had good internal consistency ($\alpha = .79$; De Castella et al., 2013).

Social anxiety: Assessed using a 9-item sub-scale for social anxiety (child's scale) from The Revised Children's Anxiety and Depression Scale (RCADS; Chorpita et al., 2000). Responses are rated on a 4-point Likert scale. The scale has shown good internal consistency ($\alpha = .87$; Chorpita, Moffitt., & Gray, 2005).

Emotion Regulation: A 6-item scale designed to measure respondents' tendency to regulate their emotions by use of cognitive reappraisal and suppression (Gross & John, 2003). Participants rate their responses on a 5-point Likert scale. The scale has strong convergent and discriminant validity (Gross & John, 2003), and shown good internal consistency ($\alpha = .83$ to $.86$; Moscovitch et al., 2011).

Wellbeing: Assessed using a six-item self-report scale (Loderer et al., 2016) to measure students' global judgments of their overall wellbeing in school settings. Participants rate their responses on a 5-point Likert Scale. The scale has shown good internal consistency ($\alpha = .86$; Loderer et al., 2016).

Proposed analysis

Structural Equation Modelling will be used to test cross-lagged paths in the panel design.

References

- Burton, C. L., & Bonanno, G. A. (2016). Measuring ability to enhance and suppress emotional expression: The Flexible Regulation of Emotional Expression (FREE) Scale. *Psychological assessment, 28*(8), 929.
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- Chorpita, B. F., Yim, L., Moffitt, C., Umemoto, L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. *Behaviour research and therapy, 38*(8), 835-855.
- De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Dweck, C. S., & Gross, J. J. (2013). Beliefs About Emotion: Links to Emotion Regulation, Well-Being, and Psychological Distress. *Basic and Applied Social Psychology, 35*(6), 497-505. doi:10.1080/01973533.2013.840632
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of personality and social psychology, 85*(2), 348.
- Loderer, K., Vogl, E., & Pekrun, R. (2016, August). Students' well-being at school revisited: Development and initial validation of a unidimensional self-report scale. Paper to be presented at the annual meeting of the International Conference on Motivation (ICM), Thessaloniki, Greece.
- Moscovitch, D. A., Gavric, D. L., Senn, J. M., Santesso, D. L., Miskovic, V., Schmidt, L. A., . . . Antony, M. M. (2012). Changes in judgment biases and use of emotion regulation strategies during cognitive-behavioral therapy for social anxiety disorder: distinguishing treatment responders from nonresponders. *Cognitive Therapy and Research, 36*(4), 261-271.
- Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of personality and social psychology, 92*(4), 731-744. doi:10.1037/0022-3514.92.4.731

B4. State the principal research question

Are secondary school and 6th form college students' implicit emotion beliefs related to their emotional wellbeing?

B5a. Give details of the proposed intervention(s) or procedure(s) and the groups of people involved (including psychological or physical interventions, interviews, observations or questionnaires)

Procedure or Intervention	Participants	Number of participants	No. of procedures per participant	Avg. Time to complete
<p>Questionnaires</p> <p>The questionnaires will be completed on paper or online (a method chosen by the participant's school/college) in the participant's class at a time convenient for the school/college which will be decided by the gatekeeper/appointed contact (e.g., during form time) on 3 occasions- in October 2018, April 2019 and October 2019, each questionnaire taking 10-15 minutes to complete.</p>	<p>Secondary school or 6th form college pupils from schools or 6th form colleges in the U.K.</p>	<p>Approx 1200</p>	<p>3 (Time 1, 2 and 3 completion of the same questionnaire)</p>	<p>10-15 mins</p>

To include additional interventions place your mouse cursor in the last cell of the final column and press the tab button on your keyboard. A new row will be created for the above table.

B5b. Where questionnaires are to be used have these previously been validated?

Yes No Not Applicable

*If yes, state by whom and when. If no, you **must** append copies of the proposed questionnaire in the application*

Questionnaires

General implicit emotion beliefs: Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007).

Personal implicit emotion beliefs: A variant of the original four-item Implicit beliefs about Emotion Scale measure (Tamir et al., 2007).

Anxiety/emotional expression beliefs: A variant of the original four-item Implicit beliefs about Emotion Scale measure (Tamir et al., 2007).

Social anxiety: A 9-item sub-scale for social anxiety (child's scale) from The Revised Children's Anxiety and Depression Scale (RCADS; Chorpita et al., 2000).

Emotion Regulation: A 10-item scale designed to measure respondents' tendency to regulate their emotions by use of cognitive reappraisal and suppression (Gross & John, 2003).

School related wellbeing: A six-item self-report scale (Loderer et al., 2016)

References

Burton, C. L., & Bonanno, G. A. (2016). Measuring ability to enhance and suppress emotional expression: The Flexible Regulation of Emotional Expression (FREE) Scale. *Psychological assessment, 28*(8), 929.

De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Dweck, C. S., & Gross, J. J. (2013). Beliefs About Emotion: Links to Emotion Regulation, Well-Being, and Psychological Distress. *Basic and Applied Social Psychology, 35*(6), 497-505. doi:10.1080/01973533.2013.840632

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of personality and social psychology, 85*(2), 348.

Loderer, K., Vogl, E., & Pekrun, R. (2016, August). Students' well-being at school revisited: Development and initial validation of a unidimensional self-report scale. Paper to be presented at the annual meeting of the International Conference on Motivation (ICM), Thessaloniki, Greece.

Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of personality and social psychology, 92*(4), 731-744. doi:10.1037/0022-3514.92.4.731

B5c. Where interviews or focus groups (structured or semi-structured) are proposed you must append an outline of the questions you are going to ask your participants. Please confirm that you have attached an outline of your interview / focus group questions.

Yes Not Applicable

B6. How will the findings of the research be disseminated?(e.g. thesis, dissertation, peer-reviewed articles, conference presentations, reports)

A short report to participating schools/colleges, 1x conference presentation, 1x journal article, 1x doctoral thesis

SECTION C – THE PARTICIPANTS

C1. How will the participants been selected, approached and recruited? If participants are to be approached by letter/email please append a copy of the letter/email. Please include details on how much time participants will have to decide if they want to take part. (where different groups of participants have been identified in section B5a above provide details on how each group will be selected, approached and recruited.)

The head teacher/principal of the schools or colleges will be emailed by the researcher in July 2018 (copy of email attached) asking if they will allow their students from Years 7, 8, 9, 10 or 12 (but not Years 11 and 13) to take part in the research. The researcher will ask the head teacher/principal to respond within 2 weeks (date will be given on email) stating if their school/college wishes to participate. If the head teacher/principal agrees, the researcher will follow up with a meeting to explain in more detail what participation would involve.

If the gatekeeper agrees for his/her school college to take part in the research, the researcher will then ask the gatekeeper to identify which year groups they will allow to take part (e.g., Years 7, 8, 9, 10 or 12) or which form groups/classes (these will be decided by the gatekeeper). To then approach these participants, the researcher will ask the gatekeeper to email form tutors of these identified classes/year groups a copy of the participant information sheet, the questionnaire and the parental opt out form (for students in Years 7, 8, 9 and 10) and ask form tutors to email the opt out form, questionnaire and information sheet to the parents of the students in their class within the next week. Parents/carers will then be able to contact the school if they wish to withdraw their child from the study (as detailed on the opt out form) within the next 2 weeks.

After this process has been completed and any pupils who have been withdrawn have been identified, the researcher will then send the required number of questionnaires and blank envelopes to the school (or the online link to the questionnaire) in October 2018, April 2019 or October 2019 together with the participant information sheet for form tutors (who have forms participating in the study) to give each student in their class. Students will then be able to read through the participant information sheet before they complete the questionnaire and decide if they want to take part or not. The researcher will contact the gatekeeper when sending the questionnaires to inform them that form tutors should not give the questionnaire to any students who have had parents withdraw them from the study, and to ask form tutors to provide withdrawn students (or students who do not wish to take part) with a short alternative task to complete.

C2. How was the number of participants decided? (e.g. was a sample size calculation performed)

Using a sample size estimation for latent modelling analysis (Kline, 2015), each wave of data collection in Study 1 consists of 40 parameters in per wave, within the 40 parameters there are 40 sets of residual variance, 39 sets of factor loadings, 9 individual factors, 9 sets of variance, and 22 sets of covariance.

1 parameter would need 10 participants therefore 40 parameters will need 400 participants at each wave. There are 3 waves therefore 1200 participants will be needed in total over 3 waves. A limited number of variables will be used in a single analytic model therefore a sample size of 1200 participants will be sufficient.

Kline, R. B. (2015). *Principles and practice of structural equation modeling*: Guilford publications.

C3a. Will any of the participants come from any of the following groups? (Please tick all that apply)

Please note that the Mental Capacity Act 2005 requires that all research involving participation of any adult who lacks the capacity to consent through learning difficulties, brain injury or mental health problems be reviewed by an ethics committee operating under the National Research Ethics Service (NRES). For further information please see

<http://www.ljmu.ac.uk/RGSO/101579.htm>

<input checked="" type="checkbox"/>	Children under 16
<input type="checkbox"/>	Adults with learning disabilities
<input type="checkbox"/>	Adults with mental illness (if yes please specify type of illness below)
<div style="border: 1px solid black; height: 40px;"></div>	
<input type="checkbox"/>	Drug / Substance users
<input type="checkbox"/>	Young offenders
<input type="checkbox"/>	Those with a dependant relationship with the investigator <i>e.g. your employees or students</i>
<input type="checkbox"/>	Other vulnerable groups please specify
<div style="border: 1px solid black; height: 20px;"></div>	

Justify their inclusion

It is necessary to include children under 16 as the aim of the study is to investigate how emotion beliefs are related to wellbeing in secondary school pupils. Therefore, obtaining a sample which is representative of all secondary school students (aged 11-19) ensures that findings can be generalised with confidence to the entire secondary school population.

C3b. If you are proposing to undertake a research study involving interaction with children or vulnerable adults do you have current, valid clearance from the UK Disclosure and Barring Service (DBS)?

Yes No Not Applicable

C4a. What are the inclusion criteria? (Please include information on how you will ensure that your participants will be informed of your inclusion criteria and how you will ensure that any specific inclusion criteria are met)

Participants will be secondary school or 6th form college pupils aged 11-19 from Years 7, 8, 9, 10 or 12 who the head teacher/gatekeeper has asked to participate in the study.

C4b. What are the exclusion criteria? (Please include information on how you will ensure that your participants will be informed of your exclusion criteria and how you will ensure that any specific exclusion criteria are met)

Students who are not participating in the research (Year 11 and 13 students) and staff at the schools/colleges. These individuals will not be invited to complete the questionnaire. This is because students will need to be still attending the school/college in October 2019 in order to complete the questionnaire at Time 3. The gatekeeper/head teacher will only give questionnaire packs/online links to Years 7, 8, 9, 10 and 12 pupils, and will be made aware that the questionnaire is only for these specific year groups. Additionally, one of the questions at the beginning of the questionnaire will ask the participant to confirm that they belong to Year groups 7, 8, 9, 10 or 12.

C5. Will any payments/rewards or out of pocket expenses be made to participants?

Yes No

If yes what or how much?

SECTION D – CONSENT

D1. Will informed consent be obtained from (please tick all that apply)

- | | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | The research participants? |
| <input checked="" type="checkbox"/> | The research participants' carers or guardians? |
| <input checked="" type="checkbox"/> | Gatekeepers to the research participants? (i.e. school authorities, treatment service providers) |

D2. Will a signed record of consent be obtained? Please note that where the study involves the administration of a questionnaire or survey a signed record of consent is not required for completion of the questionnaire as long as it is made clear in the information sheet that completion of the questionnaire is voluntary. Under these circumstances return of the completed questionnaire is taken as implied consent.

If implied consent is to be assumed by return of questionnaires, the following statement (or similar) must be used:

"I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided"

Participation in any other interventions within the same study e.g. interviews, focus groups must be supported by obtaining appropriate written consent.

Yes No Implied consent for questionnaire Verbal consent

Where the study involves the use of more than one intervention for example interviews and a questionnaire please the space below to detail the method of consent to be used for each intervention eg
Questionnaire – implied consent
Interview – written consent
Telephone interview – verbal consent

A signed record of **opt-out consent** will be obtained from parents who wish to withdraw their child from the study (for students under the age of 16). A signed record of informed consent will not be required from students or parents who wish to participate in the study. Consent is implied if the students complete the questionnaire (after reading the implied consent statement at the top of the questionnaire).

We ask parents/carers to return forms to the school/college only if they **do not** wish their child to participate in the study because this method is the most efficient way to recruit participants, and a large number of participants is required for the study. Additionally, asking the form tutors or staff to collect signed informed consent from every student can be problematic as it will require more work from staff at the school/college to receive all the replies back from parents/carers, and we wish to minimise disruption to staff and students. Additionally, even though the questions (relating to stress, anxiety and emotions) address sensitive issues for students, we do not believe there is any risk to participants by completing the questionnaire, however we do advise them to contact a support service (detailed on the participant information sheet) if they wish to seek support.

PLEASE APPEND COPIES OF ANY PROPOSED CONSENT FORMS TO THIS APPLICATION

D3. All participants must be provided with written information detailing the purpose, procedures, risks and benefits of participating. An approved template for the participant information sheet can be found at <https://www2.ljmu.ac.uk/RGSO/93044.htm> Please check the box below to confirm that a participant information sheet has been appended to this application.

APPLICATIONS SUBMITTED WITHOUT A PARTICIPANT INFORMATION SHEET WILL NOT BE REVIEWED.

D4a. Will participants be able to withhold consent (refuse to take part)?

Yes No

D4b. Will participants be able to withdraw from the study whilst it is ongoing (after they have consented to take part)?

Yes No

D4c. Will participants be able to withdraw from the study after data collection has ended (will it be possible to identify and remove an individual's data once it has been collected or has been collected anonymously)?

Yes No

Participants can send their anonymous ID code to the researcher via email or by passing the code to their tutor/head of year if they wish to retrospectively withdraw their data from the study. Participants will have up to 2 weeks from completion of the questionnaire to inform the researcher or tutor/head of year if they wish to withdraw.

THE ABILITY OF PARTICIPANTS TO REFUSE TO TAKE PART OR TO WITHDRAW FROM A STUDY MUST BE MADE CLEAR IN THE WRITTEN INFORMATION PROVIDED TO PARTICIPANTS

SECTION E - RISKS AND BENEFITS

E1. Where will the intervention(s) take place? *Please note that where research is to be conducted in participants' homes or other non-public places applicants must be aware of appropriate lone working policies / practices and complete a full risk assessment.*

Applicants should also be aware of potential embarrassment or distress for participants in asking them to discuss personal or sensitive topics in public places.

<input type="checkbox"/> LJMU premises	<input checked="" type="checkbox"/> NHS or other external organisations	<input type="checkbox"/> Public places	<input type="checkbox"/> Participant homes or other non-public places
--	---	--	---

E2. Will individual or group interviews/questionnaires discuss any topics or issues that might be sensitive, embarrassing or upsetting or is it possible that criminal or other disclosures requiring action could take place during the study? (e.g. during interviews or focus groups)

Yes No Not Applicable

If yes give details of procedures in place to deal with these issues. Information given to participants should make it clear under what circumstances action may be taken. Where interviews or questionnaires discuss sensitive or distressing topics signposting to relevant support organisations must be included in the associated participant information sheet.

E3. Explain any potential benefits for individual participants of the study. Where there are no benefits to individual participants provide brief details of the potential broader benefits of the study for example to society or to future service users.

The benefit of this study comes in knowing if emotion beliefs and emotion regulation is related to wellbeing at school. This would then inform educators and policy makers whether it is necessary to devise and deliver wellbeing interventions which are concerned with changing emotion beliefs and/or teaching adaptive emotion regulation strategies in order to improve the mental health of young people at school.

E4. Describe in detail any potential adverse effects, risks or hazards (mild, moderate, high or severe) of involvement in the research for the RESEARCHERS. Explain any risk management procedures which will be put in place e.g. lone working procedures, counselling, peer support.

None

SECTION F – DATA ACCESS AND STORAGE

F1. Personal Data Management

Will the study involve the collection and storage of personal, identifiable or sensitive information from participants? Please note that signed consent forms constitute personal data. (e.g. names, addresses, telephone numbers, date of birth, full postcode, medical records, academic records)

Yes No

If yes please provide details of what personal information will be collected and stored

*Applicants should note that personal identifiable information or sensitive information relating to participants **must not** be transferred in or out of the EEA without the explicit consent of participants. Such information must be handled with great care and only used in the way described in the written information you give your participants.*

*You **must** store any hard copies of personal data (e.g. printed data sheets, signed consent forms) in locked cupboards or filing cabinets and any electronic data containing personal information **must** be stored securely on LJMU password protected computers.*

*Personal data **must not** be stored on USB drives or other portable media or stored on home or personal computers.*

Where the use of verbatim quotes is proposed in future publications or presentations or it is intended that information is gathered using audio/visual recording devices explicit consent for this must be sought from participants.

F2. Will you share personal, identifiable data with other organisations outside of LJMU or with people outside of your research team? (e.g. supervisor, co-applicants)

Yes No Not Applicable

If yes please provide further details

F3. For how long will any personal, identifiable data collected during the study be stored?

DECLARATION OF THE PRINCIPAL INVESTIGATOR

- The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.
- I undertake to abide by the ethical principles underlying the Declaration of Helsinki and LJMU's REC regulations and guidelines together with the codes of practice laid down by any relevant professional or learned society.
- If the research is approved I undertake to adhere to the approved study procedures and any conditions set out by the REC in giving its favourable opinion.
- I undertake to seek an ethical opinion from LJMU REC before implementing substantial amendments to the approved study plan.
- If, in the course of the administering any approved intervention, there are any serious adverse events, I understand that I am responsible for immediately stopping the intervention and alerting LJMU REC.
- I am aware of my responsibility to comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- I understand that any records/data may be subject to inspection for audit purposes if required in the future.
- I understand that personal data about me as a researcher will be held by the University and this will be managed according to the principals of the Data Protection Act.
- I understand that the information contained in this application, any supporting documentation and all correspondence with LJMU REC relating to the application will be subject to the provisions of the Freedom of Information Act. The information may be disclosed in response to requests made under the Act except where statutory exemptions apply.
- I understand that all conditions apply to my co-applicants and other researchers involved in the study and that it is my responsibility that they abide by them.

TICK TO CONFIRM THAT YOU HAVE READ AND AGREE TO THE DECLARATION ABOVE

SUBMITTING YOUR APPLICATION FOR REVIEW

Once you have completed the above application form please submit it electronically to either EthicsPR@ljmu.ac.uk for proportionate review or to researchethics@ljmu.ac.uk for full review by the University REC. If possible please submit your application form and any additional supporting documentation as a single pdf file.

APPLICATIONS MUST BE SUBMITTED VIA AN LJMU EMAIL ACCOUNT AND FOR STUDENT APPLICATIONS SUPPORTED BY AN EMAIL / LETTER FROM THE MAIN SUPERVISOR CONFIRMING THAT THEY HAVE READ AND APPROVED THE STUDY / APPLICATION.

CHECKLIST OF DOCUMENTS SUBMITTED ELECTRONICALLY (Please note that applications submitted without the required supporting documents will not be reviewed).

Ethics Application Form (MANDATORY)

<input checked="" type="checkbox"/>	Protocol (MANDATORY) see note below
<input checked="" type="checkbox"/>	Email / letter from supervisor
<input checked="" type="checkbox"/>	Copies of any recruitment/advertisement material e.g. letters, emails, posters etc.
<input checked="" type="checkbox"/>	Participant Information Sheet
<input checked="" type="checkbox"/>	Carer Information Sheet
<input checked="" type="checkbox"/>	Gatekeeper Information Sheet
<input type="checkbox"/>	Participant Consent Form
<input type="checkbox"/>	Carer Consent Form
<input checked="" type="checkbox"/>	Gatekeeper Consent Form
<input type="checkbox"/>	Non-validated questionnaires
<input type="checkbox"/>	List of interview questions
<input type="checkbox"/>	Risk Assessment Form
<input type="checkbox"/>	Other please specify

Note

A research protocol is a document describing in detail how a research study is to be conducted in practice, including a brief introduction or background to the study, the proposed methodology and a plan for analysing the results. For the purposes of your application for ethical approval it is something which can be presented in a variety of formats dependent on its origin for example:

- *for postgraduate research students it may be the programme of work embedded within their programme registration form (RD9R)*
- *for studies which have obtained external funding it is often the description of what they propose doing which they submitted to the funder*
- *for other students it is the study proposal they have written and had assessed/approved by their supervisor.*

PROTOCOL: RD9R (Joanna Beaumont)

Title: Wellbeing and Emotional regulation in Young People

Background and relationship to previous work

This literature review aims to provide an overview of the proposed study ‘Wellbeing and Emotional regulation in Young People.’

Emotion Regulation, Psychological Wellbeing and Academic Outcomes

A wide range of emotions are experienced in the school or college environment and these emotions can influence learning and academic outcomes, and impact on pupils’ academic development (Pekrun, Goetz, Titz, & Perry, 2002). Positive emotional experiences have been found to improve overall wellbeing (Steinmayr, Crede, McElvany, & Wirthwein, 2016). and have a significant impact on pupils’ academic success (Pekrun, Elliot, & Maier, 2009).

Emotions such as hope, enjoyment and pride are associated positively with academic achievement, whereas negative emotions such as hopelessness and boredom are associated negatively with achievement (Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011). Researchers have suggested that the experience of positive emotions impacts on academic outcomes by broadening and building a pupil’s thought-action repertoire which promotes the discovery of creative ideas, actions and social bonds (Fredrickson, 2004) whereas negative emotions narrow attention and impair performance on difficult tasks (Fredrickson, 2001).

It is not only the experience of emotions that is linked to wellbeing and academic outcomes, the ability to regulate these emotions is essential for adaptation. Emotion regulation (ER) involves learning how to identify, monitor, evaluate and change reactions to an emotional stimulus (Thompson, 1994). Researchers have largely supported the notion that strategies used to regulate emotions are either adaptive or maladaptive (Aldao & Nolen-Hoeksema, 2012). Indeed, a large body of literature demonstrates that cognitive reappraisal (changing the way one thinks about a situation) is an adaptive ER strategy whereas expressive suppression (hiding, inhibiting or reducing the expression of emotion) is maladaptive (e.g., Srivastava, Tamir, McGonigal, John, & Gross, 2009). Confirming these findings, Seibert, Bauer, May, & Fincham (2017) found that undergraduate students who engaged in higher levels of cognitive reappraisal and lower levels of expressive suppression to regulate school-related stress had lower levels of school burnout.

Studies that have been conducted with adolescents demonstrate ER plays a crucial role in pupils’ wellbeing and academic success. For instance, Gumora and Arsenio (2002) found that middle school students who were less able to regulate their emotions had more negative attitudes towards school and lower grade point averages in mathematics and language arts classes. Moreover, Hill and Craft (2003) found adolescents’ mathematics and reading scores to be positively related to ER and academic behaviour skills. A more recent study demonstrated that clinically referred adolescents (aged 10-14) presenting school refusal reported greater use of expressive suppression and less use of cognitive reappraisal to regulate their emotions (Hughes, Gullone, Dudley, & Tongue, 2010) indicating that dysfunctional ER is related to problems with school-life.

However, recent research has indicated the most important predictor of wellbeing and adaptation is not which ER strategies are used, but how these strategies are used *flexibly*

(Cheng, 2001). Bonanno and Burton (2013) proposed a 3 stage sequential model emphasising the importance of flexibility in ER: (1) Sensitivity to contextual demands and opportunities, (2) Choosing and applying an ER strategy, (3) Responding to feedback (change, maintain or cease using a strategy). Demonstrating the importance of context, Troy, Shallcross, & Mauss (2013) found that in situations where stressors were controllable, the use of cognitive reappraisal was linked to higher levels of psychological distress. Conversely, when stress was uncontrollable, cognitive reappraisal was associated with lower levels of depression. Additionally, Dixon-Gordon, Aldao and De Los Reyes (2015) demonstrated that emotion regulation strategies chosen in stressful situations differ according to emotion type and emotional intensity. Indeed, Sheppes et al. (2014) found that in high-intensity negative situations individuals prefer to use distraction rather than cognitive reappraisal.

When assessing the availability of ER strategies in a person's repertoire, research has demonstrated that the ability to enhance or suppress emotional expression predicts lower levels of psychopathology and distress (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Gupta & Bonanno, 2011). Moreover, when responding to feedback about the effectiveness of an ER strategy, Birk and Bonanno (2016) found that frequent ER strategy change was related to satisfaction with life only among individuals who had high sensitivity to internal feedback, indicating that those who are able to successfully evaluate the success and failure of an ER strategy are at a distinct advantage.

Implicit Theories and Emotion Regulation

Implicit theories are concerned with an individual's beliefs about the malleability of particular attributes and traits. People holding incremental beliefs view a particular attribute or trait as having the potential to change and develop over time, whereas those holding entity beliefs typically believe the attribute or trait is fixed and unchangeable. Dweck (2006) defined those with incremental beliefs as having a 'growth mindset' (changing over time), and those holding entity beliefs as having a 'fixed mindset' (not changing over time). Previous studies have been concerned with investigating implicit beliefs relating to a broad range of attributes and abilities such as intelligence (Blackwell, Trzesniewski, & Dweck, 2007), relationships (Knee, Patrick, & Lonsbary, 2003), personality (Chiu, Hong, & Dweck, 1997), willpower (Dweck & Leggett, 1988) and even one's desire for fame (Maltby et al., 2008).

Researchers have also begun to highlight the importance of emotion beliefs. For instance, Manser, Cooper and Trefusis (2012) linked particular beliefs about emotions (e.g., uncontrollable, damaging, overwhelming) to depression and anxiety in undergraduates. Additionally, Tamir and colleagues (2007) recruited students transitioning to college in the U.S and found those who held entity beliefs about emotions were more depressed and had lower wellbeing than those who held incremental emotion beliefs. De Castella et al. (2013) also found that undergraduates who held incremental emotion beliefs had better wellbeing and lower psychological distress than those who endorsed entity emotion beliefs.

However, an important gap in the literature has to do with *why* emotion beliefs have affective correlates. Research to date has investigated two ER strategies that may explain this link: cognitive reappraisal and expressive suppression. Research suggests that individuals holding entity beliefs are less likely to use cognitive reappraisal as an ER strategy (Tamir et al., 2007). Conversely, those with incremental emotion beliefs are more likely to use cognitive reappraisal in daily life, thus report fewer mental health problems (De Castella et al., 2013;

Schroder, Dawood, Yalch, Donnellan, & Moser, 2015). However there are contradictory findings in the literature linking emotion beliefs to effective suppression. Schroder et al. (2014) found that emotion beliefs were related to suppression, and this strategy has been linked to negative mental health outcomes (e.g., Gross & John, 2003), however the relationship was only statistically significant in 1 of their 2 studies. Further work by Tamir et al. (2007) demonstrated that endorsing an entity theory of emotion is not linked to expressive suppression.

There may also be discrepancies between an individual's general implicit beliefs and beliefs about their *own* traits or abilities. De Castella and Byrne (2015) found that the belief one's own intelligence is malleable was a better predictor of achievement than beliefs about the malleability of intelligence in general. Concerning emotion beliefs, undergraduates' beliefs about their ability to change their own emotions was a better predictor of wellbeing and psychological distress than their beliefs about emotions in general (De Castella et al., 2013). Hence, evidence points towards a first-person measure of implicit beliefs holding greater predictive power than general beliefs. Future studies and reviews assessing implicit beliefs should therefore carefully consider the way beliefs are assessed.

Although previous work with undergraduates identifies an important relationship between emotion beliefs and wellbeing, a study conducted by Romero, Master, Paunesku, Dweck and Gross (2014) was the first to demonstrate that adolescents' beliefs about the changing nature of emotions predict emotional functioning over time. They found that students who had low wellbeing in 6th grade, but who held incremental beliefs about emotions, were more likely to have higher wellbeing by 8th grade than those who held entity beliefs. The authors suggest that this is because incremental theorists are more likely to choose adaptive emotion regulation strategies when faced with emotional challenges. However, authors found no correlation between Grade Point Average (GPA) and general emotion beliefs, although it is possible that academic outcomes could be related to one's *own* emotion beliefs. For instance, pupils who hold incremental beliefs about the ability to regulate their own emotions may be more likely to use adaptive emotion regulation strategies to deal with stress in an exam, which may result in better academic outcomes.

Implicit Beliefs and Single Session Interventions

Concerns over the deteriorating mental health of young people has seen the need for schools and education authorities to devise interventions which aim to improve the wellbeing of students (e.g., see Department for Education and Employment [DFES], 2001). However, despite this, rates of mental illness in adolescents remains high (Merikangas et al., 2011), and large-scale interventions which are delivered by professionals can be expensive for schools and colleges to administer. One solution would be to create low-cost interventions, which require less intensive training, to address the risk factors associated with emotional wellbeing (Schleider & Weisz, 2016). Indeed, studies have shown that psychological problems in adolescents can be addressed by single session interventions. For instance, brief interventions which reduce social anxiety, conduct disorder, and improve general mental health have been prove to be effective (Parr & Cartwright-Hatton, 2009; Joachim, Sanders, &, Turner, 2010; Perkins, 2006).

Recent research suggests growth mindset interventions are effective in improving wellbeing. For instance, Miu and Yeager (2015) delivered a one-time growth mindset of personality

intervention to 600 adolescents which resulted in a 40% reduction in depressive symptoms after 9 months. Supporting these findings, Yeager, Lee and Jamieson (2016) demonstrated that adolescents who received a brief growth personality of mindset intervention had improved physiological and cognitive recovery from social stress and higher grades after 7 months post-intervention compared to the control group.

The BePART Intervention

The BePART programme (P = positive, A = aspirational, R =resilient, and T = thoughtful) takes its inspiration from the positive psychology framework which aims to cultivate positive emotions, behaviours and cognitions (Sin & Lyubomirsky, 2009). This cultivation of positive emotions can improve wellbeing, and pupils who have higher levels of wellbeing tend to have better attendance and educational performance at school (Gutman & Vorhaus, 2012). It consists of six 45 minute sessions. These are: facilitating a positive mindset, coping with stress, using gratitude to build resilience, importance of diet and exercise, improving sleep, and moving forward. The programme is currently being delivered by teachers at a local 6th form college to all Year 12 students.

Each session of BePART aims to promote adaptive ER strategies: (Session 1) Facilitating a positive mindset teaches students to cognitively reappraise negative/stressful situations, (Session 2) Coping with stress incorporates a meditation technique aimed at down-regulating negative affect, (Session 3) Using gratitude to build resilience involves up-regulating positive emotions to increase wellbeing, (Session 4) Importance of diet and exercise teaches pupils that engaging in these healthy behaviours can promote positive emotional states, and they act as a preventative ER strategy, (Session 5) Improving sleep incorporates a mindfulness technique aiming to reduce negative emotions associated with stress, (Session 6) Moving forward enables pupils to set wellbeing goals, encouraging them to continue using ER strategies.

Outline of research area and Key Questions

First, this research is concerned with investigating the association between students' implicit emotion beliefs, emotion regulation, and emotional wellbeing. Second, it involves evaluating a wellbeing programme which has been implemented at a local 6th form college, and evaluating the role of ER in the BePART programme.

The research questions for this study are as follows:

Research Question 1

1. Are secondary school students' implicit emotion beliefs related to their emotional wellbeing?
 - (A) Are secondary school students' beliefs about their own emotions and emotions in general related to emotional wellbeing via emotion regulation flexibility (ERF)?
 - (B) Are secondary school students' beliefs about the malleability of their own emotions a better predictor of emotional wellbeing than their beliefs about emotions in general?

Research Question 2

2. What is the current model of BePART and does it improve the emotional wellbeing of sixth form college students?
 - (A) What factors constrain or enhance its effectiveness in improving the emotional wellbeing of sixth form college students?
 - (B) Does participating in BePART impact on the emotional wellbeing of sixth form college students via emotion regulation?

Research Question 3

3. Does a single session incremental theory of emotion intervention improve emotional wellbeing in 6th form college students?
 - (A) Does a single session incremental (SSI) theory of emotion intervention improve emotional wellbeing in 6th form college students via emotion regulation?

How the research contributes to knowledge in the field

Emotion regulation flexibility has not yet been studied in secondary school or 6th form college students, this is surprising considering pupils are faced with many demands and challenges in the school environment, and therefore the ability to flexibly use ER strategies is bound to have important repercussions for wellbeing, academic outcomes and future life trajectories. For instance, using cognitive reappraisal to deal with minor social or academic setbacks (low intensity situations) can increase resilience; the ability to suppress or enhance emotional expression at the appropriate moments can be essential for adaptive functioning in the classroom; and knowing when to change, maintain or cease an ER strategy can have consequences for many aspects of school life (e.g., building relationships with peers and teacher-student relationships, regulating achievement emotions, etc.).

At present, no research has been conducted which examines an individual's emotion beliefs (incremental vs. entity) and how this is linked to wellbeing and academic outcomes in a secondary school or 6th form college setting. Additionally, no work has been conducted to investigate whether implicit beliefs about one's own emotions and emotion beliefs in general are mediated by emotion regulatory flexibility, and, therefore, impact on psychological wellbeing and academic outcomes. Indeed, considering the recent findings discussed previously indicating that regulatory flexibility is associated with psychological wellbeing (e.g., Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Gupta & Bonanno, 2011), we suggest that investigating how emotions beliefs are linked to emotion regulatory flexibility in adolescents will be of vital importance and contribute extensively to the literature. Additionally, I feel it is necessary to assess one's own beliefs and beliefs about emotions in general as it has important implications for wellbeing interventions: Interventions need to be informed if it is necessary to teach that one has the ability to personally change, or if it is necessary to teach about the malleability of abilities and traits in general.

Finally, it is necessary to evaluate the effectiveness of the BePART wellbeing programme in order to demonstrate if the programme is effective in improving the wellbeing of young

people, and inform the college of additional ways to improve the programme. Moreover, by integrating a single session incremental theory of emotion intervention into the programme, we aim to develop and improve it further. Additionally, our work can make useful contributions to the literature on how to develop and implement successful wellbeing interventions in schools and colleges. The potential wider impact of the project may give insight for participating institutions to inform their policies and practices for student wellbeing, and influence national educational and health policy over the direction of strategy to improve wellbeing.

Proposed Methodology

Study 1

Research Question 1

Are secondary school students' implicit emotion beliefs related to their emotional wellbeing?

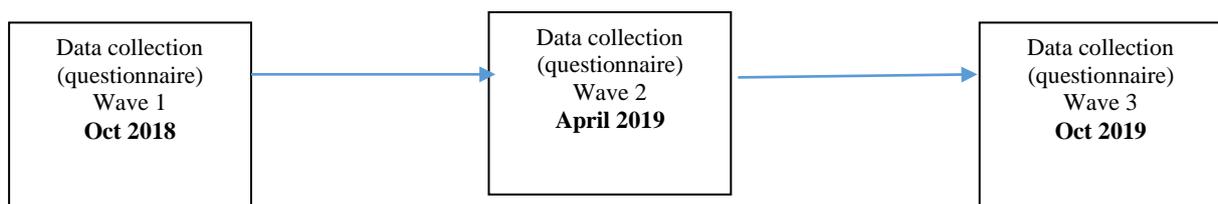
(A) Are secondary school students' beliefs about their own emotions and emotions in general related to emotional wellbeing via emotion regulation flexibility (ERF)?

(B) Are secondary school students' beliefs about the malleability of their own emotions a better predictor of emotional wellbeing than their beliefs about emotions in general?

Design

This is a longitudinal design consisting of 3 data points, spaced equally by 6 months (see Figure 1).

Figure 1: Three-wave panel design for Study 1



Measures

Questionnaire Measures

General implicit emotion beliefs: Assessed using the Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007). Two items measure incremental beliefs and two measure entity beliefs. Responses are rated on a 5-point Likert scale. In past research with undergraduates, the scale showed good internal consistency ($\alpha = .75$; Tamir et al., 2007).

Personal implicit emotion beliefs: Assessed using a variant of the original four-item measure (Tamir et al., 2007). Items are changed to reflect a first-person claim about the malleability of

one's own emotions. Responses are rated on a 5-point Likert scale. In past research, the scale had good internal consistency ($\alpha = .79$; De Castella et al., 2013).

Emotion Regulation Flexibility: Flexible Regulation of Emotional Expression (FREE) Scale measures one's ability to enhance and suppress emotion. Responses are rated on a 5-point Likert scale. Previous studies suggest that it is a valid and flexible measure of expressive regulation ability, and has good internal consistency ($\alpha = .81$; Burton & Bonanno, 2016).

Emotion Regulation: A 6-item scale designed to measure respondents' tendency to regulate their emotions by use of cognitive reappraisal (Gross & John, 2003). Participants rate their responses on a 5-point Likert scale. The scale has strong convergent and discriminant validity (Gross & John, 2003), and shown good internal consistency ($\alpha = .83$ to $.86$; Moscovitch et al., 2011).

Wellbeing: Assessed using a six-item self-report scale (Loderer et al., 2016) to measure students' global judgments of their overall wellbeing in school settings. Participants rate their responses on a 5-point Likert Scale. The scale has shown good internal consistency ($\alpha = .86$; Loderer et al., 2016).

Proposed analysis

Structural Equation Modelling will be used to test cross-lagged paths in the panel design.

Sample

For Structural Equation Modelling, a sample size of at least 10:1 ratio of participants is recommended (Kline, 2015). Each wave of data collection in Study 1 consists of 46 parameters, within the 44 parameters there are 20 sets of residual variance, 16 sets of factor loadings, 4 sets of variance, and 6 sets of covariance, therefore a sample size of approximately 1380 participants is needed. Participants (aged 11-18 years) will be recruited from 2 or 3 local schools by email/telephone contact with head teacher.

Study 2

Research Question 2

What is the current model of BePART and does it improve the emotional wellbeing of sixth form college students?

- (A) What factors constrain or enhance its effectiveness in improving the emotional wellbeing of sixth form college students?
- (B) Does participating in BePART impact on the emotional wellbeing of sixth form college students via emotion regulation?

Design

Data for this study will be collected through mixed methods: implementing questionnaires, lesson observations and interviews. Observational and interview data will be collected to complement the questionnaire data with the aim of uncovering deeper meanings and adding to the richness of the data (Antonius, 2002). Quantitative data analysis will be conducted prior to analysis of the qualitative data, as the qualitative data is intended to help to interpret, describe and clarify quantitative results (Sieber, 1973).

The procedure for the Mixed Methods design (see Figure 2) consists of Quantitative data collection at 3 time points throughout the year to analyse intervention outcomes, with supplementary qualitative data (interviews and observations) being collected at 2 time points in-between quantitative data collection. The quantitative data collection occurs before and after each intervention with the qualitative data being collected when the interventions are taking place.

Participants will be randomly assigned to the early or late intervention group by the local college before the start of BePART. The early intervention group will complete BePART October-December 2018, and the late intervention group will complete BePART January-March 2019. Each intervention group will consist of approximately 200 students per group.

Figure 2: Mixed methods design for Study 2

	Time 1 Oct 2018	Time 2 Oct-Dec 2018	Time 3 Jan 2019	Time 4 Jan-March 2019	Time 5 March 2019
Early intervention group	X	I	X		X
Late intervention group	X		X	I	X
X= Quantitative data collection I= Intervention with qualitative data collection <i>Quantitative data collection: T1, T3, T5</i> <i>Qualitative data collection: T2, T4</i>					

Measures

Questionnaire Measures

General implicit emotion beliefs: Assessed using the Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007). Two items measure incremental beliefs and two measure entity beliefs. Responses are rated on a 5-point Likert scale. In past research with undergraduates, the scale showed good internal consistency ($\alpha = .75$; Tamir et al., 2007).

Personal implicit emotion beliefs: Assessed using a variant of the original four-item measure (Tamir et al., 2007). Items are changed to reflect a first-person claim about the malleability of one's own emotions. Responses are rated on a 5-point Likert scale. In past research, the scale had good internal consistency ($\alpha = .79$; De Castella et al., 2013).

Wellbeing: Assessed using a six-item self-report scale (Loderer et al., 2016) to measure students' global judgments of their overall wellbeing in school settings. Participants rate their responses on a 5-point Likert Scale. The scale has shown good internal consistency ($\alpha = .86$; Loderer et al., 2016).

Emotion Regulation: A 6-item scale designed to measure respondents' tendency to regulate their emotions by use of cognitive reappraisal (Gross & John, 2003). Participants rate their responses on a 5-point Likert scale. The scale has strong convergent and discriminant validity (Gross & John, 2003), and shown good internal consistency ($\alpha = .83$ to $.86$; Moscovitch et al., 2011).

Observations

BePART sessions will be observed which are delivered during students' regular personal and health education lessons. Observations can identify how well the teachers and students are engaging with the programme, and this would then allow the researcher to identify which parts of the programme are currently successful and suggest possible ways to improve the programme. The benefit of using classroom observations rather than other methods of data collection is students are being observed in a natural setting which allows the researcher to 'get a feel' for the lessons, find out about interactions and relationships (e.g., how students are interacting with the wellbeing programme), and identify questions which may be investigated at a later date (Schensul, Schensul & LeCompte, 1999). The teachers will be invited to participate if they are currently delivering the BePART programme to students at the college.

Informal written field notes will be made in a notebook: (a) observed data of teacher delivery of BePART (e.g., how the Powerpoint/lesson is presented by the teacher, if the objectives are stated etc.), including verbatim quotation of teachers' verbal comments (e.g., personal views relating to the usefulness of techniques in improving wellbeing, words of enthusiasm/encouragement), and verbatim quotation from student-teacher interactions (e.g., feedback from the teacher to a student) ; (b) questions, ideas for further exploration, comments and reflections. These types of field notes have been recommended by Kawulich (2005) as being valuable for qualitative data analysis. Additionally, the field notes collected may provide useful insights into students' and teachers' views, feelings and thoughts about BePART.

Interviews

A number of student interviews will be undertaken in order to ascertain students' views on the BePART programme. It will also be possible to identify which aspects of the programme the students found enjoyable/useful (e.g., homework tasks, delivery of the lessons by PowerPoint presentation etc.), if the programme has influenced their mental/physical wellbeing habits (e.g., eating healthier), if it has contributed to their overall wellbeing and satisfaction with college life, and if the students have any suggestions for improvements to be made to the programme. Additionally, to identify whether the techniques taught to students in the BePART sessions are being applied during other subject specific lessons (i.e., are pupils using breathing exercises to deal with stressful situations? Are they challenging negative thoughts?) These questions will allow the researcher to identify which aspects of BePART are being utilised by students, and which sessions may need to be changed/revised to enable and encourage pupils to use the techniques and skills taught during the BePART programme in other lessons. It is anticipated that interviews will be a minimum of 30 minutes in duration. Interviews will be recorded and transcribed, with audio recordings stored on the researchers LJMU password protected account and managed using participant unique ID codes.

Proposed analysis

Quantitative: Questionnaire data will be analysed in a series of 2x3 mixed ANOVAs with one between-participants factor (early intervention vs. late intervention), and one within-participants factor (T₁, T₂, and T₃, points of measurement).

Qualitative: Coding and thematic analysis of interview and observation data will determine factors constraining or enhancing effectiveness of BePART.

Sample

Quantitative: The sample will consist of all Year 12 students at the local 6th form college who are participating in the BePART programme (approximately 400). An A Priori sample size estimation was conducted using G Power (Faul, Erdfelder, Lang, & Buchner, 2007) for a 2x3 ANOVA which recommended a minimum sample size of 142 ($p < .05, \beta = .95, f = .25$) therefore our sample size will be sufficient.

Qualitative: Approximately 20 classes will be observed as this is the point at which saturation is expected to occur with a homogenous class size. However, the researcher may observe more lessons if saturation has not been reached, or may stop observations early if saturation has already been reached (i.e. no new findings emerge).

Concerning interviews, the BePART coordinator will be asked to randomly select 5 male and 5 female students and they will be invited by email to participate. When conducting interviews, a sample of 10 is usually sufficient to obtain saturation for a homogenous intervention (Kuzel, 1992).

Study 3

Research Question 3

Does a single session incremental theory of emotion intervention improve emotional wellbeing in 6th form college students?

- (A) Does a single session incremental (SSI) theory of emotion intervention improve emotional wellbeing in 6th form college students via emotion regulation?

Design

The design for Study 3 (see Figure 3) will randomly assigns students into an intervention group or a control group. Randomisation of participants will be determined by the local participating college. Data will be collected before the intervention begins for both groups, and afterwards for both groups.

Figure 3. Randomised control trial for Study 3

	Time 1 Sept 2018	Single session intervention October 2018	Time 2 October 2018
Intervention Group	X	Yes	X

Control Group	X	No	X
X= Data Collection			
*Note: The Control Group will also complete the Intervention in January 2019 however data will not be collected at this point as other confounding variables (e.g., the intervention group subsequently participating in the BePART programme) are likely to invalidate results			

Measures

Questionnaire measures

General implicit emotion beliefs: Assessed using the Four-item Implicit Beliefs about Emotion Scale (Tamir et al., 2007). Two items measure incremental beliefs and two measure entity beliefs. Responses are rated on a 5-point Likert scale. In past research with undergraduates, the scale showed good internal consistency ($\alpha = .75$; Tamir et al., 2007).

Personal implicit emotion beliefs: Assessed using a variant of the original four-item measure (Tamir et al., 2007). Items are changed to reflect a first-person claim about the malleability of one's own emotions. Responses are rated on a 5-point Likert scale. In past research, the scale had good internal consistency ($\alpha = .79$; De Castella et al., 2013).

Wellbeing: Assessed using a six-item self-report scale (Loderer et al., 2016) to measure students' global judgments of their overall wellbeing in school settings. Participants rate their responses on a 5-point Likert Scale. The scale has shown good internal consistency ($\alpha = .86$; Loderer et al., 2016).

Emotion Regulation: A 6-item scale designed to measure respondents' tendency to regulate their emotions by use of cognitive reappraisal (Gross & John, 2003). Participants rate their responses on a 5-point Likert scale. The scale has strong convergent and discriminant validity (Gross & John, 2003), and shown good internal consistency ($\alpha = .83$ to $.86$; Moscovitch et al., 2011).

Proposed Analysis

Questionnaire data will be analysed in a series of 2x2 mixed ANOVAs with one between-participants factor (Intervention group vs. Control group) and one within-participants factor (T₁, and T₂, points of measurement).

Sample

The sample will consist of all Year 12 students at the local 6th form college who are participating in the BePART programme (approximately 400). An A Priori sample size estimation was conducted using G Power (Faul, Erdfelder, Lang, & Buchner, 2007) for a 2x2 ANOVA which recommended a minimum sample size of 158 ($p < .05$, $\beta = .95$, $f = .25$), therefore our sample size will be sufficient.

Questionnaire measures

Implicit beliefs questionnaire (Tamir et al., 2007)

The following questions explore your general beliefs about the ability to change emotions, and personal beliefs about the ability to change your own emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please indicate the extent to which you agree or disagree with the following statements.

1. If they want to, people can change the emotions that they have

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

2. Everyone can learn to control their emotions

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

3. The truth is, people have very little control over their emotions

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

4. No matter how hard they try, people can't really change the emotions that they have

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

5. If I want to, I can change the emotions that I have

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

6. I can learn to control my emotions

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

7. The truth is, I have very little control over my emotions

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

8. No matter how hard I try, I can't really change the emotions that I have

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

Emotion Regulation Questionnaire (Gross & John, 2003)

We would like to ask you some questions about your emotional life, in particular, how you control (that is, manage) your emotions. The following questions explore what you feel like inside when you are going through an emotional experience.

Although some of the following questions may seem similar to one another, they differ in important ways. Using the scale below, please indicate the extent to which you agree or disagree with the following statements.

1. When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

2. When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

3. When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

4. When I want to feel more *positive* emotion, I *change the way I'm thinking about the situation*.

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

5. I control my emotions by *changing the way I think* about the situation I'm in.

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

6. When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

FREE (Flexible Regulation of Emotional Expression) Scale.
(Burton & Bonanno, 2016)

Displaying emotion is a regular part of our daily lives. For social reasons, sometimes we have to express more emotion than we are feeling, and sometimes we have to display less emotion than we are feeling.

The following scenarios involve POSITIVE emotion. For each scenario, indicate how well you would be able to be even MORE EXPRESSIVE than usual of how you were feeling:

	Unable				Very able
1. A friend wins an award for a sport that doesn't interest you	1	2	3	4	5
2. Your classmate gets a high grade on a piece of work and wants to talk about it	1	2	3	4	5
3. A friend is talking about a great day out she went on yesterday	1	2	3	4	5
4. You receive a gift from a family member but it is something you dislike	1	2	3	4	5

The following scenarios involve NEGATIVE emotion. For each scenario, indicate how well you would be able to be even MORE EXPRESSIVE than usual of how you were feeling:

	Unable				Very able
--	--------	--	--	--	-----------

5. Your friend is telling you about what a terrible day they had	1	2	3	4	5
6. Your teacher is complaining about a project that you know little about and have no involvement with	1	2	3	4	5
7. A friend is talking about a break up that you secretly think is a good thing	1	2	3	4	5
8. You're attending the funeral of someone you don't know	1	2	3	4	5

The following scenarios involve **POSITIVE** emotion. For each scenario, indicate how well you would be able to **HIDE** how you were feeling:

	Unable				Very able
9. While speaking to a friend who has just failed an exam, you get a phone call from a family member to say they have booked you an amazing holiday	1	2	3	4	5
10. You are in a lesson and see an accidently funny typo in your teacher's Power point presentation	1	2	3	4	5
11. You're in assembly and the person sitting next to you whispered a funny joke	1	2	3	4	5
12. During a meeting with your teacher, his/her phone begins to play an embarrassing ring tone	1	2	3	4	5

The following scenarios involve **NEGATIVE** emotion. For each scenario, indicate how well you would be able to **HIDE** how you were feeling:

	Unable				Very able
13. You are working with some classmates on a project and the classmate you're talking to frequently spits while they speak	1	2	3	4	5
14. You have just heard about the death of a close relative right before you go to a lesson	1	2	3	4	5
15. You are having your lunch and one of the pupils in your college/school spills a drink on you	1	2	3	4	5
16. After you have a really stressful and irritating day at school/college, a sometimes-annoying neighbour stops to say hello	1	2	3	4	5

Wellbeing Scale

(Loderer et al., 2016)

We would like to ask you some questions about how you feel about school/college, Using the scale below, please indicate the extent to which you agree or disagree with the following statements.

1. I feel good at school/college

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

2. School/college allows me to fulfil my needs

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

3. I feel comfortable at school/college

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

4. I like going to school/college

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

5. All in all, I am content with my day-to-day school/college experiences

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

6. I worry about school/college

Strongly Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

Time Plan

2017/18	Oct	Nov	Dec	Jan	Feb	March	Apr	May	June	July	Aug	Sept
Data Collection												
Induction												
Lit Review												
Methodology												
RD9R												
Ethics												
Deadlines												
Recruitment												
Pilot												
Writing												
Analysis of pilot												
Conference												

2018/19	Oct	Nov	Dec	Jan	Feb	March	Apr	May	June	July	Aug	Sept
Data collection												
Analysis												
Writing												
Recruitment												
Pilot												
Lit Review												
Deadline												
Conference												

2019/20	Oct	Nov	Dec	Jan	Feb	March	Apr	May	June	July	Aug	Sept
Data collection												
Analysis												
Findings												
Lit Review												
Writing												
Proof Reading												
Final Revisions												
Deadline												
Conference												

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APPENDIX B



LIVERPOOL JOHN MOORES UNIVERSITY GATEKEEPER INFORMATION SHEET

Title of Project: Are secondary school and 6th form college students' implicit emotion beliefs related to their emotional wellbeing?

Name of Researcher and School/Faculty: Joanna Beaumont, School of Education, Faculty of Education, Health and Community

1. What is the reason for this letter?

The purpose of this letter is twofold. First, it is to provide you with relevant information about the study: Are secondary school students' implicit emotion beliefs related to their emotional wellbeing? Second, it is to ask whether you would provide permission for me to invite students from Years 7, 8, 9, 10, 11 or 12 at your school to participate in the research.

2. What is the purpose of the study/rationale for the project?

The purpose of this study is to investigate if students' emotion beliefs and emotion regulation efforts are related to wellbeing at school. This is an important area of research as it has the potential to inform educators whether it is necessary to devise or integrate these topics within wellbeing interventions or health programmes at schools or colleges in the future.

3. Are there any benefits/risks involved?

There are no risks involved. The benefits for your school would include:

- A report detailing findings related to the wellbeing of pupils at your school
- The opportunity to invite the researcher to deliver results of their findings and/or wellbeing workshops to staff/students at your school
- Being able to demonstrate that your school is committed to improving standards by being involved in research and new developments
- The opportunity to be involved with future educational and wellbeing studies at Liverpool John Moores University which are likely to involve collaboration with TES Sixth Form College of the Year 2018 who are developing and implementing a unique wellbeing intervention at their college.

4. What are we asking you to do?

Provide permission to collect questionnaire data (via an online link or on paper) from students in Years 7, 8, 9, 10 and/or 12 in October 2018, April 2019 and October 2019. This can be done by asking form tutors/teachers to give their students a paper questionnaire during form/class time or providing

them with an online link to complete the questionnaire during this time on one occasion during each of these 3 months. The questionnaire will take 10-15 minutes to complete. To keep data collection anonymous we do not ask students for their name. However, in order for us to link the questionnaires completed at each time point to the same student, we will ask each student to create a unique code when completing the first questionnaire which they will then be asked to state on the second and third questionnaire. We will ask them to state the first two letters of their first name, the first two letters of their surname, the first two letters of their mother's first name and the digits for the day of the month they were born. This code will not allow an individual student to be identified.

Additionally, to ensure that students' answers are kept confidential, if they have completed the questionnaire on paper they will be asked to place their questionnaire in a blank envelope and seal the envelope when they have completed the questionnaire, without writing their name or any other identifying information on it. They will then give the blank envelope to their form tutor/teacher and it will be sent back to the researcher in the blank envelope.

We also ask for your permission to utilise the opt out process of parental consent for our research. This will involve sending an information sheet and opt out form to the child's parent/carer, as well as a copy of the questionnaire. This needs to be done in a way so that no opt out forms are passed onto the students to ensure that parents/carers receive the information, therefore we suggest that email is the best way to do this. This will give the parent/carer information about the study and will ask them to return a form to the school only if they **do not** wish their child to participate. The forms can be returned to the school office (as detailed on the form) however this can be changed if your school/college wishes (e.g., to return to a form tutor) as long as the forms are passed on to the school directly from the parent/carer and not via the student to ensure that we receive the information. If you decide to participate in the study I will liaise with you or the appointed contact to decide how and where any forms will be returned. As the gatekeeper, we kindly ask you to take responsibility for ensuring that the opt out form, questionnaire and parent/carer information sheet are sent directly to parents/carers.

We ask parents/carers to return forms to the school only if they **do not** wish their child to participate in the study because this method is the most efficient way to recruit participants, and it means we should get a higher response rate from your students. Asking the form tutors or staff to collect signed informed consent forms from every student can be problematic as it will require more work from staff at your school to receive all the replies back from parents/carers, and we wish to minimise disruption to staff and students. Additionally, even though the questions (relating to stress, anxiety and emotions) address sensitive issues, we do not believe there is any risk to participants by completing the questionnaire, however we do advise them to contact a support service (detailed on the participant information sheet) if they wish to seek support.

Additionally, before the completion of the questionnaire at each time point, I will liaise with yourself/the appointed contact to ask if any children have been withdrawn from the study to ensure that form tutors/the relevant staff are informed of this pupil's withdrawal, and ask them to arrange a short alternative task for that child to complete during the administration of the questionnaire. Moreover, if any children decide to withdraw their data from the study after questionnaire administration, they will be asked to email the researcher within 2 weeks who will then withdraw their data from the study. Alternatively, they can pass on their ID code to their tutor/head of year within 2 weeks of completing the questionnaire who will then be asked to inform yourself/the appointed contact that they wish to withdraw their data. This information can then be passed onto myself by email.

5. Why do we need access to your facilities/staff/students?

In order to collect questionnaire data from students.

6. If you are willing to assist in the study what happens next?

I will liaise with yourself or an appointed contact at the school to distribute the information for parents/carers and the questionnaires/the questionnaire link, and relevant documents to tutor groups or students.

7. How we will use the information?

Data collected from your school/college will be explored to identify if and how students' emotion beliefs are related to their wellbeing at school. We will also provide you with a short report of the findings.

8. Will the name of the college taking part in the study be kept confidential?

In the event that data is presented publically, the name of the school/college will be kept confidential.

9. What will taking part involve? What should I do now?

Sign and return the **Gatekeeper Consent Form** provided. Should you have any comments or questions regarding this research, you may contact the researchers:

Contact Details of Researcher

Joanna Beaumont
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

j.beaumont@2017.ljmu.ac.uk

Contact Details of Academic supervisor

Prof. Dave Putwain AfBPS C.Psychol,
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

d.w.putwain@ljmu.ac.uk

This study has received ethical approval from LJMU's Research Ethics Committee Ref: 18/EDN/017



LIVERPOOL JOHN MOORES UNIVERSITY GATEKEEPER CONSENT FORM

Title of Project: Are secondary school and 6th form college students' implicit emotion beliefs related to their emotional wellbeing?

Name of Researcher: Joanna Beaumont

Please tick to confirm your understanding of the study and that you are happy for your organisation to take part and your facilities to be used to host parts of the project.

1. I confirm that I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that participation of our organisation and students/members in the research is voluntary and that they are free to withdraw at any time, without giving a reason and that this will not affect legal rights.
3. I understand that any personal information collected during the study will be anonymised and remain confidential.
4. I agree for our organisation and students to take part in the above study.
5. I agree to conform to the data protection act.
6. I agree for the researcher to utilise the opt out process of parental consent for the purposes of this research.
7. I will be responsible for ensuring that the opt out form, questionnaire and parent/carer information sheet are sent directly to parents/carers for those students aged under 16.

Name of Gatekeeper:

Date:

Signature:

APPENDIX C



PARENT/ CARER INFORMATION SHEET

Title of Project: Emotion beliefs, Emotion regulation and Wellbeing

Are secondary school and 6th form college students' implicit emotion beliefs related to their emotional wellbeing?

Name of Researcher and School/Faculty: Joanna Beaumont, School of Education, Faculty of Education, Health and Community

Your son, daughter, or cared for child is being invited to take part in a research study. Before you decide whether you allow them to participate, it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Please get in touch with me if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not.

1. What is the purpose of the study?

The purpose of this study is to investigate if students' emotion beliefs and emotion regulation efforts are related to wellbeing at school. This is an important area of research as it has the potential to inform educators whether it is necessary to devise or integrate these topics within wellbeing interventions or health programmes at schools or colleges in the future.

2. Does your son, daughter, or child in care have to take part?

No. It is up to you and them to decide whether or not to complete the questionnaire. If you **do not** want your child to complete the questionnaire, then please inform us by completing the opt out consent form attached and return to the school office. Please ensure that if you return an opt out form it is sent directly by yourself and not via your child to ensure that we receive the information. Before the completion of the questionnaire at each time point, I will liaise with the appointed contact at the school/college to ask if any children have been withdrawn from the study to ensure that form tutors/the relevant staff are informed of your child's withdrawal, and ask them to arrange a short alternative task for your child to complete during the administration of the questionnaire.

Your child will also have the option to withdraw at any time before, during or after the administration of the questionnaire. If he/she wishes to withdraw their data from the study after completion of the questionnaire they can email the researcher with their ID code or pass the code to their form tutor/head of year within 2 weeks of completing the questionnaire, and their data will then be withdrawn.

3. What will happen to son, daughter, or child in care if they take part?

Your son or daughter will be asked to complete a short (online/paper) questionnaire (approximately 10 -15 minutes) in October or November 2018, and again in April 2019 and October 2019. He/she will complete the questionnaire at school at a time convenient for the school (e.g., during form time).

Examples of the questions you will be asked include:

- If I want to, I can change the emotions that I have
- I like going to school/college
- When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
- I worry about making mistakes

4. Are there any risks / benefits involved?

No. However, we will advise your child on the participant information sheet that if he/she is struggling with their emotions, anxiety and/or feel stressed then they may want to contact 'The Mix' (information, support and listening for people under 25) by phone on 0808 808 4994 (24 hours), or by email via their online website at themix.org.uk.

5. Will your son, daughter or child in care taking part in the study be kept confidential?

Yes. We will keep the questionnaire for 5 years in a locked cabinet before it is shredded. We do not ask for your son/daughter/child's name. However, we will ask him/her to make up a code from the letters or digits of their name, their mother's name and their date of birth that we will use to link the questionnaires from the 3 time points. This will not enable your child to be identified.

If you **do not** wish for your son, daughter, or child in care, to participate in this study, please complete the attached form and return to the school office.

This study has received ethical approval from LJMU's Research Ethics Committee. Ref: 18/EDN/017 on 12/7/18

Should you have any comments or questions regarding this research, you may contact the researchers:

Contact Details of Researcher

Joanna Beaumont
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

j.beaumont@2017.ljmu.ac.uk

Contact Details of Academic supervisor

Prof. Dave Putwain AfBPS C.Psychol,
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

d.w.putwain@ljmu.ac.uk

If you any concerns regarding your involvement in this research, please discuss these with the researcher in the first instance. If you wish to make a complaint, please contact researchethics@ljmu.ac.uk and your communication will be re-directed to an independent person as appropriate.



LIVERPOOL JOHN MOORES UNIVERSITY OPT OUT CONSENT FORM

Title of Project: Are secondary school and 6th form college students' implicit emotion beliefs related to their emotional wellbeing?

Name of Researcher and School/Faculty: Joanna Beaumont, School of Education, Faculty of Education, Health and Community

I have read the information sheet about this project and I have decided that I **do not** want my son, daughter, or child in care to participate in this study.

NAME OF YOUR SON, DAUGHTER, OR CHILD IN CARE:

YOUR NAME:

DATE:

Please return this form to the school/college office

APPENDIX D

LIVERPOOL JOHN MOORES UNIVERSITY

Participant Information Sheet for Secondary School pupils

LJMU's Research Ethics Committee Approval Reference: 18/EDN/017

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study: Emotion beliefs, Emotion regulation and Wellbeing

Are secondary school and 6th form college students' implicit emotion beliefs related to their wellbeing?

School/Faculty: School of Education, Faculty of Education, Health and Community

Name and Contact Details and status of the Principal Investigator:

Joanna Beaumont (PhD student)
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

j.beaumont@2017.ljmu.ac.uk

Name and Contact Details of the Investigators:

Prof. Dave Putwain AfBPS C.Psychol (Academic supervisor)
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

d.w.putwain@ljmu.ac.uk

You are being invited to take part in a research study. Before you decide whether to take part or not it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not. Thank you for reading this.

1. What is the purpose of the study?

The purpose of the study is to find out how you deal with emotions and how you feel about school.

2. Why have I been invited to participate?

You have been invited to participate because you are a secondary school or sixth form college student aged 11-19. The researcher identified you as a potential participant for the research because the head teacher of your school has allowed us to invite you to take part in the study. There will be approximately 1200 pupils from 3 secondary schools and sixth form colleges in the U.K. taking part in the study.

3. Do I have to take part?

No. It is up to you to decide whether or not to take part. Participation in the study is voluntary and you have the right to withdraw at any time before, during or after the administration of the questionnaire.

If you wish to withdraw your data from the study after you have completed the questionnaire please email the researcher with your ID code (first two letters of your first name, the first two letters of your surname, the first two letters of your mother's first name and the digits for the day of the month you were born) or pass your code to your form tutor/head of year within 2 weeks of completing the questionnaire. Your data will then be withdrawn.

4. What will happen to me if I take part?

You will be asked to complete a short paper questionnaire (approximately 10 -15 minutes) in October or November 2018, and again in May or June 2019, and October/November 2019 during form/class time at your school.

To ensure that your answers are kept confidential, you will be asked to place your questionnaire in a blank envelope and seal the envelope when you have completed the questionnaire, without writing your name or any other identifying information on the envelope. You can then give the blank envelope to your form tutor/teacher.

Examples of the questions you will be asked include:

- If I want to, I can change the emotions that I have
- I like going to school/college
- When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
- I worry about making mistakes

5. What are the possible disadvantages and risks of taking part?

There are no risks. However, some questions may ask about sensitive issues (such as emotions/anxiety) that may cause you distress. If you are struggling with your emotions, anxiety and/or feel stressed or are personally affected by participation in this research then you may want to contact 'The Mix' (information, support and listening for people under 25) by phone on 0808 808 4994 (24 hours), or you can contact them by email via their online website at themix.org.uk.

You may also wish to discontinue completing the questionnaire immediately, and seek support/advice from your school counsellor (if available), pastoral services, or talk to your form tutor about your concerns.

6. What are the possible benefits of taking part?

Whilst there will be no direct benefits to you for taking part in the study, it is hoped that this work will help us to understand how emotion beliefs affect the emotional wellbeing of secondary school and sixth form college pupils.

7. What will happen to the data provided and how will my taking part in this project be kept confidential?

We will keep the questionnaire for 5 years in a locked cabinet before it is shredded and it will only be accessible to the researchers detailed above. We do not ask for your name or any other personal identifying information. The information you provide as part of the study is the **research study data**. We will not collect any research study data from which you can be identified (e.g. from identifiers such as your student number, full date of birth, etc.).

We will ask you to make a unique code from the letters or digits of your name, your mother's name and your date of birth that we will use to link your 3 questionnaires. To further ensure that your answers are kept confidential, we ask you to place your completed questionnaire in a blank envelope and seal it, without writing your name or any other identifying information on the envelope. Your sealed questionnaire will then be sent back to the researcher and will only be opened by the researcher when she receives it.

8. What will happen to the results of the research project?

The investigator intends to publish the results in a PhD thesis and journal article. The researcher will also provide the principal of your school with a short report of the findings from the research and intends to present the findings at a research conference.

9. Who is organising the study?

This study is organised by Liverpool John Moores University.

10. Who has reviewed this study?

This study has been reviewed by, and received ethics clearance through, the Liverpool John Moores University Research Ethics Committee (Reference number: 18/EDN/017 on 12/7/18).

11. What if something goes wrong?

If you have a concern about any aspect of this study, please contact the relevant investigator who will do their best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how they intend to deal with it. If you wish to make a complaint, please contact the chair of the Liverpool John Moores University Research Ethics Committee (researchethics@ljmu.ac.uk) and your communication will be re-directed to an independent person as appropriate.

12. Data Protection Notice

The data controller for this study will be Liverpool John Moores University (LJMU). The LJMU Data Protection Office provides oversight of LJMU activities involving the processing of personal data, and can be contacted at secretariat@ljmu.ac.uk. This means that we are responsible for looking after your information and using it properly. LJMU's Data Protection Officer can also be contacted at secretariat@ljmu.ac.uk. The University will process your personal data for the purpose of research. Research is a task that we perform in the public interest.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained.

You can find out more about how we use your information by contacting secretariat@ljmu.ac.uk. If you are concerned about how your personal data is being processed, please contact LJMU in the first instance at secretariat@ljmu.ac.uk. If you remain unsatisfied, you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at: <https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/>

13. Contact for further information

Principal Investigator:
Joanna Beaumont (PhD student)
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

j.beaumont@2017.ljmu.ac.uk

Thank you for reading this information sheet and for considering to take part in this study.

LIVERPOOL JOHN MOORES UNIVERSITY

Participant Information Sheet for Sixth Form College Students

LJMU's Research Ethics Committee Approval Reference: 18/EDN/017

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study: Emotion beliefs, Emotion regulation and Wellbeing

Are secondary school and 6th form college students' implicit emotion beliefs related to their wellbeing?

School/Faculty: School of Education, Faculty of Education, Health and Community

Name and Contact Details and status of the Principal Investigator:

Joanna Beaumont (PhD student)
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

j.beaumont@2017.ljmu.ac.uk

Name and Contact Details of the Investigators:

Prof. Dave Putwain AfBPS C.Psychol (Academic supervisor)
School of Education,
Liverpool John Moores University,
IM Marsh Campus,
Mossley Hill Road,
Liverpool,
L17 6BD

d.w.putwain@ljmu.ac.uk

You are being invited to take part in a research study. Before you decide whether to take part or not it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not. Thank you for reading this.

1. What is the purpose of the study?

The purpose of the study is to find out how you deal with emotions and how you feel about college.

2. Why have I been invited to participate?

You have been invited to participate because you are a sixth form college student at Birkenhead Sixth Form College. The researcher identified you as a potential participant for the research because your college is working with researchers at Liverpool John Moores University to improve the wellbeing of pupils at your college. Therefore, the head teacher of your college has allowed us to invite you to take part in the study. There will be approximately 1200 pupils from 3 secondary schools and sixth form colleges in the U.K. taking part in the study.

3. Do I have to take part?

No. It is up to you to decide whether or not to take part. Participation in the study is voluntary and you have the right to withdraw at any time before, during or after the administration of the questionnaire.

If you wish to withdraw your data from the study after you have completed the questionnaire please email the researcher with your ID code (first two letters of your first name, the first two letters of your surname, the first two letters of your mother's first name and the digits for the day of the month you were born) or pass your code to your form tutor/head of year within 2 weeks of completing the questionnaire. Your data will then be withdrawn.

4. What will happen to me if I take part?

You will be asked to complete a short paper questionnaire (approximately 10 -15 minutes) in October or November 2018, and again in April 2019 and October 2019 during form/class time at your college.

To ensure that your answers are kept confidential, you will be asked to place your questionnaire in a blank envelope and seal the envelope when you have completed the questionnaire, without writing your name or any other identifying information on the envelope. You can then give the blank envelope to your form tutor/teacher.

Examples of the questions you will be asked include:

- If I want to, I can change the emotions that I have
- I like going to school/college
- When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
- I worry about making mistakes

5. What are the possible disadvantages and risks of taking part?

There are no risks. However, some questions may ask about sensitive issues (such as emotions/anxiety) that may cause you distress. If you are struggling with your emotions, anxiety and/or feel stressed or are personally affected by participation in this research then you may want to contact 'The Mix' (information, support and listening for people under 25) by phone on 0808 808 4994 (24 hours), or you can contact them by email via their online website at themix.org.uk.

You may also wish to discontinue completing the questionnaire immediately, and seek support/advice from your college counsellor (if available), pastoral services, or talk to your form tutor about your concerns.

6. What are the possible benefits of taking part?

Whilst there will be no direct benefits to you for taking part in the study, it is hoped that this work will help us to understand how emotion beliefs affect the emotional wellbeing of secondary school and sixth form college pupils.

7. What will happen to the data provided and how will my taking part in this project be kept confidential?

We will keep the questionnaire for 5 years in a locked cabinet before it is shredded and it will only be accessible to the researchers detailed above. We do not ask for your name or any other personal identifying information. The information you provide as part of the study is the **research study data**. We will not collect any research study data from which you can be identified (e.g. from identifiers such as your student number, full date of birth, etc.).

We will ask you to make a unique code from the letters or digits of your name, your mother's name and your date of birth that we will use to link your 3 questionnaires. To further ensure that your answers are kept confidential, we ask you to place your completed questionnaire in a blank envelope and seal it, without writing your name or any other identifying information on the envelope. Your sealed questionnaire will then be sent back to the researcher and will only be opened by the researcher when she receives it.

8. What will happen to the results of the research project?

The investigator intends to publish the results in a PhD thesis and journal article. The researcher will also provide the principal of your college with a short report of the findings from the research and intends to present the findings at a research conference.

9. Who is organising the study?

This study is organised by Liverpool John Moores University.

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11. What if something goes wrong?

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13. Contact for further information

Principal Investigator:
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Mossley Hill Road,
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L17 6BD

j.beaumont@2017.ljmu.ac.uk

Thank you for reading this information sheet and for considering to take part in this study.

APPENDIX E

[Version 1] *I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided*

BACKGROUND INFORMATION

Gender (please circle) Male Female Other

Age Years

Year Group

Ethnic background Asian Black White Other

(please circle)

(if you consider yourself to be dual heritage, please circle two backgrounds)

Are you eligible for free school meals? Yes No

In order to keep your responses anonymous and match up questionnaires, please provide the following information as your identification number

First 2 letters of SURNAME	First 2 letters of FIRST NAME	First 2 letters of MOTHER'S FIRST NAME	Digits for the DAY of the month you were born (e.g., 1 and 2 if born on 12 th of July; 0 and 8 if born on 8 th of April)
<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>

Please think about how you USUALLY think and feel about school.

Show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly Disagree ①	Disagree ②	Neither Agree nor disagree ③	Agree ④	Strongly Agree ⑤
1. School is going well for me				① ② ③ ④ ⑤
2. I feel better at school than my classmates				① ② ③ ④ ⑤
3. I feel good at school				① ② ③ ④ ⑤
4. I feel comfortable at school				① ② ③ ④ ⑤
5. I like going to school				① ② ③ ④ ⑤
6. All in all, I am content with my day-to-day school experiences				① ② ③ ④ ⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly
Disagree

①

Disagree

②

Neither Agree nor
Disagree

③

Agree

④

Strongly
Agree

⑤

Beliefs about yourself

The following questions will ask you about your **emotional experience** or what you feel like inside:

1. If I want to, I can change the emotions I have	①	②	③	④	⑤
2. I can learn to control my emotions	①	②	③	④	⑤
3. The truth is, I have very little control over my emotions	①	②	③	④	⑤
4. No matter how hard I try, I can't really change the emotions that I have	①	②	③	④	⑤
5. If I want to, I can change the anxiety I have	①	②	③	④	⑤
6. I can learn to control my anxiety	①	②	③	④	⑤
7. The truth is, I have very little control over my anxiety	①	②	③	④	⑤
8. No matter how hard I try, I can't really change the anxiety that I have	①	②	③	④	⑤
9. If I want to, I can change the amount of happiness I have	①	②	③	④	⑤
10. I can learn to control my happiness	①	②	③	④	⑤
11. The truth is, I have very little control over my happiness	①	②	③	④	⑤
12. No matter how hard I try, I can't really change the amount of happiness that I have	①	②	③	④	⑤

The following questions will ask you about your **emotional expression**. By emotional expression we mean how you show your emotions in the way you talk, gesture, or behave:

13. If I want to, I can change my emotional expressions	①	②	③	④	⑤
14. I can learn to control my emotional expressions	①	②	③	④	⑤
15. The truth is, I have very little control over my emotional expressions	①	②	③	④	⑤
16. No matter, how hard I try, I can't really change the emotional expressions that I have	①	②	③	④	⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly Disagree ①	Disagree ②	Neither Agree nor Disagree ③	Agree ④	Strongly Agree ⑤
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Beliefs about people

*These questions will ask you about the **emotional experience of people** or what you think they feel like inside:*

1. If they want to, people can change the emotions they have	①	②	③	④	⑤
2. People can learn to control their emotions	①	②	③	④	⑤
3. The truth is, people have very little control over their emotions	①	②	③	④	⑤
4. No matter how hard they try, people can't really change the emotions that they have	①	②	③	④	⑤
5. If they want to, people can change the anxiety they have	①	②	③	④	⑤
6. People can learn to control their anxiety	①	②	③	④	⑤
7. The truth is, people have very little control over their anxiety	①	②	③	④	⑤
8. No matter how hard people try, they can't really change the anxiety that they have	①	②	③	④	⑤
9. If they want to, people can change the amount of happiness they have	①	②	③	④	⑤
10. People can learn to control their happiness	①	②	③	④	⑤
11. The truth is, people have very little control over their happiness	①	②	③	④	⑤
12. No matter how hard people try, they can't really change the amount of happiness that they have	①	②	③	④	⑤

Using the scale below, indicate how often each of these things happen to you by circling a number on the scale. There are no right or wrong answers				
Never	Sometimes	Often	Always	
①	②	③	④	
1.	I worry when I have done poorly at something			① ② ③ ④
2.	I feel scared when I have to take a test			① ② ③ ④
3.	I feel worried when I think someone is angry with me			① ② ③ ④
4.	I worry that I will do badly at my school work			① ② ③ ④
5.	I worry I might look foolish			① ② ③ ④
6.	I worry about making mistakes			① ② ③ ④
7.	I worry what other people will think of me			① ② ③ ④
8.	I feel afraid if I have to talk in front of my class			① ② ③ ④
9.	I feel afraid that I will make a fool of myself in front of other people			① ② ③ ④

We would like to ask you some questions about how you control your emotions. The following questions explore what you feel like inside when you are going through an emotional experience, and how you show your emotions in the way you talk, gesture or behave. Using the scale, show how much you agree or disagree with the following statements by circling a number on the scale					
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
①	②	③	④	⑤	
1.	When I want to feel happier, I think about something different				① ② ③ ④ ⑤
2.	I keep my feelings to myself				① ② ③ ④ ⑤
3.	When I want to feel less bad (e.g., sad, angry or worried) I think about something different				① ② ③ ④ ⑤
4.	When I am feeling happy, I am careful not to show it				① ② ③ ④ ⑤
5.	When I'm worried about something, I make myself think about it in a way that helps me feel better				① ② ③ ④ ⑤
6.	I control my feelings by not showing them				① ② ③ ④ ⑤
7.	When I want to feel happier about something, I change the way I'm thinking about it				① ② ③ ④ ⑤
8.	I control my feelings about things by changing the way I think about them				① ② ③ ④ ⑤
9.	When I am feeling bad (e.g., angry, sad, worried) I'm careful not to show it				① ② ③ ④ ⑤
10.	When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I'm thinking about it				① ② ③ ④ ⑤

Thank you for taking the time to complete the questionnaire

[Version 2] *I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided*

BACKGROUND INFORMATION

Gender (please circle) Male Female Other

Age Years

Year Group

Ethnic background Asian Black White Other

(please circle)

(if you consider yourself to be dual heritage, please circle two backgrounds)

Are you eligible for free school meals? Yes No

In order to keep your responses anonymous and match up questionnaires, please provide the following information as your identification number

First 2 letters of SURNAME	First 2 letters of FIRST NAME	First 2 letters of MOTHER'S FIRST NAME	Digits for the DAY of the month you were born (e.g., 1 and 2 if born on 12 th of July; 0 and 8 if born on 8 th of April)
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Please think about how you USUALLY think and feel about school.

Show how much you agree or disagree with the following statements by circling a number on each scale.

	Strongly Disagree ①	Disagree ②	Neither Agree nor disagree ③	Agree ④	Strongly Agree ⑤
1. School is going well for me	①	②	③	④	⑤
2. I feel better at school than my classmates	①	②	③	④	⑤
3. I feel good at school	①	②	③	④	⑤
4. I feel comfortable at school	①	②	③	④	⑤
5. I like going to school	①	②	③	④	⑤
6. All in all, I am content with my day-to-day school experiences	①	②	③	④	⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

	Strongly Disagree ①	Disagree ②	Neither Agree nor Disagree ③	Agree ④	Strongly Agree ⑤
<u>Beliefs about people</u>					
<i>These questions will ask you about the emotional experience of people or what you think they feel like inside:</i>					
1.	If they want to, people can change the emotions they have				① ② ③ ④ ⑤
2.	People can learn to control their emotions				① ② ③ ④ ⑤
3.	The truth is, people have very little control over their emotions				① ② ③ ④ ⑤
4.	No matter how hard they try, people can't really change the emotions that they have				① ② ③ ④ ⑤
5.	If they want to, people can change the anxiety they have				① ② ③ ④ ⑤
6.	People can learn to control their anxiety				① ② ③ ④ ⑤
7.	The truth is, people have very little control over their anxiety				① ② ③ ④ ⑤
8.	No matter how hard people try, they can't really change the anxiety that they have				① ② ③ ④ ⑤
9.	If they want to, people can change the amount of happiness they have				① ② ③ ④ ⑤
10.	People can learn to control their happiness				① ② ③ ④ ⑤
11.	The truth is, people have very little control over their happiness				① ② ③ ④ ⑤
12.	No matter how hard people try, they can't really change the amount of happiness that they have				① ② ③ ④ ⑤

Using the scale below, indicate how often each of these things happen to you by circling a number on the scale. There are no right or wrong answers				
Never	Sometimes	Often	Always	
①	②	③	④	
1.	I worry when I have done poorly at something			① ② ③ ④
2.	I feel scared when I have to take a test			① ② ③ ④
3.	I feel worried when I think someone is angry with me			① ② ③ ④
4.	I worry that I will do badly at my school work			① ② ③ ④
5.	I worry I might look foolish			① ② ③ ④
6.	I worry about making mistakes			① ② ③ ④
7.	I worry what other people will think of me			① ② ③ ④
8.	I feel afraid if I have to talk in front of my class			① ② ③ ④
9.	I feel afraid that I will make a fool of myself in front of other people			① ② ③ ④

We would like to ask you some questions about how you control your emotions. The following questions explore what you feel like inside when you are going through an emotional experience, and how you show your emotions in the way you talk, gesture or behave. Using the scale, show how much you agree or disagree with the following statements by circling a number on the scale					
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
①	②	③	④	⑤	
1.	When I want to feel happier, I think about something different				① ② ③ ④ ⑤
2.	I keep my feelings to myself				① ② ③ ④ ⑤
3.	When I want to feel less bad (e.g., sad, angry or worried) I think about something different				① ② ③ ④ ⑤
4.	When I am feeling happy, I am careful not to show it				① ② ③ ④ ⑤
5.	When I'm worried about something, I make myself think about it in a way that helps me feel better				① ② ③ ④ ⑤
6.	I control my feelings by not showing them				① ② ③ ④ ⑤
7.	When I want to feel happier about something, I change the way I'm thinking about it				① ② ③ ④ ⑤
8.	I control my feelings about things by changing the way I think about them				① ② ③ ④ ⑤
9.	When I am feeling bad (e.g., angry, sad, worried) I'm careful not to show it				① ② ③ ④ ⑤
10.	When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I'm thinking about it				① ② ③ ④ ⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly Disagree ①	Disagree ②	Neither Agree nor Disagree ③	Agree ④	Strongly Agree ⑤
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Beliefs about yourself

*The following questions will ask you about your **emotional experience** or what you feel like inside:*

1. If I want to, I can change the emotions I have	①	②	③	④	⑤
2. I can learn to control my emotions	①	②	③	④	⑤
3. The truth is, I have very little control over my emotions	①	②	③	④	⑤
4. No matter how hard I try, I can't really change the emotions that I have	①	②	③	④	⑤
5. If I want to, I can change the anxiety I have	①	②	③	④	⑤
6. I can learn to control my anxiety	①	②	③	④	⑤
7. The truth is, I have very little control over my anxiety	①	②	③	④	⑤
8. No matter how hard I try, I can't really change the anxiety that I have	①	②	③	④	⑤
9. If I want to, I can change the amount of happiness I have	①	②	③	④	⑤
10. I can learn to control my happiness	①	②	③	④	⑤
11. The truth is, I have very little control over my happiness	①	②	③	④	⑤
12. No matter how hard I try, I can't really change the amount of happiness that I have	①	②	③	④	⑤

*The following questions will ask you about your **emotional expression**. By emotional expression we mean how you show your emotions in the way you talk, gesture, or behave:*

13. If I want to, I can change my emotional expressions	①	②	③	④	⑤
14. I can learn to control my emotional expressions	①	②	③	④	⑤
15. The truth is, I have very little control over my emotional expressions	①	②	③	④	⑤
16. No matter, how hard I try, I can't really change the emotional expressions that I have	①	②	③	④	⑤

Thank you for taking the time to complete the questionnaire

[Version 3] *I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided*

BACKGROUND INFORMATION

Gender (please circle) Male Female Other

Age Years

Year Group

Ethnic background Asian Black White Other
(please circle)
(if you consider yourself to be dual heritage, please circle two backgrounds)

Are you eligible for free school meals? Yes No

In order to keep your responses anonymous and match up questionnaires, please provide the following information as your identification number

First 2 letters of SURNAME	First 2 letters of FIRST NAME	First 2 letters of MOTHER'S FIRST NAME	Digits for the DAY of the month you were born (e.g., 1 and 2 if born on 12 th of July; 0 and 8 if born on 8 th of April)
<input type="text"/> <input type="text"/>			

**Please think about how you USUALLY think and feel about school.
Show how much you agree or disagree with the following statements by circling a number on each scale.**

	Strongly Disagree ①	Disagree ②	Neither Agree nor disagree ③	Agree ④	Strongly Agree ⑤
1. School is going well for me	①	②	③	④	⑤
2. I feel better at school than my classmates	①	②	③	④	⑤
3. I feel good at school	①	②	③	④	⑤
4. I feel comfortable at school	①	②	③	④	⑤
5. I like going to school	①	②	③	④	⑤
6. All in all, I am content with my day-to-day school experiences	①	②	③	④	⑤

Using the scale below, indicate how often each of these things happen to you by circling a number on the scale. There are no right or wrong answers				
Never	Sometimes	Often	Always	
①	②	③	④	
1.	I worry when I have done poorly at something			① ② ③ ④
2.	I feel scared when I have to take a test			① ② ③ ④
3.	I feel worried when I think someone is angry with me			① ② ③ ④
4.	I worry that I will do badly at my school work			① ② ③ ④
5.	I worry I might look foolish			① ② ③ ④
6.	I worry about making mistakes			① ② ③ ④
7.	I worry what other people will think of me			① ② ③ ④
8.	I feel afraid if I have to talk in front of my class			① ② ③ ④
9.	I feel afraid that I will make a fool of myself in front of other people			① ② ③ ④

We would like to ask you some questions about how you control your emotions. The following questions explore what you feel like inside when you are going through an emotional experience, and how you show your emotions in the way you talk, gesture or behave. Using the scale, show how much you agree or disagree with the following statements by circling a number on the scale					
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
①	②	③	④	⑤	
1.	When I want to feel happier, I think about something different				① ② ③ ④ ⑤
2.	I keep my feelings to myself				① ② ③ ④ ⑤
3.	When I want to feel less bad (e.g., sad, angry or worried) I think about something different				① ② ③ ④ ⑤
4.	When I am feeling happy, I am careful not to show it				① ② ③ ④ ⑤
5.	When I'm worried about something, I make myself think about it in a way that helps me feel better				① ② ③ ④ ⑤
6.	I control my feelings by not showing them				① ② ③ ④ ⑤
7.	When I want to feel happier about something, I change the way I'm thinking about it				① ② ③ ④ ⑤
8.	I control my feelings about things by changing the way I think about them				① ② ③ ④ ⑤
9.	When I am feeling bad (e.g., angry, sad, worried) I'm careful not to show it				① ② ③ ④ ⑤
10.	When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I'm thinking about it				① ② ③ ④ ⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly
Disagree
①

Disagree
②

Neither Agree nor
Disagree
③

Agree
④

Strongly
Agree
⑤

Beliefs about yourself

*The following questions will ask you about your **emotional experience** or what you feel like inside:*

1. If I want to, I can change the emotions I have	①	②	③	④	⑤
2. I can learn to control my emotions	①	②	③	④	⑤
3. The truth is, I have very little control over my emotions	①	②	③	④	⑤
4. No matter how hard I try, I can't really change the emotions that I have	①	②	③	④	⑤
5. If I want to, I can change the anxiety I have	①	②	③	④	⑤
6. I can learn to control my anxiety	①	②	③	④	⑤
7. The truth is, I have very little control over my anxiety	①	②	③	④	⑤
8. No matter how hard I try, I can't really change the anxiety that I have	①	②	③	④	⑤
9. If I want to, I can change the amount of happiness I have	①	②	③	④	⑤
10. I can learn to control my happiness	①	②	③	④	⑤
11. The truth is, I have very little control over my happiness	①	②	③	④	⑤
12. No matter how hard I try, I can't really change the amount of happiness that I have	①	②	③	④	⑤

*The following questions will ask you about your **emotional expression**. By emotional expression we mean how you show your emotions in the way you talk, gesture, or behave:*

13. If I want to, I can change my emotional expressions	①	②	③	④	⑤
14. I can learn to control my emotional expressions	①	②	③	④	⑤
15. The truth is, I have very little control over my emotional expressions	①	②	③	④	⑤
16. No matter, how hard I try, I can't really change the emotional expressions that I have	①	②	③	④	⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly Disagree ①	Disagree ②	Neither Agree nor Disagree ③	Agree ④	Strongly Agree ⑤
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Beliefs about people

*These questions will ask you about the **emotional experience of people** or what you think they feel like inside:*

1. If they want to, people can change the emotions they have	①	②	③	④	⑤
2. People can learn to control their emotions	①	②	③	④	⑤
3. The truth is, people have very little control over their emotions	①	②	③	④	⑤
4. No matter how hard they try, people can't really change the emotions that they have	①	②	③	④	⑤
5. If they want to, people can change the anxiety they have	①	②	③	④	⑤
6. People can learn to control their anxiety	①	②	③	④	⑤
7. The truth is, people have very little control over their anxiety	①	②	③	④	⑤
8. No matter how hard people try, they can't really change the anxiety that they have	①	②	③	④	⑤
9. If they want to, people can change the amount of happiness they have	①	②	③	④	⑤
10. People can learn to control their happiness	①	②	③	④	⑤
11. The truth is, people have very little control over their happiness	①	②	③	④	⑤
12. No matter how hard people try, they can't really change the amount of happiness that they have	①	②	③	④	⑤

Thank you for taking the time to complete the questionnaire

APPENDIX F

[Version 1] *I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided*

BACKGROUND INFORMATION

Gender (please circle) Male Female Other

Age Years

Year Group

Ethnic background Asian Black White Other

(please circle)

(if you consider yourself to be dual heritage, please circle two backgrounds)

Are you eligible for free school meals? Yes No

In order to keep your responses anonymous and match up questionnaires, please provide the following information as your identification number			
First 2 letters of SURNAME	First 2 letters of FIRST NAME	First 2 letters of MOTHER'S FIRST NAME	Digits for the DAY of the month you were born (e.g., 1 and 2 if born on 12 th of July; 0 and 8 if born on 8 th of April)
<input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/> <input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/>	<input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/> <input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/>	<input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/> <input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/>	<input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/> <input style="width: 30px; height: 20px; border: 2px solid blue;" type="text"/>

Please think about how you USUALLY think and feel about school.					
Show how much you agree or disagree with the following statements by circling a number on each scale.					
Strongly Disagree ①	Disagree ②	Neither Agree nor disagree ③	Agree ④	Strongly Agree ⑤	
1. School is going well for me	①	②	③	④	⑤
2. I feel better at school than my classmates	①	②	③	④	⑤
3. I feel good at school	①	②	③	④	⑤
4. I feel comfortable at school	①	②	③	④	⑤
5. I like going to school	①	②	③	④	⑤
6. All in all, I am content with my day-to-day school experiences	①	②	③	④	⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly
Disagree

①

Disagree

②

Neither Agree nor
Disagree

③

Agree

④

Strongly
Agree

⑤

Beliefs about yourself

The following questions will ask you about your **emotional experience** or what you feel like inside:

1. If I want to, I can change the emotions I have	①	②	③	④	⑤
2. I can learn to control my emotions	①	②	③	④	⑤
3. The truth is, I have very little control over my emotions	①	②	③	④	⑤
4. No matter how hard I try, I can't really change the emotions that I have	①	②	③	④	⑤
5. If I want to, I can change the anxiety I have	①	②	③	④	⑤
6. I can learn to control my anxiety	①	②	③	④	⑤
7. The truth is, I have very little control over my anxiety	①	②	③	④	⑤
8. No matter how hard I try, I can't really change the anxiety that I have	①	②	③	④	⑤
9. If I want to, I can change the amount of happiness I have	①	②	③	④	⑤
10. I can learn to control my happiness	①	②	③	④	⑤
11. The truth is, I have very little control over my happiness	①	②	③	④	⑤
12. No matter how hard I try, I can't really change the amount of happiness that I have	①	②	③	④	⑤

The following questions will ask you about your **emotional expression**. By emotional expression we mean how you show your emotions in the way you talk, gesture, or behave:

13. If I want to, I can change my emotional expressions	①	②	③	④	⑤
14. I can learn to control my emotional expressions	①	②	③	④	⑤
15. The truth is, I have very little control over my emotional expressions	①	②	③	④	⑤
16. No matter, how hard I try, I can't really change the emotional expressions that I have	①	②	③	④	⑤

Using the scale below, indicate how often each of these things happen to you by circling a number on the scale. There are no right or wrong answers				
Never	Sometimes	Often	Always	
①	②	③	④	
1.	I worry when I have done poorly at something			① ② ③ ④
2.	I feel scared when I have to take a test			① ② ③ ④
3.	I feel worried when I think someone is angry with me			① ② ③ ④
4.	I worry that I will do badly at my school work			① ② ③ ④
5.	I worry I might look foolish			① ② ③ ④
6.	I worry about making mistakes			① ② ③ ④
7.	I worry what other people will think of me			① ② ③ ④
8.	I feel afraid if I have to talk in front of my class			① ② ③ ④
9.	I feel afraid that I will make a fool of myself in front of other people			① ② ③ ④

We would like to ask you some questions about how you control your emotions. The following questions explore what you feel like inside when you are going through an emotional experience, and how you show your emotions in the way you talk, gesture or behave. Using the scale, show how much you agree or disagree with the following statements by circling a number on the scale					
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
①	②	③	④	⑤	
1.	When I want to feel happier, I think about something different				① ② ③ ④ ⑤
2.	I keep my feelings to myself				① ② ③ ④ ⑤
3.	When I want to feel less bad (e.g., sad, angry or worried) I think about something different				① ② ③ ④ ⑤
4.	When I am feeling happy, I am careful not to show it				① ② ③ ④ ⑤
5.	When I'm worried about something, I make myself think about it in a way that helps me feel better				① ② ③ ④ ⑤
6.	I control my feelings by not showing them				① ② ③ ④ ⑤
7.	When I want to feel happier about something, I change the way I'm thinking about it				① ② ③ ④ ⑤
8.	I control my feelings about things by changing the way I think about them				① ② ③ ④ ⑤
9.	When I am feeling bad (e.g., angry, sad, worried) I'm careful not to show it				① ② ③ ④ ⑤
10.	When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I'm thinking about it				① ② ③ ④ ⑤

Thank you for taking the time to complete the questionnaire

[Version 2] *I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided*

BACKGROUND INFORMATION

Gender (please circle) Male Female Other

Age Years

Year Group

Ethnic background Asian Black White Other
(please circle)
(if you consider yourself to be dual heritage, please circle two backgrounds)

Are you eligible for free school meals? Yes No

In order to keep your responses anonymous and match up questionnaires, please provide the following information as your identification number

First 2 letters of SURNAME	First 2 letters of FIRST NAME	First 2 letters of MOTHER'S FIRST NAME	Digits for the DAY of the month you were born (e.g., 1 and 2 if born on 12 th of July; 0 and 8 if born on 8 th of April)
<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 2px solid blue;" type="text"/>

**Please think about how you USUALLY think and feel about school.
Show how much you agree or disagree with the following statements by circling a number on each scale.**

	Strongly Disagree ①	Disagree ②	Neither Agree nor disagree ③	Agree ④	Strongly Agree ⑤
1. School is going well for me	①	②	③	④	⑤
2. I feel better at school than my classmates	①	②	③	④	⑤
3. I feel good at school	①	②	③	④	⑤
4. I feel comfortable at school	①	②	③	④	⑤
5. I like going to school	①	②	③	④	⑤
6. All in all, I am content with my day-to-day school experiences	①	②	③	④	⑤

Using the scale below, indicate how often each of these things happen to you by circling a number on the scale. There are no right or wrong answers				
Never	Sometimes	Often	Always	
①	②	③	④	
1.	I worry when I have done poorly at something			① ② ③ ④
2.	I feel scared when I have to take a test			① ② ③ ④
3.	I feel worried when I think someone is angry with me			① ② ③ ④
4.	I worry that I will do badly at my school work			① ② ③ ④
5.	I worry I might look foolish			① ② ③ ④
6.	I worry about making mistakes			① ② ③ ④
7.	I worry what other people will think of me			① ② ③ ④
8.	I feel afraid if I have to talk in front of my class			① ② ③ ④
9.	I feel afraid that I will make a fool of myself in front of other people			① ② ③ ④

We would like to ask you some questions about how you control your emotions. The following questions explore what you feel like inside when you are going through an emotional experience, and how you show your emotions in the way you talk, gesture or behave. Using the scale, show how much you agree or disagree with the following statements by circling a number on the scale					
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
①	②	③	④	⑤	
1.	When I want to feel happier, I think about something different				① ② ③ ④ ⑤
2.	I keep my feelings to myself				① ② ③ ④ ⑤
3.	When I want to feel less bad (e.g., sad, angry or worried) I think about something different				① ② ③ ④ ⑤
4.	When I am feeling happy, I am careful not to show it				① ② ③ ④ ⑤
5.	When I'm worried about something, I make myself think about it in a way that helps me feel better				① ② ③ ④ ⑤
6.	I control my feelings by not showing them				① ② ③ ④ ⑤
7.	When I want to feel happier about something, I change the way I'm thinking about it				① ② ③ ④ ⑤
8.	I control my feelings about things by changing the way I think about them				① ② ③ ④ ⑤
9.	When I am feeling bad (e.g., angry, sad, worried) I'm careful not to show it				① ② ③ ④ ⑤
10.	When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I'm thinking about it				① ② ③ ④ ⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly Disagree ①	Disagree ②	Neither Agree nor Disagree ③	Agree ④	Strongly Agree ⑤
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Beliefs about yourself

*The following questions will ask you about your **emotional experience** or what you feel like inside:*

1. If I want to, I can change the emotions I have	①	②	③	④	⑤
2. I can learn to control my emotions	①	②	③	④	⑤
3. The truth is, I have very little control over my emotions	①	②	③	④	⑤
4. No matter how hard I try, I can't really change the emotions that I have	①	②	③	④	⑤
5. If I want to, I can change the anxiety I have	①	②	③	④	⑤
6. I can learn to control my anxiety	①	②	③	④	⑤
7. The truth is, I have very little control over my anxiety	①	②	③	④	⑤
8. No matter how hard I try, I can't really change the anxiety that I have	①	②	③	④	⑤
9. If I want to, I can change the amount of happiness I have	①	②	③	④	⑤
10. I can learn to control my happiness	①	②	③	④	⑤
11. The truth is, I have very little control over my happiness	①	②	③	④	⑤
12. No matter how hard I try, I can't really change the amount of happiness that I have	①	②	③	④	⑤

*The following questions will ask you about your **emotional expression**. By emotional expression we mean how you show your emotions in the way you talk, gesture, or behave:*

13. If I want to, I can change my emotional expressions	①	②	③	④	⑤
14. I can learn to control my emotional expressions	①	②	③	④	⑤
15. The truth is, I have very little control over my emotional expressions	①	②	③	④	⑤
16. No matter, how hard I try, I can't really change the emotional expressions that I have	①	②	③	④	⑤

Thank you for taking the time to complete the questionnaire

[Version 3] *I have read the information sheet provided and I am happy to participate. I understand that by completing and returning this questionnaire I am consenting to be part of this research study and for my data to be used as described in the information sheet provided*

BACKGROUND INFORMATION

Gender (please circle) Male Female Other

Age Years

Year Group

Ethnic background Asian Black White Other

(please circle)

(if you consider yourself to be dual heritage, please circle two backgrounds)

Are you eligible for free school meals? Yes No

In order to keep your responses anonymous and match up questionnaires, please provide the following information as your identification number

First 2 letters of SURNAME	First 2 letters of FIRST NAME	First 2 letters of MOTHER'S FIRST NAME	Digits for the DAY of the month you were born (e.g., 1 and 2 if born on 12 th of July; 0 and 8 if born on 8 th of April)
<input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/>	<input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/> <input style="width: 40px; height: 25px; border: 1px solid blue;" type="text"/>

Please think about how you USUALLY think and feel about school.

Show how much you agree or disagree with the following statements by circling a number on each scale.

	Strongly Disagree ①	Disagree ②	Neither Agree nor disagree ③	Agree ④	Strongly Agree ⑤
1. School is going well for me	①	②	③	④	⑤
2. I feel better at school than my classmates	①	②	③	④	⑤
3. I feel good at school	①	②	③	④	⑤
4. I feel comfortable at school	①	②	③	④	⑤
5. I like going to school	①	②	③	④	⑤
6. All in all, I am content with my day-to-day school experiences	①	②	③	④	⑤

Using the scale below, indicate how often each of these things happen to you by circling a number on the scale. There are no right or wrong answers				
Never	Sometimes	Often	Always	
①	②	③	④	
1.	I worry when I have done poorly at something			① ② ③ ④
2.	I feel scared when I have to take a test			① ② ③ ④
3.	I feel worried when I think someone is angry with me			① ② ③ ④
4.	I worry that I will do badly at my school work			① ② ③ ④
5.	I worry I might look foolish			① ② ③ ④
6.	I worry about making mistakes			① ② ③ ④
7.	I worry what other people will think of me			① ② ③ ④
8.	I feel afraid if I have to talk in front of my class			① ② ③ ④
9.	I feel afraid that I will make a fool of myself in front of other people			① ② ③ ④

We would like to ask you some questions about how you control your emotions. The following questions explore what you feel like inside when you are going through an emotional experience, and how you show your emotions in the way you talk, gesture or behave. Using the scale, show how much you agree or disagree with the following statements by circling a number on the scale					
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
①	②	③	④	⑤	
1.	When I want to feel happier, I think about something different				① ② ③ ④ ⑤
2.	I keep my feelings to myself				① ② ③ ④ ⑤
3.	When I want to feel less bad (e.g., sad, angry or worried) I think about something different				① ② ③ ④ ⑤
4.	When I am feeling happy, I am careful not to show it				① ② ③ ④ ⑤
5.	When I'm worried about something, I make myself think about it in a way that helps me feel better				① ② ③ ④ ⑤
6.	I control my feelings by not showing them				① ② ③ ④ ⑤
7.	When I want to feel happier about something, I change the way I'm thinking about it				① ② ③ ④ ⑤
8.	I control my feelings about things by changing the way I think about them				① ② ③ ④ ⑤
9.	When I am feeling bad (e.g., angry, sad, worried) I'm careful not to show it				① ② ③ ④ ⑤
10.	When I want to feel less bad (e.g., angry, sad or worried) about something, I change the way I'm thinking about it				① ② ③ ④ ⑤

The following questions explore your beliefs about emotions. There are no right or wrong answers. We are just interested in your views. Using the scale below, please show how much you agree or disagree with the following statements by circling a number on each scale.

Strongly Disagree ①	Disagree ②	Neither Agree nor Disagree ③	Agree ④	Strongly Agree ⑤
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Beliefs about yourself

*The following questions will ask you about your **emotional experience** or what you feel like inside:*

1. If I want to, I can change the emotions I have	① ② ③ ④ ⑤
2. I can learn to control my emotions	① ② ③ ④ ⑤
3. The truth is, I have very little control over my emotions	① ② ③ ④ ⑤
4. No matter how hard I try, I can't really change the emotions that I have	① ② ③ ④ ⑤
5. If I want to, I can change the anxiety I have	① ② ③ ④ ⑤
6. I can learn to control my anxiety	① ② ③ ④ ⑤
7. The truth is, I have very little control over my anxiety	① ② ③ ④ ⑤
8. No matter how hard I try, I can't really change the anxiety that I have	① ② ③ ④ ⑤
9. If I want to, I can change the amount of happiness I have	① ② ③ ④ ⑤
10. I can learn to control my happiness	① ② ③ ④ ⑤
11. The truth is, I have very little control over my happiness	① ② ③ ④ ⑤
12. No matter how hard I try, I can't really change the amount of happiness that I have	① ② ③ ④ ⑤

*The following questions will ask you about your **emotional expression**. By emotional expression we mean how you show your emotions in the way you talk, gesture, or behave:*

13. If I want to, I can change my emotional expressions	① ② ③ ④ ⑤
14. I can learn to control my emotional expressions	① ② ③ ④ ⑤
15. The truth is, I have very little control over my emotional expressions	① ② ③ ④ ⑤
16. No matter, how hard I try, I can't really change the emotional expressions that I have	① ② ③ ④ ⑤

Thank you for taking the time to complete the questionnaire

APPENDIX G

NOTES FOR THE ADMINISTRATION OF QUESTIONNAIRES

We have found in the past when asking students to do similar questionnaires that if they are allowed to complete them in an informal way they a) take forever and b) start comparing answers. In order to get the questionnaires done relatively quickly and individually, it is probably better to treat it as a relatively formal exercise to be completed as quietly as possible.

Please emphasise to students the following points before students complete the questionnaire:

1. The aim of the study is to find out about how student's deal with their emotions and how this is linked to their feelings about school/college
2. The questionnaires are not a 'test'. There are no right or wrong answers
3. The only reason why the student is asked to make up a unique code is so that the questionnaires can be matched up as they will complete the questionnaires 3 times (October 2018, April 2019, and October 2019)
4. It is important that the students answer honestly and complete the questionnaire on their own
5. Allow students to ask for help with reading if necessary
6. Although there is no time limit, ask students not to spend too long thinking about each question.
7. Students should put their questionnaires in a black envelope (provided) and seal it when they have completed the questionnaire.

Many thanks for your assistance