



School-based positive psychology interventions: The development of a new evaluation process and intervention

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Abstract

Since the rise of positive psychology as a unique discipline, a plethora of school-based interventions have emerged. There is a growing need to understand how these interventions can be effectively evaluated and implemented within schools. This thesis aims to develop an improved system of evaluation for positive psychology school-based interventions.

This thesis develops and examines a mixed method sequential four-step evaluation process (efficacy evaluation, effectiveness evaluation, evaluation of the student voice, and a case study). To gain the data to inform these evaluations, a positive psychology school-based intervention was implemented across two school years. In 2015 a total of 144 students in Grades 5 and 6 were drawn from 8 classes in 3 schools. In the 5 classes allocated to the intervention condition the intervention was implemented by a researcher. In 2016 a total of 299 students in Grades 5 and 6 were drawn from 13 classes in 4 schools. In the 7 classes allocated to the intervention condition the intervention was implemented by the existing class primary school teachers. Data was collected from student self-report scales and questionnaires, academic tests, teacher interviews, a parent questionnaire and class observations.

The efficacy evaluation in Chapter 2 provides information on both the intervention outcomes that were linked, and those that were not linked to the intervention, when implemented by a researcher under controlled conditions. The effectiveness evaluation in Chapter 3 provides insight into the intervention outcomes linked to the intervention when implemented by primary school teachers in true to life conditions. The evaluation of the student voice in Chapter 4 provides additional information to help in the evaluation and development of the intervention. Synthesis of the results of these three evaluations also provides useful insights into the impact of the interventions and the potential measurement limitations. The case study reported in Chapter 5 identifies school-, teacher- and student-level factors that shaped how effectively the intervention was implemented in schools.

Taken together these studies demonstrate the value of using a comprehensive process to evaluate new positive psychology interventions.

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List of Abbreviations

ADHD	Attention Deficit Hyperactivity Disorder
ANOVA	Analyses of Variance
CASEL	Collaborative for Academic, Social and Emotional Learning
CBT	Cognitive Behavioural Therapy
DMEE	Dynamic Model of Educational Effectiveness
FRIENDS	Feelings, Remember to relax, I can try my best, Explore solutions and coping step plan, Now reward yourself, Do it every day, and Smile
L2B	Learn to Breathe
MANOVA	Multivariate Analysis of Variance
MES-JS	Motivation and Engagement Scale – Junior School
MM	Mixed Methods
NAPLAN	National Assessment Programme – Literacy and Numeracy
PPI	Positive Psychology Interventions
PRIME	Planning Realistic Intervention Implementation and Maintenance by Educators
PRP-CA	Penn Resiliency Programme for Children and Adolescents
RCT	Randomised Control Trial
SEAL	Social and Emotional Aspects of Learning
SEM	Standard Error of Measurement

Author's Declaration

This thesis includes (in whole or part) five original papers either published or under-review for publication in peer reviewed journals. The ideas, development and writing of all the papers in the thesis were the principal responsibility of myself, the candidate, working under the supervision of Dr Christopher Boyle and Dr James Hall. The inclusion of co-authors on these papers is reflective of the support and feedback provided by these supervisors.

Thesis Chapter	Publication Title	Authors	Publication Status	Candidate's contribution
2	Positive psychology school-based interventions: A reflection on current success and future directions	Chodkiewicz, A., & Boyle, C.	Published <i>Review of Education</i>	100%
3	A cluster RCT efficacy study of a school-based positive psychology intervention with Australian students aged 9 – 12 years	Chodkiewicz, A., Boyle, C., & Hall, J.	Under Review	100%
4	How can teachers in primary schools effectively implement positive psychology interventions in their classrooms? An RCT effectiveness evaluation	Chodkiewicz, A., Boyle, C., & Hall, J.	Under Review	100%
5	Student perspectives on a positive psychology intervention: An illustration of the value added by adopting a mixed methods approach in evaluations	Chodkiewicz, A., Boyle, C., & Hall, J.	Under Review	100%
6	Understanding the factors that can shape the effective implementation of positive psychology interventions in schools: A case study	Chodkiewicz, A., Boyle, C., & Hall, J.	Under Review	100%

Signed:



Date: 05.02.18

Chapter 1: Introduction

This thesis aims to develop an improved system of evaluation for positive psychology school-based interventions. This chapter briefly presents information on the rationale for and development of the new evaluation process. The thesis objectives and methodology are then set out, followed by an overview of the thesis structure.

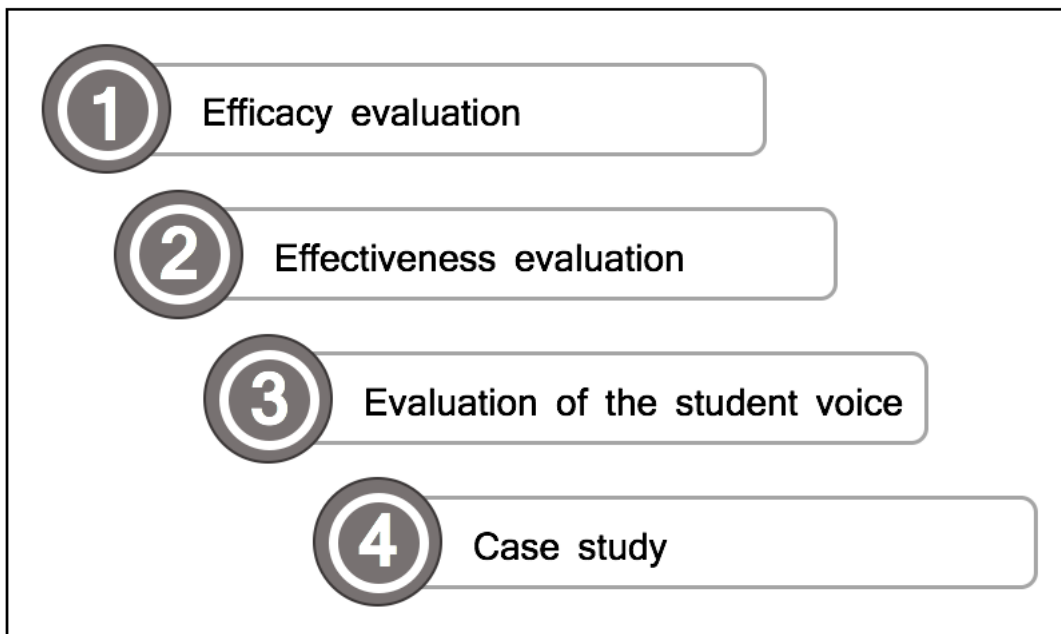
1.1 A new evaluation process

Schools are increasingly looking to implement positive psychology interventions due to the growing push for schools to support the wellbeing and positive development of their students (Schonert-Reichl et al., 2015; Seligman, Schulman & Tryon, 2007; Waters, 2011). As a result, many new positive psychology interventions have arisen to meet this demand (Shankland & Rosset, 2016). Evaluations are crucially important, allowing schools to be informed about the evidence-base behind an individual intervention (Cook & Odom, 2013), providing valuable information about specific short- and long-term student outcomes, and helping schools select interventions that match their student needs. Hopefully they also assist in the successful implementation of the chosen intervention.

To date, research has focused primarily on the task of establishing the efficacy of positive psychology interventions using quantitative methodologies (Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008), with far less attention being paid to: establishing the effectiveness of an evaluation when implemented by classroom teachers, investigating intervention outcomes using student perspectives, or identifying the factors that promote successful intervention implementation by schools and teachers. There is a well-established body of research demonstrating the value of these additional forms of evaluation (Lam, 2016; Pinkelman, McIntosh, Rasplica, Berg, & Strickland-Cohen, 2015; Shoshani, Steinmetz & Kanat-Mymon, 2016; Standbridge & Campbell, 2016; Stockings et al., 2016). By developing a more comprehensive understanding of intervention outcomes from a range of perspectives, schools will be better positioned when selecting interventions to implement in the classroom (Durlak, 2015). Moreover, by understanding the factors fostering

and hindering an intervention's successful implementation, measures can be put in place to increase the impact of an intervention within schools. It is therefore important that future researchers include a broader range of evaluation techniques when evaluating positive psychology interventions. This thesis sets out a suggested mixed method sequential evaluation process using four-steps (see Figure 1.1).

Figure 1.1. The four-step evaluation process for positive psychology school-based interventions



Step 1 involves an efficacy evaluation, which is important for determining the nature and extent of student outcomes linked to an intervention. Efficacy evaluations should be conducted under controlled research conditions, with a researcher responsible for the coordination and implementation of an intervention. Step 2 is an effectiveness evaluation, which is used to determine whether the intervention remains effective when implemented under real-world conditions. In the case of school-based interventions, this includes having the teachers within a school coordinate and implement the intervention in their classrooms, as teachers are typically the ones found running interventions in schools (Beets et al., 2008; Sanetti, Dobey, & Gallucci, 2014; Waters, 2011). Step 3 is an evaluation of the student voice, to gain a broader picture of the impact an intervention is having through the inclusion of student perspectives.

This form of evaluation can provide information about: the range and differences between individual student experiences, the ways in which students use intervention skills in their own lives; and the perceived benefits that students link to their participation in an intervention. Step 4 is a case study to identify the factors that promote and hinder the successful implementation of an intervention within schools. Factors influencing the implementation of an intervention should be analysed at various levels (i.e. school-level, teacher-level, student-level; following the Dynamic Model of Educational Effectiveness – DMEE; Creemers & Kyriakides, 2008) with the aim of providing ways of optimizing the implementation of the intervention in diverse school settings. This case study should use varied data collection techniques (i.e. classroom observations, questionnaires) to gain information from a range of perspectives (i.e. teachers, parents).

Previous researchers have advocated for the establishment of a comprehensive system of evaluating positive psychology school-based interventions yet these have included only some of the four-steps proposed in Figure 1.1. Owens and Murphy (2004), for example, suggested a two-step process, including efficacy and effectiveness evaluations. Pernebo and Almqvist (2016) advocated for the inclusion of student perspective data alongside more traditional evaluation approaches. Further, Durlak and DuPre (2008) called for greater consistency when studying the implementation and maintenance of interventions within real world settings. To the best of my knowledge, this is the first thesis to present and examine all four proposed (and supported) elements in a mixed method sequential evaluation process.

1.2 Thesis objectives

The research in this thesis is guided by two overarching questions:

TQ1. Does each step of the evaluation process provide unique and valuable information about a positive psychology school-based intervention?

TQ2. How can the information gained from this process support the successful dissemination, implementation and maintenance of positive psychology interventions in schools?

This thesis demonstrated the mixed method sequential evaluation process by presenting four studies evaluating a single positive psychology intervention. This intervention was designed specifically for this research project. A subsidiary aim of this thesis is to make conclusions about this intervention based on the cumulative findings of these studies.

Additionally, a specific set of research questions were investigated in each of the individual articles reported in this thesis. The article in Chapter 3 focuses on the student outcomes associated with the intervention when implemented by a researcher. The article in Chapter 4 aims to identify student outcomes following the intervention when implemented by teachers. The article in Chapter 5 uses qualitative student voice data to gain a broader understanding of the interventions impact as seen by students themselves. Finally, the article in Chapter 6 looks to identify the factors that influence how the intervention is implemented within schools by teachers. A summary of all research questions linked to each article is presented in Table 1.1.

Table 1.1. Summary of chapter specific research questions

Chapter 3: Efficacy Evaluation

A cluster RCT efficacy study of a school-based positive psychology intervention with Australian students aged 9-12.

1. Do participating students show a significant increase in their knowledge of the intervention skills? If so, does this gained knowledge remain the same over time?
2. Do intervention participants show a unique improvement in thinking styles and learning behaviours?
3. Do intervention participants show a unique improvement in academic achievement over time?
4. Are differences between the intervention and control conditions equal for both boys and girls?
5. Are there significant differences in outcomes between intervention classrooms?

Chapter 4: Effectiveness Evaluation

How can teachers in primary schools effectively implement positive psychology interventions in their classrooms? Findings from an RCT effectiveness evaluation.

1. Do participating primary school students show a significant increase in their knowledge of the intervention skills? If so, does the knowledge gained remain the same over time?
2. Do primary school students in the interventions condition show improvements in learning cognitions and behaviours?
3. Are there differences in intervention fidelity between the teachers who implement the intervention?
4. Are there significant differences in student outcomes between the intervention classes? If so, are these differences also seen between the control condition classes?

Chapter 5: Evaluation of the Student Voice

Student perspectives on a positive psychology intervention: An illustration of the value added by adopting a mixed methods approach in evaluations.

1. How do students evaluate the intervention?
2. What do students report about the skills they have acquired during the intervention? Do students report applying the intervention skills in their everyday lives?
3. What are the main individual differences in student experiences of, and responses to, the intervention?

Chapter 6: Case study

Understanding the factors shaping the effective implementation of interventions in schools: A case study of a positive psychology intervention.

Do these factors relate to the effective implementation of the intervention:

1. School-level: facilitation of intervention implementation, scheduling of programmes, and provision of resources.
 2. Teacher-level: prior knowledge, perceptions, adaptation, time, and integration of new skills.
 3. Student-level: motivation/engagement, time spent on home learning tasks, and parental engagement.
-

1.3 Data sources and methodology

While the data sources and methodology of each individual article is described in each corresponding chapter, the objective of this section is to provide a brief overview of the research methodology. The research for this

thesis was conducted across the school academic years of 2015 and 2016 (Australian academic years begin in January/February and finish in December). Ethical approval for this research was gained from the University of New England Human Research Ethics Committee and the Public schools NSW state education research approval process (see Appendix A).

In research conducted in 2015, the intervention was implemented by a researcher in three public primary schools in Sydney, Australia. A total of 144 students were drawn from eight Grade 5 and 6 classes. Random allocation to the intervention or control condition occurred at the class level. Student outcomes were measured at pre-intervention, post-intervention and 5-month follow-up using a knowledge questionnaire, the Motivation and Engagement Scale – Junior School (MES-JS; Martin, 2014), STAR Reading (2002) and STAR Math (1998) assessments. This data was used to inform the efficacy evaluation in Chapter 3.

In research conducted in 2016, the intervention was implemented by existing classroom teachers across seven classes in four primary schools in Sydney, Australia. A further six classes were allocated to the control condition. A total of 299 students from Grades 5 and 6 took part in this research. Student outcomes were again measured at pre-intervention, post-intervention and 5-month follow-up using a knowledge questionnaire, the MES-JS (Martin, 2014), STAR Reading (2002) and STAR Math (1998) assessments. The data from these assessments were used to inform the effectiveness evaluation in Chapter 4. At post-intervention, students in the intervention condition were also asked to provide information regarding their perspective of the intervention. The qualitative student voice data gained from this questionnaire was used in the research project reported in Chapter 5. Classroom observations, teacher interviews, and a parent questionnaire were used to gather information regarding the implementation of the intervention. This data informed the case study reported in Chapter 6. A summary of data sources and methods used in each article is provided in Table 1.2.

Table 1.2. Overview of data sources and methodology

Year	Chapter	Participants	Data collection method
2015	Chapter 3 <i>Efficacy evaluation</i>	n = 144 Intervention: 101 Control: 43	Quantitative measures: Knowledge questionnaire MES-JS * STAR Reading STAR Math
	Chapter 4 <i>Effectiveness evaluation</i>	n = 299 <i>Intervention: 178</i> <i>Control: 121</i>	Quantitative measures: Knowledge questionnaire MES-JS * STAR Reading STAR Math
2016	Chapter 5 <i>Evaluation of the student voice</i>	n = 162	Qualitative student perspective questionnaire
	Chapter 6 <i>Case study</i>	Students: n = 178 Parents: n = 33 Teachers: n = 7	Classroom observations, teacher interviews, and a parent questionnaire

* Motivation and Engagement Scale – Junior School (Martin, 2014)

1.4 The intervention

A positive psychology school-based intervention was developed specifically for this research project. The *Believing You Can is the First Step to Achieving (second edition)* programme is for students in Grades 5 and 6. This intervention combines a range of techniques (Cognitive Behavioural Therapy (CBT), attribution retraining, mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education) to target a number of positive psychology elements such as optimistic thinking styles, hope, goal-directed thinking, positive emotions, character strengths and serenity (see Suldo, Savage, & Mercer, 2014 for a description of these positive psychology elements). As such this intervention falls under Sin and Lyubomirsky's (2009) definition of a positive psychology intervention

(“treatment methods, or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions,” p. 468).

In designing this intervention, a number of considerations were made to optimise student outcomes and facilitate effective implementation. First, the intervention was designed for students in late primary school (Grades 5 and 6). At this stage of development these students are believed to have the cognitive maturity to engage in self-reflection and thought reconstruction (Schonert-Reichl et al., 2015), while at the same time also possessing a level of cognitive malleability not seen in older populations (Lerner, von Eye, Lerner, Lewin-Bizan, & Bowers, 2010). This is also an important time to teach students effective coping skills in preparation for the transition to high school.

Second, the intervention was designed to be short in nature (nine sessions), to allow it to be administered within a single school term. Schools are typically faced with the task of balancing numerous competing priorities, making it often difficult for schools to find time for interventions (Chodkiewicz & Boyle, 2014; Toland & Boyle, 2008). As such, brief interventions (running typically from 6 – 10 sessions) are often preferred by schools.

Third, this intervention combines multiple psychological theories and techniques. This approach stands in contrast to previous interventions, which are typically grounded within a single or dual theoretical framework (Bluth et al., 2016; Boyle, Lynch, Lyon, & Williams, 2011; Chodkiewicz & Boyle, 2015; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). Such interventions teaching a limited number of skills may be failing to resonate with a significant proportion of student participants given differences between individual students’ needs, developmental trajectories and responses to interventions (Zimmerman, Phelps, & Lerner, 2008). With this in mind, the current intervention was designed to provide students with a rich toolkit of skills to promote a more positive developmental trajectory.

Fourth, this intervention aims to engage both teachers and parents (as well as caregivers) in the intervention process in the hope of strengthening student outcomes at school and home. Interventions are strengthened when they involve a students’ various micro- and meso-systems (Cefai & Cavioni, 2015; Lomas, 2015). For this reason, this intervention is accompanied by teacher information (including ways of integrating the intervention techniques

into the everyday classroom) and information for parents and caregivers (about the content of the intervention and methods of supporting the intervention teachings at home).

The intervention was adapted from Chodkiewicz and Boyle (2015) who designed an eight-session intervention integrating CBT and attribution retraining. Key skills and resources from this intervention were selected and modified to create a nine-session intervention. Additional resources were created sourcing ideas and techniques from mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education (see Table B1 in Appendix B). The skills selected represent techniques previously shown to be effective in fostering positive development (Bluth et al., 2016; Boyle et al., 2011; Suldo et al., 2014). A panel of professionals (clinical psychologists, a school psychologist, and a primary school principal) provided feedback on the validity of the programme and its applicability to real primary school classrooms before the teacher manual and student workbook were finalised.

The intervention was designed to be engaging and fun for students, comprising nine hour-long sessions. Intervention sessions follow a teacher manual and student workbook, making it easy to follow and implement. The intervention sessions incorporate group discussions, activities (such as games and role-plays) and independent workbook exercises. Each session is also accompanied by home learning activities, to encourage students to reflect on the skills they learnt in the intervention and practice using these techniques in their own lives (a sample intervention session can be seen in Appendix C).

The intervention aims to encourage increased student wellbeing, motivation and engagement in school by promoting optimistic thinking styles, positive emotions and adaptive behaviours, with a specific focus on managing academic tasks and challenges. The intervention assists students to develop the skills to challenge maladaptive thinking patterns and emotions and provides them with strategies to take up more positive ones. For example, by encouraging positive self-talk, the intervention aims to promote positive self-belief among students. Failure and consequent failure attributions are discussed in the intervention with the aim of promoting adaptive attributional styles and decreasing failure avoidance. Anxiety is also included as a key

theme in the intervention, with the goal of reducing student anxiety by teaching skills to identify and manage anxious moments.

The intervention also aims to promote positive learning behaviours and discourages unhelpful behaviours. Specifically, by teaching students to challenge pessimistic self-talk, such as “I can’t do it”, and teaching problem solving skill, the current intervention aimed to increase student persistence and decrease instances of self-handicapping.

Finally, by encouraging helpful thinking styles, emotions and behaviours the intervention hopes to improve students’ overall academic achievement as well. It is believed that improvements in students’ learning cognitions and behaviours will over time translate into improved school performance, particularly in common academic areas (such as reading and mathematics).

1.5 Measures

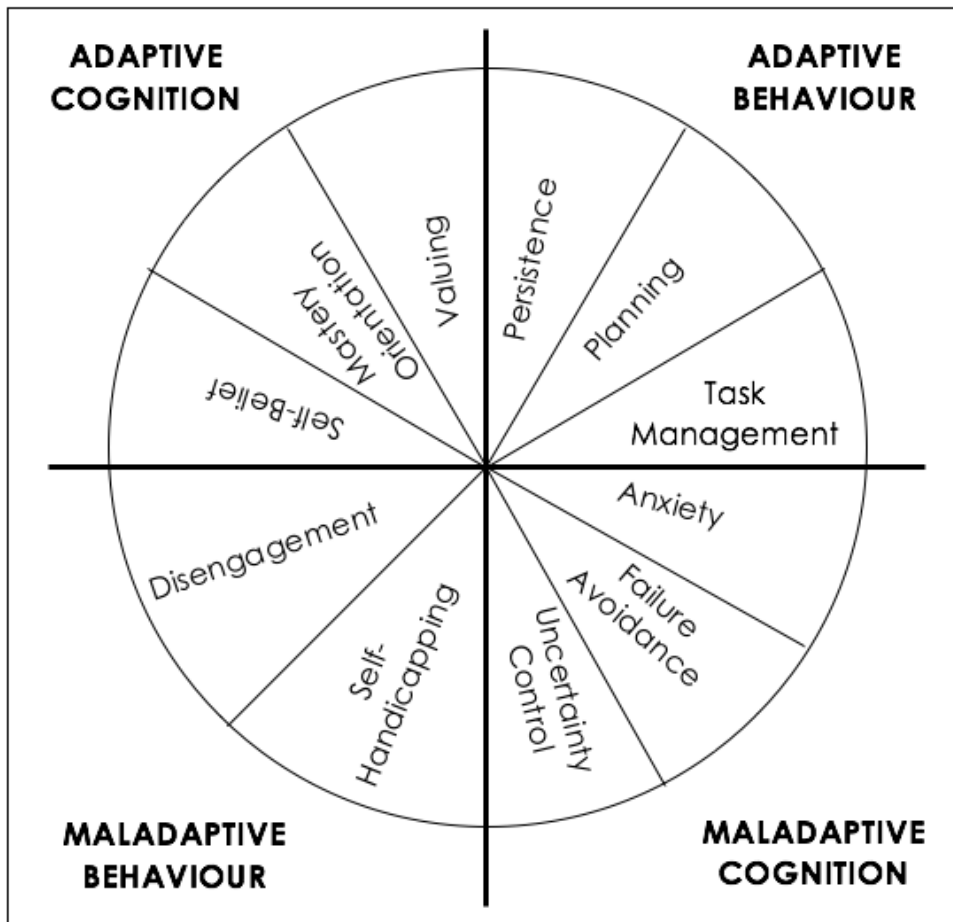
What follows is a brief outline of the measures used in these research studies.

The Motivation and Engagement Scale – Junior School (MES-JS; Martin, 2014) was designed to integrate diverse theoretical perspectives into one measurement tool assessing psychological and behavioural factors central to youth learning and development at school. The MES-JS measures 11 lower-level factors, which each fall into one of four global scores (as displayed in Figure 1.2). The MES-JS is a 44-item student self-report questionnaire. The key benefit of the MES-JS is the breadth of factors measured. The MES-JS is also brief in nature, can be administered online and was normed on over 1,900 junior school students. A study based on the data of 1,249 students from 15 schools confirmed the good fit and reliability of the measures, with Cronbach’s alphas ranging from .66 - .85 across the 11 factors (Martin, 2014).

The MES-JS was selected, as six of the 11 measured factors align with anticipated intervention outcomes. Of the 11 MES-JS factors, the intervention aims to specifically improve the following student cognitions: self-belief, anxiety, failure avoidance, and attribution style (uncertainty control); and learning behaviours: persistence, and self-handicapping. Given the breadth of factors covered by the MES-JS and the overlap between these factors and

predicted intervention outcomes, the MES-JS was selected for this research project.

Figure 1.2 The Motivation and Engagement Wheel



STAR Reading (2002) and STAR Math (1998) are adaptive-computer assessments that measure the academic achievement of students. The tests consist of 34 and 24 multiple-choice questions respectively. By using computerized adaptive technologies these tests are tailored to individual students. Each question is selected to match a student's ability level based on that student's performance on the previous question. In this way, these tests can provide accurate student achievement information in less time than ordinary testing systems. Reliability estimates for the measures were reported to be 0.92 to 0.96 for reading (STAR Reading: Technical Manual, 2010) and 0.87 to 0.90 for math (STAR Math: Technical Manual, 2013). These studies

also found the assessments to have strong concurrent validity when compared to other academic measures.

A number of questionnaires were also designed specifically for this research project. Students' knowledge of intervention skills was assessed using an online questionnaire. The 10-question questionnaire used a mix of multiple-choice and short answer questions to test students' knowledge of intervention topics, vocabulary and skills (see Appendix D). A student voice questionnaire was also created to evaluate student perceptions of the *Believing You Can is the First Step to Achieving (second edition)* programme. The questionnaire asked four main questions: the usefulness of the programme; which lessons were helpful; the use of skills learnt in the programme; and the applicability of the programme to other students (see Appendix E). To evaluate factors influencing intervention implementation, a teacher questionnaire was created. The teacher questionnaire assessed teacher perceptions of the programme, including: its benefits to their students; resource suitability; time needed for implementation; the extent of programme adaptation during implementation; likelihood of future implementation; and whether they had used alternative methods of integrating skills from the programme in their classroom (see Appendix F). Finally, parents were also asked to complete a short questionnaire asking about whether they had accessed any of the available intervention electronic resources and if they had discussed the intervention with their child.

1.6 Structure of the thesis

This introductory chapter has briefly outlined the importance of developing an improved process of evaluating positive psychology school-based interventions. The research questions, data sources and methodology have also been summarised. This final section provides an overview of the organization and progression of this thesis. It is important to highlight that the format of this thesis is consistent with a *thesis by publication*. This means the primary chapters contained within this thesis consist of journal articles designed for publication. At the point of submission of this thesis, each of the four articles are under review. The articles have been kept in their original format. As a result, some chapters contain a certain degree of repetition given

they are designed to form a stand-alone document understood outside the context of this thesis. Despite this format, chapters are intended to form a coherent thematic and structural whole, that is they focus on a singular topic and follow a logical progression from one published study to the next (see Figure 1.3).

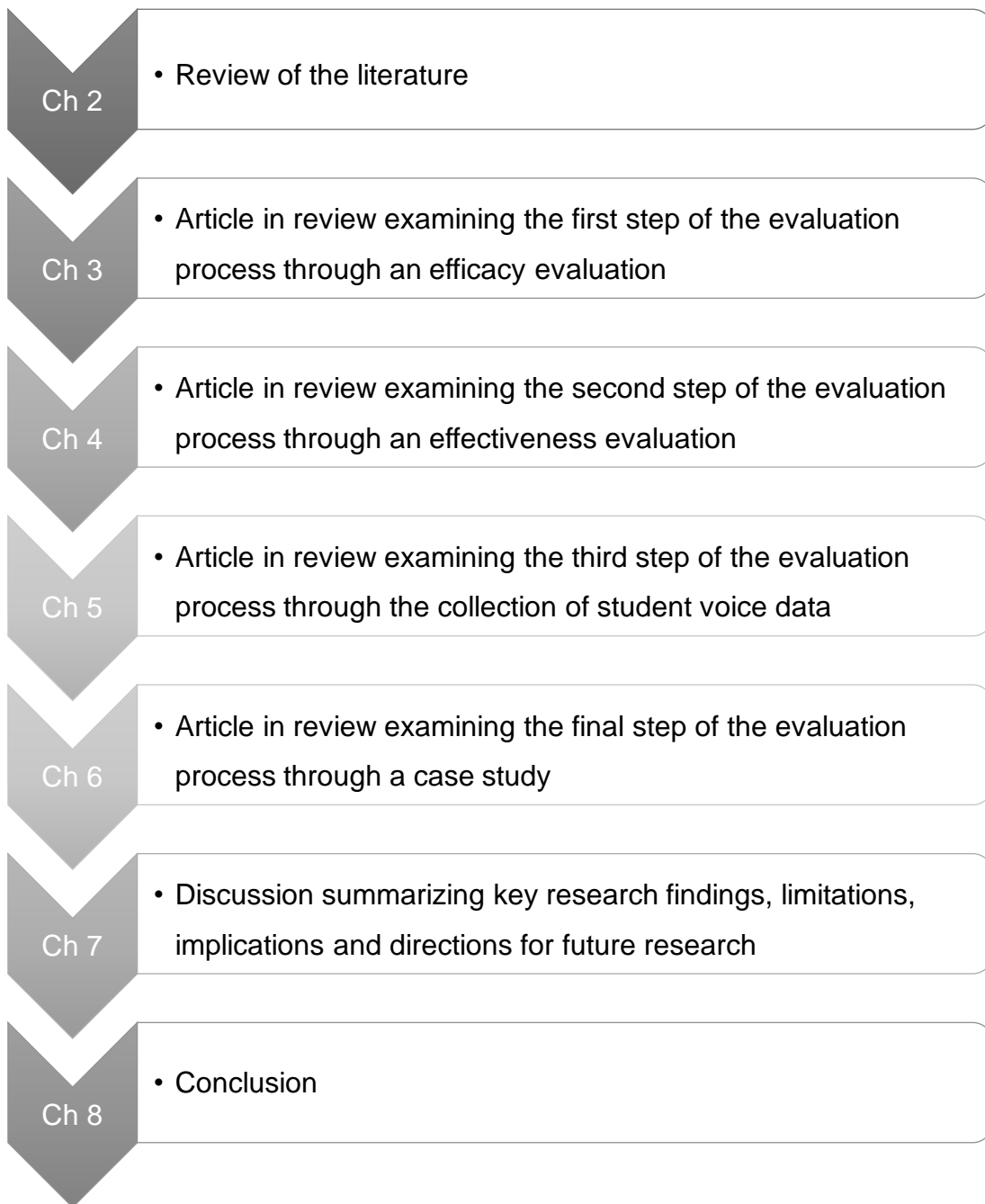
The next chapter (Chapter 2) presents a review of current literature relevant to this research project. This chapter explores the current educational context, the emergence of positive psychology as a discipline and the implementation and evaluation of positive psychology interventions within schools.

Chapter 3 consists of an article which at the time of this thesis submission is under review. This chapter briefly sets out the background of positive psychology interventions in schools and introduces the intervention being examined in this thesis. It then reports the findings of a cluster Randomised Control Trial (RCT) efficacy evaluation (intervention implemented by a researcher). Quantitative data collection techniques were used to demonstrate the student outcomes that are and are not linked to an intervention when implemented under control conditions by a researcher.

Chapter 4 consists of an article which at the time of this thesis submission is under review for publication. This chapter briefly explores the benefits of having teachers implement positive psychology interventions in schools, together with research exploring their effectiveness as intervention leaders. It then reports the findings of a cluster RCT effectiveness evaluation (intervention implemented by teachers). Quantitative data collection techniques were used to demonstrate the student outcomes that are and are not linked to an intervention when implemented under real world conditions by primary school teachers.

Chapter 5 consists of an article which at the time of this thesis submission is under review for publication. This chapter briefly outlines the value of using qualitative data (interpretivist research) to compliment the findings of quantitative (positivist) evaluations. It then reports the findings of a study using student voice data. The results suggested that student voice data provides added insight into the extent of student outcomes, and potential individual differences between student responses to an intervention.

Figure 1.3. Chapter by chapter outline of the content and progression of the thesis



Chapter 6 consists of an article which at the time of this thesis submission is under review for publication. This chapter briefly outlines current research looking into the key factors that influence the successful implementation of interventions in schools. Using the DMEE model as a framework, this article reports the findings of a case study (intervention implemented in four primary schools). The results of the case study reveal a number of important factors

that promoted or hindered the successful implementation of interventions within schools.

Chapter 7 looks at the thesis as a whole, using the findings from the previous chapters to answer the two overarching thesis questions (see section 1.3) and one subsidiary question. This chapter further considers the limitations of the thesis, the implications of the research and possible directions for future researchers. Lastly, Chapter 8 concludes the thesis with concluding thoughts related to the thesis findings.

Chapter 2: Literature Review¹

2.1 The current educational context

A rising prevalence of mental illness in children and young people is being reported in developed countries, despite the reforms in education and schooling that have occurred over recent years (Oades, Robinson, & Green, 2011; Woods & Pooley, 2015). For example, the 2015 report by the Australian Government into the mental health of children and adolescents revealed that 13.6% of individuals aged 4 – 11 years were affected by mental illness within any 12-month period, with anxiety disorder and Attention Deficit Hyperactivity Disorder (ADHD) being the most common. In older individuals (aged 12 – 17 years) the prevalence rises to 14.4% with a noted increase in the incidence of major depressive disorders (Lawrence et al., 2015). Similar findings are appearing around the world, with the USA reporting that 13 - 20% of individuals under the age of 18 years of age will experience a mental health disorder within a given year (Center of Disease Control and Prevention, 2013), and 1 in 10 children and young people under 16 years in the UK are reported to have a diagnosable mental disorder (Murphy & Fonagy, 2013).

The rising prevalence in mental illness in children and young people is paralleled by recent reports of increases in the levels of worry and stress among them. In 2015 the Australian Broadcasting Corporation surveyed 20,000 young people aged 6 – 16 to find out how much they worried (Blumer, 2015). Their results showed that 62% of young people worry at least sometimes, with 20% worrying most of the time or always. The report also reveals that worries typically increase as one gets older, with 38% of youths aged 16 years reporting a “high” level of overall worry. This worry among students may in part be linked to their experiences at school. For example, Martin (2009) notes some of the demands being placed on current students,

Students in elementary school, high school, and university... are required to apply themselves over a sustained period of time to develop their academic skills, engage with key performance demands, negotiate the rigors of

¹ Parts of this literature review have been published in Chodkiewicz & Boyle (2017). The content and format of this section have, however, been changed in line with developments in the research field and the thesis.

competition, deal with setback and adversity, cope with possible self-doubt and uncertainty, and develop psychological and behavioural skills to effectively manage the ups and downs of the ordinary course of academic life. (pp. 794-795)

While students are managing existing school demands, they are also increasingly being asked to sit exams designed to assess their ability to meet educational standards both nationally and internationally (Connolly, Klenowski, & Wyatt-Smith, 2012). Researchers have questioned the impact that examination pressure has on young students who may not have developed the skills to manage high levels of stress (Cefai & Cavioni, 2015; Yeo, Goh, & Liem, 2016). Further, an increased emphasis on education and qualifications has meant that more students are finishing high school and applying for tertiary places. The Grattan Institute analysis of the Australian tertiary education system reported a rapid growth in student enrolments over the last 30 years (Norton & Cherastidtham, 2014). With almost one million Australians enrolled in tertiary studies, the proportion of young people currently studying is more than double that of the 1980s. Similar increases in tertiary student numbers have been observed internationally. An estimated twenty million students in the USA are currently studying at the tertiary level, an increase of almost 5 million since 2000 (National Center for Education Statistics, 2016). In the UK, there was a 6.4% increase in the number of tertiary level students between 2003 and 2013 (Universities UK, 2014). This means that today students are being exposed to academic stress at an early age and over an extended period.

Wellbeing has become a key focus of many educational systems looking to support a generation of students experiencing a high prevalence of academic stressors and mental health difficulties (Schonert-Reichl et al., 2015; Waters, 2011). Wellbeing has been defined as both a positive catalyst for personal improvement and a positive outcome in itself (Sin & Lyubomirsky, 2009). With the increased attention being placed on wellbeing, Lyubomirsky (2007) claims that the pursuit of wellbeing is being lifted from a “fad” to being considered a “serious, legitimate and worthy aim” (p. 2). As a result, societies currently find themselves searching for methods to support the needs of a

generation of young people who are experiencing high levels of stress and mental illness, whilst also trying to meet demands for high student wellbeing.

2.2 Psychological support for students in schools

Increasingly schools are being asked to transform their curriculum and teaching practices to focus on increasing student wellbeing and happiness, fostering optimal youth functioning, teaching social skills, supporting student self-image, equipping students with higher level cognitive skills, and tackling the issue of youth mental health (Schonert-Reichl et al., 2015; Seligman et al., 2007; Waters, 2011). Calls for an increase in the role of schools in supporting positive youth mental health have led to a shift in the rhetoric and the policies of governments (Askell-Williams, Dix, Lawson, & Slee, 2013; Cheney, Schlösser, Nash, & Glover, 2014). The Council of Australian Governments (2013) pledged extra support for youth mental health programmes in schools and outlined a number of initiatives being implemented around the country to better support youth development and reduce mental illness. One such initiative is the 'wellbeing for schools' website released in 2015 by the NSW Department of Education (Department of Education NSW, 2015), which includes a Wellbeing Framework for teachers and school administrators. Internationally, similar policy changes are occurring. Among them are the Social and Emotional Aspects of Learning (SEAL) programmes in the UK (Downey & Williams, 2011; Hallam, 2009), and the Collaborative for Academic, Social and Emotional Learning (CASEL; Jones & Bouffard, 2012) in the US. In light of such progress Cefai and Cavioni (2015) see that mental health promotion in schools is becoming a permanent fixture of many Western education systems.

Many researchers see school as the ideal location for interventions that seek to support the social and emotional development of young people (Askell-Williams et al., 2013; Bothe, Grignon, & Olness, 2014; Cefai & Cavioni, 2015; Cheney et al., 2014; Nielsen et al., 2015). These researchers point to a number of key arguments in support of the implementation of psychological interventions in schools. First, a large proportion of a young person's waking hours are spent at school (Neil & Christensen, 2009; Seligman et al., 2009). Schools therefore offer significant opportunities to reach the widest possible

population of children and young people (Bothe et al., 2014; Cheney et al., 2014; Nielsen et al., 2015).

Second, integrating interventions into schools is cost effective, as existing resources and personnel can be utilised to reduce the additional costs associated with running new initiatives (Baker-Henningham & Walker, 2009; Bothe et al., 2014). There are other financial benefits from school-based prevention, as the cost of running preventative programmes is much cheaper than the costs associated with the provision of subsequent mental health care if students do develop difficulties in the future. Cheney et al. (2014) reported that it can be up to ten times more expensive if the needs of a child experiencing mental health or behavioural difficulties are not addressed during childhood.

Third, young people affected by mental illness are not always receiving the support they need outside of school and those who are engaged in treatment may terminate this support prematurely (Cheney et al., 2014; Neil & Christensen, 2009). School-based interventions offer the chance to provide timely and effective help and support to a wider range of young people in need. They can also help to break down the financial, practical and cultural barriers associated with young people's use of external mental health services (Casserly, 2013; Miller, Short, Garland, & Clark, 2010).

Finally, school is the place where students experience many of the ups and downs of life and can be supported to learn better ways of coping. Having psychological interventions implemented within a school context allows intervention techniques to be modelled in a setting where students can apply them and be supported (Miller et al., 2010; Seligman et al., 2009). Schools are also places of learning. Students are therefore accustomed to learning new skills and techniques at school, making them potentially more open and ready to engage in interventions in a school setting (Cheney et al., 2014; Neil & Christensen, 2009). Many of these interventions are emerging from the relatively new field of positive psychology.

2.3 The history of positive psychology interventions for young people

School-based psychological interventions are not a new concept, as they have been present in schools in developed countries since the early 1930s

(e.g. Hildreth, 1930). However, Shankland and Rosset (2016) argue that the rise of positive psychology has led to new intervention models being promoted within schools that are endorsing wellbeing and positive mental health. This section looks at the antecedents of the positive psychology movement from which many of today's school-based psychological interventions have emerged.

In his paper 'Positive psychology, positive prevention and positive therapy' Seligman (2002) describes the change in focus in the field of psychology over the last century. Seligman indicates that before the 1930s the field of psychology was driven by three central desires: to cure mental illness, to improve productivity and life fulfilment, and to nurture talent. Following the Second World War the dominant model of psychological practice changed, however, taking on the scientific medical model familiar to mental health practitioners today. In doing so the focus of psychology became more restrictive, concentrating almost exclusively on mental illness and pathology (Seligman, 2002; Vella-Brodrick, 2011). In 1954 Maslow eloquently encapsulated the shift in psychology of his time,

The science of psychology has been far more successful on the negative than on the positive side. It has revealed to us much about man's shortcomings, his illness, his sins, but little about his potentialities, his virtues, his achievable aspirations, or his full psychological height. It is as if psychology has voluntarily restricted itself to only half its rightful jurisdiction, and that, the darker, meaner half. (Maslow, 1954, p. 354)

One of the central criticisms of psychology during this period is that it failed to acknowledge a large and significant part of people's lives, that of positive emotions and functioning (Lewis, Huebner, Reschly, & Valois, 2009). In addition, during this period child and adolescent psychology as a discipline received little attention. In a review Lipsitz (1977) found that young people were simply being forgotten. He reasoned that a failure to promote the mental health and positive development of young people resulted from a widespread belief that little could be done to address the difficulties facing young people. By the end of the 20th Century, however, change was afoot.

Seligman's inaugural speech as the president of the American Psychological Association in 1998 can be seen as marking the birth of positive psychology (Vella-Brodrick, 2011). Seligman proposed a new form of psychology in order to swing the pendulum back in a positive direction, to a focus on building what is right, not just fixing what is wrong. Seligman proclaimed positive psychology as the study and development of characteristics such as: wellbeing, satisfaction, joy, happiness, optimism, hope and faith, positive personal traits, perseverance, interpersonal skills, nurturing and tolerance (Seligman, 2002). While the fundamental concepts underlying positive psychology were not in themselves new in 1998, Seligman's speech was instrumental in rejuvenating these ideas and inspiring the development of new theories and innovations (Vella-Brodrick, 2011).

Positive psychology quickly gained a robust following within the psychological community and attracted strong interest from the general public across the Western developed world (Vella-Brodrick, 2011). People were inspired by the emphasis on positive emotions and the flourishing of the individual, along with the idea that every individual is born with personal strengths and potential. Such thinking led to a surge of research investigating happiness and wellbeing, along with theories mapping the positive correlates of healthy development (Lerner et al., 2010). The proponents of positive psychology also advocated for a preventative model, where individual strengths are supported and adaptive skills are taught to promote healthy and positive development (Seligman, 2002; Seligman, Railton, Baumeister, & Sripada, 2013). Many saw the value in assisting individuals to develop the skills to deal with problems before they arise, instead of simply waiting for problems to occur. This led to a growing industry based on a set of preventative interventions (Owens & Patterson, 2013; Seligman et al., 2007; Sin & Lyubomirsky, 2009).

Positive psychology has not been without its critics. One major criticism is that it focuses too singularly on happiness. One cannot always be happy, rather happiness is an emotion that is by nature dynamic and a relatively short-lived reaction to life events (Lundqvist & Kenttä, 2010). The simple promotion of the positive has been questioned by findings that suggest promoting the good does not simply reduce the bad (Lerner et al., 2010). Positive psychology

has also been criticised for promoting individual choice and self-focused effort as the critical influences of flourishing and wellbeing (Becker & Marecek, 2008). In doing so, critics argue that positive psychology has failed to give sufficient attention to social and contextual factors (Lomas, 2015),

The good life is not readily or equally available to all. Disparities in status and power resulting from social class, gender, skin color, race, nationality and caste, markedly influence wellbeing ... to suggest that self-help exercises can suffice in the absence of social transformation is not only short sighted but morally repugnant. (Becker & Marecek, 2008, p. 1771)

Frawley (2015) reviewed two decades of critical responses to positive psychology and reported further criticisms, such as claims that positive psychology is incoherent, fraught with measurement issues, lacking evidence to support grandiose claims and is simply “bad science” (p.66).

Supporters of positive psychology, on the other hand, have appealed for the discipline to be seen as an umbrella under which theory and research are linked through the shared pursuit of common goals. Vella-Brodrick (2011) defined these goals as:

- fostering an optimal level of individual and collective wellbeing,
- equipping individuals with the strengths and skills needed to face the challenges of everyday life, and
- mitigating dysfunction through a preventative model.

Positive psychology promises to re-energise interest in the positive correlates of life in an attempt to improve individuals’ wellbeing across the lifespan. The ideas and techniques of positive psychology do therefore have a place in current practice, particularly in schools, where positive psychology has been applied to help promote the better functioning and improved quality of life of the next generation.

2.4 Positive psychology interventions in schools

The many recent positive psychology school-based interventions, while diverse and varied (Sin & Lyubomirsky, 2009), share a common goal. Their aim is to improve the developmental trajectory of young people and help address future difficulties by teaching skills that encourage positive self-

perceptions, positive emotions and positive behaviours. There has been strong support for the implementation of these programmes in schools. Cefai and Cavioni (2015) state that such interventions are “leading to the formation of academically, socially and emotionally literate young people who have the skills, abilities and emotional resilience necessary to thrive in a challenging world” (p. 54). Similarly Vella-Brodrick (2011) states that positive education will “transform schools into places where assets such as empathy, optimism, creativity, self-efficacy and resilience are identified, appreciated and cultivated” (p. 12). There is no single agreed definition of what qualifies as a positive psychology intervention. The definition given by Sin and Lyubomirsky (2009) is however widely cited (Ng, 2015; Oades et al., 2011; Shankland & Rosset, 2016; Waters, 2011) and thus will be used in this thesis. Sin and Lyubomirsky define positive psychology interventions as “treatment methods, or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions” (p. 468). What follows is a concise summary of a number of school-based interventions that fall under this definition of positive psychology interventions. This list is by no means exhaustive, given the breadth and number of interventions currently available.

The Penn Resiliency Programme for Children and Adolescents (PRP-CA) is arguably one of the most studied positive psychology interventions to date. The PRP-CA programme is a manualised school-based curriculum teaching CBT techniques, social problem-solving skills and relaxation. The programme includes 18 hours of student instruction typically run in groups of approximately 15 students. Sessions include class discussions, worksheets and games. The intervention aims to build resilience and promote realistic thinking and adaptive coping skills (Brunwasser, Gillham, & Kim, 2009).

Another notable programme is FRIENDS (an acronym for: Feelings, Remember to relax, I can try my best, Explore solutions and coping step plan, Now reward yourself, Do it every day, and Smile). The programme uses CBT techniques to teach emotional awareness and self-regulation, challenge thinking patterns that lead to anxiety and promote problem solving skills. The programme consists of approximately nine hour-long sessions, designed to be delivered with whole class groups, and following a student workbook and teacher manual (Stallard et al., 2014).

The Learning to BREATHE (L2B) mindfulness curriculum was developed for adolescents to help them understand their thoughts and feelings, as well as manage negative emotions (Broderick, 2013). The BREATHE acronym stands for: Body, Reflections, Emotions, Attention, Tenderness and Healthy habits. The curriculum is designed to be implemented in whole class groups and consists of 6 hour-long sessions. Sessions include group discussions, activities and mindfulness meditation practice. Workbooks and CDs are also provided to students to encourage home meditation.

Another set of positive psychology interventions have taken a more simplistic approach to the task of supporting the wellbeing of students in school. Reflection diary interventions ask students to spend time drawing, typically on a daily basis, and for a set period of time. In a study by Owens and Patterson (2013), students aged 5 – 11 years were divided into three groups, one group was asked to draw pictures of something for which they were grateful, another depicted their projected best-possible-self, while a third group simply drew something they had done that day. Both the gratitude and best-possible-self conditions aimed to improve students' experiences of positive emotions, levels of life satisfaction and global self-esteem.

While positive psychology interventions for young people vary considerably in their approach, it is possible to identify a number of parallel themes across these interventions. First, the bulk of school-based interventions have been targeted at late childhood and early adolescence. There are several reasons for this trend, one of which is the growing understanding of the neural plasticity associated with youth (Kanwal, Jung, & Zhang, 2016). Late childhood and early adolescence is seen as a time when young brains are sufficiently developed to be able to effectively engage in the cognitive demands of internal reflection and thought restructuring associated with psychology based interventions (Schonert-Reichl et al., 2015). At the same time these young students promise a level of malleability and willingness to change, not often seen in older populations, when thinking patterns become increasingly entrenched (Lerner et al., 2010). This period of development is also seen as a crucial turning point. Later adolescence has been identified as a period of noticeable decline in the learning motivation of some students and an escalated risk of encountering serious difficulties and life challenges

(Bakadorova & Raufelder, 2014; Madden, Green, & Grant, 2011). This means that programmes teaching adaptive skills can be instrumental in helping children and young people manoeuvre through their more treacherous adolescent years (Horn, Pössel, & Hautzinger, 2011).

Second, the majority of positive psychology school-based interventions run for limited periods - typically running for between 6 to 10 sessions (Chodkiewicz & Boyle, 2015; Horn et al., 2011; Miller et al., 2010; Ohi, Fox, & Mitchell, 2013; Stice, Rohde, Gau, & Wade, 2010; Stallard et al., 2014; Suldo et al., 2014). While some researchers run much longer youth programmes, such interventions are far from the norm. Exceptions include: PRP-CA with a total of 18 hours of lessons (Challen, Machin, & Gillham, 2014), the Aussie Optimism Programme with 20 lessons (Roberts et al., 2010), and the Positive Action Programme with 140 lessons (Beets et al., 2008). This type of longer programme is often seen as time-consuming (Toland & Boyle, 2008) and logistically impractical to fit into an already full school curriculum (Chodkiewicz & Boyle, 2014).

Third, school-based interventions are often firmly grounded in either a single or dual theoretical framework. A popular trend has been to model youth programmes on the principles of CBT (Boyle, Topping, Jindal-Snape, & Norwich, 2011; Collins, Woolfson, & Durkin, 2014; Stice et al., 2010; Woods & Pooley, 2015). CBT is an obvious choice when designing psychological interventions in schools as it is one of the most widely used contemporary therapeutic forms and shown to have positive effects on youth mental health (Dawood, 2013). Other approaches have included attribution retraining (Chodkiewicz & Boyle, 2015; Dresel & Haugwitz, 2008), solution focused therapy (Madden et al., 2011), strength-based coaching (Seligman et al., 2009) and mindfulness (Bakosh, Snow, Tobias, Houlihan, & Barbosa-Leiker, 2016; Bluth et al., 2016; Schonert-Reichl et al., 2015). While a number of contemporary researchers have begun creating more diverse interventions (Azeez, 2015; Manicavasagar et al., 2014; Waters, Groth, Sanders, O'Brien, & Zimmer-Gembeck, 2015), these researchers remain in the minority, with Stice et al., (2010) advising that interventions teaching only a small number of concepts are often the most effective.

A downside of interventions that are designed to adhere to a singular theoretical framework is that the number of possible techniques and skills accessible to each student is limited. Such an approach also reflects a naïve assumption that positive student development can be stimulated through a one size fits all intervention (Zimmerman et al., 2008). Young people do not all follow the same developmental trajectory, with each individual holding their own set of strengths and facing a unique array of obstacles and challenges. Researchers have also been identifying how individual differences (such as personality, motivation and intervention adherence) moderate the positive effects of interventions (Ng, 2015). Such findings led Ng to argue that “no single positive psychology intervention approach can be optimal for everybody...[rather] allowing participants to try out or engage in a variety of positive activities, as opposed to merely assigning them to one intervention ... may yield greater success” (p. 84). Similarly, Zimmerman and colleagues (2008) argue that school-based programmes should be as rich and diverse as the student populations they are trying to inspire. When designing the positive psychology youth interventions of the future, researchers and school practitioners may need to start looking more widely and consider what has worked across the field. This will allow researchers to develop more diverse interventions that do not simply teach a single skill, but rather endow young people with a tool kit of techniques to draw on, enabling them to better enrich and fortify their lives.

Finally, much of the positive psychology work being conducted in schools is focused at the student level. Interventions are designed to change students thinking patterns and coping skills, often in the absence of efforts to engage a student’s wider educational setting or home environment (Becker & Marecek, 2008). Context does play a key role in shaping individual wellbeing, therefore Lomas (2015) argues that school-based interventions need to do more to engage a student’s various micro- and meso-systems. Some intervention models taking a whole-school approach to positive psychology have already been successful in engaging a student’s wider community. The Geelong Grammar School project conducted at a private school in Australia is cited as a prime example (Seligman et al., 2009). While this study may be presented as an ideal form of positive intervention, one must keep in mind that teachers

were expected to attend a nine-day training workshop and ongoing lectures, with fulltime researchers and a stream of visiting scholars being available to support staff throughout the year. Unfortunately, the resources required to run whole school projects may not be accessible to schools within the public educational system, which do not have access to the same level of financial support afforded private schools such as Geelong Grammar. Therefore, researchers need to begin looking at how existing shorter and less resource intensive positive psychology interventions can be modified to widen their impact. While a number of researchers have included teacher coaching and parent information sessions as a way to increase the impact of their intervention beyond the individual student (Gillham et al., 2006; Herman, Borden, Reinke, & Webster-Stratton, 2011), this approach has not yet been widely adopted.

2.5 Evaluating the efficacy of positive psychology interventions

Since the 1990s there has been a growing interest in both the fields of psychology and school education towards the implementation of evidence-based practices (Cook & Odom, 2013). It is now essential for an intervention to be scientifically evaluated in order to establish that it reliably impacts promised student outcomes. Despite the widespread recognition that interventions need a solid evidence-base before being implemented in schools, so far there is limited agreement about the exact form or quantity of evidence that is required (Forman, Olin, Hoagwood, Crowe, & Saka, 2009).

To date, the majority of researchers have used a positivistic approach, relying solely on quantitative data analysis methods to evaluate the efficacy of positive psychology interventions (Powell et al., 2008). Efficacy evaluations have provided evidence for the link between positive psychology interventions and wellbeing (Manicavasagar et al., 2014; Schonert-Reichl et al., 2015), self-esteem (Azeez, 2015; Shoshani & Steinmetz, 2014), life satisfaction (Kwok, Gu & Kit, 2016; Suldo et al., 2014), depression (Bennett & Dorjee, 2015; Duong, Cruz, King, Violette & McCarty, 2016), anxiety (Bluth et al., 2016; Warner et al., 2016), and academic achievement (Chodkiewicz & Boyle, 2016; Shoshani, et al., 2016). These evaluations have also been instrumental in identifying intervention outcomes that could not be scientifically substantiated

(self-esteem, Chodkiewicz & Boyle, 2016; life satisfaction, Shoshani et al., 2016; depression, Stallard et al., 2014; and wellbeing, Vickery & Dorjee, 2016), or demonstrate student outcomes that were not maintained over time (Challen et al., 2014; Horn et al., 2011; Stice et al., 2010).

Findings from positive psychology school-based intervention efficacy evaluations are largely mixed. An explanation for this incongruity may be the discrepancy in research methodologies (Chodkiewicz & Boyle, 2014). First, positive psychology is an umbrella term to categorise an array of varied theories, approaches and techniques (Vella-Brodrick, 2011). Positive psychology interventions are therefore also varied in their theoretical scope and instructional methodology. Second, even interventions that share a theoretical foundation may differ greatly in their form and presentation. For example, while one intervention may follow a group discussion format based on purposely-designed booklets (Boyle et al., 2011), a different intervention may incorporate games and role-plays to engage students (Chodkiewicz & Boyle, 2015), or another may use a web-based platform (Manicavasagar et al., 2014). The length of an intervention can also vary greatly, ranging from one-week (Owens & Patterson, 2013) to six-months (Madden et al., 2011). Third, there is no agreed standard within the positive psychology field as to what intervention outcomes should be monitored or how outcomes should be measured. Across research studies investigating positive psychology interventions different psychological and academic factors are assessed, differing definitions of constructs are applied, and varied measurement tools are used to evaluate interventions (Fabiano, Chafouleas, Weist, Sumi, & Humphrey, 2014; Zack, Saekow, Kelly, & Radke, 2014).

Comparing individual efficacy trials often proves difficult due to the variations outlined above. Systematic meta-analyses, however, are beginning to point to some of the overall benefits of positive psychology school-based interventions by reviewing a large number of studies together. The reviews to date have found evidence that positive psychology programmes are helping students thrive (Neil & Christensen, 2009; Sin & Lyubomirsky, 2009; Waters 2011). Sin and Lyubomirsky (2009) collated data across 74 studies, with a total of 6,047 students, published between 1977 and 2008, that aimed at improving student wellbeing or preventing depression. The meta-analysis revealed both

types of interventions to be effective, crediting 96% of wellbeing interventions and 80% of depression interventions with positive effects. Analysis of the effect sizes across studies led Sin and Lyubomirsky to conclude that, “not only do PPIs [Positive Psychology Interventions] work, they work well” (p. 482) and that “PPIs may be more effective than standard treatments” (p. 479). In a similar vein Neil and Christensen (2009) reviewed 27 randomised controlled trials, published between 1987 and 2008, implementing school-based positive psychology interventions aimed at preventing youth anxiety through building student resilience. The meta-analysis by Neil and Christensen supported the value of school-based interventions, finding that in three quarters of research studies anxiety symptoms among young people decreased. Finally, Waters (2011) carefully selected studies for review that represented a broad spectrum of positive psychology interventions, which were being implemented among diverse school populations and settings, using large samples and covering five positive psychology foci (resilience, serenity, hope, gratitude, and character strength). Based on the twelve interventions reviewed, Waters endorsed the efficacy of positive psychology interventions in schools concluding, “taken together, the results are significant, robust and promising” (p. 83).

Determining the efficacy of a positive psychology intervention is a vital first step in the process of developing and evaluating an intervention. Although the research to date has been optimistic about the potential benefits of positive psychology interventions, the mixed research findings at the individual study level indicate there is considerable variability between individual interventions. It is therefore essential that each intervention is evaluated to verify the nature and extent of any meaningful positive impacts on students.

2.6 Evaluating the effectiveness of positive psychology interventions

It is not evidence-base programmes that are effective, but *well-implemented* evidence-based programmes that are effective. (Durlak, 2015, p. 1124).

When developing a positive psychology intervention, evaluating its efficacy when implemented by a researcher is only the first step. It is just as important to understand whether it can be effective when implemented under real-world conditions (Durlak & DuPre, 2008). Walker (2004) asserts that

numerous interventions “fail to bridge the gap between efficacy and effectiveness” (p. 399), resulting in reduced positive outcomes (Forman et al., 2009). It is crucial, therefore, that researchers developing and evaluating school-based positive psychology interventions conduct effectiveness evaluations to identify the impact of an intervention when implemented within schools by teachers. Teachers are typically the ones found running these interventions within schools (Beets et al., 2008; Sanetti et al., 2014; Waters, 2011). There are many theoretical and logistical advantages of having teachers run positive psychology interventions (Baker et al., 2012; Beycioglu, Ozer, & Ugurlu, 2010; Miller et al., 2010). Using teachers reduces the cost of interventions, increases the chance of interventions being sustained over time, and maximises student exposure to intervention ideas, as the teacher is a consistent presence in the classroom (Baweja et al., 2015; Bradshaw, Koth, Thornton, & Leaf, 2009; Miller et al., 2010).

Concerns have been raised, however, regarding the ability of classroom teachers to effectively implement psychological-based interventions (Forman et al., 2009; Pas & Bradshaw, 2012; Sanetti et al., 2014). As Urhahne, Chao, Florineth, Luttenberger, and Paechter (2011) claim, “teachers are not trained to focus on aspects outside of the area of student achievement” (p. 171). Teachers typically have limited time available to implement interventions and have to juggle a number of competing academic and non-academic priorities (Long et al., 2016; Pinkelman et al., 2015). Furthermore, individual differences between teachers (such as their perceptions of the intervention, self-efficacy beliefs, and motivation to implement it correctly) have been linked to variations in the quality with which interventions are implemented (Castro-Villarreal, Rodriguez, & Moore, 2014; Villarreal, Ponce, & Gutierrez, 2015).

Individual studies evaluating the effectiveness of interventions when implemented by teachers have been mixed. Although some studies have found teachers to be capable of effectively implementing positive psychology interventions in their classrooms (Collins et al., 2014; Shoshani et al., 2016), others concluded that teacher-led interventions were not as effective as those led by researchers or health professionals (Challen et al., 2014; Stallard et al., 2014). When individual study results have been pooled, the meta-analyses to

date have found that teachers, if well supported, can effectively implement school-based interventions (Neil & Christensen, 2009; Stockings et al., 2016).

Given the diversity of school-based positive psychology interventions, it may be oversimplistic to ask whether teachers can or cannot effectively implement these interventions. Rather researchers would benefit from looking at individual interventions to ask, how can teachers effectively implement *this* positive psychology intervention? There are various factors inherent in an intervention that may influence how effectively it can be implemented by teachers. For example, interventions that are simple in nature (such as gratitude diary interventions; Schuitema, Peetsma, & van der Veen, 2014); provide clear and easy to follow instructions (Collins et al., 2014); and provide ongoing training (Shoshani et al., 2016) may be easier for teachers to implement than those that require extensive training (Challen et al., 2014) or discontinue support before/during the intervention (Vickery & Dorjee, 2016). These factors point to the need for an effectiveness evaluation to be included as an essential step in the development and evaluation of positive psychology school-based interventions.

2.7 Including student voice data in evaluations

Evaluations of positive psychology school-based interventions tend to be based within a positivistic paradigm, relying exclusively on quantitative methodologies (Powell et al., 2008). Positivistic evaluations are central to establishing a base of evidence to support the claims made by an intervention, however they are not without their limitations. For example, such evaluations are limited to test a set of pre-determined student outcomes, potentially missing other positive effects linked to an intervention. These evaluations also rely on pooling student data, which can mask individual student differences and result in important benefits being missed (Gonzalez, 2009).

The interpretivist paradigm provides an alternative approach to the evaluation of positive psychology interventions. Seen as a more humanistic approach, interpretivist research relies heavily on qualitative data (Babones, 2016). By asking participants open-ended questions about their experiences of an intervention, these evaluations are able to identify an extensive range of intervention outcomes and highlight the potential influence of individual

differences on these outcomes. For example, previous research has demonstrated the usefulness of student voice in helping in the design, implementation and evaluation of school-based interventions (Lam, 2016; Standbridge & Campbell, 2016). This form of data is gaining some growing recognition (Macdonald, Abbott, Hunter, Hay, & McCuaig, 2014; Pernebo & Almqvist, 2016; Reynolds & Clarke, 2014). More widely within the field however, few researchers currently collect qualitative data in the evaluation of positive psychology school-based interventions (Dariotis et al., 2016; Powell et al., 2008).

For a long time the positivist and interpretivist research paradigms have been seen as opposing models, with researchers focusing exclusively on one form of research (Gage, 1989). Contemporary researchers have begun seeing the two paradigms as complementary, with both quantitative and qualitative methodologies being combined within a Mixed Methods (MM) approach. Much of the recent MM research has been conducted in the field of education (Hall, Lindorff, & Sammons, 2016; Muijs, 2015; Teddlie & Tashakkori, 2009). Researchers in the field of psychology generally, and positive psychology interventions specifically, have been slow to embrace an MM approach (Tashakkori, Teddlie, & Sines, 2012), despite initial evidence of its value from school-based mindfulness studies (Bluth et al., 2016; Miller et al., 2010; Vickery & Dorjee, 2016). Future evaluations of positive psychology interventions should begin consistently including interpretivist research alongside existing positivist studies to help gain a more comprehensive understanding of an intervention.

A further development in this field has been the emergence of mixed research synthesis. Sandelowski, Voils, and Barroso (2006) define mixed research synthesis as, “the type of systematic review aimed at the integration of results from both qualitative and quantitative studies in a shared domain of empirical research” (p. 29). While primary level MM research collects both qualitative and quantitative data within a single study, mixed research synthesis uses data extracted from several qualitative, quantitative and MM primary level articles (Heyvaert, Maes, & Onghena, 2013). There are several ways that the synthesis of MM research can help enhance current knowledge. For example, qualitative data can validate or challenge

quantitative findings, quantitative findings can inform the design of studies using qualitative data collection techniques, and qualitative inquiry can refine research hypotheses and quantitative instrument selection. Despite the many potential benefits of mixed research synthesis, Fetters, Curry, and Creswell (2013) report that such integration of MM research remains limited. Future researchers should therefore look to not only collect data from varied perspectives (using varied data collection techniques) within a single study, but should also synthesise mixed forms of data across studies.

2.8 Evaluating implementation in schools

Even if positive psychology interventions are developed and found to be both efficacious and effective, they still need to be implemented in schools in order to have a wide and meaningful impact (Mohammadi, Rowling, & Nutbeam, 2010; Sanetti et al., 2014). For example, the Australian National Health Report released in 2013 found that 37% of schools were implementing mental health frameworks, 52% were offering mental health programmes, while 64% were incorporating mental health literacy into their curriculum (Department of Health and Ageing, 2013). This leaves many schools across Australia still not implementing any mental health programs such as positive psychology interventions. Furthermore, when positive psychology interventions are implemented in schools, they may not always be implemented correctly (Durlak, 2015; Evans, Murphy, & Scourfield, 2015; Sanetti et al., 2014). Forman et al. (2009) argue that the fidelity of positive psychology interventions is so low in real world contexts that any potential positive effects are being severely mitigated. Clearly an intervention that is implemented correctly is going to have a far greater impact than one that is not.

Rather than placing the blame for poor implementation on schools and teachers, failure to effectively implement interventions and evidence-based practices is being attributed to failures in the way that interventions are being designed and disseminated (Atkins, Rusch, Mehta, & Lakind, 2016). Durlak and DuPre (2008) posit that it is not enough for researchers to develop an intervention and expect it to be implemented effectively and widely. Researchers need to have knowledge of their target subjects and settings, and

understand the factors that promote and hinder the successful implementation of an intervention within schools (Mohammadi et al., 2010).

Across various domains of research there remains a gap between what we know and what we do. Olswang and Prelock (2015) write of the 17-year odyssey, referring to the time it takes for research to be translated into practice. The research-practice gap is sighted as an important catalyst for the rise of implementation science (Southam-Gerrow & Dorsey, 2014). Implementation science has been defined as, “the scientific study of methods to promote the systematic uptake of proven clinical treatments, practices, organisational and management interventions into routine practice” (Olswang & Prelock, 2015, p. 1819). By developing a greater understanding of the complex multileveled nature of implementation and identifying potential barriers to effective implementation across diverse settings, the field of implementation science aims to improve the real and long-lasting impact of evidence-based practices (Paul, 2015).

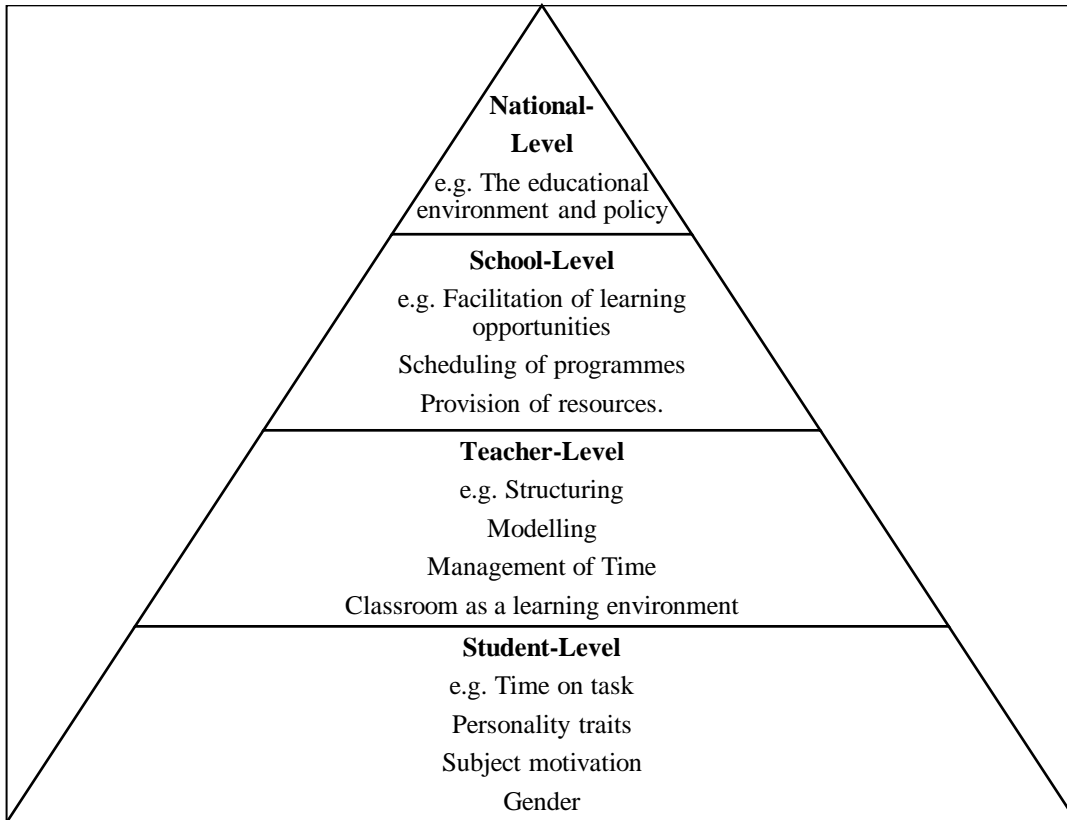
Several frameworks have been proposed within the field of implementation science that underscore the complexity of implementation at the level of the child, family, organization and system (Southam-Gerrow & Dorsey, 2014). One well recognised framework was developed by Fixsen, Naoom, Blasé, Friedman, and Wallace (2005), which set out to identify the constructs and processes that are essential to translate scientific findings into real-world practice. The model comprises four key stages of implementation (exploration, installation, initial implementation and full implementation), which in turn require various core drivers (categorised as: competency, organisation and leadership) This model demonstrates the complexity of the implementation process and the need to consider various elements at different levels and stages (Bertram, Blasé, & Fixsen, 2015). Aarons, Hurlburt, and Horwitz (2011) proposed a similar conceptual model of implementation, also including four key stages (exploration, preparation, active implementation, sustainment). In each stage, Aarons and colleagues classify factors that fall within an ‘outer’ or ‘inner’ context. This model aims to explicitly recognise that during different stages of the implementation process, different variables may play a crucial role in shaping the effectiveness of

implementation. Taking a slightly different approach, Proctor, Landsverk, Aarons, Chambers, Glisson and Mittman (2009) proposed a heuristic model containing four nested levels: the larger system/environment, organisation, group/team, and individual. Within each of these levels the model outlines three distinct but interrelated types of outcomes: implementation, service and client. This model aimed to distinguish, while at the same time link, key implementation processes and outcomes. Although common factors emerge across different models within the field of implementation science, there is variation across the particular theoretical orientations of each model (Olswang & Prelock, 2015). These variations are often influenced by the characteristics of the individual fields of research within which they are developed.

Within the field of education, the DMEE (Creemers & Kyriakides, 2008) provides a framework to better understand the factors that influence the implementation of interventions in schools. The DMEE identifies four hierarchical levels at which the effectiveness of an intervention can be shaped: national/regional-, school-, teacher- (classroom) and student-level. Figure 2.1. shows examples of factors at each level of the DMME.

Simultaneously, in the field of psychology, researchers have been identifying key factors that foster or hinder the successful implementation of psychological-based interventions in schools. Some of these factors overlap with the factors in the DMEE, others are specific to the field of psychology. Many of these factors can be placed within the three bottom levels of the DMEE hierarchy. At the school-level factors include: leadership commitment and support, access to resources, alignment with school philosophy and the simultaneous implementation of multiple interventions (Askell-Williams et al., 2013; Beets et al., 2008; Fabiano et al., 2014; Pas & Bradshaw, 2012). At the teacher-level factors include: knowledge and past experience, buy-in, self-efficacy, time, competing priorities and intervention adaptation (Baweja et al., 2015; Castro-Villarreal et al., 2014; Seligman et al., 2009; Powers, Bowen & Bowen, 2010). At the student-level factors include: student engagement, time invested in the task, and parent involvement (Cefai & Cavioni, 2015; Stallard et al., 2014; Waters et al., 2015).

Figure 2.1. The hierarchical structure of the dynamic model of educational effectiveness



By identifying the factors promoting and hindering the implementation of positive psychology interventions in schools, researchers can tailor both the interventions and the means of dissemination to ensure that they are not only efficacious, but also correctly implemented and maintained in real world settings. For example, previous research has identified finding time within the school calendar to schedule interventions as an important barrier to successful implementation of school-based interventions (Pinkelman et al., 2015). Brief interventions are therefore more likely to be successfully implemented within schools than lengthy ones. Similarly, research highlighting concerns over whether teachers have the pre-existing knowledge to correctly implement positive psychology interventions suggests that there is value in providing teachers with high quality training (Bearman, Wadkins, Bailin, & Doctoroff, 2015; Evans et al., 2015).

While previous research can help to provide general guidelines regarding the factors that may be influencing the implementation of an intervention, these factors can vary between individual programmes. For example, interventions

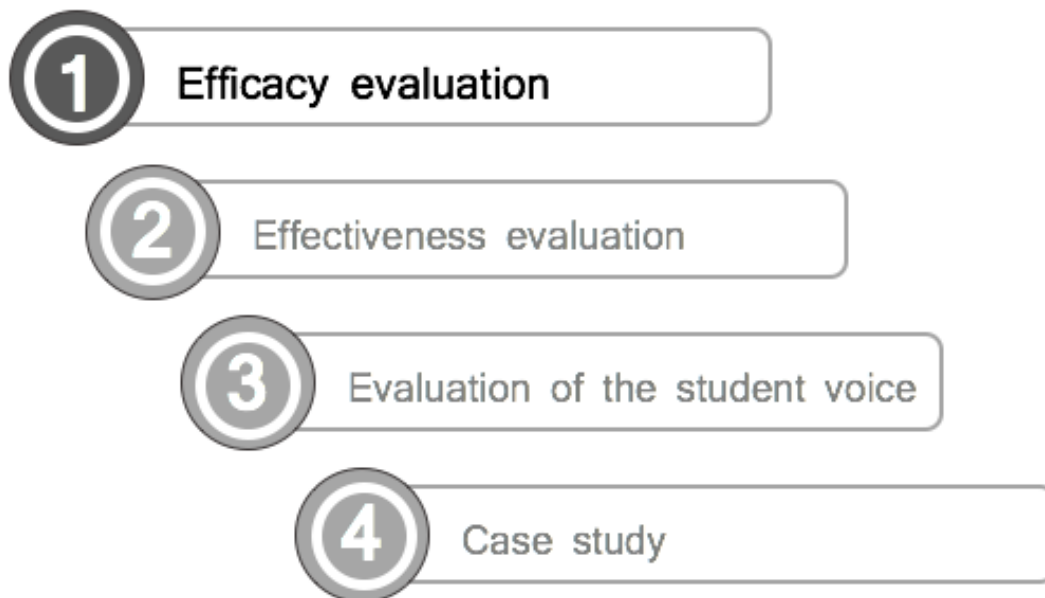
that teach complex skills, demand significant allocation of resources and require teachers to spend considerable time preparing for sessions are likely to face more implementation challenges when compared to interventions that are brief, teaching simple skills and which are accompanied by easy-to-follow teacher manuals. Similarly, the practices undertaken to overcome barriers to successful implementation may work for some, but not for other interventions. For example, extensive teacher training workshops were seen to effectively lead to the successful implementation of the Mytiv curriculum in a study by Shoshani et al. (2016), but not the PRP-CA investigated by Challen et al. (2014). Researchers, therefore, need to consider the main factors that influence the implementation of interventions and investigate them via implementation case studies as well as traditional efficacy and effectiveness studies.

2.9 Conclusion

Growing evidence suggests that school-based interventions can foster improved positive developmental trajectories for students, leading to enhanced wellbeing, mental health and academic achievement. There is an undeniable gap, however, between research theory and educational practice, with interventions often not being routinely or correctly implemented in educational settings. To better understand how positive psychology interventions can be effectively implemented in diverse school settings, future researchers need to begin conducting more comprehensive evaluations following the mixed method sequential evaluation process four-step evaluation process (efficacy evaluation, effectiveness evaluation, evaluation of the student voice, and a case study) outlined in Chapter 1. The use of this mixed method sequential evaluation process promises to better support the facilitations of high quality effective positive psychology interventions in schools.

Chapter 3: Efficacy Evaluation

This chapter reports on the first step of the evaluation process. This efficacy evaluation aims to determine the nature and extent of the student outcomes linked to an intervention when implemented under controlled conditions by a researcher.



A cluster RCT efficacy study of a school-based positive psychology intervention with Australian students aged 9 - 12

Abstract

This investigation reports the results an efficacy evaluation of a positive psychology intervention aimed at promoting optimistic thinking styles, positive emotions and adaptive behaviours in students aged 9 - 12 years through use of multiple techniques (including: CBT, attribution retraining, mindfulness, strength-based coaching, best-possible-self goal setting, and mental health education). Participants were 144 students in Grades 5 or 6 drawn from 8 classes in 3 primary schools across Sydney, Australia. A cluster randomised control trial was used to randomly allocate whole classes of students, with 5 classes allocated to the intervention condition, and 3 to the control condition. The intervention lasted 9 weeks and was implemented by a researcher. Participant knowledge of intervention skills, learning cognitions, behaviours, and level of academic achievement were measured at 3 points throughout the school year: pre-intervention, post-intervention, and at a five-month follow-up. Students in the intervention condition, both male and female, showed improvements in their anxiety about school, and knowledge of intervention skills. A large number of non-significant results were observed for the remaining ten cognitive and behavioural factors measured. While a significant between condition difference was observed for long-term reading progress, no significant effect between the intervention and control conditions was observed in mathematics. Differences over time between the 5 intervention classes were observed for disengagement, reading, and knowledge of intervention skills. The results indicate that the intervention was not successful in promoting positive student cognition, behaviours or improving academics. There is a need for both a longer-term follow-up and a follow-on effectiveness evaluation with teachers as implementers.

An ever-increasing number of schools are looking to integrate positive psychology based teaching into their classrooms in an effort to boost student wellbeing (Council of Australian Governments, 2013; Seligman et al., 2009). It is important that these new initiatives are evaluated to establish a base of evidence to support their impact on student outcomes. This article reports on an efficacy evaluation of an innovative school-based positive psychology intervention that combined multiple theoretical perspectives and techniques.

3.1.1 Positive psychology school-based interventions

Over the last two decades positive psychology has inspired new research into the factors involved in positive youth development (Lerner et al., 2010). In the late 1990s Martin Seligman called on psychologists to shift their focus away from fixing what was wrong to instead building on what was right (Vella-Brodrick, 2011). This approach changed how individuals are viewed, studied, and supported by psychologists (Seligman et al., 2013). New interventions promoting wellbeing, life satisfaction, optimism, and academic buoyancy have since emerged (Chodkiewicz & Boyle, 2017; Martin, 2005). By promoting proactive rather than reactive actions, these interventions aim to prevent problems before they occur.

There is no single agreed definition of what qualifies as a positive psychology intervention. Rather, it is as an umbrella term that embraces a broad range of interventions (Vella-Brodrick, 2011). In this article, the definition given by Sin and Lyubomirsky (2009), is used. Sin and Lyubomirsky define positive psychology interventions as “treatment methods, or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions” (p. 468).

3.1.2 Intervention forms

Various interventions have been developed using different formats to teach distinct skills and promote positive youth development (Sin & Lyubomirsky, 2009). Four techniques are currently receiving substantial research interest: CBT, attribution retraining, mindfulness; and reflection diaries.

CBT is the predominant form of intervention used in schools to educate students on thought processes, foster positive self-talk and develop healthy thinking patterns (Woods & Pooley, 2015). Positive psychology interventions using CBT have been shown to promote optimism and a positive mindset (Madden et al., 2011), reduce test anxiety (Yeo et al., 2016), and increase student wellbeing (Seligman et al., 2007).

Like CBT, attribution retraining also aims to encourage optimism and a positive mindset (Weiner, 2010). Attribution retraining interventions address how one explains events, encouraging participants to feel they have control over outcomes and identify the actions linked to their successes and failures (Chodkiewicz & Boyle, 2014). Studies evaluating attribution retraining interventions have observed changes in student thinking styles (Morris, 2013), increased motivation (Dresel & Haugwitz, 2008) and improved academic achievement (Bosnjak, Boyle, & Chodkiewicz, 2017; Chodkiewicz & Boyle, 2016, Toland & Boyle, 2008).

Mindfulness is a form of relaxation that aims to focus one's awareness on the present moment. Although well established as beneficial among adult populations (Zack et al., 2014), the effectiveness of age-appropriate mindfulness interventions with young people are only now being investigated (e.g. Bakosh et al., 2016). Students as young as seven years old have shown benefits (Semple, Reid, & Miller, 2005), with typical improvements including increased wellbeing, self-acceptance, pro-social behaviours, academic achievement, and reduced mental health issues (Bakosh et al., 2016; Bluth et al., 2016; Schonert-Reichl et al., 2015).

Some positive psychology interventions have used the simple act of reflection - on personal strengths, one's best possible self, or moments for which to be grateful - as another way of improving outcomes for students. These interventions typically last for between one (Owens & Patterson, 2013) to 10 weeks (Suldo et al., 2014), and require students to make daily reflections in a diary. By encouraging young people to focus on the positives, these interventions aim to promote wellbeing, a positive mindset and increased life satisfaction. There are a growing number of studies showing that these simple to administer, low resource intensive interventions can promote student

wellbeing (Diebel, Woodcock, Cooper, & Brignell, 2016; Froh, Sefick, & Emmons, 2008; Green, Grant, & Rynsaardt, 2007).

Although the impact of the above four types of interventions on outcomes for young people remain contested (Sin & Lyubomirsky, 2009), current meta-analyses have been optimistic about their positive effects (e.g. Niel & Christensen, 2009; Sin & Lyubomirsky, 2009). Waters (2011) concluded that, “taken together, the results are significant, robust and promising” (p.83). There is increasing evidence supporting the use of individual intervention forms. However, there remains limited understanding of the impact of interventions that combine multiple techniques into one programme. Such programmes intend to provide students with a broader variety of tools and skills. This is especially important for interventions working with young people, as their individual developmental trajectories suggest that no single technique or intervention model can meet the needs of all students (Zimmerman et al., 2008).

Existing attempts to draw multiple intervention forms together in one place through whole school initiatives typically require schools to commit significant time and resources, frequently a difficult task (Baweja et al., 2015). This makes whole-school approaches much less accessible for many schools. Although there have been some efforts made to combine therapy forms within a single intervention - such as CBT and attribution retraining (Chodkiewicz & Boyle, 2015), or CBT and wellbeing therapy (Madden et al., 2011) and CBT and mindfulness (Semple et al., 2005) - the field of positive psychology currently lacks examples of rich and diverse programmes combining multiple ideas and techniques. Therefore, there is a need for a school-based intervention that draws on multiple positive psychology techniques while also being easy to implement with fidelity, even in schools with limited resources.

3.1.3 The intervention

The *Believing You Can is the First Step to Achieving (second edition)* programme is a positive psychology intervention designed for students in Grades 5 and 6. This intervention combines a range of techniques (CBT, attribution retraining, mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education) to target a number of positive

psychology elements such as optimistic thinking styles, hope, goal-directed thinking, positive emotions, character strengths and serenity. As such this intervention falls under Sin and Lyubomirsky's definition of a positive psychology interventions ("treatment methods, or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions," p. 468).

The intervention adapted key skills and resources taken from an intervention combining CBT and attribution retraining (Chodkiewicz & Boyle, 2015). Additional resources added to the intervention included techniques from mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education (see Table B1 in Appendix B). In combining various therapy techniques, the intervention aimed to provide participants with a comprehensive toolkit of skills. A panel of psychological and educational professionals provided feedback on the validity of the programme.

The nine intervention sessions run approximately one-hour each and incorporate group discussions, activities (such as games and role-plays) and independent workbook exercises. Each session is also accompanied by home learning activities, to encourage students to reflect on the skills they learnt in the intervention and practice using these techniques in their own lives (a sample intervention session can be seen in Appendix C). The intervention also aims to involve teachers and parents (and caregivers) in the intervention process. Teachers and parents/caregivers are provided with information on the intervention and given ideas of ways to integrate the intervention vocabulary and activities into students' everyday lives.

The intervention aims to encourage increased student wellbeing, motivation and engagement in school by promoting optimistic thinking styles, positive emotions and adaptive behaviours, with a specific focus on managing academic tasks and challenges. The intervention assists students to develop the skills to challenge maladaptive thinking patterns and emotions and provides them with strategies to take up more positive ones. The intervention also promotes positive learning behaviours (such as persistence and problem solving) and discourages unhelpful behaviours (such as self-sabotaging). The intervention further provides students with relaxation skills, helps students identify their personal strengths and encourages positive goal-directed

thinking. By encouraging helpful thinking styles, emotions and behaviours the intervention hopes to improve students' overall academic achievement as well.

3.1.4 Research questions

1. Do participating students show a significant increase in their knowledge of the intervention skills? If so, does this gained knowledge remain the same over time?
2. Do intervention participants show a unique improvement in thinking styles and learning behaviours?
3. Do intervention participants show a unique improvement in academic achievement over time?
4. Are differences between the intervention and control conditions equal for both boys and girls?
5. Are there significant differences in outcomes between intervention classrooms?

3.2 Method

3.2.1 Participants

The efficacy of the intervention was evaluated in partnership with three inner-city schools in Sydney (Australia) who agreed to participate in a one-year cluster Randomised Control Trial (RCT). The characteristics of the populations they served are evaluated by school districts based on the 2016 Australian census data. Each of the school districts had median weekly household incomes between \$1,398-1,940 AUD (the median for the region of Greater Sydney: \$1,750). The largest proportion of the populations in each area were born in Australia. Other places of birth included: China, England, New Zealand, Vietnam, India, South Korea and Greece.

A total of 217 students were invited to participate in this study. From this sample of students, 153 provided parental consent. No students rescinded their consent to participate in this research, however some students drop-out occurred as a result of extended absences or moving schools. As a result, eight classes, with a total of 144 students, made up the final sample of this

study. All students were enrolled at the time in Grade 5 or 6, with the age of the participants ranging from 9 years to 12 years 2 months (mean age of 10 years 6 months). The gender distribution of students was 51% male and 49% female. From each of the three schools a total of 28 (2 classes), 38 (2 classes) and 78 (4 classes) students participated in the study. Randomization to the intervention and control conditions was conducted at the class level, so that each school had a mix of classes in both conditions. A total of five classes with 101 students were assigned to the intervention condition across the three schools. The remaining three classes with a total of 43 students made up the control condition. Class sizes across the three schools ranged from 25-30 students. The number of consenting student participants in each class ranged from 10 – 28 (intervention: 13-28; control: 10-18).

All parents and caregivers were asked to agree to provide an email address and complete a questionnaire three times during the school year. The parent form of the Motivation and Engagement Scale (taken from Martin, 2003) measured student's adaptive and maladaptive learning cognitions and behaviours. A total of 106 parents and caregivers provided contact details. Across the school year: 40 parents and caregivers completed the questionnaire at pre-intervention, 33 at post-intervention, and 34 at follow-up (with 27 completing questionnaires on all three occasions).

3.2.2 Measures

Student motivation and engagement. The MES-JS (Martin, 2014) measures 11 lower-level factors, which each fall into one of four global scores (see Table B2 in Appendix B). Data for the MES-JS is collected via a 44-item student self-report questionnaire (see Appendix G). Each lower level factor is calculated by combining the results of four items. Each item is rated on a seven-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Previous research has confirmed the good fit and reliability of these measures with Cronbach's alphas ranging from 0.66 to 0.85 for the 11 factors measured (Martin, 2014). In the current study the alphas ranged from 0.64 to 0.87 across the 11 factors.

Academic achievement. STAR Reading (2002) and STAR Math (1998) are adaptive-computer assessments that measure the academic achievement

of students. The tests consist of 34 and 24 multiple-choice questions respectively. Reliability estimates for the measures were reported to be 0.92 to 0.96 for reading (STAR Reading: Technical Manual, 2010) and 0.87 to 0.90 for math (STAR Math: Technical Manual, 2013). These studies also found the assessments to have strong concurrent validity when compared to other academic measures.

Knowledge of intervention skills. An online questionnaire was designed specifically for this research project to assess student knowledge of the intervention language and techniques. The 10-question questionnaire used a mix of multiple-choice and short answer questions (see Appendix D). The average reliability of the questionnaire across the three time points was $\alpha=0.66$.

3.2.3 Procedure

An email was sent to approximately 50 randomly selected public primary schools in inner-city Sydney (Australia) inviting them to take part in the study. Three schools agreed to participate. Parental consent was required for participation in the study, so at the beginning of the school year, information and consent forms were sent home with all Grade 5 and 6 students. Each pre-existing class group was randomly assigned to either the intervention or control condition. Within the control condition, there was one class per school (total: 3 classes in 3 schools). Within the intervention condition, one school provided three classes, while the other two schools each provided one (total: 5 classes in 3 schools).

In the Australian school system, the school year is divided into four school terms running for approximately 9-11 weeks. At the end of Term 1, participating students completed a set of pre-intervention online assessments within their class groups (STAR Reading, STAR Math, MES-JS, and Knowledge Questionnaire). Participants within classes assigned to the intervention condition completed the intervention during Term 2 (non-consenting students in each class were not present for these lessons). The intervention comprised nine hour-long sessions, allowing it to be implemented within a single school term. The intervention was implemented by a researcher with intact class

groups. The intervention sessions incorporated group discussions, activities (such as games and role-plays) and independent exercises (see Appendix C). Home learning activities accompanied each session. Information was provided to both teachers and parents/caregivers informing them of ways to support the intervention skills at school and home. Students in intervention classes who did not consent to participate in the research did not take part in the intervention. These students were either transferred to other classes or given independent activities to complete during intervention sessions. Classes assigned to the control condition did not take part in any intervention activities.

Directly following the conclusion of the final intervention session at the end of Term 2 all participating students completed the Knowledge Questionnaire and MES-JS questionnaire. Due to scheduling issues with school computers, academic assessments were completed at the beginning of Term 3 (approximately 3 weeks after the conclusion of the intervention). Follow-up testing occurred at the end of the year in Term 4, approximately five months following the intervention. Across the year only a small number of consenting parents and caregivers (n=27) completed the online questionnaire at all three time points (pre-intervention, post-intervention, follow-up). This response rate was deemed too low to conduct meaningful analyses. This data was excluded from the analysis.

3.2.4 Intervention fidelity

To increase the consistency of the implementation, a single researcher (a qualified psychologist) administered the intervention and parent sessions across all schools and classrooms. An independent observer attended 20% of randomly selected intervention sessions to monitor intervention fidelity (see Appendix H). It was found that 90% of the sessions observed were implemented correctly without variations. The 10% of sessions with variations were due to factors including: technology issues, changes in the order of activities and class scheduling difficulties that resulted in two sessions being shortened. No instances of incorrect or missed intervention activities were observed.

3.2.5 Data analysis

Statistical analysis was conducted using the SPSS 21.0 software package. Little's MCAR test (Little & Rubin, 1989) was used to analyse the patterns of missing data. The non-significant result, $\chi^2=77.30$ (df=375, $p=1.00$), indicated that missing data did not show any significant patterns. The Expectation-Maximization algorithm was used to replace missing data points. All scores were standardised using z-score transformation before inferential analyses were undertaken.

Initial baseline differences between the intervention and control conditions were examined using a Multivariate Analysis of Variance (MANOVA). This analysis compared conditions on measures of knowledge of intervention skills, reading, mathematics and all 11 factors of the MES-JS. No significant differences were observed.

To answer research questions one to four, mixed Analyses of Variance (ANOVAs) were run with time included as a within-subject factor, and condition and gender included as between-subject factors. Within-subject interaction effects of time*condition and time*condition*gender were examined. Post-hoc pairwise comparisons with Bonferroni corrections were conducted for time comparisons 1-2 and 2-3.

To answer research question five, mixed-design ANOVAs were run with the data from students in the intervention condition. Time was included as a within-subject factor, and class was included as a between-subject factor. The within-subject interaction effect of time*class was examined. Post-hoc pairwise comparisons with Bonferroni corrections were conducted for time comparisons 1-2 and 2-3. Effect sizes were reported as partial eta squared (η_p^2), using the conventional labels and thresholds of small (0.01), medium (0.06), and large (0.14; Richardson, 2011).

3.3 Results

Table 3.1 presents mean scores, by condition, on all factors of interest at pre-, post-intervention, and follow-up.

Table 3.1. Means and standard deviations for each outcome measure by condition at pre- and post-intervention and at follow-up

	Intervention Condition			Control Condition		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Knowledge of Intervention Skills						
Knowledge	28.75 (17.78)	66.10 (21.29)	54.06 (23.82)	24.42 (19.05)	33.12 (29.83)	35.52 (26.35)
MES-JS Factors (Student-Reported)						
<i>Adaptive Cognitions</i>						
Self-belief	100.40 (12.70)	101.85 (12.68)	99.86 (14.10)	103.01 (10.24)	100.85 (13.17)	99.75 (15.49)
School Valuing	100.53 (12.26)	98.65 (14.14)	80.22 (13.35)	102.17 (10.12)	98.82 (14.83)	80.68 (15.78)
Learning Focus	102.76 (12.67)	101.30 (13.35)	99.08 (14.85)	102.22 (11.04)	103.67 (12.37)	102.85 (13.84)
<i>Adaptive Behaviours</i>						
Planning	103.40 (12.18)	100.38 (12.60)	100.04 (14.08)	104.03 (13.34)	100.91 (14.15)	100.62 (13.36)
Task Management	102.11 (12.17)	101.34 (11.35)	99.95 (13.36)	105.15 (9.94)	101.79 (14.32)	101.87 (11.41)
Persistence	99.95 (13.37)	102.51 (11.96)	99.59 (13.69)	100.33 (12.50)	101.49 (12.70)	101.06 (13.76)
<i>Maladaptive Cognitions</i>						
Anxiety	100.61 (11.69)	95.59 (13.06)	97.22 (13.18)	98.08 (15.91)	97.25 (14.36)	102.33 (15.25)
Failure avoidance	100.60 (13.53)	96.66 (12.32)	95.37 (13.83)	99.39 (13.69)	96.37 (12.86)	93.62 (16.06)
Uncertain control	99.09 (13.24)	94.27 (11.99)	95.00 (13.11)	97.44 (14.31)	94.46 (13.90)	97.31 (14.18)
<i>Maladaptive Behaviours</i>						
Self-sabotage	100.69 (13.28)	99.25 (12.63)	97.38 (13.57)	98.92 (12.36)	98.79 (12.77)	96.88 (12.09)
Disengagement	113.40 (9.50)	97.34 (11.07)	99.72 (13.00)	112.60 (7.47)	95.01 (10.02)	96.32 (10.08)
Academic Achievement						
Reading	101.30 (14.46)	100.68 (17.37)	101.11 (17.60)	102.32 (15.74)	103.18 (17.30)	99.72 (16.99)
Mathematics	109.06 (13.15)	105.29 (15.19)	104.36 (16.65)	107.36 (16.29)	104.96 (16.29)	105.80 (17.94)

Note: MES-JS = Motivation and Engagement Scale-Junior School (Martin, 2014)

3.3.1 Differences in the knowledge of intervention skills

Students who participated in the intervention demonstrated a significant increase in knowledge of the intervention skills. However, this gained knowledge did not remain consistent over the five-month follow up period, suggesting that some acquired knowledge was forgotten over time. An analysis of scores from pre-intervention to post-intervention to follow-up showed a significant condition by time interaction for knowledge of intervention skills ($F(2,280)=11.51$, $p<.001$, $\eta_p^2=.076$), which was classified as having a medium effect size. Planned contrasts revealed significant differences from pre- to post-intervention, with a large effect size ($F(1,140)=18.53$, $p<.001$, $\eta_p^2=.117$), and post-intervention to follow-up, with a medium effect size ($F(1,140)=10.28$, $p=.002$, $\eta_p^2=.068$).

3.3.2 Differences in learning cognitions and behaviours

Students in the intervention condition showed a reduction in anxiety. A significant condition by time interaction for anxiety was observed when examining scores from pre-intervention to post-intervention to follow-up ($F(2,280)=6.49$, $p=.002$, $\eta_p^2=.044$), which was classified as having a medium effect size. Although patterns of overall change differed significantly between conditions, there were no between condition differences in change from pre- to post-intervention ($F(1,140)=3.75$, $p=.055$, $\eta_p^2=.026$) or post-intervention to follow-up ($F(1,140)=3.03$, $p=.084$, $\eta_p^2=.021$). By contrast, there were no significant between group differences in overall change (i.e. no significant group by time interaction effects) observed on any of the ten other MES-JS factors analysed (see Table 3.2).

Table 3.2. Condition by time interaction effects for each outcome measure

	Condition*Time Interaction	Contrast Time 1 – 2	Contrast Time 2 – 3
Knowledge of Intervention Skills			
Knowledge	F(2,280)=11.51, $\eta_p^2=.076^{***}$	F(1,140)=18.53, $\eta_p^2=.117^{***}$	F(1,140)=10.28, $\eta_p^2=.068^{**}$
MES-JS Factors (Student-Reported)			
<i>Adaptive Cognitions</i>			
Self-belief	F(2,280)=1.16, $\eta_p^2=.008$	F(1,140)=2.64, $\eta_p^2=.019$	F(1,140)=.001, $\eta_p^2<.001$
School Valuing	F(2,280)=0.25, $\eta_p^2=.002$	F(1,140)=0.26, $\eta_p^2=.002$	F(1,140)=0.05, $\eta_p^2<.001$
Learning Focus	F(2,280)=1.85, $\eta_p^2=.013$	F(1,140)=2.6, $\eta_p^2=.018$	F(1,140)=0.15, $\eta_p^2=.001$
<i>Adaptive Behaviours</i>			
Planning	F(2,280)=0.16, $\eta_p^2<.001$	F(1,140)=0.02, $\eta_p^2<.001$	F(1,140)=0.03, $\eta_p^2<.001$
Task management	F(2,280) =1.27, $\eta_p^2=.009$	F(1,140)=2.85, $\eta_p^2=.020$	F(1,140)=0.34, $\eta_p^2 =.002$
Persistence	F(2,280)=0.40, $\eta_p^2=.003$	F(1,140)=0.13, $\eta_p^2=.001$	F(1,140)=0.93, $\eta_p^2=.007$
<i>Maladaptive Cognitions</i>			
Anxiety	F(2,280)=6.49, $\eta_p^2=.044^{**}$	F(1,140)=3.75, $\eta_p^2=.026$	F(1,140)=3.03, $\eta_p^2=.021$
Failure avoidance	F(2,280)=0.13, $\eta_p^2=.001$	F(1,140)=0.34, $\eta_p^2=.002$	F(1,140)=0.06, $\eta_p^2<.001$
Uncertain control	F(2,280)=1.39, $\eta_p^2=.010$	F(1,140)=0.42, $\eta_p^2=.003$	F(1,140)=0.96, $\eta_p^2=.007$
<i>Maladaptive Behaviours</i>			
Self-sabotage	F(2,280)=0.13, $\eta_p^2=.001$	F(1,140)=0.19, $\eta_p^2=.001$	F(1,140)=0.01, $\eta_p^2<.001$
Disengagement	F(2,280)=0.50, $\eta_p^2=.004$	F(1,140)=0.50, $\eta_p^2=.004$	F(1,140)=0.06, $\eta_p^2<.001$
Academic Achievement			
Reading	F(2,280)=53.52, $\eta_p^2=.025^*$	F(1,140)=1.44, $\eta_p^2=.010$	F(1,140)=8.47, $\eta_p^2=.057^{**}$
Mathematics	F(2,280)=1.83, $\eta_p^2=.013$	F(1,140)=1.0, $\eta_p^2=.007$	F(1,140)=1.08, $\eta_p^2=.008$

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$; MES-JS =Motivation and Engagement Scale-Junior School (Martin, 2014)

3.3.3 Differences in academic achievement

A significant difference in reading progress was observed between the intervention and control conditions. An analysis of scores from pre-intervention to post-intervention to follow-up showed a significant condition by time interaction for reading ($F(2,280)=53.52$, $p=.031$, $\eta_p^2=.025$), which was classified as having a small effect size. There were no between condition differences in change from pre- to post-intervention ($F(1,140)=1.44$, $p=.232$, $\eta_p^2=.010$), however a significant between group difference in change from post-intervention to follow-up was observed, with a medium effect size ($F(1,140)=8.47$, $p=.004$, $\eta_p^2=.057$). While the average reading level of students in the intervention condition remained stable over the five-month follow-up period, a decrease in the average reading level of students in the control condition was observed.

By contrast, there was no significant between-condition difference in overall change from pre-intervention to post-intervention to follow-up for mathematical achievement (see Table 3.2).

3.3.4 Differential intervention effects by student gender

The intervention had a consistent effect regardless of student gender. An analysis of scores from pre-intervention to post-intervention to follow-up showed no significant condition by time by gender interaction for any of the factors measured (see Table 3.3).

3.3.5 Differential effects between intervention classrooms

Intervention condition data was separated from the original data to run planned follow up analyses. Significant differences between intervention classrooms were identified for two of the three intervention outcomes (knowledge of intervention skills and reading), and one additional factor (disengagement). A significant class by time interaction effect was observed on the following factors: knowledge of intervention skills ($F(8,192)=2.05$, $p=.049$, $\eta_p^2=.079$), disengagement ($F(8,192)=2.49$, $p=.014$, $\eta_p^2=.094$), and reading ($F(8,192)=2.99$, $p=.006$, $\eta_p^2=.111$), which were all classified as having a medium effect size. The trends over time for the individual classes can be

seen in Figures 3.1, 3.2 and 3.3. No other factors of interest showed significant between class differences in change over time (see Table 3.4).

Table 3.3. Gender by condition by time interaction effects

Knowledge of Intervention Skills	
Knowledge	F(2,280)=0.14, η_p^2 =.001
MES-JS Factors (Student-Reported)	
<i>Adaptive Cognitions</i>	
Self-belief	F(2,280)=0.19, η_p^2 =.001
School Valuing	F(2,280)=0.42, η_p^2 =.003
Learning Focus	F(2,280)=0.05, η_p^2 <.001
<i>Adaptive Behaviours</i>	
Planning	F(2,280)=0.79, η_p^2 =.002
Task management	F(2,280)=1.87, η_p^2 =.003
Persistence	F(2,280)=1.24, η_p^2 =.009
<i>Maladaptive Cognitions</i>	
Anxiety	F(2,280)=1.55, η_p^2 =.011
Failure avoidance	F(2,280)=2.95, η_p^2 =.021
Uncertain control	F(2,280)=0.21, η_p^2 =.002
<i>Maladaptive Behaviours</i>	
Self-sabotage	F(2,280)=0.81, η_p^2 =.006
Disengagement	F(2,280)=1.40, η_p^2 =.010
Academic Achievement	
Reading	F(2,280)=1.49, η_p^2 =.011
Mathematics	F(2,280)=0.75, η_p^2 =.005

Note: MES-JS = Motivation and Engagement Scale-Junior School (Martin, 2014)

Table 3.4. Class by time interaction effects within the intervention condition

	Class*Time Interaction	Contrast Time 1 – 2	Contrast Time 2 – 3
Knowledge of Intervention Skills			
Knowledge	F(8,192)=2.05, $\eta_p^2=.079^*$	F(4,96)=1.86, $\eta_p^2=.072$	F(4,96)=0.48, $\eta_p^2=.030$
MES-JS Factors (Student-Reported)			
<i>Adaptive Cognitions</i>			
Self-belief	F(8,192)=0.99, $\eta_p^2=.040$	F(4,96)=0.05, $\eta_p^2=.002$	F(4,96)=1.39, $\eta_p^2=.055$
School Valuing	F(8,192)=1.06, $\eta_p^2=.042$	F(4,96)=0.94, $\eta_p^2=.038$	F(4,96)=0.69, $\eta_p^2=.028$
Learning Focus	F(8,192)=0.22, $\eta_p^2=.009$	F(4,96)=1.66, $\eta_p^2=.007$	F(4,96)=0.13, $\eta_p^2=.005$
<i>Adaptive Behaviours</i>			
Planning	F(8,192)=1.33, $\eta_p^2=.052$	F(4,96)=2.01, $\eta_p^2=.077$	F(4,96)=2.23, $\eta_p^2=.085$
Task management	F(8,192)=0.44, $\eta_p^2=.054$	F(4,96)=0.75, $\eta_p^2=.030$	F(4,96)=2.16, $\eta_p^2=.083$
Persistence	F(8,192)=1.66, $\eta_p^2=.065$	F(4,96)=0.23, $\eta_p^2=.009$	F(4,96)=2.17, $\eta_p^2=.083$
<i>Maladaptive Cognitions</i>			
Anxiety	F(8,192)=0.65, $\eta_p^2=.026$	F(4,96)=1.19, $\eta_p^2=.047$	F(4,96)=0.52, $\eta_p^2=.021$
Failure avoidance	F(8,192)=0.64, $\eta_p^2=.026$	F(4,96)=0.15, $\eta_p^2=.006$	F(4,96)=0.70, $\eta_p^2=.028$
Uncertain control	F(8,192)=0.25, $\eta_p^2=.010$	F(4,96)=10.18, $\eta_p^2=.007$	F(4,96)=0.16, $\eta_p^2=.006$
<i>Maladaptive Behaviours</i>			
Self-sabotage	F(8,192)=0.39, $\eta_p^2=.016$	F(4,96)=0.21, $\eta_p^2=.009$	F(4,96)=0.64, $\eta_p^2=.026$
Disengagement	F(8,192)=2.49, $\eta_p^2=.094^*$	F(4,96)=4.13, $\eta_p^2=.147^{**}$	F(4,96)=0.51, $\eta_p^2=.021$
Academic Achievement			
Reading	F(8,192)=2.99, $\eta_p^2=.111^{**}$	F(4,96)=0.93, $\eta_p^2=.037$	F(4,96)=5.67, $\eta_p^2=.191^{***}$
Mathematics	F(8,192)=0.86, $\eta_p^2=.035$	F(4,96)=0.69, $\eta_p^2=.028$	F(4,96)=1.19, $\eta_p^2=.047$

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; MES-JS = Motivation and Engagement Scale-Junior School (Martin, 2014)

Figure 3.1. Between class differences on average student knowledge of intervention skills at pre-, post-intervention and follow-up for the intervention condition only

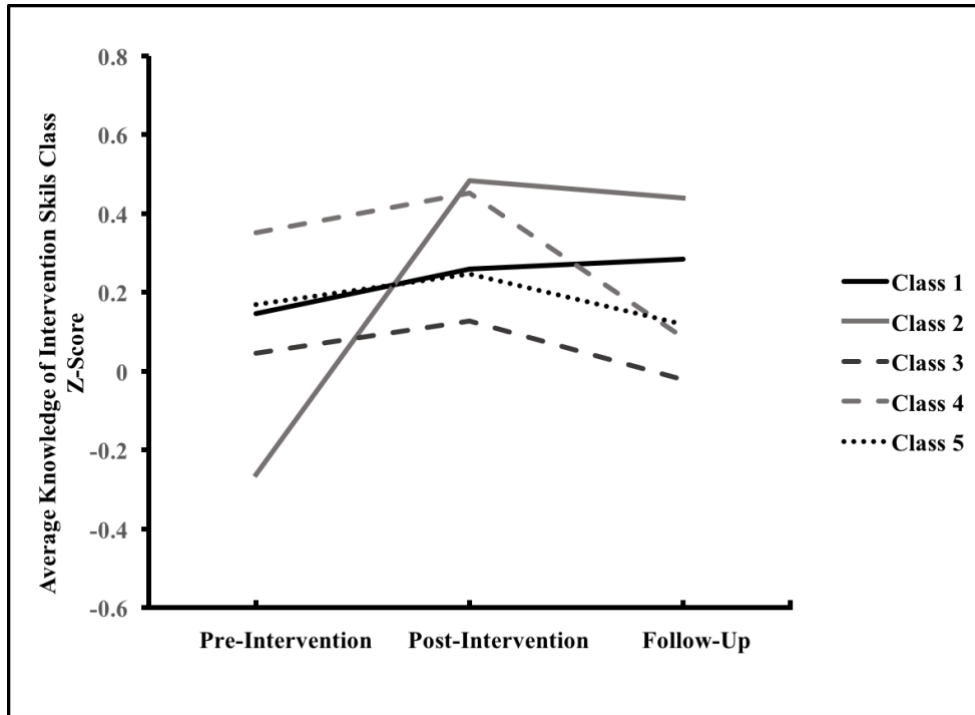


Figure 3.2. Between class differences on average student disengagement at pre-, post-intervention and follow-up for the intervention condition only

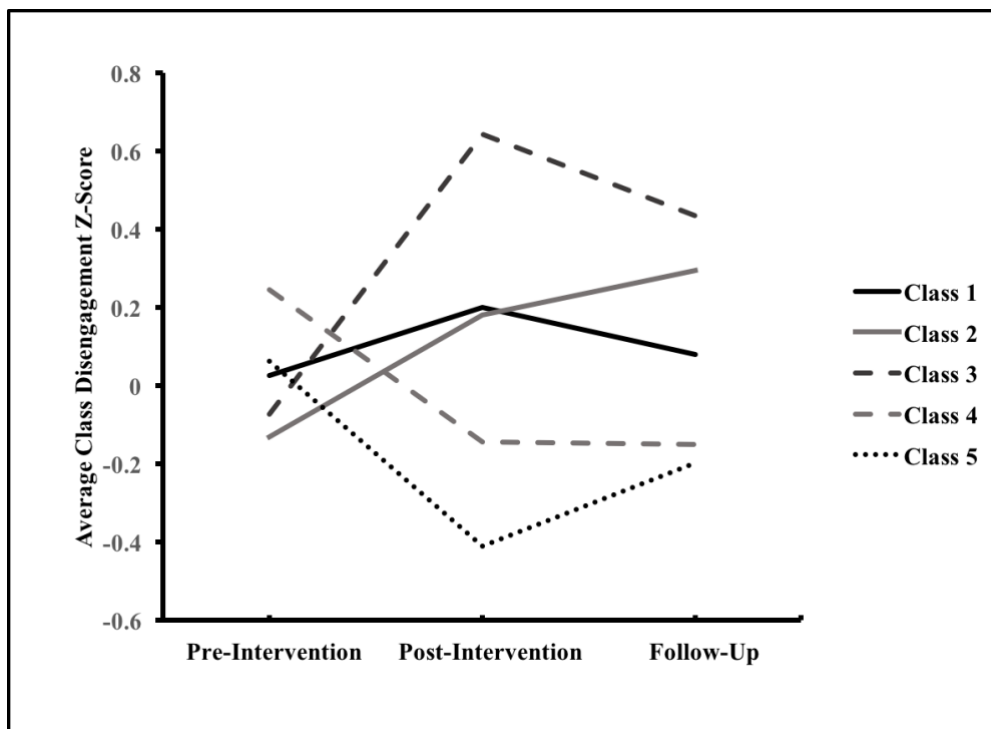
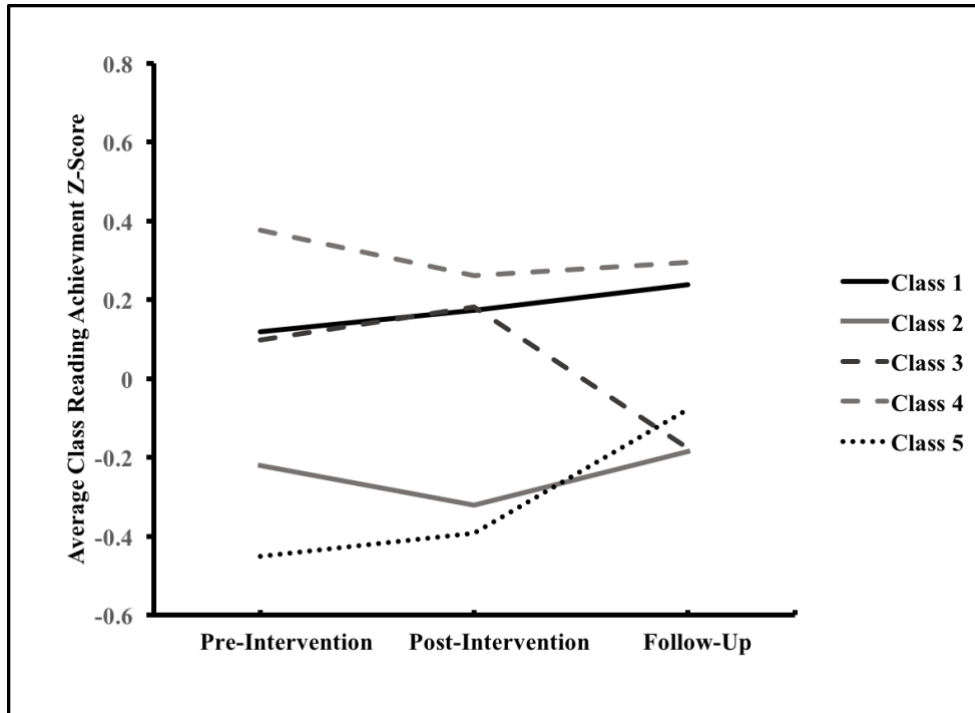


Figure 3.3. Between class differences on average student reading achievement at pre-, post-intervention and follow-up for the intervention condition only



3.4 Discussion

This efficacy evaluation assessed a positive psychology intervention that combined multiple techniques with the aim of promoting positive learning cognitions, behaviours and improving academic achievement among Australian students aged 9-12 years. By combining multiple theoretical perspectives and techniques, the intervention aimed to provide students with a toolkit of skills to help them with academic challenges and general school life. The findings do reveal some small positive benefits that can be gained from the intervention. However, a high level of non-significant results suggest that the intervention did not achieve the intended effect on student outcomes.

3.4.1 Differences in the knowledge of intervention skills

Students in the intervention condition demonstrated significantly increased knowledge of the taught intervention skills across the course of the year. This finding therefore suggests that the intervention was effective at

teaching some key theories and techniques and that students were able to retain these skills months after the conclusion of the intervention.

It appeared that students had some pre-existing knowledge of the intervention topics prior to the commencement of the study. Before the fifth grade, students may have been exposed to some of the topics discussed in the intervention through: prior school programmes, teacher practices or parent modelling.

The data also suggests that some of the learnt intervention skills were forgotten in the five months following its completion. This could be due to a number of factors, such as the intervention skills no longer being promoted in school, a lack of transfer (not understanding how to use a skill in everyday life), or skill redundancy (no longer needing the skills). Forgetting of intervention skills is a key concern for researchers, educators and policy makers because this may undermine the benefits associated with the intervention (Gearing, Schwalbe, Lee, & Hoagwood, 2013).

3.4.2 Differences in learning cognitions and behaviours

Of the 11 cognitive and behavioural factors measured in this study, a significant effect was observed on only one factor, anxiety. The findings of this study suggest that the intervention may be effective in slightly reducing student anxiety about school and preventing what appears to be an otherwise normative rise in anxiety during the course of the year. With research showing anxiety is linked to academic achievement (Yeo et al., 2016), this finding shows that interventions such as this one are valuable. The observed long-term anxiety trend indicates, however, that positive effects may dissipate over time and efforts should be made to increase the longevity of intervention effects. Long-term effects could be maintained through: extending the length of the intervention; incorporating booster sessions in the months/years following the intervention; and/or increasing teacher and parent involvement.

Changes were not observed in any of the other cognitive or behavioural factors measured. Given that the intervention set out to promote improvements across multiple student cognitions and behaviours, this finding is disappointing and suggests that the intervention was not as efficacious as it could be in reaching its goals. In contrast, previous research has documented improved

self-beliefs and persistence following positive psychology interventions (Azeez, 2015; Martin, 2005). This means that this nine-week intervention may not have been able to foster meaningful changes in deeply entrenched thinking and behavioural patterns (as has been seen in previous research e.g. Bluth et al., 2016; Chodkiewicz & Boyle, 2016). Alternatively, the measurement techniques used in this study may not have been sensitive enough to identify some of the small, but meaningful, impacts the intervention had on student cognition and behaviour.

3.4.3 Differences in academic achievement

When comparing the intervention and control conditions, reading progress was observed to significantly differ between these two groups. Specifically, over the five months following the intervention, while students in the intervention maintained a stable level of reading ability, students in the control condition showed a slight decrease in average reading achievement comparative to normative expectations. As such, the intervention may help students maintain their reading level, comparative to normative expectations, and prevent them from falling behind as the year progresses. This finding of a lagged long-term effect fits with Weiner's (1979) belief that improvements in academic achievement take time to emerge following a psychological-based intervention. The finding also demonstrates that positive psychology interventions can have a significant impact on academic performance without explicitly teaching academic skills.

The intervention was not found to have any significant impact on achievement in mathematics. Previous studies have shown similar disparity between the two academic domains, with achievement in reading, but not mathematics, improving after a group intervention (Bosnjak et al., 2017; Chodkiewicz & Boyle, 2016). Toland and Boyle (2008) postulated that some academic skills may be more malleable than others as they are easier to practice independently. In this case, students can easily read a book alone to improve reading skills, but may struggle to select appropriate additional mathematical activities without guidance.

3.4.4 Differential intervention effects by student gender

Student gender was included as a factor of interest in this evaluation given prior noted differences between boys and girls in a number of learning cognitions and behaviours (Liem & Martin, 2012; Zimmerman et al., 2008). As a result, this study was interested in identifying whether girls and boys responded the same way to the intervention. Our findings showed that both boys and girls demonstrated comparable benefits from the intervention. These results support Martin's (2007) argument that boys and girls have a similar structure of motivation and engagement, "differences in motivation are more of degree (i.e. mean level differences) than of kind (i.e. variant factor structures)" (p.433). As such Martin concludes that both boys and girls will likely benefit from the same types of interventions, potentially only varying in level of intensity or duration.

3.4.5 Differential effects between intervention classrooms

The data from the individual intervention classes was analysed to identify whether there were any differences in the way that individual classes responded to the intervention. The results showed that some intervention outcomes differed between the five intervention classes, particularly student reading progress and their knowledge of intervention skills. For both intervention outcomes, students within some intervention classes either learned more or were able to maintain this knowledge better over time. This finding was surprising given that the same researcher implemented the intervention across all five classes with high intervention fidelity. It may be that both student reading and learning of intervention skills were significantly shaped by individual teacher level differences (Niel & Christensen, 2009), such as the degree to which intervention techniques were integrated in the classroom beyond prescribed intervention lessons. In contrast, the impact of the intervention on reducing anxiety about school was found to be comparable across all five classes, which suggests that any teacher level differences are inconsistent in their effect. Average student disengagement was also observed to significantly differ between classes across the year, even though this was not identified as an intervention outcome.

3.4.6 Limitations

Like all investigations, this study had a number of limitations. First, this study used a passive control condition rather than an active attention comparison sample. This decision was based on the ethical dilemma and the reasonable reticence of schools to remove students from learning in the classroom to be in a control condition. It cannot, however, be ruled out that the extra attention received by the students in the intervention group influenced the observed results.

Second, due to constraints within schools, more classes were assigned to the intervention than to the control condition. This resulted in uneven group sizes. More even group sizes, along with a larger overall sample size, would have strengthened the outcomes of the current study.

Third, a single researcher was responsible for running the intervention across all schools and classrooms in an effort to maintain a high level of intervention fidelity. Although this was a useful way of ensuring consistency in presentation, it made it difficult to separate the efficacy of the intervention from the personal qualities of the individual administrator. Future research should evaluate the intervention when implemented by multiple individuals.

Fourth, failure to engage parents and caregivers in the current research project resulted in parent-report data being excluded from the analyses. Also, only a small number of parents and caregivers attended the information sessions offered. While it is often difficult to engage parents in research (Gillham et al., 2006) previous investigations have shown that parental-report data offers a valuable additional perspective to self-report data alone (e.g. Roberts et al., 2010). Future research would benefit from trying additional means of encouraging parental participation.

Fifth, in the current study allocation of students to experimental conditions occurred at the class level, rather than the pupil or the school level. This decision was based on the advice of Collins et al. (2014) who argues that this method prevents school differences from confounding student outcome results. Unfortunately, by having both intervention and control condition participants in a single school, the risk arises that information may be shared across conditions (Kwok et al., 2016). Although no significant rise in control students' knowledge of intervention skills was observed in this study, diffusion

of information between conditions might nevertheless have occurred, resulting in intervention effects being underestimated.

3.4.7 Implications

This study sets out to understand the value in implementing positive psychology interventions in schools. This intervention aims to change the way students think, manage stress and learn. The limited findings of the current study provide no clear answers to the question of how effective positive psychology interventions can be within the classroom. More research is needed with this and other positive psychology interventions, in order to gain a clearer picture of the true potential of these interventions for students in schools.

The observed drop in students' knowledge of intervention skills over time and inability to see widespread changes to thinking styles and learning behaviours suggests that school-based positive psychology interventions should not be implemented in isolation. These interventions should be viewed as the first step in a longer-process of cognitive and behavioural change. As such, intervention outcomes need to be increased and maintained through the continuous integration of intervention ideas within the classroom (Collins et al., 2014). Educational psychologists can play a central role in supporting the use of psychological techniques by students and staff throughout the school year.

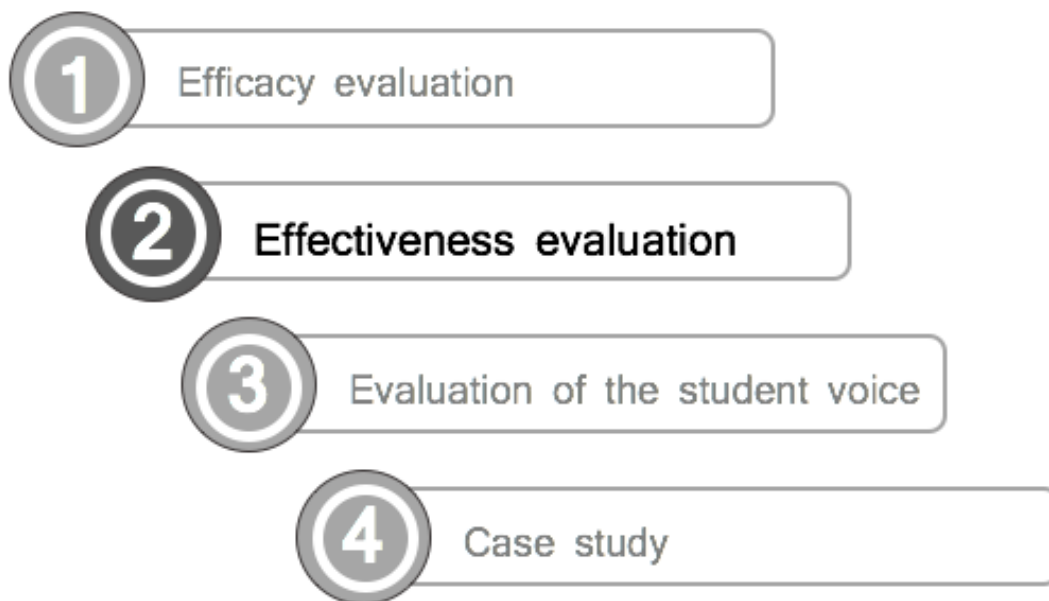
3.4.8 Conclusions and future directions

The results of this efficacy evaluation do show some small positive student outcomes linked to this intervention. However, the high level of non-significant results suggests that the intervention was not successful in promoting all of the positive student cognitions, behaviours or improving academic performance. While some significant results were observed for student knowledge of the intervention skills, anxiety about school and reading achievement, all other factors of interest were not observed to differ between the intervention and control conditions. Some of the results, based on the follow up data, also suggest that over time these limited intervention outcomes may fade. Future research should look to better understand the potential

benefits of this intervention, using a mixed methods research design or employing different measurement tools. A more extensive follow-up effectiveness evaluation would also be useful to help identify whether the intervention is more successful when implemented by teachers. This is because teachers are able to increase the impact of the intervention, by providing students with exposure to intervention techniques throughout the school day.

Chapter 4: Effectiveness Evaluation

The previous chapter reported the results of an efficacy evaluation to determining the nature and extent of student outcomes linked to an intervention when implemented under controlled conditions by a researcher.



This chapter reports on the second step of the evaluation process. This effectiveness evaluation aims to determine whether an intervention remains effective when implemented under real-world conditions by primary school teachers.

How can teachers in primary schools effectively implement positive psychology interventions? Findings from an RCT effectiveness evaluation

Abstract

How can primary school teachers effectively implement positive psychology interventions? A total of 299 students from 4 schools in Sydney, Australia, participated in a cluster RCT effectiveness evaluation. Teachers implemented a 9-week positive psychology intervention in 7 of 13 classes. A significant increase in students' knowledge of intervention skills at post-intervention was observed, however no significant change in students' learning cognitions or behaviours was seen. Between teacher variability on intervention fidelity ratings and between class differences on some student outcome measures were also observed. These findings provide evidence to inform how diverse teachers can better implement positive psychology interventions.

The promotion of positive psychology principles to support students' development and mental health is gaining broader acceptance in the educational systems of many countries (Cefai & Cavioni, 2015). Since its emergence as a unique field of study in the late 1990s, positive psychology has focused on helping individuals flourish (Vella-Brodrick, 2011). Methodologically, this has been achieved through the introduction of a wave of interventions attempting to positively shape the developmental trajectories of young people (Lerner et al., 2010). However, the form, nature and definition of the term *positive psychology interventions* have varied greatly (Dawood, 2013). In this article, the definition given by Sin and Lyubomirsky (2009), is used. Sin and Lyubomirsky define positive psychology interventions as "treatment methods, or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions" (p. 468).

The meta-analyses carried out to date have been optimistic that positive psychology interventions are having positive effects when implemented in research studies (Neil & Christensen, 2009; Sin & Lyubomirsky, 2009; Waters, 2011). Sin and Lyubomirsky (2009) conclude that "not only do PPIs [Positive Psychology Interventions] work, they work well" (p. 482). Unfortunately, when schools and teachers implement these interventions, they often fail to meet the required implementation standards (Pinkelman et al., 2015). Forman et al. (2009) estimated that only 25-50% of evidence-based interventions (such as positive psychology interventions) are being implemented as intended in educational settings. As a result, positive psychology interventions implemented by schools and teachers are less effective than might be anticipated (Pas & Bradshaw, 2012). These findings have led researchers to question the means by which positive psychology interventions can best be implemented in schools (Sanetti, Kratochwill, & Long, 2013). More research is needed in this area, as there are many practical advantages of having teachers implement positive psychology interventions (Baweja et al., 2015; Collins et al., 2014; Lomas, 2015).

4.1.1 Teachers implementing positive psychology interventions

There are a number of advantages from having teachers implement school-based interventions. First, it is more cost-effective, with schools able to

implement interventions using existing resources (Bradshaw et al., 2009). Second, teacher implemented interventions have a greater chance of being sustained (Collins et al., 2014). Third, classroom teachers have a monopoly on students' time when they are at school (Baweja et al., 2015), thus they are able to extend an intervention beyond the prescribed intervention sessions (Miller et al., 2010) and can promote intervention principles across the school year (Collins et al., 2014). Fourth, classroom teachers have an existing rapport with their students and have a good understanding of their students' needs (Cheney et al., 2014). Fifth, classroom teachers can act as a bridge between school and the home (Lomas, 2015).

At the same time, there are also a number of factors that can hinder the effective implementation of positive psychology interventions by teachers. First, most teachers have no previous psychological training (Urhahne et al., 2011). This means that teachers may not be adequately trained to teach many of the elements at the centre of positive psychology interventions (Askill-Williams et al., 2013). Second, the pressure that builds from having limited time and resources is also important to consider when teachers are already thinly stretched by increasing curricula demands (Boyle, 2007; Castro-Villarreal et al., 2014). Given the difficulty of finding enough time in busy schools, teachers can struggle to implement long and complex interventions. Third, positive psychology interventions that require teachers to invest extensive amounts of time are often seen as a burden (Stockings et al., 2016). Fidelity can decline if teachers perceive the cost of an intervention to outweigh the benefits or do not see the intervention as fitting with the needs of their class (Eiraldi, Wolk, Locke, & Beidas, 2015; Hall et al., 2016).

4.1.2 Research on teacher-led positive psychology interventions

Research findings regarding the ability of teachers to effectively implement positive psychology interventions are mixed. One example of this is research investigating the PRP-CA (Reivich, Gillham, Chaplin, & Seligman, 2006). The programme is delivered in 18 one-hour sessions and aims to build boyancy, promote realistic thinking and encourage the use of adaptive coping skill. Previous research by Brunwasser and colleagues (2009) demonstrated the programme's potential to have long lasting benefits for students when data

from researcher-led and teacher-led studies were combined. In a subsequent study looking exclusively at the programme when implemented by teachers, Challen and colleagues (2014) found no long-term impact on student outcomes, despite providing teachers with a 10-day training course and ongoing support.

In contrast, the study by Shoshani et al. (2016) found encouraging results when conducting a comprehensive study of the Mytiv curriculum across 35 secondary classes. The Mytiv curriculum runs for 15 sessions focusing on topics such as character strengths, goal setting, mindfulness and self-acceptance. Teachers were asked to attend a total of 20 training workshops, each running 90 minutes, spread across a nine-month period. The study found that following the teacher implemented intervention students showed improved well-being, peer relations, engagement and academic achievement.

Research directly comparing teacher-led and researcher-led (expert-led) interventions has produced findings equally as contradictory as research solely investigating teacher-led interventions. For example, Stallard et al. (2014) examined the outcomes of the *FRIENDS* intervention (Barrett, Lowry-Webster, & Turner, 1999) with 961 students aged 9-10 years when implemented by both teachers and mental health professionals. The intervention consisted of 9 one-hour sessions that used CBT techniques to encourage adaptive mindsets and reduce anxiety. Those implementing the intervention were required to attend a two-day training workshop. Stallard et al. concluded that the intervention was more effective at reducing student anxiety when administered by mental health professionals.

However, in a contradictory study to the one reported above, Collins et al. (2014) found no difference between an intervention implemented by teachers or researchers. A total of 182 students took part in an intervention which aimed to teach students aged 9-10 years adaptive coping skills to promote positive youth development. It ran for 10 sessions and followed a manualised programme theoretically grounded in CBT. Those implementing the intervention were required to attend a one-day training workshop. Both teacher- and researcher-led conditions showed comparable results, with student anxiety levels and coping skills significantly improving. Collins et al. postulated that teachers may actually be superior to their researcher

counterparts because of their continuous contact with students throughout the school day.

The few meta-analyses that have been carried out to date have supported the viability of teachers as effective administrators of school-based interventions, despite the mixed research findings seen when examining individual studies in isolation. Based on an analysis of twenty programmes, Neil and Christensen (2009) found evidence suggesting that teachers could effectively implement intervention programs. Neil and Christensen reported, “a higher percentage of trials involving teacher programme leaders were successful in significantly reducing symptoms of anxiety, than trials involving mental health professionals, researchers or graduate students ... however effectiveness trials involving classroom teachers tended to produce smaller effects” (p. 213). This comparative conclusion should, however, be viewed with caution, given that only a quarter of the studies analysed used teacher programme leaders. Another analysis by Stockings et al. (2016) examined the results of 146 preventative intervention studies (including universal, selective and indicated programs). Stockings et al. found that when teachers implemented universal prevention programs (16 universal studies were examined in this analysis) long-term intervention impacts were greater than when interventions were implemented by clinicians or clinical researchers. Again, however, this research was limited by the disproportionate number of interventions being implemented by external experts than by teacher. An increased body of research investigating positive psychology interventions when implemented by teachers is therefore needed.

Perhaps there is no simple answer to the question of whether or not teachers can effectively implement positive psychology interventions. Rather, a teacher’s ability to implement an intervention may be influenced by factors such as the intervention form and training requirements. Teachers may have more success implementing interventions that are: simple in nature (such as gratitude diary interventions; Schuitema et al., 2014); provide clear and easy to follow instructions (Collins et al., 2014); and provide ongoing training (Shoshani et al., 2016). At the same time, teachers may struggle to implement interventions that require extensive training workshops (Challen et al., 2014)

or discontinue teacher support before/during the intervention (Vickery & Dorjee, 2016).

Alternatively, it may be the personal factors relating to teachers that determine whether or not they are able to implement an intervention with fidelity (Weissberg, Kumpfer, & Seligman, 2003). Neil and Christen (2009) reasoned that a “programme that is incorrectly delivered by a disinterested and unprepared leader is likely to produce poorer results than one ...delivered in an enthusiastic and engaging manner” (p.212). Factors such as motivation, confidence, warmth, empathy, humor and relationship skills have also been linked to the quality of intervention implementation (Sanetti et al., 2013; Weissberg et al., 2003).

4.1.3 The current study

The current study set out to inform how primary school teachers can effectively implement positive psychology interventions. Evidence is obtained from the results of a cluster RCT effectiveness evaluation carried out in primary schools in Australia. This effectiveness evaluation investigates the *Believing You Can is the First Step to Achieving (second edition)* programme as implemented by teachers with students in Grades 5 and 6. This intervention combines a range of techniques (CBT, attribution retraining, mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education) to target a number of positive psychology elements such as optimistic thinking styles, hope, goal-directed thinking, positive emotions, character strengths and serenity. As such this intervention falls under Sin and Lyubomirsky’s definition of a positive psychology interventions (“treatment methods, or intentional activities that aim to cultivate positive feelings, behaviours, or cognitions,” p. 468).

The nine intervention sessions run approximately one-hour each and incorporate group discussions, activities (such as games and role-plays) and independent workbook exercises. Each session is also accompanied by home learning activities, to encourage students to reflect on the skills they learnt in the intervention and practice using these techniques in their own lives (a sample intervention session can be seen in Appendix C). A parent information session also provides parents and caregivers with information on the

intervention and ideas of ways to integrate the intervention vocabulary and activities into students' everyday lives.

The intervention was designed to facilitate ease of implementation for teacher-leaders. The intervention follows a structured teacher manual and student workbook. The teacher manual was designed to be clear and easy to follow. Teacher training workshops were also designed to help prepare teachers to implement the intervention. These workshops were kept intentionally short, to increase the chance that teachers would be able to attend. Two training workshops were offered to teachers, one before the commencement of the intervention (approximately 2 hours in length) and one half-way through the intervention (approximately 1 hour in length). Along with background information about the intervention and guidance on implementation, teachers were also provided with ways to adapt the intervention (such as including prompts for personalised examples, different demonstration technique options, and additional activities) and integrate the intervention vocabulary and techniques into their everyday teaching (see Table B1 in Appendix B and Appendix C).

The intervention aims to encourage increased student wellbeing, motivation and engagement in school by promoting optimistic thinking styles, positive emotions and adaptive behaviours, with a specific focus on managing academic tasks and challenges. The intervention assists students to develop the skills to challenge maladaptive thinking patterns and emotions, and provides them with strategies to take up more positive ones. The intervention also promotes positive learning behaviours (such as persistence and problem solving) and discourages unhelpful behaviours (such as self-sabotaging). The intervention further provides students with relaxation skills, helps students identify their personal strengths and encourages positive goal-directed thinking. By encouraging helpful thinking styles, emotions and behaviours the intervention hopes to improve students' overall academic achievement as well.

To date the only evaluation of this intervention was an efficacy evaluation that relied upon a researcher running the intervention sessions (see Chapter 3). The results of the efficacy RCT found that students in the intervention condition demonstrated greater learning of the intervention skills, a reduction in anxiety about school and significantly different long-term reading

achievement compared to their control condition peers. The intervention failed, however, to impact many of other cognitive, behavioural and academic outcomes targeted.

In the current study, the intervention was implemented by primary school teachers to answer the following research questions.

1. Do participating primary school students show a significant increase in their knowledge of the intervention skills? If so, does the knowledge gained remain the same over time?
2. Do primary school students in the interventions condition show improvements in learning cognitions and behaviours?
3. What differences are there in intervention fidelity between the teachers who implement the intervention?
4. What differences are there in student outcomes between the intervention classes? Are similar differences also seen between the control condition classes?

By answering these research questions this article aims to inform how primary school teachers can effectively implement positive psychology interventions.

4.2 Method

4.2.1 Participants

Thirteen classes from four inner-city primary schools in Sydney, Australia took part in this study. The characteristics of the populations that each school served was evaluated at the level of each school's district. Based on the 2016 Australian census data each of the four school districts had a median household income of between \$1,398-2,509 AUD a week (the median for the region of Greater Sydney: \$1,750). The largest proportion of the populations within each were born in Australia, but there was a notable cultural and linguistic diversity. Other countries of birth reported in the districts included: China, England, New Zealand, Vietnam, India, Korea, Lebanon and Greece.

A total of 369 students were invited to participate in this study. From this sample of students, 312 provided parental consent. A total of 299 students

completed assessments at each of the three time points, and made up the final sample. No students rescinded their consent to participate in this research, however some drop-out occurred as a result of extended absences or students moving schools. Participant ages ranged from 9 years and 7 months to 12 years and 4 months, with a mean age of 10 years and 8 months. The gender distribution of students was 52% female and 48% male. Condition randomization occurred at the class level. In each school two, three or four classes participated in the research (with a total of 36, 73, 90 and 100 student participants per school). Existing class groups were randomly assigned to either the intervention condition (n=7 classes), with a total of 178 students, or the control condition (n= 6 classes), with a total of 121 students. Each school had a mix of classes in each condition. Across the four schools class sizes ranged from 24-32 students. The number of consenting student participants in each class ranged from 11 – 30 (intervention: 19-30; control: 11-29).

4.2.2 Measures

Student motivation and engagement. The MES-JS (Martin, 2014) measures student self-reported cognitions and behaviours relating to school. The MES-JS uses 44 items to measure 11 lower-level factors within four higher-level global scores (see Table B2 in Appendix B and Appendix G). Each lower-level factor was calculated by combining the results of four items. Each item is rated from 1 (*strongly disagree*) to 7 (*strongly agree*). A study based on the data of 1,249 students from 15 schools confirmed the good fit and reliability of the measures, with Cronbach's alphas ranging from .66 - .85 across the 11 factors (Martin, 2014). In the current study the alphas ranged from .64 - .87 across the 11 factors.

Knowledge of intervention skills. An online questionnaire was designed to assess student knowledge of the ideas and techniques taught in the intervention. The 10 question questionnaire used a mix of multiple-choice and short answer questions (see Appendix D). In Chapter 3 the average reliability estimate was reported to be $\alpha=0.66$. The current study measured the average reliability across the three time points as $\alpha=.52$.

4.2.3 Procedure

An email was sent to approximately 50 randomly selected public primary schools in inner-city Sydney, Australia inviting them to take part in the study. Of these, four schools agreed to participate. Parental consent was required for participation in the study, so at the beginning of the school year, information and consent forms were sent home with all Grade 5 and 6 students. Each pre-existing class group was randomly assigned to either the intervention or control condition.

In the Australian school system, the school year is divided into four school terms running for approximately 9-11 weeks. At the end of Term 1, participating students within their class groups completed a set of pre-intervention online assessments (knowledge of intervention skills questionnaire, MES-JS, academic assessments). The teachers of the intervention classes attended a teacher-training workshop at the end of the first school term. This training workshop ran for approximately two hours and was conducted separately within each school site by a member of the research team (qualified psychologist). During this session, the researcher gave a presentation on the theoretical concepts and aims underpinning the intervention. The researcher then explained how to use the intervention resources, including the teacher's manual, student workbooks and online material. The remainder of the session was dedicated to demonstrating the intervention activities and answering teacher questions. A second short teacher-training course (running approximately one-hour) was offered half-way through the intervention period. The session focused on the themes and activities to be presented in the second-half of the intervention. Only three of the seven teachers attended this optional second workshop. Additional teacher support was also available via email or phone.

During Term 2 teachers implemented the intervention sessions approximately weekly. These sessions typically ran for an hour. Each session followed a similar structure, beginning with a review of the previous lesson, an introduction to new skills, followed by small group and individual activities. Intervention activities included games, role-plays, creating comics, designing one's own relaxation track and completing workbook exercises. Each session was also accompanied by student home learning activities (see Appendix C).

One school struggled to complete all nine sessions within a single term, and consequently completed the last two intervention sessions at the beginning of Term 3. Students in intervention classes who did not consent to participate in the research did not take part in the intervention. These students were either transferred to other classes or given independent activities to complete during intervention sessions. Classes assigned to the passive control condition did not take part in any intervention activities.

Directly following the conclusion of the final intervention session, all participating students completed the knowledge of intervention skills questionnaire and MES-JS. Due to one school failing to complete the intervention in Term 2, the academic assessments were completed during the following school term (Term 3). Follow-up testing occurred in the final term of the school year (Term 4), approximately five months after the intervention.

When analysing the academic data, abnormalities were observed. According to the academic assessment manual (STAR Math: Technical Manual, 2013; STAR Reading: Technical Manual, 2010), when follow up scores fall below 1.5 Standard Error of Measurement (SEM) of the original score they may be invalid. Approximately 40% of students in this study showed a decline of more than 1.5 SEM over the course of the study. The fall in test scores may have been due to students rushing, student disengagement or technical difficulties. It is likely, therefore, that the results do not provide a true reflection of student academic achievement levels. As a result, the academic data was removed from the analysis.

4.2.4 Intervention fidelity

A number of provisions were built into the design and implementation of the intervention to ensure intervention fidelity. First, a central element of the intervention was the student workbook and teacher manual, which allowed the intervention to be easily and consistently replicated. Second, two teacher-training sessions were offered to participating teachers in an effort to reduce the drop off in teacher motivation and intervention fidelity. Finally, to monitor the implementation across the study, an observer from the research team attended 30% of randomly selected intervention sessions. For each session, the observer noted whether the individual intervention activities were

completed correctly, with variations, or incorrectly/omitted (see Appendix H). For each session, an intervention fidelity rating was calculated for the activities implemented correctly and with variations (see Table B3 in Appendix B).

4.2.5 Data analysis

All statistical analyses were conducted using the *SPSS 21.0* software package. Little's MCAR test (Little & Rubin, 1989) was used to analyse the patterns of missing data. The non-significant result, $\chi^2=116.57$ (df=2923, $p=1.00$), indicated that missing data did not show any significant patterns. The Expectation-Maximization algorithm was used to replace missing data points. All scores were standardised using z-score transformation before inferential analyses were undertaken.

Initial baseline differences between the intervention and control conditions were examined using a MANOVA. This analysis compared conditions on measures of knowledge of intervention skills and all 11 factors of the MES-JS. Significant Time 1 differences were observed in average student planning, $F(1, 297)=4.01$, $p=.046$, and uncertain control, $F(1, 297)=4.29$, $p=.039$ (see Table 4.1). Therefore, Time 1 planning and uncertain control were included as covariates in all further analyses comparing the two conditions.

To answer research questions one and two, mixed-design ANOVAs were run with time included as a within-subject factor, and condition included as a between-subject factor. The within-subject interaction effect of time*condition was also examined. Post-hoc pairwise comparisons with Bonferroni corrections were conducted for time comparisons 1-2 and 2-3.

To answer research question three, observer ratings of individual teacher intervention fidelity were used. For each session, an intervention fidelity rating of correct implementation and implementation variation was calculated based on observer ratings. The separate session ratings for each teacher were averaged to create an individual teacher intervention fidelity score.

To answer research question four related to differences between intervention classes, mixed-design ANOVAs were run with the data from intervention condition classes only. Time was included as a within-subject

factor, and class was included as a between-subject factor. The within-subject interaction effect of time*class was examined. Due to significant findings of the preliminary analyses, follow-up analyses were conducted to answer the second part of the research question. Mixed-Design ANOVAs were run with the data from control condition classes only. Again, time was included as a within-subject factor, and class was included as a between-subject factor. The within-subject interaction effect of time*class was examined. Effect sizes were reported as partial eta squared (η_p^2), using the conventional labels and thresholds of small (0.01), medium (0.06), and large (0.14; Richardson, 2011).

4.3 Results

4.3.1 Differences in knowledge of intervention skills

Students who participated in the intervention demonstrated a significant increase in knowledge of the intervention skills compared to their control condition peers. An analysis of scores from pre-intervention to post-intervention to follow-up showed a significant condition by time interaction for knowledge of intervention skills, which was classified as having a large effect size ($F(2,503)=53.32$, $p<.001$, $\eta_p^2=.154$). An examination of class average scores (see Table 4.1) showed that the intervention condition had higher average knowledge of intervention scores at both post-intervention and follow-up. The pattern of change over time varied, however, between the two conditions. For the intervention condition, average knowledge of intervention skills was observed to rise sharply from pre- to post-intervention, and then slightly fall at follow-up. Contrastingly the control condition was observed to increase slightly from both pre-to post-intervention and from post-intervention to follow-up. Planned contrasts revealed significant differences from pre- to post-intervention, with a large effect size ($F(1,294)=83.95$, $p<.001$, $\eta_p^2=.222$), and post-intervention to follow-up, with a small effect size ($F(1,294)=6.78$, $p=.010$, $\eta_p^2=.023$).

Table 4.1. Outcome means and standard deviations across time and between conditions.

	Intervention Group			Control Group		
	Time 1	Time 2	Time 3	Time 1	Time 2	Time 3
Knowledge of Intervention Skills						
Knowledge	25.04 (12.51)	66.17 (21.51)	58.61 (20.69)	27.50 (13.15)	38.40 (15.42)	40.00 (16.31)
MES-JS Factors (Student-Reported)						
<i>Adaptive Cognitions</i>						
Self-belief	99.72 (16.35)	101.74 (14.43)	101.00 (15.58)	102.64 (13.03)	105.30 (12.39)	101.86 (14.22)
School valuing	101.33 (13.43)	100.57 (14.27)	98.47 (16.22)	102.98 (12.92)	103.19 (12.92)	100.17 (17.07)
Learning focus	101.44 (14.83)	102.71 (15.36)	100.25 (16.22)	102.70 (13.95)	104.78 (12.77)	102.91 (15.41)
<i>Adaptive Behaviours</i>						
Planning	99.09 (15.82)	100.43 (15.24)	98.96 (15.41)	103.11 (14.16)	102.86 (15.92)	100.84 (16.39)
Task management	100.69 (14.98)	100.31 (15.03)	97.34 (16.38)	102.02 (15.14)	102.30 (14.70)	100.03 (15.70)
Persistence	101.03 (15.55)	101.96 (15.18)	100.14 (14.46)	103.99 (15.58)	105.27 (15.17)	105.32 (15.35)
<i>Maladaptive Cognitions</i>						
Anxiety	97.12 (14.98)	96.09 (15.34)	96.28 (15.37)	95.63 (16.40)	94.53 (15.77)	95.91 (16.60)
Failure avoidance	96.91 (15.26)	92.72 (15.46)	93.57 (14.84)	98.81 (17.33)	96.03 (16.71)	93.72 (15.46)
Uncertain control	97.94 (13.57)	93.64 (13.17)	94.33 (14.03)	94.00 (12.55)	92.07 (13.87)	92.25 (15.14)
<i>Maladaptive Behaviours</i>						
Self-sabotage	98.44 (13.37)	95.38 (12.03)	94.80 (12.73)	97.54 (13.76)	92.95 (11.33)	91.63 (9.64)
Disengagement	96.70 (11.52)	94.19 (10.56)	97.77 (13.89)	96.60 (13.15)	93.66 (11.08)	95.47 (11.70)

Note: MES-JS = Motivation and Engagement Scale-Junior School (Martin, 2014)

4.3.2 Differences in learning cognitions and behaviours

No significant time*condition interaction effects were observed for any of the cognitive or behavioural factors measured (see Table 4.2). That is, the intervention was not observed to have any significant impact on students' learning cognitions or behaviours for students in the intervention condition compared to their peers in the control condition.

4.3.3 Differential intervention fidelity rating by teacher

Average teacher fidelity scores for correct implementation ranged from 55% to 100% (overall average of combined correct implementation: 82%). Average teacher fidelity ratings for intervention adaptations ranged from 0% to 40% (overall average of combined intervention adaptation: 14%; see Table 4.3 and Table B3 in Appendix B). Adaptations included: not reviewing home learning activities from previous session, only presenting one of multiple examples, changing the format of an activity (i.e. from a floor to a desk activity), leaving out an active component of a task (i.e. miming or role-playing), or contradicting the intervention message.

4.3.4 Differential effects between intervention classrooms

Significant differences in change over time were observed between intervention classes for the following factors: self-belief, school valuing, learning focus, persistence, self-sabotage and disengagement, which were all classified as having a medium effect size (see Table 4.4 and the supplementary figures in Appendix I). Follow-up analyses were conducted between control condition classes to identify whether similar between class differences were also present. Significant between class differences were observed in knowledge of intervention skills and uncertain control for the control condition classes, which were classified as having a large and medium effect size respectively (see Table 4.4).

Table 4.2. Condition by time interaction effects for each outcome measure

	Condition*Time Interaction	Contrast Time 1 – 2	Contrast Time 2 – 3
Knowledge of Intervention Skills			
Knowledge	F(2,503)=53.32, $\eta_p^2=.154^{***}$	F(1,294)=83.95, $\eta_p^2=.222^{***}$	F(1,294)=6.78, $\eta_p^2=.023^*$
MES-JS Factors (Student-Reported)			
<i>Adaptive Cognitions</i>			
Self-belief	F(2,588)=1.35, $\eta_p^2=.005$	F(1,294)=0.02, $\eta_p^2<.001$	F(1,294)=2.38, $\eta_p^2=.008$
School valuing	F(2,570)=0.22, $\eta_p^2=.001$	F(1,294)=0.46, $\eta_p^2=.002$	F(1,294)=0.05, $\eta_p^2<.001$
Learning focus	F(2,588)=1.48, $\eta_p^2=.005$	F(1,294)=0.11, $\eta_p^2<.001$	F(1,294)=2.90, $\eta_p^2=.010$
<i>Adaptive Behaviours</i>			
Planning	F(2,570)=0.68, $\eta_p^2=.002$	F(1,295)=1.31, $\eta_p^2=.004$	F(1,295)=0.02, $\eta_p^2<.001$
Task management	F(2,575)=0.94, $\eta_p^2=.003$	F(1,294)=0.01, $\eta_p^2<.000$	F(1,294)=1.54, $\eta_p^2=.005$
Persistence	F(2,588)=1.31, $\eta_p^2=.004$	F(1,294)=0.03, $\eta_p^2<.001$	F(1,294)=2.32, $\eta_p^2=.008$
<i>Maladaptive Cognitions</i>			
Anxiety	F(2,573)=0.44, $\eta_p^2=.001$	F(1,294)=0.58, $\eta_p^2=.002$	F(1,294)=.01, $\eta_p^2<.001$
Failure avoidance	F(2,540)=0.96, $\eta_p^2=.003$	F(1,294)=0.58, $\eta_p^2=.002$	F(1,1294)=2.40, $\eta_p^2=.008$
Uncertain control	F(2,590)=1.02, $\eta_p^2=.003$	F(1,295)=1.94, $\eta_p^2=.007$	F(1,295)=0.60, $\eta_p^2=.002$
<i>Maladaptive Behaviours</i>			
Self-sabotage	F(2,572)=1.20, $\eta_p^2=.004$	F(1,294)=1.18, $\eta_p^2=.004$	F(1,294)=0.25, $\eta_p^2=.001$
Disengagement	F(2,588)=1.09, $\eta_p^2=.004$	F(1,294)=0.11, $\eta_p^2<.001$	F(1,294)=2.06, $\eta_p^2=.007$

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$; MES-JS =Motivation and Engagement Scale-Junior School (Martin, 2014)

Table 4.3. Average intervention fidelity rating by teacher for intervention sessions implemented correctly and with variations

Teacher	Correctly implemented	With variations
	Average Rating (Range) %	Average Rating (Range) %
1	55 (40 – 67)	44 (33 – 40)
2	82 (67 – 100)	15 (0 – 33)
3	92 (75 – 100)	13 (0 – 25)
4	74 (60 – 87)	20 (0 – 40)
5	100 (no range)	0 (no range)
6	93 (85 – 100)	7 (0 – 14)
7	78 (75 – 80)	13 (10 – 15)

Table 4.4. Class by time interaction effects for each outcome measure for the intervention and control condition separately

	Intervention	Control
Knowledge of Intervention Skills		
Knowledge	F(12,287)=0.66, $\eta_p^2=.023$	F(8,210)=4.21, $\eta_p^2=.129^{***}$
MES-JS Factors (Student-Reported)		
<i>Adaptive Cognitions</i>		
Self-belief	F(12,331)=2.81, $\eta_p^2=.089^{**}$	F(8,212)=0.34, $\eta_p^2=.012$
School valuing	F(12,327)=1.91, $\eta_p^2=.062^*$	F(8,228)=1.33, $\eta_p^2=.044$
Learning focus	F(12,344)=3.07, $\eta_p^2=.097^{***}$	F(8,228)=0.62, $\eta_p^2=.021$
<i>Adaptive Behaviours</i>		
Planning	F(12,344)=1.47, $\eta_p^2=.049$	F(8,211)=1.23, $\eta_p^2=.041$
Task management	F(12,344) =0.99, $\eta_p^2=.033$	F(8,216)=0.89, $\eta_p^2=.030$
Persistence	F(12,344)=2.54, $\eta_p^2=.081^{**}$	F(8,288)=1.05, $\eta_p^2=.036$
<i>Maladaptive Cognitions</i>		
Anxiety	F(12,344)=1.36, $\eta_p^2=.045$	F(8,210)=1.26, $\eta_p^2=.042$
Failure avoidance	F(12, 331)=0.99, $\eta_p^2=.033$	F(8,192)=1.33, $\eta_p^2=.045$
Uncertain control	F(12,344)=1.41, $\eta_p^2=.047$	F(8,228)=3.07, $\eta_p^2=.097^{**}$
<i>Maladaptive Behaviours</i>		
Self-sabotage	F(12,331)=3.07, $\eta_p^2=.097^{***}$	F(8,228)=1.22, $\eta_p^2=.041$
Disengagement	F(12,332)=2.72, $\eta_p^2=.087^{**}$	F(8,288)=0.50, , $\eta_p^2=.017$

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$; MES-JS =Motivation and Engagement Scale-Junior School (Martin, 2014)

4.4 Discussion

The current study set out to inform how primary school teachers can effectively implement positive psychology interventions in Australian primary schools. Seven primary school teachers implemented a nine-session positive psychology intervention. These teachers demonstrated their capability to implement the intervention to increase students' knowledge of intervention skills, but no significant improvements to average student learning cognitions or behaviours were observed. The study also observed differences in the fidelity with which teachers implemented the intervention in their classes and between class student outcomes. These findings provide evidence to inform how diverse teachers can better implement positive psychology interventions.

4.4.1 Gaining knowledge of intervention skills

Students who participated in the intervention demonstrated a newly acquired knowledge of intervention skills. Over the course of the intervention the average knowledge score rose from 25% to 66% for students in the intervention condition. This finding demonstrates that students were able to learn some, but not all, intervention skills through a teacher-led intervention.

Among students in the intervention condition, knowledge of intervention skills scores ranged from 10% to 100% directly following the intervention. This finding is in line with the view of Zimmerman et al. (2008) that there is no 'one-size fits all' intervention that will influence all young people in the same way.

The current study also observed signs that students forgot skills in the five months following the intervention. Such a finding shows that in the absence of further prescribed intervention sessions or planned targeted support, student knowledge of intervention skills fades over time. The current finding suggests that either teachers were not integrating intervention skills into their classrooms, or that the integration of skills was not sufficient in maintaining student knowledge gains over time. These findings underscore the complex nature of knowledge acquisition and maintenance.

4.4.2 Changes to learning cognitions and behaviours

No significant changes in learning cognitions or behaviours were observed for students in the intervention condition. These results suggest that the intervention did not have its intended impact on students' thinking styles or learning behaviours. The inability for the current study to identify a significant impact on student outcomes may reflect a limitation of the intervention and/or issues with the research design.

The findings of the current study closely align with the results of the efficacy study reported in Chapter 4, with a high level of non-significant results. The only area of divergence between the two studies was the small significant change in average student anxiety about school observed when the intervention was implemented by a researcher. The same change was not observed in this study when the intervention was implemented by teachers. A possible reason for this discrepancy may be the fidelity with which teachers implemented the intervention and stayed true to the intervention content.

In the current study the research observer noted specific instances where teachers made comments during the course of the intervention that directly contradicted the intervention content. For example, the intervention explicitly taught students that anxiety helps the body prepare for dangerous situations (i.e. "being chased by a bear"). However, when a situation is not dangerous (i.e. "during a test", "at the dentist") anxiety is unhelpful because it causes negative thoughts, feelings and behaviours. Although this was clearly stated at the teacher workshop, in the teacher manual and student workbook, some teachers were observed to contradict this element of the intervention. During the session on anxiety, teachers made statements such as, "anxiety helps you run faster in a race" and "anxiety helps you work harder before a test". These statements undermined the teachings of the intervention, and in doing so potentially hindered the positive effects otherwise linked to the intervention.

4.4.3 Variability of intervention fidelity among teachers

In the current study, the intervention was implemented in seven primary school classrooms by existing teachers. An observed range in average teacher intervention fidelity suggests that teachers differed in their ability to implement the intervention. Individual teacher intervention fidelity ratings also differed

across the different sessions. A combination of individual differences, intervention elements, and contextual factors may therefore have shaped the fidelity with which teachers implemented the intervention (Neil & Christen, 2009). The intervention investigated in this study combined a range of techniques and activities. It may also be that some of these techniques were easier for teachers to master and implement than others (Askell-Williams et al., 2013). Additionally, only three out of the seven teachers in this study attended the second training workshop. It is possible that the difference between teachers' level of training, allocation of time for intervention preparation and motivation to engage in intervention activities may also have influenced the fidelity with which the intervention was implemented across classes.

4.4.4 Between class differences in student outcomes

Despite high levels of between teacher variability on measures of intervention fidelity, no significant difference in acquisition of intervention skills was observed across the seven intervention classrooms. This finding suggests that teacher-level differences did not significantly impact students' learning of key intervention concepts and skills. This finding was unexpected, given the claims that poorly implemented interventions lead to poorer student outcomes (Forman et al., 2009). Future research should look to better understand the true impact that teacher level differences have on both intervention fidelity and student learning of intervention skills.

Between class differences were, however, seen on 6 of the 11 cognitive and behavioural factors measured (self-belief, school valuing, learning focus, persistence, self-sabotage, and disengagement) between intervention classes, but not control classes. These results suggest that some teachers who implemented the intervention may have had a more positive impact on their students' cognitions and behaviours than others. More research is needed to better understand how some, but not all, teachers may be able to utilise interventions to promote specific improvements.

4.4.5 Diffusion of intervention information

In the current study, random condition allocation was carried out at the class level to prevent school differences from confounding student outcomes (as recommended by Collins et al., 2014). Unfortunately, when students who share a common setting (school) are assigned to different intervention conditions, it is inevitable that some information is going to transfer (Kwok et al., 2016). It was observed that the control condition students in the current study displayed a small increase in average knowledge of intervention skills from pre-to post measures, despite not participating in the intervention. Although their post-intervention knowledge of intervention skills score was considerably smaller than that seen by the intervention condition (control: 38.40%; intervention: 66.17%), it nonetheless likely represents a diffusion of information across the intervention conditions. Trends in average knowledge of intervention skills was also observed to significantly differ between control classes, suggesting that in some schools/and or classes diffusion of intervention information occurred more than in others.

4.4.6 How can primary school teachers effectively implement positive psychology interventions?

The current research set out to better understand how primary school teachers can effectively implement positive psychology interventions. Using the current research study as a framework, a number of areas could be improved to better support teacher implementation of future positive psychology interventions.

First, the teacher training workshops provided in this study were short in comparison to other research projects (Challen et al., 2014; Collins et al., 2014; Shoshani et al., 2016; Stallard et al., 2014). It is possible that more comprehensive teacher training may improve teacher implementation of the intervention and subsequent student outcomes. Lengthening the training workshop in isolation may not be an adequate solution, however, given that a number of teachers in the current study failed to attend a second offered training workshops. This observation aligns with previous research (Long et al., 2016; Pinkelman et al., 2015) highlighting how insufficient allocation of time for intervention training or planning can hinder the effective implementation of

interventions in schools. It is therefore crucial that any increases in teacher training demands are accompanied by a wider system of teacher support to assure that individual teachers have sufficient available time to meet the demands of new interventions.

Second, the teacher training workshop was conducted by a researcher, who was also the creator of the intervention. This researcher did not, however, have prior experience in adult education. To effectively conduct a teacher training workshop the training leader must both have comprehensive knowledge of the content being taught and the skills to teach teachers (Korthagen, Loughran, & Lunenberg, 2005). As Voerman, Meijer, Korthagen, and Simons (2015) write, “the results of the intervention depend not only on the design and content of the intervention, but also on the quality and expertise of the trainer-coaches” (p.1007). It is important, therefore that teacher training is provided by an expert in both the intervention and adult behaviour change.

Third, only the seven teachers running the intervention sessions received training as part of this research. Fullan (2009) however argues that teacher change cannot be achieved by training only a small group of teachers in isolation. Rather training is most effective when it engages a large number of teachers within a setting. Ongoing feedback on teachers’ implementation performance can also help improve overall implementation (Voerman et al., 2015). These elements should be considered by future schools and research teams when training teachers to implement positive psychology interventions.

The results of this study suggest that teachers may not all be equally equipped to implement positive psychology interventions in their classrooms. Individual differences between teachers must be considered when selecting appropriate personnel to run a given intervention. The degree of training and ongoing support required to enable effective implementation of positive psychology interventions may therefore differ between individuals, so opportunities for continued support and extra training should be made available. The fidelity with which each individual teacher implements an intervention should also be monitored and extra support and/or training provided when required. One promising framework for future researchers is the PRIME programme (the acronym stands for: Planning Realistic Intervention Implementation and Maintenance by Educators), which uses three

components (implementation planning, teacher monitoring, and support based on teacher need) to help teachers implement and maintain interventions with high integrity (Sanetti et al., 2013).

Even with extra training and support, it is possible that teachers may fail to implement positive psychology interventions effectively if they are unable to allocate adequate time to the intervention or have beliefs that contradict the content of the intervention. School psychologists could hold the key to improving the effectiveness with which positive psychology interventions are implemented in schools, as they can provide ongoing training and support for teachers throughout the implementation process.

4.4.7 Limitations

Like all research this study had a number of limitations. First, in the current study a passive control condition, as opposed to an active attention comparison sample, was used. This decision was based on the ethical dilemma and the justified reticence of schools to simply remove students from learning in the classroom to be in a control condition. It cannot, however, be ruled out that the extra attention the students in the intervention condition received influenced the observed results.

Second, due to constraints within schools, more classes were assigned to the intervention than the control condition. This resulted in slightly uneven group sizes. More even group size, along with a larger overall sample size, would have strengthened the outcomes of the study.

Third, some issues were noted with the measures used in this study. Examples of this were the low reliability rating for the knowledge of intervention skills measure. This may have been influenced by the fact that this questionnaire was measuring broad constructs with a short scale, as both these factors make it more likely for reliability estimates to be low (Peters, 2014). The abnormalities observed in the academic assessment tools also limited this research as it precluded this study from analysing student academic data. Future research would be strengthened by using alternative measures or making efforts to strengthen the reliability of the measures used.

Fourth, the intervention fidelity rating system used in the current study only observed a select number of sessions in each classroom during

designated intervention times. The measure of intervention fidelity did not record any intervention activities that were administered outside of these session times, or monitor integration of intervention skills within the classroom. Also, a single researcher observed the sessions across each school. The lack of more comprehensive data and a second observer to compare fidelity scores weakened this fidelity rating.

4.4.8 Conclusions

The current study set out to inform how primary school teachers can effectively implement positive psychology interventions in Australian primary schools. Findings confirm that primary school teachers can successfully utilise the studied intervention to teach key concepts and skills to their students, however, these gains may not be maintained over time if teachers fail to integrate the intervention techniques into their everyday teachings.

The failure of the current study to see any significant changes in student cognitions or behaviours suggests that the intervention was not successful at achieving its intended goals. These findings both question the effectiveness of the intervention and the fit of the intervention with the needs of this cohort of students and teachers.

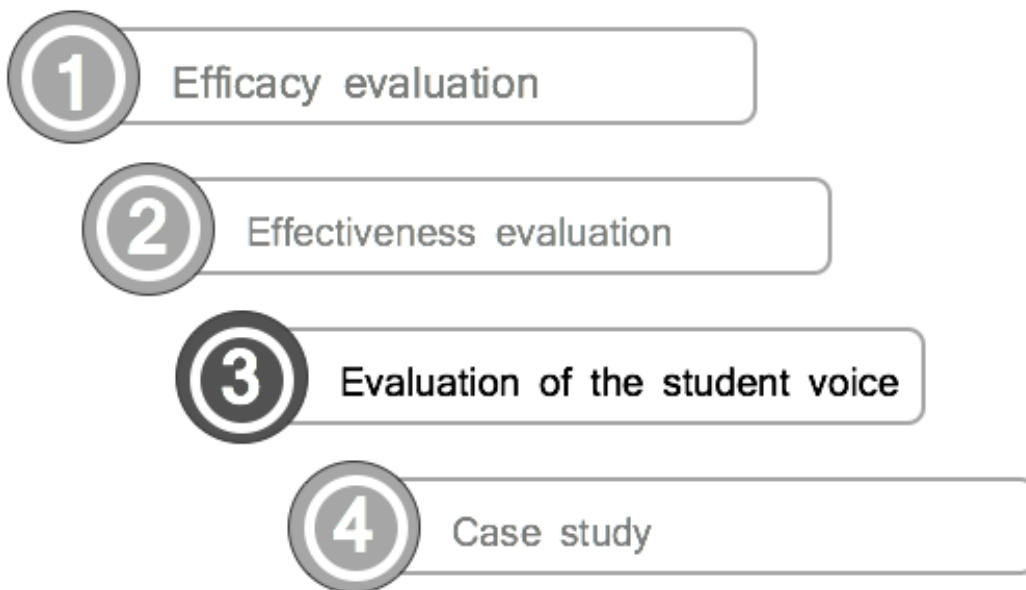
The findings of the current study closely align with the results of an earlier efficacy evaluation (reported in Chapter 3) which also found a high level of non-significant results. These two studies varied on a single factor, anxiety, with students in the efficacy study showing a significant change in average anxiety about school following the intervention implemented by a researcher. This slight difference between researcher- and teacher-led interventions coupled with the current observed teacher level differences suggests that a greater complexity is needed when considering a teacher's ability to implement interventions with fidelity. This may depend not only on individual teacher differences (i.e. prior knowledge, motivation, enthusiasm etc.), but also on factors specific to the session, the class and the intervention activities being implemented. Future research would benefit from conducting analyses at the class-level to identify whether interventions may be having a significant impact on student outcomes when implemented by some, but not all, teachers. The results of the current study suggest a number of ways diverse primary school

teachers can better implement positive psychology interventions. These included: comprehensive training workshops combined with increase teacher support; trainer-coaches as experts in both the intervention and adult behavioural change; training engaging a wider range of school staff; and individualised training to meet varied teacher needs.

Given the limited number of teachers included in this study, more research is needed to investigate this intervention when implemented by a larger number of teachers, both in Australia and internationally. Specifically, future research should look at understanding how teachers can be better supported to implement the intervention effectively and how individual teacher differences shape intervention implementation and student outcomes.

Chapter 5: Evaluation of the Student Voice

The previous two chapters reported the results of efficacy and effectiveness evaluations respectively. These evaluations use quantitative data collection methods to evaluate the student outcomes linked to an intervention when implemented by researchers and teachers respectively.



This chapter reports on the third step of the evaluation process. This evaluation of student voice aims to determine whether student perspectives align with the intervention outcomes identified in the previous two chapters. This evaluation also aims to provide information about: the range of individual student experiences, the ways in which students use intervention skills in their own lives; and the perceived benefits that students link to their participation in the intervention.

Student perspectives on a positive psychology intervention: An illustration of the value added by adopting a mixed methods approach in evaluations

Abstract

When investigating school-based positive psychology interventions, there is value in giving a voice to the students involved. This article builds upon previous efficacy and effectiveness evaluation studies of a positive psychology intervention that were grounded solely in the positivist research paradigm. By reporting the results of an evaluation of the same intervention using both quantitative and qualitative student voice data, this article demonstrates the value of using a mixed methods approach (integrating interpretivist and positivist research methods) and mixed research synthesis in the evaluation of positive psychology interventions. The intervention investigated in this study ran for 9 hour-long sessions over 3 months and was implemented by teachers in 7 classes. A questionnaire gathered data from a total of 162 students aged 9 to 12 years about their perspectives. The majority of students evaluated the intervention favourably. Student voice data: offered valuable insights into how the intervention affected the lives of the students; the value of the intervention; their use of the intervention skills; and the potential benefit of the intervention to others. It allowed the individual differences among student experiences and outcomes to shine through, and provided new information to help in the design and evaluation of similar interventions. The findings of this study support the inclusion of qualitative data, as well as quantitative data, in the evaluation of positive psychology interventions in schools.

Schools are becoming increasingly aware of the need to support the social and emotional development of students along with the attainment of academic goals (Rutter & Maughan, 2002). As a result, schools are looking for evidence-based interventions to foster wellbeing and resilience among students and to tackle the rising rates of youth mental health difficulties (Powers et al., 2010). A number of comprehensive reviews have highlighted the potential for positive psychology school-based interventions to have a meaningful and positive impact in the lives of young people (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Sin & Lyubomirsky, 2009; Stockings et al., 2016). Student outcomes assessed in recent studies have included: academic improvements (Bennett & Dorjee, 2015; Chodkiewicz & Boyle, 2016); increased wellbeing and life satisfaction (Kwok et al., 2016; Schonert-Reichl et al., 2015; Shoshani et al., 2016); enhanced student self-belief and sense of belonging (Azeez, 2015; Diebel et al., 2016); and reduced symptoms of mental illness (Burckhardt, Manicavasagar, Batterham, & Hadzi-Pavlovic, 2016; Warner et al., 2016). The efficacy and effectiveness of psychological-based interventions are typically evaluated using positivist research paradigms.

The positivist research paradigm is viewed as being scientific, analytical and using quantitative methodologies, while the interpretivist paradigm is seen as being humanistic and relying heavily on qualitative data (Babones, 2016). Gage (1989) wrote of the “paradigm wars” of his times, wherein researchers were exclusively focusing on one form of research methodology at the exclusion of the other. Those unhappy with the tension between the two paradigms reasoned that research based in a single paradigm would not reveal the truth of a phenomenon, but rather only show a small part of the greater whole (Day, Sammons, & Gu, 2008). Consequently, over the last 30 years, MM research has emerged in the field of social sciences (predominantly among educational researchers) using both qualitative and quantitative methodologies to collect data (e.g. Hall et al., 2016; Muijs, 2015; Teddlie & Tashakkori, 2009).

Within the field of psychology, researchers are yet to widely embrace the MM model (Tashakkori et al., 2012). Instead, psychological researchers use predominantly quantitative research methodologies (Powell et al., 2008). While

it is important to use quantitative measurements to establish the effects of an intervention, evaluation studies may be failing to represent the more extensive nature of their effectiveness. Traditional analyses using a positivist approach have a tendency to pool student (as well as class and school) data into a single condition, with the assumption that each student is representative of a homogenous group (Gonzalez, 2009). In reality, young people are diverse and unique, and do not all respond in the same way to the same intervention (Mueller et al., 2011). There is value, therefore, in understanding how interventions differentially impact on individual students beyond the limited set of factors measured by the scales and questionnaires used by this form of research. This article highlights the benefit in using MM research and mixed research synthesis to evaluate psychological interventions in schools. Reporting on a school-based positive psychology intervention, this article demonstrates the value of using an interpretivist approach (combining both quantitative measures of prevalence with qualitative open-ended questions) in the evaluation of a positive psychology intervention. In interpreting the results of this study, the current findings are synthesized with the results of two previous positivist evaluations. In doing so this article aims to demonstrate how mixed research synthesis helps to develop a more comprehensive understanding of an intervention.

5.1.1 Young people are unique and diverse

Young people do not develop along a single trajectory. Rather multiple developmental pathways exist, influenced by the unique and diverse nature of the individual (Li & Lerner, 2011; Zimmerman et al., 2008). It is naïve to assume that a group of young people pooled by age or grade will have the same needs at a particular point in time, or that their developmental trajectories will be similarly influenced by a given intervention.

The environment plays a key role in shaping a young person (Bronfenbrenner, 1979). Bronfenbrenner (2001) clarified that it is rarely the objective physical condition of one's environment, but rather an individual's subjective experience of his or her situation, which comes to have the greatest impact on their development. Given that no two individuals experience an environment in the exact same way (Shonkoff & Phillips, 2000), it follows that

individual participants will likely also experience the same positive psychology intervention differently.

The personal characteristics of an individual may also shape the way a positive intervention is experienced. Student engagement and motivation, for example, is vital for learning, as it determines to what degree a student exerts effort, sustains on-task behaviour, participates in group activities, and persists in the face of difficulty (Sinha, Rogat, Adams-Wiggins, & Hmelo-Silver, 2015). Both student motivation and engagement have been positively linked to academic achievement (Jozsa & Morgan, 2014; Upadyaya & Salmela-Aro, 2013; Virtanen, Kiuru, Lerkkanen, Poikkeus, & Kuorelahti, 2016). It is likely that these factors may also influence how students interact with and benefit from a positive psychology intervention.

Links between individual differences and student outcomes undermine the assumption of student homogeneity central to the pooling of data seen in positivist research paradigms. In light of the diverse nature of young people and the differences in their subjective experience of a learning opportunity, researchers should look at the effectiveness of an intervention on the individual level. Using an interpretivist approach to understand the individual experiences of students participating in an intervention will help researchers better understand how different students experience and benefit from an intervention.

5.1.2 Giving students a voice

There is value in giving voice to the students who participate in interventions that are designed to support them (Macdonald et al., 2014). Not only do young people have the right to be heard, but also their feedback can be instrumental in developing, evaluating and implementing effective interventions in schools (Pernebo & Almqvist, 2016). Monitoring student receptiveness and engagement to a given intervention is also important.

Reynolds and Clarke (2014) assert that there is an “increasing international tendency to listen to student voice” (p. 20). However, in the field of positive psychology school-based interventions, few researchers have used student-based qualitative data in their evaluations (Dariotis et al., 2016; Powell et al., 2008). Of the handful of research projects to date that have used an

interpretivist approach, the majority have used small-scale focus groups assessing the acceptability of mindfulness interventions.

Bluth et al. (2016) assessed the credibility of the intervention '*Learn to Breathe*' through a focus group with 14 high school students. Through the addition of qualitative student information, Bluth and her colleagues were able to identify how the intervention helped students, and ways in which the intervention could be modified to more effectively meet the needs of that cohort. Lam (2016) used a similar procedure to assess the response of 17 primary students to a school-based mindfulness programme. Despite the quantitative measures used in the study showing limited positive outcomes, students appraised the intervention positively and were able to identify ways in which it had helped them. Dariotis et al. (2016) collected the opinions of 22 students following a mindfulness intervention and demonstrated that students were able to make links between skills and real-life benefits, suggesting that the young participants both retained and used the intervention skills. Some studies have used slightly larger sample sizes, such as Vickery and Dorjee (2016), who collected qualitative data from 71 students regarding a school mindfulness programme, and Miller et al. (2010), who measured 73 student opinions of a CBT programme designed to prevent anxiety. To date few comprehensive studies of positive psychology school-based interventions have been conducted integrating interpretivist research methods.

Understanding student opinions regarding a given intervention is beneficial. For one, the data can provide valuable information about the design and implementation of interventions. Student feedback has helped further understand the effective components of an intervention and provided information on how to best implement it within a school setting (Stanbridge & Campbell, 2016). Student perspective research has informed the selection of outcome variables and measurement tools, to better reflect the positive effects reported by students themselves (Lam, 2016). Most importantly, this line of research has given students a voice to comment on the benefits and shortcomings of an intervention. As such the inclusion of qualitative student data allows interventions to be designed collaboratively with young people.

5.1.3 The current study

The positive psychology school-based intervention, *Believing You Can is the first step to Achieving (second edition)*, was investigated in this study. The intervention consists of nine hour-long sessions. To create a rich and diverse programme a number of positive psychology techniques were combined, including CBT, attribution retraining, mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education (see Table B1 in Appendix B). The intervention follows a structured teacher manual and student workbook. Student home learning activities coincide with each lesson, along with suggestions for teachers on how to integrate the programme techniques into everyday classroom practices. A parent information session is also included as part of the intervention.

The intervention aims to encourage increased student wellbeing, motivation and engagement in school by promoting optimistic thinking styles, positive emotions and adaptive behaviours, with a specific focus on managing academic tasks and challenges. The intervention assists students to develop the skills to challenge maladaptive thinking patterns and emotions and provides them with strategies to take up more positive ones. The intervention also promotes positive learning behaviours (such as persistence and problem solving) and discourages unhelpful behaviours (such as self-sabotaging). The intervention further provides students with relaxation skills, helps students identify their personal strengths and encourages positive goal-directed thinking. By encouraging helpful thinking styles, emotions and behaviours the intervention hopes to improve students' overall academic achievement as well.

To date two research projects have evaluated this intervention using quantitative measurement tools. They include a cluster RCT efficacy evaluation of a researcher-led intervention (reported in Chapter 3) and an effectiveness evaluation of a teacher-led intervention (reported in Chapter 4). While both evaluations conclude that student learnt a significant level of new intervention skills, a high level of non-significant results suggested that the intervention had little impact on students thinking styles or learning behaviours. Only slight improvements in anxiety were observed when the intervention was implemented by a researcher, with slight differences between intervention and control condition in long-term reading scores also being seen.

Evaluations of this intervention to date have been exclusively based in the positivist framework, relying solely on quantitative methodologies. The current study builds on these earlier studies, using an interpretivist research approach to broaden the scope of the evaluation. Student participants were asked to provide their opinions regarding the value of the intervention, their use of the intervention skills, and the potential benefit of the intervention to others. This study aims to answer the following research questions:

1. How do students evaluate the intervention?
2. What do students report about the skills they have acquired during the intervention? Do students report applying the intervention skills in their everyday lives?
3. What are the main individual differences in student experiences of, and responses to, the intervention?

In asking these questions, this article seeks to understand if student voice data can provide valuable additional information regarding a positive psychology intervention, over and above the information gained from previous positivist evaluations of the same intervention.

5.2 Method

5.2.1 Participants

Participants were drawn from the intervention evaluation described in Chapter 4. Participants were enrolled in Grade 5 or 6 and came from seven classes in four public schools across Sydney, Australia. The age of participants ranged from 9 years 7 months to 12 years 3 months, with an average age of 10 years 10 months. Of the sample, 56% were female and 44% were male.

5.2.2 Measures

A questionnaire was designed specifically for the current study with the purpose of collecting student opinions regarding the intervention. The questionnaire asked four main questions: the usefulness of the programme;

which lessons were helpful; the use of skills learnt in the programme; and the applicability of the programme to other students (see Appendix E).

5.2.3 Procedure

The process for involving the 178 participants in the study commenced at the beginning of the school year, with all the Grade 5 and 6 students being invited to take part in the research via a letter to their parents/caregivers that was handed out in class. Each class group was randomly allocated to either the intervention or control condition. Of the 13 classes who took part in the original evaluation, seven were randomly allocated to the intervention group. During Term 2 pre-existing classroom teachers implemented the hour-long programme sessions approximately weekly in their classroom. Group sizes ranged from 19-30 students.

Directly following the conclusion of the final intervention session, all participating students were invited to complete a programme feedback questionnaire. Completion of this questionnaire was optional. Of the 178 students invited a total of 162 completed the questionnaire. Due to some students not answering certain questions, the total number of responses for each question ranged from 137 to 162.

5.2.4 Data analysis

Questionnaire data included both binary (yes/no) and open-ended questions. Percentages were calculated for the yes/no questions. The open-ended questions were analysed using Dedoose Version 7.0.23 (2016) a web application for managing, analysing, and presenting qualitative and MM research data. Each response was coded by theme, and the total number of references to each theme was tallied and used to rank the themes for each question. (See Appendix J)

5.3 Results

5.3.1 Useful or helpful skills learnt by students

A total of 147 students responded to the questionnaire questions about whether the programme was useful or helpful. A total of 132 students

responded 'yes' to this question (see Table 5.1) and provided responses that fell into four distinct themes.

Table 5.1. Rates of students responding 'yes' or 'no' to questionnaire questions

	Yes		No	
	<i>Response rate</i> %	<i>Number of responses</i>	<i>Response rate</i> %	<i>Number of responses</i>
Did you learn anything useful or helpful in the Believing You Can programme?	90%	132	10%	15
Have you used any of the skills you learnt in the Believing You Can programme?	73%	100	27%	37
Do you think students at other schools should learn the Believing You Can programme?	96%	145	4%	6

Theme 1: skills to identify and challenge unhelpful thinking patterns (n=73). Theme 2: relaxation techniques (n=40). Theme 3: managing emotions, such as anger and frustration (n=24). Theme 4: understanding and coping with anxiety (n=16). Other themes included: building self-belief (n=9), problem solving (n=9), and resilience (n=4). Examples of student responses for each theme can be seen in Table 5.2.

Table 5.2. Examples of student responses to the question, “did you learn anything useful or helpful in the Believing You Can programme?”

Example of student response	
Theme 1	It taught me some important ways to overcome unhelpful thoughts. I learnt that if you have a bad thought you should stop that thought or change that thought.
Theme 2	I have learnt how to relax at certain times when I am stressed out or have anxiety. I learnt relaxation techniques that will come in very helpful in high school and life overall.
Theme 3	I learnt many ways to calm myself down in hard situations. I learnt about all the ways to stop yourself from being angry and to calm yourself down.
Theme 4	I now know what anxiety is and how it is different from nervousness. I learnt what anxiety is and how to cope with it.
Other	I learnt that if you believe you can then you are already half way there. I learnt that there are many different ways to solve one problem.

5.3.2 Lessons that students found helpful or engaging

A total of 162 students responded to the questions about which lessons they enjoyed or found helpful. The lessons were ranked as follows: 1) Relaxation, 2) Super powers, 3) Thinking traps, 4) Personal strengths / Best possible self, 5) Anxiety, 6) Helpful and unhelpful thoughts, 7) Thoughts – feelings – actions, 8) Attributions, and 9) Problem Solving. The response rate for each lesson is outlined in Table 5.3.

Table 5.3. Response rates of individual lessons that students enjoyed or found helpful.

Lesson	Response rate %	Total number of responses
Relaxation	70%	114
Super Powers	59%	96
Thinking Traps	55%	89
Personal Strengths/ Best Possible Self	54%	88
Anxiety	54%	87
Helpful / Unhelpful Thoughts	49%	79
Thoughts – Feelings – Actions	45%	73
Attributions	42%	68
Problem Solving	40%	65

5.3.3 The integration of intervention skills into everyday life

A total of 137 students responded to this question. Approximately three-quarters of respondents (n=100) reported that they had used the intervention skills (see Table 5.1). Two types of integration were identified in student responses. The first related to the circumstance or location in which a student used an intervention skill, a total of 50 responses mentioned this type of theme. The second related to the use of specific skills, with a total of 81 responses. Some student responses mentioned both location and specific skill information.

Two key location themes emerged. Location theme 1: skills used outside of school, for example at home, sporting events, or extracurricular activities (n=31). Location theme 2: the use of intervention skills at school or while completing academic tasks, such as tests or homework (n=23).

Among the student responses reporting a specific skill the following four major themes were observed. Skill theme 1: relaxation techniques (n=44). Skill theme 2: identifying and challenging unhelpful thoughts (n=23). Skill theme 3: managing emotions (n=18). Skill theme 4: coping with stress and anxiety (n=17). Of the 37 students who reported that they had 'not yet' used the

intervention skills in their everyday lives, four students stated that they believed that the intervention skills would come in useful in the future. Examples of student responses can be seen in Table 5.4.

Table 5.4. Examples of student responses to the question, “have you used any of the skills you learnt in the Believing You Can programme?”

Location Theme	
Theme 1	When I was mad at my brother I used the relaxation method to calm myself down. I was playing an important soccer game and I thought we were going to lose. I changed my unhelpful thoughts and made them helpful thoughts and it changed the game. I used them when I got in a fight with my friend.
Theme 2	I used it when I was stressed with my schoolwork. When I was doing a test I used the different strategies we learnt to work out an answer. I use the relaxation skill while doing homework if I didn't know the answer and was getting stressed.
Skill Theme	
Theme 1	I use the guided imagery to relax wherever I go.
Theme 2	I stopped and checked my thoughts and changed them into something useful.
Theme 3	I used them to calm myself down when I got upset.
Theme 4	When I was anxious I challenge my unhelpful thoughts.
Not yet	I have not used the skills yet, but I think I will use them in high school and when I get a job.

5.3.4 Recommending the intervention to other students

A total of 151 students responded to this question. Of these students, 96% (n=145) said they would recommend the intervention to pupils at other schools (see Table 5.1). The most cited four reasons for recommending the programme to other students were as follows. Theme 1: the intervention would

help other students (n=66). Theme 2: the intervention would teach other students important skills (n=41). Theme 3: the intervention can support other students to change their unhelpful thoughts into more positive ones (n=28). Theme 4: the intervention can help other students manage everyday problems and challenges (n=19). Other themes mentioned in the student responses included: the skills are useful (n=14); to boost self-belief (n=13); manage negative emotions (n=12); and teach relaxation (n=10). Examples of student responses can be seen in Table 5.5.

Table 5.5. Examples of student responses to the question, “do you think students at other schools should learn the Believing You Can programme?”

	Example of student response
Theme 1	It was helpful to me and I think it will be helpful to them as well. It can help all kids in different ways.
Theme 2	You learnt all sorts of things that you cannot normally learn in school. Because every school needs to learn these skills.
Theme 3	It is good because it helps you clear your mind of unhelpful thoughts. Because every school has somebody who thinks unhelpful thoughts.
Theme 4	Yes, because it helps with daily problems in life like bullying. Believing you can is very useful in life and is almost essential for dealing with life problems.
Other	If someone is not confident with themselves, they can learn to be more confident by participating in this programme. So that other students could learn to relax, learn and enjoy more time in their life.

5.4 Discussion

This article illustrates the value of adding research grounded in the interpretivist approach, alongside traditional positivist research paradigms, when evaluating a positive psychology intervention. This article also sets out to synthesise data across disparate studies to provide a clearer picture of the *Believing You Can is the first step to Achieving (second edition)* programme. A total of 162 students provided their opinions regarding the value of the intervention, their use of the intervention skills, and the potential benefit of the intervention to others. The majority of students responded positively to the intervention. Most were able to identify ways in which the intervention had helped them in their own lives and how it may help others. The addition of qualitative student data demonstrated a number of key areas in which interpretivist research can further current understanding of positive psychology interventions.

5.4.1 Intervention evaluation

Despite the limited findings of the efficacy and effectiveness evaluations (see Chapters 3 & 4), which concluded that the intervention was largely ineffective based on quantitative data collection methods, when students were given a chance to voice their opinions the intervention was demonstrated to have some meaningful impacts on student lives. For one, the large majority of students, 90%, reported that they had learnt something useful or helpful from the programme. The finding is consistent with previous interpretivist studies, in which students positively appraised the interventions investigated (Bluth et al., 2016; Dariotis et al., 2016; Miller et al., 2010). Many students were also able to specify the specific skills that they found beneficial and the ways that they had used those skills since taking part in the intervention. These findings complement previous studies that demonstrated the ability for school-based interventions to have a meaningful impact beyond the designated programme sessions (Dariotis et al., 2016; Vickery & Dorjee, 2016). Not only did students see the benefits of the intervention for themselves, 96% of students believed the intervention would be beneficial for others. In fact, some students who did

not believe that they personally benefited from the intervention felt that the intervention would likely benefit others.

Taken together, the positive appraisal of the intervention by student directly contrasts with the limited results observed in the previous positivist studies using only quantitative data collection techniques to measure student outcomes. The nature of the intervention benefits reported by students in the current study may help shed some light on this disparity. For students in this study, the most valuable outcomes of the intervention were the skills they gained to manage the ups and downs of everyday life. Skills such as: changing thinking patterns, managing emotions, and overcoming obstacles at home and school. These reported benefits were more non-academic life general skills that were being used and applied in a range of settings and situations. By contrast the main quantitative measure used to evaluate student outcomes in the efficacy and effectiveness studies reported in Chapters 3 and 4, the MES-JS, was specifically focused on academic cognitions and behaviours. This student voice data suggests, therefore, that the MES-JS was a poor fit for this intervention. A more appropriate focus for future evaluations of this intervention should rather look at non-academic and general-life factors that relate to the way students manage everyday challenges.

The findings of this study, therefore, underscore the value of giving students a voice in the evaluation of an intervention. Student voice data can be instrumental in identifying clearer picture of student outcomes linked to an intervention. As such, future research would benefit from conducting exploratory student voice studies to identify possible intervention outcomes, before selecting the quantitative measurement tools to be used in larger positivist evaluations.

This study also indicates that relying solely on pre-prescribed quantitative measurement tools may lead researchers to miss many smaller but significant benefits that an intervention may be having in students' everyday lives. As such, an intervention might be labelled as ineffective based on the findings of quantitative measures, even though it is having a real and positive impact from the student perspective (Lam, 2016).

5.4.2 Integrating intervention skills into everyday life

Interventions are designed with the aim of transferring skills learnt in the intervention into the everyday lives of students, yet traditional research using positivist approaches routinely fail to directly measure this. To date, only a handful of studies have investigated this aspect using qualitative student interviews. Such studies typically demonstrate that young people do use skills learnt in school-based interventions at other times (Dariotis et al., 2016; Vickery & Dorjee, 2016). The findings of the current study show that the majority of students were able to integrate some of the intervention skills into their own lives.

More students reported using the intervention skills outside of school than while completing educational tasks, even though the intervention was implemented within a school setting and used examples with an academic focus. This finding suggests that the skills taught in the intervention were not simply being replicated by students in different settings, but rather these techniques were being generalised and adapted to fit the unique and varied needs of the students. It also appeared that some skills (such as relaxation) may be more relevant or easier to use than others (such as challenging unhelpful thoughts). This was evident from the divergence between the skills that students found beneficial and the skills that they had already used.

Future researchers could look to the lessons learnt from student voice data to help improve interventions. For example, based on the findings of the current study, it is recommended that the focus of the intervention is broadened beyond just academics, to provide examples of how the intervention techniques can be used in various settings to deal with diverse issues. Also, it would be prudent, based on the current findings, to assess both student needs and their ability to use the various intervention skills. This information could help tailor the intervention to better focus on skills more relevant to a student population and to provide more support for skills that are difficult to use.

5.4.3 Unique students, unique outcomes

While the large majority of students found the intervention to be beneficial, there remained some students who did not see any benefit from the time they invested in the intervention (10%), or they found they had not used

any of the intervention skills in their own lives (27%). These results suggest that even with an intervention combining multiple therapeutic techniques, it is still not possible to engage all students, or address the areas of need in each student's life. Such a result is to be expected in light of Zimmerman et al. (2008) belief that there is no 'one size fits all' intervention. That is not to say, however, that the intervention skills that students learn now, may not be of help in the future. Several students made comments such as, "*I have not used the skills yet, but I think I will use them in high school and when I get a job*". Similarly, students participating in the *Living Life to the Full* intervention expressed comparable sentiments, stating that they believed the intervention skills would be more useful for them in the future (Boyle et al., 2011).

The interpretivist approach used in this study allowed the intervention to be evaluated as a collection of topics and skills, as opposed to being seen as a unified whole. The intervention featured in the study was designed to combine multiple therapeutic techniques from different areas of psychology to create a rich and diverse programme. When students were asked to indicate which lessons they felt positive about, a total of 162 students were able to identify one or more lessons that resonated with them. The most popular lesson, 'Relaxation', was selected by 70% of students and the remaining lessons were viewed to be valuable by between 40% and 59% of students. This finding underscores the importance combining multiple therapeutic techniques in school-based interventions. First, as suggested by Zimmerman et al. (2008) there may not be one single skill that resonates with all students. Second, the findings suggest that the majority of students learnt more than one useful skill during the programme. Third, these statistics suggest that each element in the intervention was of value to some students.

By asking students to share their experiences of the intervention, this research was able to identify the unique impact of the individual components of the intervention. This information can be extremely important in the design of interventions and can guide teachers in the selection of skills to continue promoting intervention skills in the classroom. While more research is needed to gain a clearer picture of how the various elements of an intervention differentially benefit diverse groups of young people, this study clearly

demonstrated the benefit of combining multiple therapeutic techniques in one intervention and the use of MM research in its evaluation.

5.4.4 Limitations

A limitation of this study was the fact that a number of students did not complete the questionnaire or did not provide responses to all the interview questions. Of the 178 students who participated in the intervention, 11 did not complete the questionnaire. Of the remaining 167 students, between 5-28 students did not provide a response for each question. Although only a small proportion, it is possible that the data was to some degree skewed by the non-response bias (Berg, 2005). Students with favourable attitudes towards the intervention may have been more likely to respond to the questions. This effect is considered to be minimal, given the overall numbers and the positive responses of students.

Social desirability (Grimm, 2010) may have also influenced the results. Due to the nature of the current study, it is possible that student responses were influenced by their desire to please the researchers. Such a phenomenon would most likely skew the results in a more positive direction. While social desirability may have to some degree influenced student responses to the yes/no questions, it is less likely that this was the case for extended responses. Most notable in the student comments were the details where students described the skills they had learnt, and the situations in which they had used them. These were not direct replicas of examples copied from the intervention, but rather thoughtful accounts of how the intervention had been integrated into the everyday lives of students at home and school. For this reason, it is believed that the results of the current study represent a valid picture of student feelings about the intervention.

The current study measured student responses only at one time, following the completion of the nine-session intervention. Given that for all schools eight or more weeks had elapsed between the beginning of the intervention and the completion of the questionnaire, it is possible that time may have influenced student responses. For example, themes featured in the later lessons, i.e. 'relaxation' and 'changing unhelpful thoughts', may have been salient in students' memories because they were recent sessions.

Equally possible is that the skills learnt in earlier intervention sessions, such as 'identifying unhelpful thoughts', had more time to be put into practice by students in their everyday lives, compared to skills learnt in later weeks. To gain a more comprehensive picture, future research may benefit from recording student responses throughout the intervention, as well as having follow-up questionnaires in the weeks or months following its conclusion.

5.4.5 Conclusions

When evaluating a school-based intervention, the voices of the students themselves provide an important perspective worthy of research attention. It is therefore important for researchers in the field of psychology to begin using interpretivist research alongside the traditional positivist approach. Psychology researchers can look to the field of education, where studies into school improvement and teacher effectiveness have demonstrated the benefit of MM research (Day et al., 2008; Hall et al., 2016; Muijs, 2015). This study, in turn, demonstrates the value of using interpretivist techniques and how the results of such studies can be synthesised with positivist evaluations to shed new light on positive psychology school-based interventions.

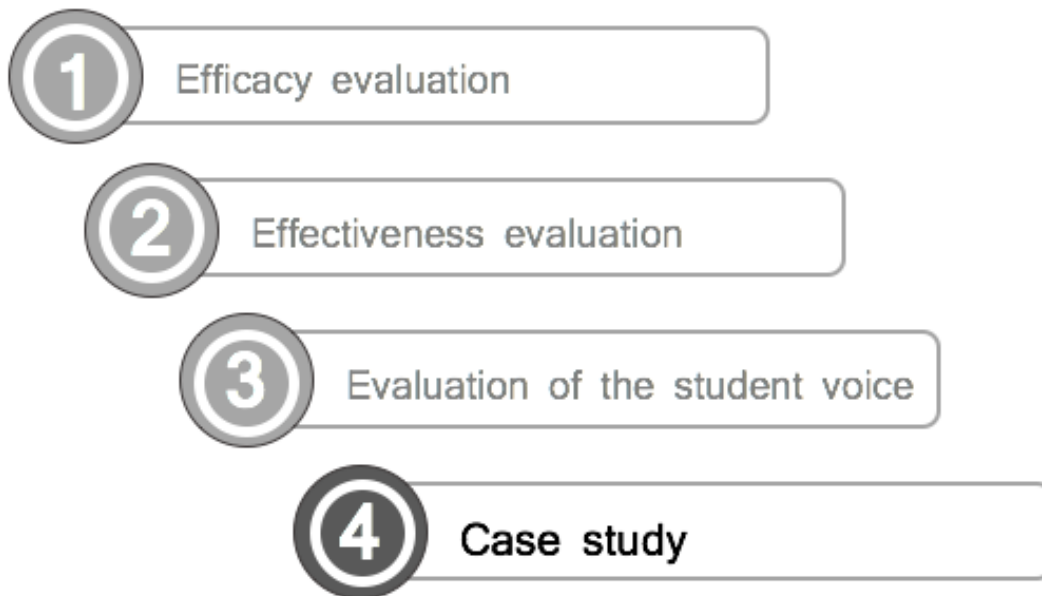
When looking at this study in isolation, both the quantitative data reporting student prevalence (in response to yes/no questions) and student responses to open-ended qualitative questions provided support for the value and promise of this intervention. This study also demonstrated substantial variability in the intervention elements that students found beneficial and the skills that they were able to use in their own lives. This means that not every student will respond the same way to each element of an intervention, and likewise an intervention will not be equally effective with every student. Interventions drawing on multiple theoretical perspectives and teaching an array of techniques may therefore have the greatest impact for the largest number of young people.

When the findings of the current study were synthesised with previous research using divergent data collection techniques, this cross-study integration highlighted disparities that can be used to inform future research. Specifically, differences emerged in the conclusions made about the effectiveness of the intervention, when comparing the previous positivist

studies to the current research. As such it can be concluded that research based solely within a positivist framework may be overlooking an important set of impacts that an intervention is having in the everyday lives of young people. This study also suggests that previous evaluations used measurement tools which poorly fit student reported outcomes. As such, it is recommended that future evaluations of this intervention use quantitative tools that measure non-academic and general life factors that relate to the way students manage everyday challenges. This article has therefore highlighted the benefits of both MM research and mixed research synthesis when evaluating positive psychology school-based interventions.

Chapter 6: Case Study

The three steps reported in chapters 3 – 5 investigated the impact of an intervention when implemented under differing conditions and using varied data collection techniques (quantitative and qualitative).



This chapter reports on the fourth step of the evaluation process. This implementation case study aims to identify the factors that promote and hinder the successful implementation of an intervention within schools. The factors influencing the implementation of the intervention were analysed at various levels (i.e. school-level, teacher-level, student-level; following the DMEE) with the aim of providing ways of optimizing the implementation of interventions in diverse school settings.

Understanding the factors that can shape the effective implementation of positive psychology interventions in schools: A case study

Abstract

Ensuring that school-based positive psychology interventions are implemented effectively is a major challenge for both researchers and educators. This case study describes several key factors that influenced the implementation of a new positive psychology intervention (*Believing You Can is the first step to Achieving, second edition*) in four primary schools in Sydney Australia. Classroom observations, teacher interviews, and parent questionnaires were used to gather information about how the intervention was implemented. Eleven factors were identified and mapped onto the Dynamic Model of Educational Effectiveness. These findings provide a vehicle for optimising the implementation of all psychology interventions in schools.

Implementing evidence based positive psychology interventions in schools is a considerable challenge for both researchers and educators, as they face multiple barriers that can be difficult to recognise and tackle effectively (Powers et al., 2010). The impact of poor implementation should not be underestimated as this often results in low treatment fidelity (Durlak, 2015; Pinkelman et al., 2015), and detrimental student outcomes (Askell-Williams et al., 2013; Durlak & DuPre, 2008; Pas & Bradshaw, 2012; Sanetti et al., 2013). Numerous articles have theorised the factors inherent in educational systems that influence how effectively psychological interventions are implemented (Eiraldi et al., 2015; Long et al., 2016; Pinkelman et al., 2015), however, only a few studies have focused on the implementation of positive psychology interventions in primary school settings (Askell-Williams et al., 2013; Baker-Henningham & Walker, 2009; Beets et al., 2008; Sun, Shek, & Siu, 2008).

This article reports a case study of a positive psychology intervention in four primary schools to identify the key factors that can influence effective implementation. Applying the hierarchical structure of the DMEE (Creemers & Kyriakides, 2008), this investigation focuses on the bottom three tiers of the model: school, teacher (class) and student (parent/caregiver). After reviewing implementation research from the field of education and psychology (Forman et al., 2009; Owens & Murphy, 2004; Pinkelman et al., 2015), three to five factors were identified at each level as being potentially significant to the implementation of positive psychology interventions within schools. These factors are outlined below.

6.1.1 School-Level factors

School leaders, including principals/head teachers are responsible for making the vital first step to begin an intervention process and in carrying it through. This includes facilitating the intervention by coordinating staff, allocating resources, and maintaining support for the intervention over time (Eiraldi et al., 2015; Forman et al., 2009). During this process, the effectiveness of the intervention suffers when inadequate amounts of time, training and resources are provided (Castro-Villarreal et al., 2014). The school leaders' level of support for the intervention can also impact the success of implementation (Askell-Williams et al., 2013; Beets et al., 2008; Forman et al.,

2009) as a high level of leadership involvement communicates to both students and teachers that the intervention is valued and important (Sun et al., 2008).

Competing priorities and limits on available time in schools are also important factors in effective implementation. When researchers conduct studies in school settings, they concentrate mostly on a single psychology intervention (Owens & Murphy, 2004). In contrast and considering all types of intervention, Long et al. (2016) reported that 91% of K-12 teachers interviewed were implementing two or more interventions at one time. In addition to these interventions, schools are also required to find time in the school calendar to schedule numerous other commitments (such as sporting activities, concerts, special events, and national level testing). Given these multiple and sometimes competing priorities, it is evident that positive psychology interventions may not receive the attention, time, and resources they require at the school-level in order to be effective (Eiraldi et al., 2015; Fabiano et al., 2014).

6.1.2 Teacher-Level factors

Classroom teachers are central to the success of any intervention, psychological or otherwise, as in most cases they are the ones implementing them in schools (Bakadorova & Raufelder, 2014; Collins et al., 2014; Sanetti et al., 2014; Beets et al., 2008). Therefore, when implementing positive psychology interventions it is a concern when teachers have a lack of prior knowledge of psychological theories and practices (Urhahne et al., 2011). This is because a lack of psychological knowledge may impact on the ability of teachers to effectively implement the intervention.

As well as a sufficient knowledge of key psychological concepts associated with a positive psychology intervention, teachers must also see the worth of an intervention and the benefit to their students, as implementation effectiveness is typically low when teachers fail to 'buy in' (Baweja et al., 2015; Hall et al., 2016; Pinkelman et al., 2015; Villarreal et al., 2015). A teacher's willingness to engage in the process, their motivation to implement the intervention well, and belief in their own ability have all been linked to implementation effectiveness (Beycioglu et al., 2010; Mohammadi et al., 2010; Sanetti et al., 2013).

Beyond teacher knowledge and value is the tension between intervention fidelity and adaptation (Durlak, 2015). The modification and sometimes deletion of intervention elements may cause them to have a weaker impact or even unintended impacts (Askill-Williams et al., 2013). On the other hand, by tailoring interventions to better meet the individual needs of their students, teachers may in fact be improving interventions. This is also recognised by researchers themselves. For example, Eiraldi et al. (2015) see intervention adaptation as vital to the sustainability of an intervention, allowing interventions to meet the changing needs of new cohorts of students over time.

Positive psychology school-based interventions require teachers to invest considerable amounts of time for teacher training, session preparation, and the lessons themselves (Long et al., 2016). With many school systems placing primary value on academic results, teachers are often pressured to prioritise short-term goals, such as improving test scores, over the longer-term objectives of preventative interventions (Pinkelman et al., 2015). If teachers believe that positive psychology interventions are diverting time away from academic instruction they can be less inclined to invest the adequate amount of time and effort needed for effective implementation (Seligman et al., 2009; Suldo et al., 2015).

Teachers are also in a unique position to integrate the teachings of a positive psychology intervention into the fabric of the school day, and by doing so therefore reinforce, maintain, and extend intervention outcomes (Baweja et al., 2015; Collins et al., 2014). Not much is known about the extent to which positive psychology intervention skills are integrated by teachers, as it is rarely included as a factor of interest in implementation studies. However, where it has been examined the findings have been positive. For example, when reporting on the Geelong Grammar project, Seligman et al. (2009) noted numerous instances of teachers embedding the techniques of the whole-school positive psychology curriculum into their everyday teaching practices. Similarly, Sun et al. (2008) reported that teachers were actively promoting the messages of a positive youth development programme in their daily interactions with students.

6.1.3 Student/Parent-Level factors

Although research has shown a clear link between student engagement and academic outcomes (Li & Lerner, 2011; Upadaya & Salmela-Aro, 2013; Virtanen et al., 2016), little data has been collected about how student engagement affects the outcomes of positive psychology interventions. One study of an online-based wellbeing programme suggested that low student engagement can be a barrier to intervention effectiveness, as the majority of students did not spend adequate time on the online platform (Manicavasagar et al., 2014). Other similar studies report low rates of home learning completion among young people participating in positive psychology interventions (Boyle et al., 2011; Miller et al., 2010; Stallard et al., 2014). For example, Lam (2016) reported that students were not enthusiastic about completing home learning that was linked to a mindfulness intervention, with the majority of students completing less than half of the assigned activities.

Some level of engagement by parents and caregivers is also important for the effective implementation of school-based positive psychology interventions (Cefai & Cavioni, 2015; Miller et al., 2010). Langley, Nadeem, Kataoka, Stein, and Jaycox (2010) noted that it is often difficult to engage parents and caregivers, even in the earliest stages of an intervention when they need to be reached and informed about an intervention in order to give consent. Parents and caregivers may also be asked to attend information sessions or to complete questionnaires (Herman et al., 2011). Previous studies have reported parent/caregiver consent rates to range from 16% (Gillham et al., 2006) to 90% (Stallard et al., 2014). When subsequently invited to complete assessments or attend information sessions as part of a research project, these percentages can often fall even lower (Gillham et al., 2006).

6.1.4 Current study

The current study investigates how positive psychology interventions in schools can be more effectively implemented by tracking the implementation of the intervention, *Believing You Can is the first step to Achieving (second edition)* programme. This positive psychology school-based intervention combines a range of techniques to encourage increased student wellbeing, motivation and engagement in school by promoting optimistic thinking styles,

positive emotions and adaptive behaviours, with a specific focus on managing academic tasks and challenges. An earlier efficacy evaluation (see Chapter 3) found that while students learnt new skills when the intervention was implemented by a researcher, it had a limited impact on anticipated student outcomes, with a large number of non-significant results. In this study only slight improvements in anxiety and a slight difference between intervention and control condition long-term reading scores were observed. When the intervention was implemented by primary school teachers in a follow-on effectiveness evaluation (reported in Chapter 4), a similar increase in student knowledge of intervention skills was observed, but no change was seen across any of the cognitive and behavioural factors measured.

This current study extends this effectiveness evaluation by examining the issue of why teacher implementation and researcher implementation yielded different findings. To do so, novel data are analysed to suggest key factors that influence teacher implementation. This new data comes from classroom observations, teacher interviews, and parent questionnaires. To the best of my knowledge, no other study to date has gathered information from such a broad range of sources when investigating the implementation of a school-based positive psychology intervention using the levels of the DMEE framework.

The factors examined in this article include:

- School-level factors: facilitation of intervention, scheduling of programmes, and provision of resources.
- Teacher-level factors: prior knowledge, perceptions, adaptation, time, and integration of new skills.
- Student/Parent-level factors: motivation/engagement, time spent on home learning tasks, and parent (caregiver) engagement.

6.2 Method

6.2.1 Participants

Four inner-city schools in Sydney (Australia) took part in this study. A total of 299 students participated in the two condition RCT effectiveness evaluation which yielded the data that is analysed in this paper. Class sizes ranged from 19 – 30 students. All students (52% female) were in Grade 5 or 6, with an age range of 9 years 7 months to 12 years 4 months (average age 10 years 8 months). A total of 178 students and seven classroom teachers (four female) were assigned to the intervention condition.

Of the parents and caregivers who provided consent for their children to participate in the research study, 80% agreed to be contacted via email to complete online questionnaires. At each measurement point intervention group parent and caregiver response rates were: pre-intervention (n=175; intervention: 64 and control: 111); post-intervention (n=75; intervention: 40 and control: 35); follow-up (n=64; intervention: 33 and control: 31). Only 52 parents and caregivers completed the online questionnaire on all three occasions (intervention: 23 and control: 29). As part of the follow-up measure, a number of questions were included for parent and caregiver of students in the intervention condition regarding their engagement with the intervention material. Data from the 33 intervention group parents and caregivers who completed the questionnaire at follow-up were used in this analysis.

6.2.2 Measures

Classroom observations. A research observer attended approximately 30% of randomly selected intervention sessions across the four schools. For each session, the observer noted whether the individual intervention activities were completed correctly, incorrectly, or with variations (see Appendix I). For each session, an intervention fidelity rating was calculated for the activities implemented correctly and with variations (see Table 5.1 below and Table B3 in Appendix B). The observer also noted disruptions to the scheduled lessons and student on-task and off-task behaviours.

Teacher interviews and questionnaire. Participating teachers were interviewed a number of times throughout the school year and completed a

questionnaire following the completion of the intervention. The interview questions focused on each teacher's previous experience implementing psychological school-based interventions; their level of confidence about running the intervention; the extent of any integration of the intervention techniques into the classroom outside of the prescribed lessons; and their assessment of student response to the intervention. The teacher questionnaire assessed teacher perceptions of the programme, including: its benefits to their students; resource suitability; time needed for implementation; the extent of programme adaptation during implementation; likelihood of future implementation; and whether they had used alternative methods of integrating skills from the programme in their classroom (see Appendix F).

Parent questionnaire. Parents and caregivers were contacted via email directly following the intervention. They were asked about whether they had accessed any of the available intervention electronic resources and if they had discussed the intervention with their child.

6.2.3 Procedure

School recruitment was conducted via an email invitation, sent out in the last school term of 2015 to approximately 50 public primary schools in inner-city Sydney. Six schools responded expressing interest, of which four agreed to participate in the study in 2016. Consent from the primary caregiver was then required. Each pre-existing class group was randomly allocated to either the intervention or control conditions.

During Term 1, before the commencement of the intervention, a 2-hour teacher-training workshop was offered and conducted separately at each school site. During this session, a researcher gave a presentation on the theoretical concepts and aims underpinning the intervention. The researcher then explained how to use the intervention resources. Teachers were also provided with a number of examples of ways to adapt the intervention (such as including prompts for personalised examples and different demonstration technique options), additional activities, and methods of integrating the programme vocabulary and techniques into their everyday teaching. The remainder of the session was dedicated to demonstrating the intervention

activities and answering teacher questions. All seven teachers implementing the intervention attended these sessions.

Continued teacher support was offered throughout the course of the intervention. A researcher was available via email or phone to answer questions. A second short teacher-training session (running approximately one-hour) was offered halfway through the intervention, with the aim of refreshing information from the initial training workshop and the activities to be presented in the second half of the intervention. Only three of the seven teachers attended this optional second session.

During Term 2 teachers implemented the nine intervention sessions weekly in their classes. Over the course of the sessions the intervention combined multiple therapeutic techniques, including CBT, attribution retraining, mindfulness, strengths-based coaching, best-possible self-goal setting, and mental health education (see Table B1 in Appendix B). The intervention followed a structured teacher manual and student workbook. Intervention sessions typically ran for one hour. Each session followed a similar structure, beginning with a review of the previous lesson, an introduction to new skills, followed by small group and individual activities. Intervention activities included games, role-plays, creating comics, designing one's own relaxation track and completing workbook exercises. Each session was also accompanied by student home learning activities.

During the intervention period a researcher visited each intervention class to observe factors relating to the implementation of the intervention and to interview teachers. Overall, the researcher attended approximately 30% of randomly selected intervention sessions with each class visited between 2–4 times. After the intervention, teachers and parents (as well as caregivers) were also asked via email to complete a short questionnaire.

6.3 Results

The findings of this case study concentrate on three of the levels in the DMEE model (school; teacher; student/parent). Within each level, themes regarding the factors that can have an impact upon effective implementation

are given. These themes summarise the data that were achieved from the questionnaires, interviews, and the observations.

6.3.1 School-Level factors

Facilitation of interventions. Of the approximately 50 public primary schools contacted, only six responded to the initial email contact, and of these only four committed to implementing the intervention during 2016. In three of the four schools the leadership team had no involvement in the intervention beyond an initial coordination meeting. In one school, the vice-principal made efforts to promote the intervention within the school, visiting classes during intervention sessions, talking to students about the intervention and taking part in the parent information session.

School scheduling of programmes. Competing priorities were a significant challenge across all school settings in this study. During the implementation period, in-school intervention sessions had to be rescheduled around: public holidays; school ceremonies; the National Assessment Programme – Literacy and Numeracy (NAPLAN) tests; school camps; excursions; sporting events; and teacher personal development training days. In each class, at least one of the nine planned lessons had to be rescheduled.

Provision of resources. When teachers were asked at the end of the programme whether they believed they had the resources needed to implement the intervention, all responses fell within the range of “yes” to “*definitely yes*”. Teachers commented that the intervention was easy to run, as all of the necessary material was provided, “*it is all there for you*” (Teacher 3).

6.3.2 Teacher-Level factors

Prior knowledge. Although no teacher reported having undertaken any psychological training in the past, five of the teachers stated that they had some experience with similar interventions. For example, Teacher 1 stated, “*it is similar to other programmes I have done in the past*”. Two teachers reported having limited prior experience, making comments such as, “*I have never done anything like this before*” (Teacher 5). Teachers who reported having prior experience also reported an initial high level of confidence, with statements

such as, *“I’m confident in running the programme”* (Teacher 1). By contrast, teachers with limited or no previous experience showed initial low confidence levels, with statements such as, *“I’m not feeling very confident yet, I’m still unsure of my ability to run lessons”* (Teacher 2).

Perceptions. Teacher perceptions of the intervention were strongly positive. When directly asked to comment on whether or not they believed the intervention benefited the students, all teachers reported that they believed it to have *“some”* or *“a lot”* of benefit. Furthermore, half of the teachers reported that they would *“definitely”* consider running the intervention again in the future, with the other half reporting they would *“probably”* implement the intervention again. Some positive comments made by teachers about the intervention included: *“students are already aware of many of these topics, but this programme takes it further from understanding to strategies”* (Teacher 1); *“I think the language that the students could apply was good as it allowed them to recognise behaviours and feelings in certain situations”* (Teacher 6); and *“I definitely felt that the activities were engaging which made it enjoyable for the students”* (Teacher 3).

Adaptation. This was a common occurrence with six out of the seven teachers modifying the intervention to some degree. Adaptation typically fell into one of three categories: changing activities, missing activities or altering the order of delivering the activities. On numerous occasions adaptation was due to poor time management, which led to overly lengthy, rushed or omitted components.

Teachers were also observed adapting the intervention by using the sessions as a platform to discuss topics of interest to them. On one hand, there were examples of teachers doing this in a helpful way by adding in a discussion about current issues relevant to their students. For example, Teacher 7 asked her students to identify helpful and unhelpful thoughts relating to the upcoming school camp. On the other hand, there were times in which discussions on tangential topics detracted from the intervention by wasting time or confusing the issue. For example, in a lesson about thinking traps (intended to help students identify ways in which their thoughts can lie to them), Teacher 4 spent a considerable amount of time discussing the distinction between *“good”* lies

and “*bad*” lies. In doing so, Teacher 4 unintentionally suggested that thinking traps could also be good, which directly contradicted the intervention.

A relationship between teacher confidence and intervention fidelity was observed (see Table 6.1). Teachers who reported initial high levels of confidence were observed adapting the programme to a greater degree (intervention fidelity scores between 55 – 75%) than their less confident colleagues (intervention fidelity scores between 82 – 100%). This suggests that teachers who are concerned about their ability to implement an intervention may make a concerted effort to closely follow the teaching manual, while confident teachers feel more comfortable in adapting the material.

Table 6.1. Rating of teacher-level factors and student outcomes as grouped by teacher experience and confidence.

Teacher	<i>Experience/ Confidence</i>	<i>Treatment Fidelity</i>		<i>Integration</i>	
	<i>Self-report</i>	<i>Observer Correct</i>	<i>Observer Adaptation</i>	<i>Self-report Correct</i>	<i>Self-report</i>
1	High	Low 55%	High 43%	Medium	Medium
2	Low	Medium 82%	Medium 15%	High	Low
3	Medium	High 92%	Medium 13%	High	High
4	Medium	Low 73%	High 20%	Medium	Low
5	Low	High 100%	Low 0%	Medium	Medium
6	Medium	High 93%	Low 7%	High	High
7	High	Low 75%	Medium 13%	High	High

When teachers were asked to rate their own performance, all teachers reported implementing the intervention with a medium or high level of intervention fidelity. There was a discord, however, between teacher self-appraisals and researcher observed ratings, with only one teacher having consistent results. Five out of the seven teachers overestimated their own ability to accurately implement the intervention and one teacher underestimated her accuracy. This finding suggests that teachers may not be aware of the extent to which they are adapting or modifying the content of an intervention.

Teacher scheduling of programmes. The researchers observed a number of disruptions in the classrooms. These included: teachers receiving phone calls and messages; students being required to leave for extra-curricular activities (e.g. instrument lessons); and large numbers of students being absent due to one-off special events (e. g. cross-country competition). These events hindered the smooth running of the intervention and the ability for all students to take part in the lessons.

Teachers themselves noted experiencing difficulties related to the scheduling of the intervention. Teacher 1 mentioned that *“time is always an issue in schools”* and he would have preferred to run the intervention at another time, as *“it was a particularly busy term”*. When asked for his opinion on a more appropriate time of year to implement the intervention he reflected that, *“actually every term is busy”*. Similarly, a number of other teachers noted difficulties in finding time to run the programme, for example Teacher 5 stated that *“with all the school stuff on it’s hard to consistently find time to teach it”*.

Time. Teachers generally valued the minimal demands of the intervention on their time commenting, *“it doesn’t take long to plan for, it is great to have the teacher’s book, it clearly sets everything out and all the material is there”* (Teacher 3). Six out of the seven teachers reported that they had adequate time to implement the intervention. Regardless, on a number of occasions teachers were observed to be unprepared for lessons. Teachers themselves were cognizant of this, making statements such as, *“I felt less confident than last week because I was less prepared”* (Teacher 2) and, *“it has been a very busy time, so it has been hard to find time for planning”* (Teacher

3). Four of the seven teachers chose not to attend a second teacher training session citing too many commitments and insufficient time.

Integration of new skills. Teachers responded positively to the idea of extending the intervention beyond the nine scheduled lessons stating, *“it is definitely something that we will keep coming back to all the time, you do not use it in isolation”* (Teacher 1) and, *“this is something we will do over the year, not just for one term, we will integrate it into the classroom teachings and keep using the ideas”* (Teacher 7). The most cited form of integration was the use of the intervention vocabulary, with six out of the seven teachers reporting using the language from the programme throughout the course of the school day. Teacher 6 noted, *“I have used the language as much as possible daily, I think the language is easy for the students to access.”* While others commented, *“the common vocabulary allowed us to have many discussions with us all being on the same page”* (Teacher 7) and *“we have definitely been using the language in the classroom”* (Teacher 2). Teachers also noted that leading up to stressful events, such as national testing and a school camp, they found it useful to refer to the intervention material.

Based on teacher self-reports, there was a range in the extent to which teachers integrated the intervention techniques into their classroom. Some teachers reported using integration techniques and material regularly throughout the school day, while others reported that they had not yet used any of the supplementary material provided.

6.3.3 Student/Parent-Level factors

Motivation and engagement. Findings revealed variations in the level of student engagement not only between classes, but also within classes and across intervention sessions. Classroom observations revealed numerous occasions in which the majority of students in a class demonstrated a high level of participation, a desire to contribute to class discussion and retention of knowledge learned in previous sessions. There were also a number of times when signs of student disengagement were observed, such as students drawing, playing with dice, reading books and even one child attempting to sleep during an intervention session. A link between student engagement and intervention adaptation was also seen. Student engagement appeared to

increase when teachers made positive changes to the intervention, such as going outside to complete activities. At other times changes to the intervention activities resulted in students appearing less engaged, such as when an activity was changed from a game format to a class discussion.

Teachers were also asked to comment on student engagement and motivation during the intervention. A number of teachers remarked that they believed their students were really engaged and enjoyed the intervention and were using the intervention skills, *“I really believe students are internalizing the thoughts based on the responses they give”* (Teacher 1).

Time spent on home learning tasks. Overall, approximately half of the students returned their home learning sheets. There were, however, times when either very few students completed home learning, or teachers failed to review home learning tasks. Teacher 5, who offered students an incentive linked to home learning completion, had the most success in receiving completed homework. Although the exact rate of home learning completion was not collected as part of this study, researcher observations and teacher comments indicate that only a minority of students completed the home learning activities consistently.

Parent engagement. Parent and caregiver engagement was assessed through three aspects – returned consent forms, completion of online questionnaires and attendance at information sessions. The overall rate of return for student consent forms was high at 83%. This rate varied considerably among schools (66% - 100%) and classes (range of 20% - 100%). Similar to the conclusions of Suldo et al. (2015), these results suggest that some schools and classes may be better at initially engaging parents and caregivers than others. Of the consenting parents and caregivers, 80% agreed to complete online questionnaires and provided an email contact. The rate of completion for the online questionnaire closely mirrored the experience of other research teams, with a moderate initial response rate of 42%, decreasing over the year (Gillham et al., 2006; Stallard et al., 2014), dropping to as low as 23% for the follow up testing. Only 16% completed the questionnaire on all three occasions.

As part of the intervention an information session was offered at each school to inform parents and caregivers about the intervention and provide

resources to help support the integration of intervention techniques in the home environment. Unfortunately, turnout for the sessions was low, with only 9% of invited parents and caregivers attending. The low rate of attendance was consistent across all school settings, indicating that all schools had similar issues with engaging parents and caregivers in intervention activities. In response to the low rate of attendance, parents and caregivers were provided with access to the information and material presented at the information session via email. Following the completion of the intervention, parents and caregivers were asked whether they had accessed this material and/or discussed the programme with their child. Of the 33 parents and caregivers who responded to this question, 38% did have some level of engagement with the intervention and reported using the intervention skills within the home environment. Examples include, *“we've talked about what the work sheets mean and how to put the exercises into practice”*, *“we have the printout of thinking traps on our fridge and we often refer to its vocabulary when we are having a challenging moment”*, and, *“we have talked about unhelpful thoughts when tackling homework.”*

6.4 Discussion

The findings of this case study can help researchers, psychologists, educators, and policy makers to better understand the key factors that can influence the successful implementation of positive psychology interventions within school settings. A number of practical implications are highlighted below (summarised within the levels of the DMEE), along with recommended future directions for schools looking to implement positive psychology interventions.

6.4.1 School-Level

School leaders are seen as the gatekeepers responsible for selecting interventions to be implemented (Eiraldi et al., 2015; Forman et al., 2009). The current study found it difficult to overcome this initial hurdle, highlighting that schools may not be open to, or have the capacity to, engage with new interventions, especially ones that are non-academically based. A lack of school leadership engagement in the intervention was also seen as a potential

barrier to successful implementation (Sun et al., 2008). Therefore, future efforts should focus more on both the dissemination of information and solicitation of school leadership engagement when trying to implement a new positive psychology intervention.

Once schools agree to implement a positive psychology intervention, it is vital that adequate time is scheduled for it (Long et al., 2016; Pinkelman et al., 2015). This appeared to be a challenge in many schools, as competing school priorities undermined the scheduling of the intervention. Prior to the commencement of a positive psychology intervention, schools should be encouraged to create a viable schedule of implementation, taking into consideration all known conflicting events. Schools could also be supported in offering catch-up lessons to students who miss intervention sessions.

The allocation of resources was not seen as a barrier to the implementation of the positive psychology intervention investigated in this case study. This finding is in contrast to previous research, which identified access to resources as a key barrier to the effective implementation of interventions in schools (Askell-Williams et al., 2013; Castro-Villarreal et al., 2014; Eiraldi et al., 2015). In the current study teachers were provided copies of all necessary resources to implement the intervention successfully (i.e. the teacher manual, student workbooks, home learning sheets, supplementary material). It is likely therefore that intervention implementation will be optimised when schools are provided with all necessary resources to run a positive psychology intervention. Disseminating an intervention through a book that can be photocopied or downloaded from the internet, on the other hand, may increase the burden placed on teachers' time, consequently impacting the quality of implementation.

6.4.2 Teacher-Level

Observations of individual teacher-level differences confirmed past claims that teachers are typically not trained in psychological theory and techniques and commonly lack experience implementing positive psychology interventions (Urhahne et al., 2011). Within this evaluation a lack of prior experience was linked with teachers feeling less confident in their ability to implement the intervention correctly. Such teachers may require a greater level

of training and support than teachers with more experience and confidence. Screening each teacher's prior experience and level of confidence, and offering additional support before and during the implementation of an intervention may optimise the consistency and quality of a positive psychology intervention.

The current findings support the proposition that adaptation of positive psychology interventions is a common occurrence (Durlak, 2015; Eiraldi et al., 2015). However, two types of modifications were highlighted here: those that enhanced the intervention (making the activities more engaging or relevant to students), and those that detracted from the intervention (making the activities less engaging or contradicting the intervention message). Given the prevalence of intervention adaptation and its possible negative impact on desired outcomes, it is important to address this issue directly with teachers when they are being trained, especially among teachers with high levels of confidence. Greater teacher training would support teachers to identify times when they are modifying a positive psychology intervention and provide them with models of helpful adaptation.

The lack of adequate preparation and an inability to attend training sessions suggests that the teachers in this study were struggling to find time to successfully implement this positive psychology intervention. In some cases, this led to passive resistance, which Pinkelman et al. (2015) defined as an individual stating that they support an intervention but then not investing the time to learn about the intervention or implement it adequately. As a result, future researchers and researchers may benefit from recording the amount of time that teachers invest in preparing for implementation to better understand how this may impact student outcomes. Furthermore, schools should look to increase the planning time allocated to teachers when they are implementing positive psychology interventions in their classrooms.

Integrating positive psychology intervention techniques into the course of the school day is a powerful way for teachers to strengthen an intervention and promote the generalisation of skills (Baweja et al., 2015; Collins et al., 2014). Based on teacher self-report data, the current study found that some, but not all teachers, were integrating some, but not all, intervention techniques into their everyday teachings. Given the importance of teacher modelling of

positive psychology intervention skills, more therefore needs to be done to understand how to effectively promote the integration of intervention skills in the classroom. Teachers could, for example, be provided with compulsory integration tasks corresponding to each intervention session.

6.4.3 Student/Parent-Level

While the majority of students were reported to be actively participating in the positive psychology intervention, this was not universal. Therefore, teachers implementing positive psychology interventions may need more support to identify unengaged students during intervention sessions and be provided with techniques to encourage increased participation. In line with findings of previous studies, variations in student completion of home learning were also noted (Boyle et al., 2011; Miller et al., 2010; Stallard et al., 2014). However, student home learning completion was shown to be strengthened when it was linked to a reward.

Across all school settings, engaging parents and caregivers in intervention activities was challenging. This is unfortunate as school- and class-based interventions are more effective when they engage parents and caregivers in the process (Cefai & Cavioni, 2015; Miller et al., 2010). This case study did find, however, that where engagement was achieved, parents and caregivers did play a positive support role. Both schools and research teams should make efforts to better understand the barriers to parent and caregiver engagement in positive psychology interventions and look for ways to increase their participation.

6.4.4 Limitations

First, the design of the effectiveness evaluation may have increased the chances that social desirability bias swayed responses. This is because the creator of the intervention was also the one running the evaluation. As a result, teachers may have been reluctant to provide negative feedback about the intervention. Having a larger sample of teachers, along with anonymous responding options, may have helped reduce the degree to which teachers were biased by social desirability.

Second, the observer's measure of intervention fidelity only provided a snapshot of implementation during designated session times. On a number of occasions, teachers indicated that they intended to catch up on missed activities at another time. Activities administered outside of an intervention session were, however, not reflected in the intervention fidelity ratings. Wider observations throughout the regular school day could have helped both identify these extra activities, as well as detect the degree to which intervention techniques were being integrated into the everyday classroom.

Third, additional measures of student engagement together with a more exact rate of home learning completion would have improved the current study. The inclusion of increased observational data, tracking student on- and off-task behaviours, for example, may have helped strengthen the findings of this research.

6.4.5 Conclusion

This case study identified a range of factors that can both promote and hinder the successful implementation of positive psychology interventions at three levels of the DMEE (school, teacher and student/parent). Five barriers that can impede implementation were identified as: limited support from school leaders; scheduling conflicts; inadequate allocation of teacher planning time; inconsistent rates of student home learning completion; and low parent and caregiver engagement. Five factors that can promote successful implementation include: the provision of comprehensive intervention resources; prior experience of similar interventions; positive teacher perceptions; the integration of intervention techniques; and student in-class engagement. An eleventh factor - adaption of interventions by teachers - can both help and be a hindrance depending on the form of modification. It is hoped that psychologist, teachers, and schools that are looking to implement positive psychology interventions will be better able to build upon existing strengths and overcome potential barriers in the implementation process by knowing how each of these eleven factors can shape implementation.

Chapter 7: Discussion

In this final chapter, the project rationale and objectives are restated, along with a concise outline of the four-step evaluation process. Each of the two overarching thesis questions are answered drawing on the findings from the studies reported in Chapters 3 – 6. The broader implications of these findings for the studied positive psychology intervention are explored (in line with the subsidiary aim) and the practical implications for both researchers and educators are then explored. A discussion of the research limitations and future directions, across the overall project, complete this chapter.

7.1 Research Rationale and Objectives

This thesis aims to build upon the existing body of research covering positive psychology interventions in schools (Dawood, 2013; Lomas, 2015; Owens & Patterson, 2013; Seligman et al., 2009; Shankland & Rosset, 2016; Sin & Lyubomirsky, 2009) to develop an improved system of evaluation.

This thesis proposes and tests a mixed method sequential evaluation process for evaluating positive psychology interventions. The four studies reported in this thesis follow the four-steps of the new evaluation process and aim to demonstrate its value when applied to a new positive psychology intervention. Step 1 involved an efficacy evaluation, to determine the nature and extent of student outcomes when the intervention was implemented under controlled conditions in schools by a researcher. Step 2 was an effectiveness evaluation, to assess whether the intervention remained effective when implemented in schools by teachers. Step 3 was an evaluation of the student voice, to gain a broader picture of intervention outcomes and individual student differences. Step 4 was a case study, to identify the factors operating at various levels (i.e. school-level, teacher-level, student-level, following the DMEE; Creemers & Kyriakides, 2008) that promote and hinder the successful implementation of the intervention within schools. By using a broad range of evaluation techniques, this four-step evaluation process aims to provide a more comprehensive picture of the intervention. With this information, schools will be in a better position to make robust evidence-based, and thus more

effective, choices when selecting and implementing positive psychology interventions in the classroom.

To explore the evaluation process a positive psychology intervention was implemented over two school years, in a number of primary schools in Sydney, Australia. In 2015, the intervention was implemented by a researcher in five classes across three primary schools. An additional class in each school was assigned to the control condition. Quantitative data on student outcomes (knowledge of intervention skills, academic achievement, and cognitive/behavioural factors) were collected at pre-intervention, post-intervention and a 5-month follow-up. The data from this research was used to inform the efficacy evaluation reported in Chapter 3. In 2016, the intervention was implemented by existing primary school teachers in seven classes across four schools. A total of six additional classes across the four schools were assigned to the control condition. Both quantitative and qualitative data were collected enabling assessment of student outcomes, student perspectives and factors influencing implementation. Collection was at pre-intervention, during the intervention, post-intervention and at a 5-month follow-up, and used to inform the evaluations reported in Chapters 4 – 6.

7.2 Overarching Thesis Questions

This thesis set out to answer two overarching thesis questions relating to the four-step evaluation process. These questions were as follows:

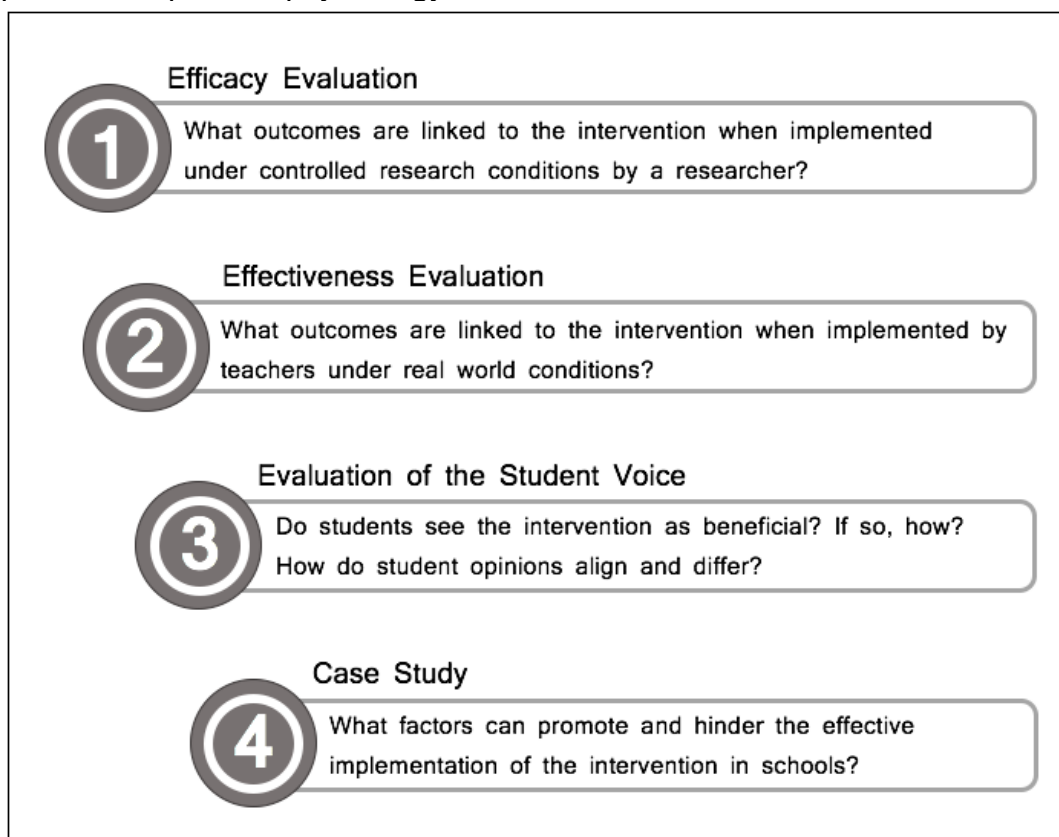
- TQ1. Does each step of the evaluation process provide unique and valuable information about a positive psychology school-based intervention?
- TQ2. How can the information gained from this process support the successful dissemination, implementation and maintenance of positive psychology interventions in schools?

The section below draws on the findings of the studies reported in Chapters 3 – 6 to answer these questions.

7.2.1 Does each step of the evaluation process provide unique and valuable information about a positive psychology school-based intervention?

Individually each evaluative step of the process provides answers to a distinctive set of questions set out in Figure 7.1. The answers to these questions, at each step, are set out below to demonstrate the unique and valuable information gained from each of the studies undertaken.

Figure 7.1. Questions answered at each level of the four-step evaluation process for positive psychology school-based interventions



Step 1: Efficacy evaluation. Step 1 of the evaluation process aims to identify what student outcomes are linked to the intervention when it is implemented under controlled research conditions by a researcher. It is often difficult to conduct high quality-controlled studies within schools, given the limited ability to control all variables or apply perfect randomization (Cheney et al., 2014). A number of research controls were nevertheless built into the efficacy study reported in Chapter 3 to achieve a certain level of research control. For example, a single researcher implemented the intervention across

all five classes. This fostered a high level of consistency of presentation across the classrooms. The researcher was a qualified psychologist and the creator of the intervention, and thus the intervention was implemented with high fidelity and minimal adaptation. In this study, the implementation of the intervention was able to follow a tight schedule, and there were few interruptions during the scheduled sessions times.

When implemented under controlled research conditions by a researcher the intervention was linked to a rise in student knowledge of the intervention skills and a reduction in student anxiety about school, directly following the intervention. These improvements in knowledge of intervention skills and anxiety were observed, however, to slightly fade over time. At the five-month follow-up, a significant difference between the intervention and control conditions on reading achievement was observed. While students in the intervention condition maintained a stable level of reading achievement across the five-month period, average reading achievement decreased for students in the control condition. These results confirmed that:

- the intervention was efficacious at teaching students a new set of skills
- it may help manage student anxiety about school
- it can impact academic areas without directly teaching any academic skills.

However, the large number of non-significant results suggested that the intervention was not successful in promoting positive student cognitions, behaviours or improve academic performance. This study was therefore also instrumental in demonstrating which factors were not significantly impacted by the intervention. They include:

- some thinking styles (i.e. self-beliefs, attributions)
- learning behaviours (i.e. persistence, self-sabotage)
- mathematic achievement.

When gender was considered, no significant gender differences were observed, suggesting that the intervention had an equivalent impact on both boys and girls. Also, there were significant between-class differences on some, but not all, of the intervention outcomes, suggesting that differences between

classes and/or teachers may influence the way the intervention impacts students. This step of the evaluation process can therefore provide valuable information on student outcomes and highlight possible differences between individuals (boys/girls) and groups (classes), when the intervention is implemented under controlled conditions by a researcher.

Step 2: Effectiveness evaluation. Step 2 of the evaluation process aims to identify what student outcomes are linked to the intervention, when it is implemented by teachers under real world conditions in a classroom. Teachers are typically the ones found implementing psychological interventions in schools, not researchers (Beets et al., 2008; Sanetti et al., 2014; Waters, 2011). Despite this fact, researchers (or experts) are usually the ones found implementing interventions in scientific studies (Neil & Christensen, 2009; Stockings et al., 2016). The conditions encountered by teachers within a school, however, often vary from the controls which are able to be imposed by researchers when implementing interventions (Cheney et al., 2014). Within the real world of schools there are a number of factors that can undermine the successful implementation of an interventions. These include: scheduling conflicts; session disruptions; intervention content adaption (and on some occasions deleted); and between-teacher differences leading to inconsistent implementation across classrooms. All of these factors were observed to disrupt the implementation of the intervention in this research study (see Chapter 6). Given these potentially confounding factors, it is important to evaluate what impact an intervention will have when implemented in schools by teachers.

The effectiveness evaluation reported in Chapter 4 found that students did acquire a significant increase in their knowledge of the intervention skills, when the intervention was implemented by teachers (when compared to their peers in the control condition). However, no observed changes were seen in any of the cognitive or behavioural factors measured. Variability was observed in the fidelity with which teachers implemented the intervention, along with significant between-class differences on change over time on a number of the cognitive and behavioural factors when comparing intervention classes.

The failure of the effectiveness evaluation to see any significant changes in student cognitions or behaviours suggest that the intervention was not

successful at achieving any of its intended goals. The findings also underscore the important role of individual teacher differences in shaping intervention fidelity. The information gained from this evaluation is valuable, as it helps schools gain a more realistic picture suggesting that the intervention may not always be as effective when implemented by individual teachers in diverse school environments.

Step 3: Evaluation of the student voice. Step 3 of the evaluation process aims to identify whether students see the intervention as being beneficial, when implemented by teachers, and if so in what way. It also looks at how student opinions align and differ. The evaluation of the student voice (reported in Chapter 5) found that the majority of students see the intervention as beneficial for themselves (90%) and for others (96%). The techniques reported by students as being beneficial include:

- skills to identify and challenge unhelpful thinking patterns
- relaxation techniques
- managing emotions
- understanding and coping with anxiety
- helping with everyday problems and challenges.

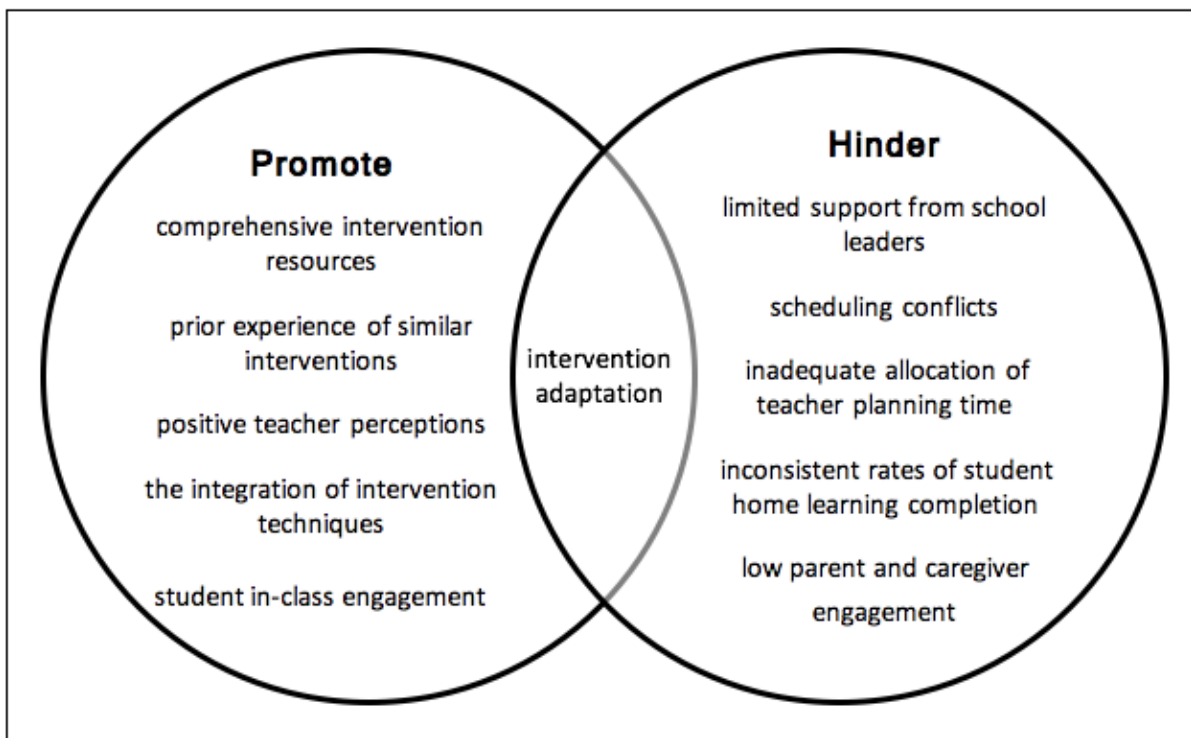
By providing students with the opportunity to freely voice their opinions, evaluations such as this one are able to identify a broader scope of student outcomes than studies only testing predetermined factors using quantitative data collection tools.

Three-quarters of the students in this evaluation provide evidence of integrating intervention skills into their everyday lives. This finding again underscores the potential positive benefit that the intervention is having in the lives of the young participants, and again this is information not identified in the previous two steps of the evaluation process. Moreover, by taking an interpretivist approach, this evaluation was able to identify individual differences among the students' experiences of the intervention. Notably, there was considerable variability in which intervention sessions the students found beneficial. The student voice data captured in this step of the evaluation process therefore provides additional, unique and valuable information,

regarding the wider impact of the intervention in the lives of students who participated.

Step 4: Case study. Step 4 of the evaluation process aims to identify the factors that can promote and hinder the effective implementation of positive psychology interventions. The case study reported in Chapter 6 follows the intervention as it was implemented across four schools by seven teachers. Using a set of data collection techniques (class observations, teacher interviews, parent questionnaires), a number of factors were investigated at various levels (i.e. school-level, teacher-level, student-level; following the DMEE). The results of this evaluation identify five key factors that can promote effective implementation, five factors that can hinder successful implementation, and one factor (intervention adaptation) that could both promote or hinder implementation, depending on the form of modification. These factors are presented in Figure 7.2. By identifying and classifying these factors, this evaluation was able to provide schools with practical recommendations on ways to optimise the implementation of this and other interventions.

Figure 7.2. Factors that were identified in Chapter 6 that can promote and hinder the effective implementation of the intervention in schools.



7.2.2 How can the information gained from this process support the successful dissemination, implementation and maintenance of positive psychology interventions in schools?

When considering each of the evaluation studies reported in this thesis in isolation, they each provide unique and valuable information about a positive psychology intervention. However, when research findings are integrated, they provide a more comprehensive picture of an intervention.

When viewed in isolation, each of the studies utilising quantitative data collection techniques (efficacy and effectiveness studies in Chapters 3 & 4) suggest that the intervention did not have a wide spread positive effect on student outcomes. In fact, aside from the small significant results related to student anxiety and reading when the intervention was implemented by a researcher, these studies found no student outcomes linked to this intervention. These results suggest that the intervention was not successful at changing student thinking styles, behaviours or academic performance in a meaningful way.

When these results are viewed in combination with the student voice data (presented in Chapter 5), however, a different picture emerges. Rather, it appears that the intervention may be having a positive impact on student lives. This impact was found to be non-academic in nature and to vary among individual students. The inclusion of the student voice, therefore, helps to demonstrate the wider scope of potential intervention outcomes. In this case it highlights the benefits of considering other dimensions of an intervention, one that would have otherwise been labelled ineffective, if only the efficacy or effectiveness evaluations were considered in isolation.

By obtaining information about the full range of possible intervention effects reported from a range of perspectives, instead of simply limited results from a single evaluation, a fuller picture of an intervention can be seen. With this more comprehensive information schools will be better able to select positive psychology interventions that meet their unique set of students' needs. It is likely that interventions that are better matched to the needs of a school will have a greater chance of being implemented and maintained effectively over time (Villarreal et al., 2015). As such, by simply providing more comprehensive information about the potential effects of positive psychology

interventions, this four-step evaluation process promises to improve the dissemination, implementation and maintenance of these interventions in schools.

For a positive psychology intervention to be successfully implemented within a school, it first has to be seen as valuable by the school leaders making the decision to take up an intervention. Once a school makes the initial steps towards implementation, the buy-in of the teachers, students and parents /caregivers will then play a key role in shaping how well that intervention is received, implemented and maintained (Baweja et al., 2015; Cefai & Cavioni, 2015). Thus, the initial information provided to a school about an intervention can be crucially important. It is likely that the strong base of scientific-evidence, along with the testimonials from a range of perspectives provided by this evaluative process, will help schools, teachers, students and parents see the value in an intervention and buy-in to the implementation process.

Durlak and DuPre (2008) suggest that “developing effective interventions is only the first step ... transferring effective programmes into real world settings and maintaining them there is a complicated, long-term process” (p. 327). The four-step evaluation process proposed and tested in this thesis sets out to take this next step, by examining the factors influencing the implementation of the positive psychology intervention in a range of schools. As mentioned above, by using varied data sources, the case study reported in Chapter 6 was able to identify eleven factors that were promoting and/or hindering the quality and effectiveness of the intervention. Providing schools with this information will allow them to proactively take measures to promote positive intervention elements and overcome potential barriers, thus optimizing the implementation and maintenance of the intervention.

7.3 Subsidiary Research Question

This thesis had a subsidiary aim to draw conclusions about the intervention designed for this study, based on the cumulative findings of the studies reported in Chapters 3-6. The intervention set out to foster adaptive student cognitions (specifically: self-belief, anxiety, failure avoidance, attribution styles), encourage helpful learning behaviours (specifically:

persistence and self-handicapping), and increase academic achievement (in reading and mathematics). The results of the efficacy and effectiveness evaluations using quantitative data collection techniques (reported in Chapters 3 and 4), only found limited results. Even though students did demonstrate some learning of the intervention skills, these skills did not translate into expected cognitive and behavioural changes. Of the eleven MES-JS factors measured, only a slight change was observed on a measure of student anxiety about school when the intervention was implemented by a researcher. This finding suggests that the intervention did not have the intended impact on student cognitions or behaviours. Similarly, while a significant difference was observed between the intervention and control conditions reading progress when the intervention was implemented by a researcher, follow-up data showed that average reading levels in the intervention condition actually remained stable across the year.

With that said, the student voice data reported in Chapter 5 suggests that the intervention did have a positive impact on many students. A large proportion of students reported finding the intervention beneficial and were able to outline various ways the intervention had helped them manage the ups and downs of everyday life. The findings of this qualitative study, however, do not provide strong enough evidence to make definitive conclusions about the overall impact of the interventions.

The lack of evidence to support the viability of the current intervention may reflect either a limitation of the intervention to promote desired student outcomes and/or a failure of the research design to effectively measure the outcomes linked to the intervention. Both possibilities are considered below.

7.3.1 Factors related to the intervention

The complex multidimensional nature of the intervention may be one factor which led to the high level of nonsignificant results seen in Chapters 3 and 4. Instead of setting out with a single clear aim, this intervention was designed to promote some level of positive change across several domains. In its design as an intervention combining a range of techniques, the intervention set out to provide a varied toolkit from which individual students were expected to embrace and use different elements. It appears that some

students showed small improvements on one or more factors of interest. However, these changes were not enough to show significant results on the quantitative measures used. This could both be due to the small nature of these effects and/or the poor fit between the actual student outcomes and the measurement tools used in these studies.

The complex nature of the intervention may also have impacted on the ability of teachers to implement it effectively. When an intervention teaches a varied set of theories and techniques, it may be difficult for non-experts in the field (such as teachers) to effectively master and then teach all of these skills. In fact, based on the observations made in these research studies, there were a number of instances when teachers were observed to misrepresent intervention ideas or miss nuances which would have likely been clear to trained educational psychologists. Variations among teachers and classes further suggest that some teachers did struggle to teach some skills. While this is a possible factor that negatively impacted the intervention when implemented by teachers (as reported in Chapter 4), it cannot fully explain the limited significant findings associated with the intervention when it was implemented by a qualified psychologist (as reported in Chapter 3).

7.3.2 Factors related to the research design

Poor fit of measurement tools may be one limitation of the research design that resulted in the high level of insignificant results observed in Chapters 3 and 4. In particular the MES-JS was used as a measure of student cognitive and behavioural change. This measure focuses specifically on academic factors related to learning. When student voice data was collected in Chapter 5, however, students reported that the intervention impacted positively on non-academic and life-general factors (such as overcoming stress and other strong emotions, challenging unhelpful thoughts in varied settings, and managing social conflicts). The academic focus of the MES-JS meant that it was not able to pick up the broader changes linked to the intervention. Future research would benefit from conducting a pilot intervention study, using student voice data to elucidate the range of possible student outcomes linked to a new intervention. This information could then be used to

better inform the selection of the quantitative measurement tools used in subsequent efficacy and effectiveness evaluations.

The current intervention was designed to promote intervention skills within both the school and home environment, by engaging teachers and parents in the intervention process. A lack of parental engagement in the current research may have led to the majority of student not receiving the full dosage of the intervention. Differences in the degree to which individual teachers were integrating the intervention techniques in their classrooms may have also led to variations in the actual levels of student exposure. It is possible that a lower level of dosage of the intervention was a contributing factor to the high level of nonsignificant results observed in Chapters 3 and 4. Future researchers should make an effort to increase the level and consistency of all parts of the intervention, across each of the implementation sites.

A final factor to consider relates to the implementation process used in these studies. Bearing in mind the implementation framework developed by Fixsen and colleagues' (2005), it is clear that not enough time was spent in the exploration and installation stages. Given that the current research project aimed to complete the implementation process within a single school year, it is likely that the time allocated may not have been enough to achieve effective implementation. It is possible that if greater time and effort is devoted to these stages (to better assess needs, consider implementation drivers, gauge fit, prepare organisations and staff), this may result in significant improvements in the quality of implementation across both researcher and teacher led interventions.

7.3.3 Wider implications for positive psychology interventions in schools

The current findings have a number of wider implications for positive psychology interventions in schools. Firstly, the results of the efficacy and effectiveness evaluations (reported in Chapters 3 & 4) show that positive psychology school-based interventions can teach students some new skills, both when implemented by a researcher and by primary school teachers. Secondly, the studies show that while positive psychology interventions may not always have significant impacts on targeted student outcomes (as was demonstrated by the high number of non-significant results in Chapters 3 and

4), they may nevertheless have a positive impact in unanticipated ways (as demonstrated in Chapter 5). Thirdly, the observations made in the student voice evaluations (Chapter 5) and case study (Chapter 6) show that both students and teachers responded favourably to the positive psychology intervention and saw benefit from the time invested in the programme. This observation is promising, as it suggests that teachers are open and willing to implement positive psychology interventions in their classrooms, even though they inevitably divert time away from other academic tasks. It also suggests that students are open to engaging in these forms of intervention and are comfortable doing so within a classroom environment. Therefore, while some findings are disappointing, the overall conclusions from this thesis suggest that there is a place for positive psychology interventions in schools and that they have the potential to positively benefit students.

7.4 Limitations

After considering the four studies reported in this thesis, a number of limitations can be identified. One aspect is the research design. This is in part due to the fact that “school-based mental health promotion programmes do not lend themselves easily to the ‘gold-standard’ randomised control, double-blind, objectively assessed approach to evaluation” (Cheney et al., 2014, p. 414). For example, in the current two cluster RCTs reported in this thesis (Chapter 3 and 4), randomization was conducted at the class level. As such, a more complete randomization could not be achieved, since students were already nested within class groups (Collins et al., 2014). Although the studies did achieve moderate sample sizes, the sizes of the intervention and control conditions were slightly uneven. Previous research studies investigating school-based interventions have had similar issues, reporting uneven condition sizes as well (Collins et al., 2014; Haynes Stewart et al., 2011; Horn et al., 2011; Miller et al., 2010). As this may have impacted on the statistical analyses, future research should aim to replicate these studies using a larger sample size and seek to achieve a more even distribution of students in each condition.

The use of a passive control condition, rather than an active attention comparison sample, was a further potential limitation of the current studies.

This decision was based on the ethical dilemma and the reasonable reticence of schools to remove students from learning in the classroom, and to be placed into a control condition. It is possible that the extra attention afforded to students in an intervention condition may be the catalyst for improved student outcomes, rather than the intervention itself. However, when Neil and Christensen (2009) compared studies using passive and attention control conditions, they found little differences between the two control condition forms and study results for universal prevention programs, such as the one reported in this study. Moreover, Fabiano et al. (2014) reason that school-based research is “rarely comparing an intervention to the absence of intervention” (p. 75). Rather they argue that control condition students may be accessing separate supports within the school. Therefore, in the current studies, it is possible that the extra attention provided to the intervention condition and the potential undocumented supports offered the control condition, may have impacted, to some degree, on the study results.

Another possible limitation is the fact that condition randomization occurred at the class-level and not the school-level, with each school having a mix of both intervention and control classes. This decision was based on the advice of Collins et al. (2014) who claim that this method prevents school differences from confounding student outcome results. By having both conditions within a single setting, however, it is possible that information may be shared across conditions, therefore contaminating the control group (Kwok et al., 2016). Such concerns result in some researchers conducting randomization at the school-level (Roberts et al., 2010; Shoshani & Steinmetz, 2014; Vickery & Dorjee, 2016), despite Collins et al. (2014) warning of school level differences. Given the limitations of both randomization strategies, there is no clear guide as to which approach is optimal.

The intervention investigated in the current evaluations was a universal programme implemented with whole class groups. This may have been a disadvantage to the current studies, making it more difficult to achieve significant results. Challen et al. (2014) posit that “it is common for universal prevention programmes to find smaller impacts than targeted programmes” (p. 85) reasoning that “students without many symptoms ... do not have much room for improvement” (p. 86). In a similar vein Miller et al. (2010) suggest that

studies of universal interventions need very large sample sizes to observe meaningful outcomes. As such, researchers have been arguing for a shift in the way universal interventions are statistically analysed. Intervention outcomes with small effect sizes may be more meaningful in these contexts, as when many people receive a small benefit, the resulting total benefit could be large (Fabiano et al., 2014; Wyn, Cahill, Holdsworth, Rowling, & Carson, 2000). Using this reasoning, the small personal benefits that the students reported in Chapter 5, may represent a strong intervention outcome, given the proportion of students who reported benefitting in some way from the intervention.

A number of measurement issues may have impacted on the results reported in these studies. Concerns with the validity of some of the academic assessment data collected in the study reported in Chapter 4, resulted in this data being removed from the analysis. It was unclear what caused this issue, although possible explanations include: students rushing, student disengagement or technical difficulties. Another measurement issue involves the knowledge of the intervention skills questionnaire created for this research project. The average reliability estimates for this questionnaire were reported to be low (Chapter 3: $\alpha=0.66$; Chapter 4: $\alpha=.52$). However, this may have been influenced by the fact that this questionnaire was measuring broad constructs with a short scale, as both these factors make it more likely for reliability estimates to be low (Peters, 2014). Additionally, the results of these studies were weakened by the lack of additional student outcome data from other sources (such as teachers or parents). Although the studies attempted to engage parents and caregivers in the research, questionnaire completion rates were deemed too low to conduct meaningful statistical analyses. While it is often difficult to engage parents in research (Gillham et al., 2006), parental-report data does offer a valuable additional perspective to self-report data alone (e.g. Roberts et al., 2010) and should be prioritised in future research.

The current research project would have been strengthened by measuring student outcomes over a longer follow-up period. Many researchers believe that it takes time for new ways of thinking to be internalised and for intervention techniques to be integrated into everyday life (Boyle et al., 2011;

Gearing et al., 2013; Yeo et al., 2016). Thus, when post-intervention measures are administered too soon after an intervention, results may underestimate an intervention's true long-term impact (Miller et al., 2010). Moreover, it is assumed that the effects of an intervention are greatest three years after implementation (Bradshaw et al., 2009). In part, this is due to the improvement in teachers' skills over time, as they gain more experience implementing the intervention (Challen et al., 2014). Future research, using a longitudinal study spanning over a few years, should help develop a better understanding of the full impact of this intervention.

The focus on the individual student-level is a further limitation. The intervention implemented in the current research project focuses predominantly on promoting change in individual students. Some initiatives undertaken did encourage teachers and parents to support the intervention by integrating intervention skills into the classroom and at home. However, no efforts were made to engage the wider school community. Such a limited research approach can be criticised for failing to do more to engage the wider context within which students develop (Bodkin-Andrews, O'Rourke, & Craven, 2010; Lomas, 2015; Madden et al., 2011). Weissberg et al. (2003) posit that "although some well-designed, child-focused programmes may yield short-term positive effects, it is important to remember that young people grow up in families, schools, and neighbourhoods, not in programmes" (p. 429).

7.5 Directions for Future Research

Many of the findings and observations made in the course of this research project have identified areas worthy of future research attention. Given the demonstrated value of the four-step evaluation process, future research should prioritise using this process to evaluate other positive psychology school-based interventions. This process of evaluation could also be extended to other forms of school-based intervention (such as academic and behavioural) to identify whether the information gained from this process could also support the dissemination, implementation and maintenance of other kinds of interventions.

Taking into account the individuality of student needs and their developmental trajectories, interventions of the future may need to move

towards a new form of intervention along the lines of Martin's (2016) *Motivation and Engagement Workbook*. Martin's programme is made up of eleven modules directly mapping the cognitive and behavioural factors of the *Motivation and Engagement Wheel* (Martin, 2009). While the programme can be implemented in its entirety, it can also be tailored to the specific needs of individual students or groups. By examining the profiles of a student or group of students, using the Motivation and Engagement Scale (Martin, 2014), teachers and psychologists are able to select and present specific programme modules to address identified areas of need. Future research should also focus on developing ways for tailoring more positive psychology school-based interventions to the needs of students, classes and schools.

The current research identified a number of instances when individual student, teacher and class differences impacted on the implementation and effectiveness of the intervention. Future researchers evaluating positive psychology interventions in schools should record the different forms of variability within populations being measured, in order to develop a better understanding of how individual differences impact on an intervention. Specifically, when studying intervention implementation, future researchers should aim to better understand how between-teacher differences shape the quality of implementation. While implementation does not have to be perfect for interventions to have a positive impact on student outcomes, it does have to be good enough (Durlak, 2015). More research is needed to better understand the threshold for "good enough" implementation, and how teachers are able to reach and/or exceed it.

The case study reported in Chapter 6 identifies a number of factors promoting and/or hindering the effective implementation of the intervention across four Australian primary schools. Future research should look to understand if these factors are the same across different settings, countries, and interventions. More research in this area will be instrumental in not only developing new and improved interventions, but also in improving the effectiveness with which existing interventions are being implemented in schools across the globe.

Chapter 8: Conclusion

Positive psychology interventions promise to redefine how student wellbeing and mental health are supported within schools. For that to happen, researchers need to look at improving the way interventions are evaluated, combining information from a range of perspectives when an intervention is implemented under varied conditions. This thesis proposed a new four-step process of evaluating positive psychology interventions in schools (efficacy evaluation, effectiveness evaluation, evaluation of the student voice, and case study).

Individually, each separate evaluative step of this process was shown to provide unique and valuable information about the intervention investigated.

- **Step 1:** Efficacy evaluation

The efficacy evaluation identified student outcomes linked to the intervention when it was implemented under controlled research conditions by a researcher.

- **Step 2:** Effectiveness evaluation

The effectiveness evaluation identified student outcomes linked to the intervention when it was implemented by teachers under real world conditions.

- **Step 3:** Evaluation of the student voice

The evaluation of the student voice identified student perspectives on the intervention to identify the range of student outcomes and differences between individual student experiences.

- **Step 4:** Case study

The case study identified a range of factors that promoted and hindered the effective implementation of the investigated intervention, looking at a range of factors at the school-, teacher-, and student/parent-level.

When the evaluations from this four-step process are taken together, the combination of the varied research approaches and perspectives provides a comprehensive evaluation that promises to support the successful dissemination, implementation and maintenance of the intervention. Taken together this set of evaluations offers a comprehensive picture of student effects. Providing schools and researchers with this comprehensive picture of intervention effects will likely lead to a more realistic understanding of an interventions true effects, facilitating increased buy-in from schools, teachers, students and parents. Further, by identifying factors that promote and hinder the quality and effectiveness of the intervention, this evaluation promises to facilitate optimal intervention implementation by allowing for proactive measure to be made to promote positive intervention elements and overcome potential barriers.

The findings of this thesis should encourage future researchers developing positive psychology school-based intervention to begin using a more comprehensive system of evaluation, such as the one presented here. Schools should also come to expect the provision of more comprehensive information about any positive psychology interventions being marketed to them. Schools should begin prioritizing interventions that provide clear evidence of how an intervention can meet the unique needs of their students, as well as an outline of the ways implementation can be optimised.

Appendix A: Ethical Approval Documents

Document 1: University of New England Human Research Ethics Committee



Ethics Office
Research Development & Integrity
Research Division
Armidale NSW 2351
Australia
Phone 02 6773 3449
Fax 02 6773 3543
jo-ann.sozou@une.edu.au
www.une.edu.au/research-services

HUMAN RESEARCH ETHICS COMMITTEE

MEMORANDUM TO: Dr Chris Boyle & Ms Alicia Chodkiewicz

School of Education

This is to advise you that the Human Research Ethics Committee has approved the following:

PROJECT TITLE: Believing you can is the first step to achieving: An attribution program to foster resilience and optimism among students

APPROVAL No.: HE14-134

COMMENCEMENT DATE: 05 May, 2014

APPROVAL VALID TO: 14 December, 2017

COMMENTS: Nil. Conditions met in full

The Human Research Ethics Committee may grant approval for up to a maximum of three years. For approval periods greater than 12 months, researchers are required to submit an application for renewal at each twelve-month period. All researchers are required to submit a Final Report at the completion of their project. The Progress/Final Report Form is available at the following web address:
<http://www.une.edu.au/research/research-services/rdi/ethics/hre/hrec-forms>

The NHMRC National Statement on Ethical Conduct in Research Involving Humans requires that researchers must report immediately to the Human Research Ethics Committee anything that might affect ethical acceptance of the protocol. This includes adverse reactions of participants, proposed changes in the protocol, and any other unforeseen events that might affect the continued ethical acceptability of the project.

In issuing this approval number, it is required that all data and consent forms are stored in a secure location for a minimum period of five years. These documents may be required for compliance audit processes during that time. If the location at which data and documentation are retained is changed within that five year period, the Research Ethics Officer should be advised of the new location.

A handwritten signature in black ink, appearing to read 'Jo Sozou'.

Jo-Ann Sozou
Secretary/Research Ethics Officer

Document 2: Public schools NSW state education research approvals process



Ms Alicia Chodkiewicz
22 Bradford Street
SYDNEY NSW 2041

CORP14/42102
DOC14/514868
SERAP 2014176

Dear Ms Chodkiewicz

I refer to your application to conduct a research project in NSW government schools entitled *Believing you can is the first step to achieving*. I am pleased to inform you that your application has been approved. You may contact principals of the nominated schools to seek their participation. You should include a copy of this letter with the documents you send to schools.

This approval will remain valid until 23 October 2015.

The following researchers or research assistants have fulfilled the Working with Children screening requirements to interact with or observe children for the purposes of this research for the period indicated:

Name	Approval expires
Alicia Roma Chodkiewicz	20/03/2017.

I draw your attention to the following requirements for all researchers in NSW government schools:

- School principals have the right to withdraw the school from the study at any time. The approval of the principal for the specific method of gathering information must also be sought.
- The privacy of the school and the students is to be protected.
- The participation of teachers and students must be voluntary and must be at the school's convenience.
- Any proposal to publish the outcomes of the study should be discussed with the research approvals officer before publication proceeds.

When your study is completed please email your report to: serap@det.nsw.edu.au.

You may also be asked to present on the findings of your research.

I wish you every success with your research.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Susan Harriman'.

Dr Susan Harriman
Leader, Quality Assurance Systems
24 October 2014



Policy, Planning and Reporting Directorate
NSW Department of Education and Communities
Level 1, 1 Oxford Street, Darlinghurst NSW 2010 - Locked Bag 53, Darlinghurst NSW 1300
Telephone: 02 9244 5060 - Email: serap@det.nsw.edu.au

Appendix B: Supplementary Tables

Table B1. An outline of each session of the intervention

Session	Topics
1	<p>Aim: Identifying feelings and learning about the link between thoughts, feelings and actions.</p> <p>Overview of topics addressed:</p> <ul style="list-style-type: none">• Labelling emotions• The connections between thoughts and emotions• The thoughts → feelings → actions pathway <p>Activities: class discussions, individual workbook activities, miming, home learning</p>
2	<p>Aim: Learning to discriminate between helpful and unhelpful thinking patterns, specifically related to learning situations.</p> <p>Overview of topics addressed:</p> <ul style="list-style-type: none">• Categorise thoughts → feelings → actions pathway as helpful or unhelpful• Identify unhelpful thoughts that act as obstacles to learning (i.e. I can't do maths)• Reframe unhelpful thoughts about learning <p>Activities: class discussions, individual workbook activities, game, story, home learning</p>
3	<p>Aim: Understanding the relative nature of success and failure, and learning to discriminate between helpful and unhelpful attribution explanations.</p> <p>Overview of topics addressed:</p> <ul style="list-style-type: none">• The subjective nature of success and failure• Ways we can learn from our mistakes and failures• Categorise attributions as helpful or unhelpful• Reframe unhelpful attributions following success or failure <p>Activities: class discussions, individual workbook activities, game, home learning</p>

-
- 4** **Aim:** Learning how to identify thoughts that are untrue or distorted.

Overview of topics addressed:

- In a situation, different people have different thoughts (also a single person can have multiple thoughts)
- It is the thought in response to the situation that influences your behaviour, not the situation itself
- Discuss how sometimes thoughts can lie
- Introduce thinking traps (must be perfect, always & never monsters, fortune telling, mind reading, making it big/small)
- Practise identifying thinking traps

Activities: class discussions, individual workbook activities, videos, role plays, home learning

- 5** **Aim:** Education on anxiety, including showing students how to identify unhelpful thinking patterns that are linked to anxiety and encouraging the use of coping mechanisms.

Overview of topics addressed:

- Define anxiety
- The natural purpose of anxiety in dangerous situations (the flight or fight response)
- Categorise unhelpful anxiety (i.e. not dangerous)
- Symptoms of anxiety and why anxiety can be bad for you
- Ways to cope with anxiety

Activities: class discussions, individual workbook activities, game, home learning

- 6** **Aim:** Developing problem solving skills by reframing the way students approach a problem and choose a solution.

Overview of topics addressed:

- Introduce various strategies to solve academic problems
 - Introduce a problem solving process (reframing the problem, identifying 3 solutions, evaluating solutions etc.)
 - Practise applying the process to various problems
-

Activities: class discussions, individual workbook activities, game, group work, home learning

- 7 **Aim:** Encouraging positive mindset by teaching ways to promote helpful thinking by using three super powers.

Overview of topics addressed:

- Introduce three super powers (Check -, Stop-, and Change – that thought)
- Design own super hero
- Practise using super powers in problem situations

Activities: class discussions, comics, role plays, home learning

- 8 **Aim:** Introduce various forms of relaxation techniques with a focus on being in the present moment.

Overview of topics addressed:

- Introduce deep breathing techniques
- Introduce muscle relaxation techniques
- Introduce visualisation techniques

Activities: class discussions, relaxation activities, home learning

- 9 **Aim:** Reflection on personal strengths is paired with an activity on goal setting in which students are asked to imagine their best possible self.

Overview of topics addressed:

- Identify personal strengths
- Compare the personal strengths one identifies about themselves and the strengths identified by others
- Setting future goals and identifying the steps needed to reach them
- Programme review

Activities: class discussions, individual workbook activities, creating a personal strengths shield

Table B2. The eleven factors measured by the Motivation and Engagement Scale – Junior School

Adaptive cognitions	
Self-efficacy	A student's belief in his/her own ability to perform well academically
Valuing of school	A student's belief that school is important and useful
Mastery Orientation	To what degree a student is motivated towards learning and skill development
Adaptive behaviours	
Planning	How well a student plans and manages the time spent on school tasks
Task management	How well a student is able to monitor and modify their learning behaviours to most effectively engage in learning opportunities
Persistence	How much a student continues to persist at a task in the face of difficulty
Maladaptive cognitions	
Anxiety	The degree to which a student worries about schoolwork and academic assessments
Failure avoidance	To what degree the fear of failure motivates a student's academic goals
Uncertainty control	To what degree a student feels failure is certain and uncontrollable
Maladaptive behaviours	
Self-handicapping	The degree to which a student engages in behaviours that reduces the chance of academic success
Disengagement	The degree to which a student is disinterested in school and learning

Table B3. Teacher fidelity ratings for correct and varied implementation across sessions for individual teachers.

Teacher	1st observed session		2nd Observed Session		3rd Observed Session		4th Observed Session	
	<i>Correct</i>	<i>Variation</i>	<i>Correct</i>	<i>Variation</i>	<i>Correct</i>	<i>Variation</i>	<i>Correct</i>	<i>Variation</i>
1	63	33	40	40	58	33		
2	86	0	67	33	75	25	100	0
3	100	0	75	25	100	0		
4	60	40	87	0				
5	100	0	100	0	100	0		
6	85	14	100	0				
7	75	15	80	10				

Appendix C: Example Intervention Session

Teacher Manual Excerpt: Session 2

SESSION TWO

Helpful and Unhelpful Pathways

Goals of the Session:

This session aims to teach students about the importance of thoughts by demonstrating how helpful and unhelpful thought pathways can lead to positive and negative behaviours.

What you need for the Session:

- 'Thought Pathways' printed on half A4 sheets (2.2a)
- 'HELPFUL' & 'UNHELPFUL' targets (2.2b).
- Blank A4 piece of paper cut in half
- I HATE/LOVE MATHS (2.5)

Outline of Session 2:

- 2.1 Review of activities practised at home
 - 2.2 Categorising helpful and unhelpful thoughts, feelings, action sequences
 - 2.3 Helpful and unhelpful thoughts target game
 - 2.4 Identifying cognitive obstacles to learning
 - 2.5 I love/hate maths
 - 2.6 Relating thoughts, feelings, actions sequence to the school setting
 - 2.7 Activities to practise at home.
-

2.1 Review of activities practised at home

Discussion: Start the session by asking the students if they enjoyed the first session and revise the topics covered (labelling feelings and the link between thoughts, feelings and actions). Go over the home learning, allowing students to read examples to the class and have a discussion about what students may have found difficult when trying to guess other people's thoughts.

Make a point to mention to students that while it may be fun to try and guess other people's thoughts, you can never really know what someone else is thinking unless you ask them.

2.2 Categorising helpful and unhelpful thought-feelings-action sequences

Workbook: At this stage we begin to look at how some thoughts can be more helpful than others. Helpful thoughts are those that lead to positive emotions and actions that help us achieve our goals. Read through **page 6** (Acting in helpful & unhelpful ways) of the Workbook with the class.

Thought	Feeling	Action
"I'm good at football"	confident	try hard and have fun

Noting that because the boy is already having fun and because he is trying his best there is more chance that his team will win the game.

Unhelpful thoughts, on the other hand, cause us to feel negative emotions and lead to unhelpful behaviour, such as giving up or missing out on activities. Once again read through the example on **page 6** of the Workbook.

Thought	Feeling	Action
"We will never win this game"	disappointed	don't try your best

Noting that the boy is already feeling disappointed before he even started playing the game, so he is unlikely to have fun. Also by not trying very hard, he might actually make his team lose. So it was actually the unhelpful thought that caused the bad outcome. This can be a self-fulfilling prophecy.

Continue reading through the WATCH OUT box with the class

"HELPFUL THOUGHTS are NOT just about being positive"

Discussion: It is not good to believe that you can do everything. For example, if I thought that I could fly, and tried to jump off the roof, that would not be very helpful. There are clearly things that we cannot do or maybe things that we still need some time to learn or some extra help to achieve.

"HELPFUL THOUGHTS are realistic thoughts that help you to recognise your strengths and find ways to overcome difficulties to reach your goals."

It is also important that helpful thoughts are realistic, as believing falsely that 'I can win every game' will inevitably lead to disappointment. A more helpful thought would be: 'I think I have the ability to win this game, but I can't win all the time and I can still have fun even if I don't win.'

2.3 Helpful and unhelpful thoughts target game

Activity: This activity uses the 'Thought Pathways' (Supplementary material 2.2a) and the two targets labelled 'helpful thoughts' and 'unhelpful thoughts' (Supplementary material 2.2b). The two targets should be stuck up on the wall or on the board (more targets can be made when classes are large so that multiple students can simultaneously participate).

Students are to form a line, approximately 1 metre in front of the target. Each student should read aloud the pathway written on his piece of paper and decide if the pathway is helpful or unhelpful. The student should then scrunch the piece of paper into a ball and throw it at the corresponding target.


Next, give each student a half A4 piece of paper and ask each one to write a helpful or unhelpful thought → feeling → action. Then collect these and randomly divide them between the students. The students are then given the opportunity to play the game again with the new pathways.






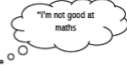


2.4 Identifying cognitive obstacles to learning










Workbook: We are now looking to link the work we have done to school and learning. Using the example on page 7 (How does this all relate to my learning?) of the Workbook discuss with the students how our thoughts about a maths problem can impact on how we feel and what we do. Highlight how the helpful pathways lead to more helpful behaviours.



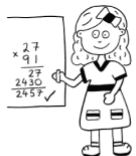


2.5 I Love/Hate Maths

READ: With the class, read through the book "I Hate/Love Maths" (Supplementary material 2.5). Ask the students what they think the book is trying to teach them. Also see if they can identify how the girl's thoughts changed her feelings and behaviour. Noting that her

<p>BELIEVING YOU CAN</p> <p>Is the first step to</p> <p>ACHIEVING</p>	<p>LOVE</p> <p>I HATE MATHS</p>  <p>Alicia Crockiewicz</p>
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<p>Lucy loves school</p>  <p>She loves painting in art</p> 	<p>And playing instruments in music</p>  <p>And reading books in the library</p> 	<p>But one thing about school that Lucy hates is...</p> <p>MATHS</p>  <p>She found maths hard, she didn't often get the right answers, and she got low grades</p>	<p>Lucy thought:</p>   <p>Lucy felt: sad, hopeless and unmotivated</p> 
---	---	---	--

<p>Lucy did: not try in class</p>  <p>and did not do her maths homework</p> 	<p>One day the teacher was worried about Lucy</p>  <p>She told Lucy that it is important to think positively about maths because...</p> <p>BELIEVING YOU CAN is the first step to ACHIEVING</p> 	<p>The next day, Lucy decided to think positively...</p>  	<p>Lucy thought:</p>   <p>Lucy felt: happy, hopeful and motivated</p> 
--	---	---	--

<p>Lucy did: try in class, even on the tricky questions</p>  <p>and she did all of her maths homework</p> 	<p>The more positive thoughts Lucy had the more effort she made with maths and the more her maths skills and grades improved</p> 	<p>At the end of the year, the teacher asked Lucy</p> <p>What do you love about school?</p> 	<p>Lucy replied:</p> <p>I love painting in art I love playing instruments in music I love reading in the library and</p> <p>I LOVE MATHS</p> 
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grades did not change immediately, but over time as she started putting more effort into her work.

2.6 Relating thoughts, feelings, actions sequence to the school setting

Workbook: Now is a chance for students to practice making their own pathways. Ask students to look at the two scenarios presented on **page 8** of the Workbook. Students should then replace the unhelpful thoughts with more helpful ones, and writing down the feelings and actions that would follow. If there is time remaining, students could be given the chance to share their work with the rest of the class.

2.7 Activities to practise at home

Point out that it is not always easy to think of helpful thoughts, especially when something bad has happened. That is why it is good to have some examples of helpful thoughts already prepared.

For the first home learning activity '**My Helpful Thoughts**', students cut out the thought boxes and glue the helpful ones into the thought bubbles. Warn the students to watch out, as not all the thoughts are helpful. There will be two empty thought bubbles for students to write in helpful thoughts of their own.

The second home learning activity, '**Is my thinking helpful**', gives students the chance to search for helpful and unhelpful thought pathways in their own lives.

Integrating the ideas into the classroom

Evaluating thoughts

Students should be encouraged to identify their thoughts as either helpful or unhelpful. A poster has been included at the end of this chapter that can be displayed around the classroom.

The best way for you to encourage the use of this vocabulary is to use it yourself.

For example:

"I am thinking that our class is going to perform well at assembly today, that is a very helpful thought"

Encouraging helpful thoughts

If a student is showing signs of low motivation, ask them about their thought at the time and ask or assist them to find a more helpful one to use in that situation. A "Helpful Thoughts Poster" can be found at the end of this chapter or one can be made up by the students and displayed around the classroom to help students quickly identify helpful thoughts when needed.

BELIEVING YOU CAN

is the first step to

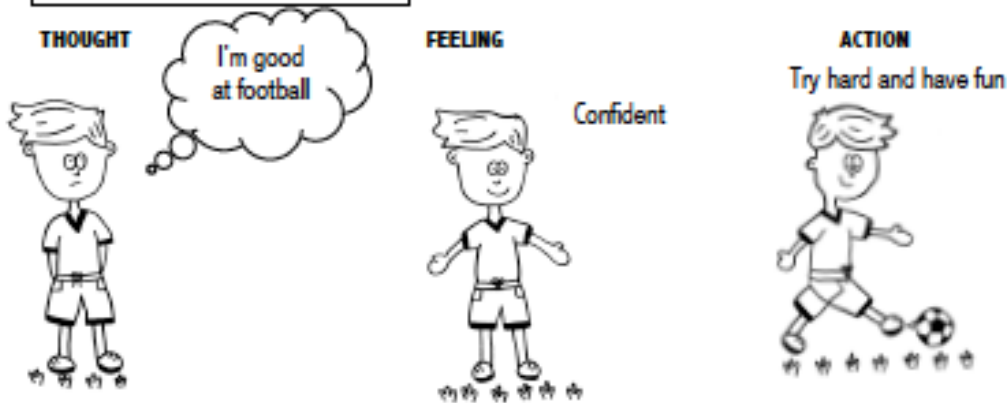
ACHIEVING

2

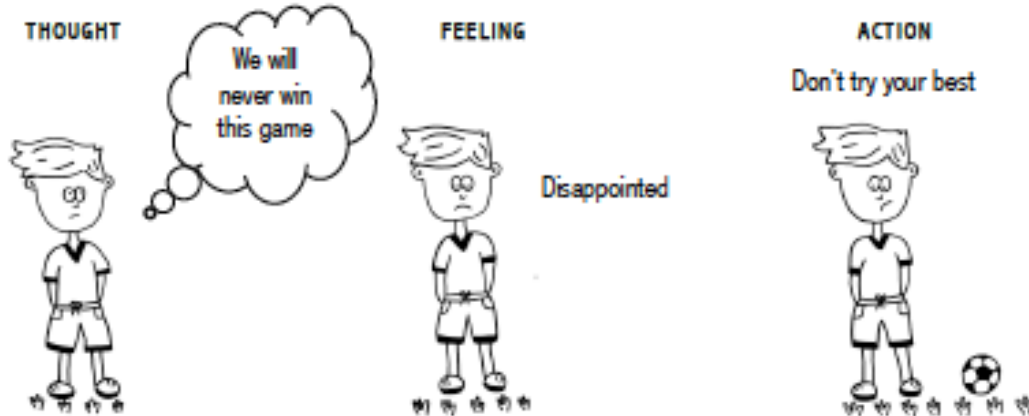
ACTING IN HELPFUL & UNHELPFUL WAYS

How we think effects how we act. So if we think HELPFUL or UNHELPFUL thoughts we will act in HELPFUL or UNHELPFUL ways.

HELPFUL:



UNHELPFUL:



WATCH OUT

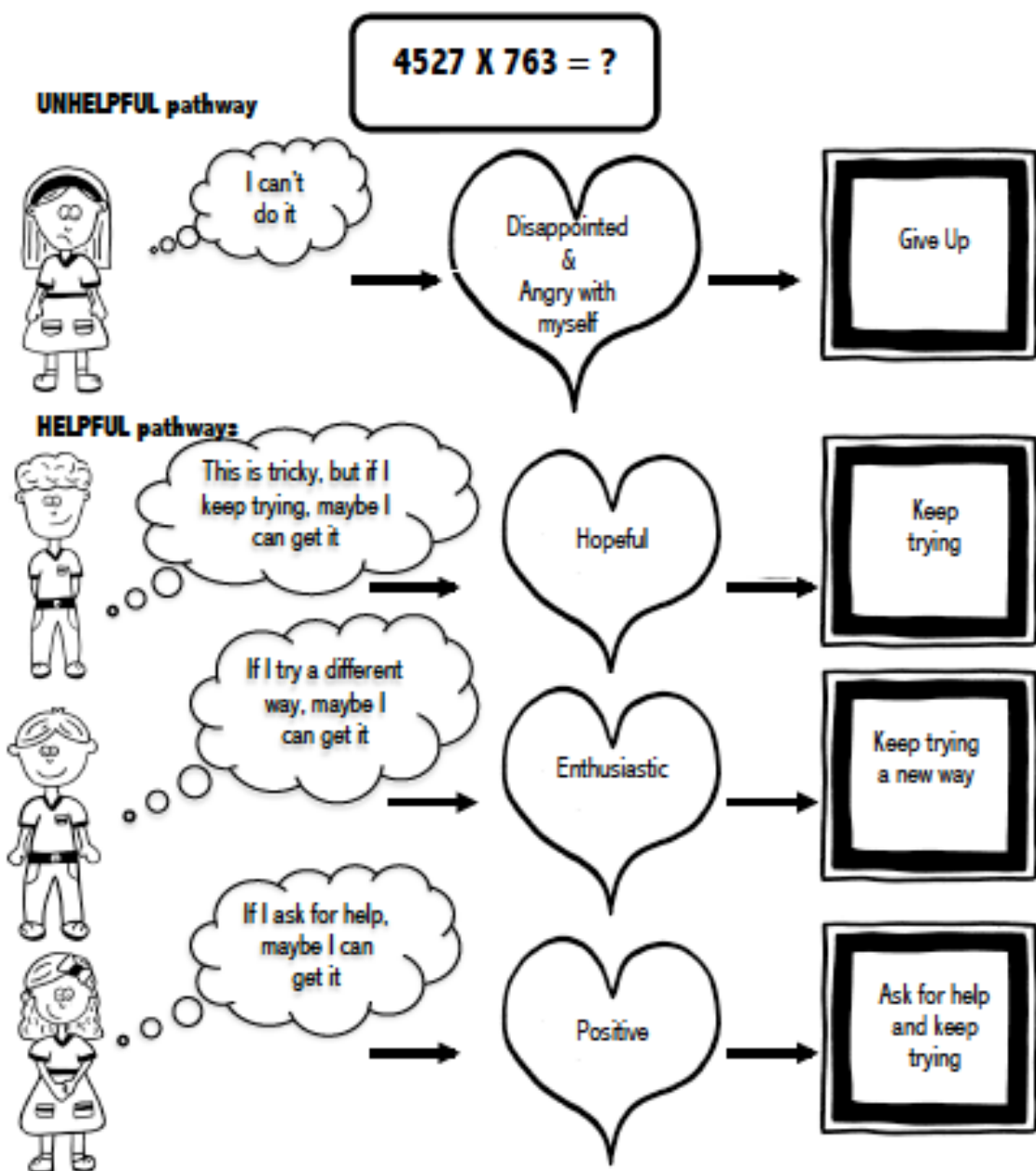
HELPFUL THOUGHTS are NOT just about being positive

HELPFUL THOUGHTS are realistic thoughts that help you recognise your strengths and find ways to overcome difficulties to reach your goals

HOW DOES THIS ALL RELATE TO MY LEARNING?

There are lots of times at school or at home when you might have HELPFUL or UNHELPFUL thoughts. These shape how you learn.

What pathways might occur when you are trying to learn something new?

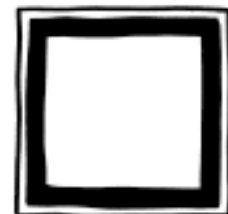
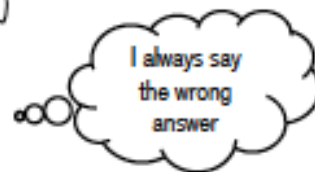
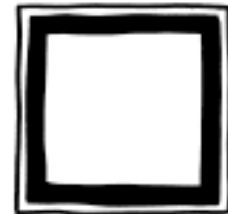
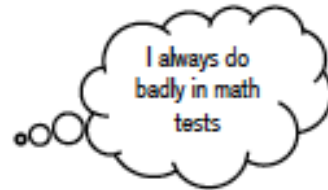
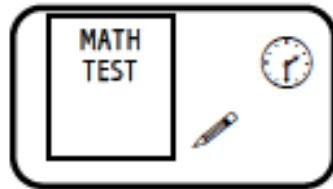


BELIEVING YOU CAN

is the first step to

ACHIEVING

Replace these UNHELPFUL thoughts with more HELPFUL ones, and fill in the feeling and action as well.



Student Home Learning Excerpt: Session 2

BELIEVING YOU CAN is the first step to **ACHIEVING**

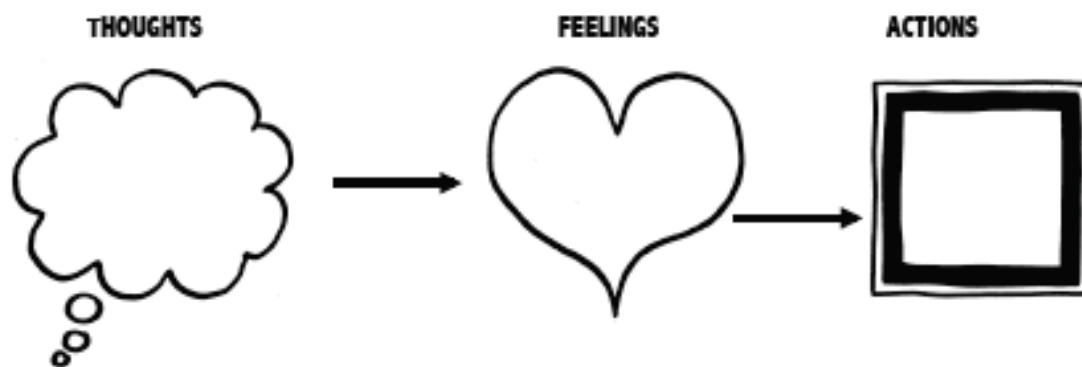
IS MY THINKING HELPFUL?

Fill in 1 HELPFUL and 1 UNHELPFUL thought → feeling → action pathway based on your experiences OR make one up.

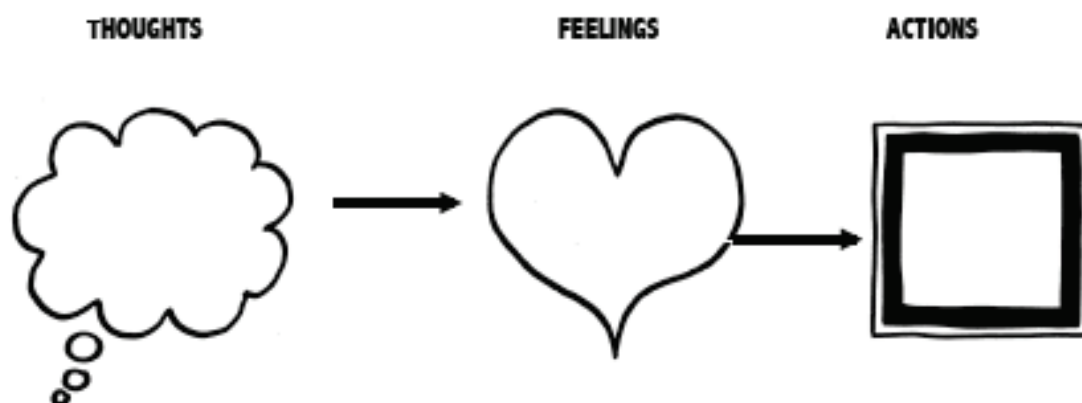
Also think of some more helpful thoughts that we can add to our Helpful Thoughts page.



I had a HELPFUL thought



I had an UNHELPFUL thought



BELIEVING YOU CAN

is the first step to

ACHIEVING

Cut out the HELPFUL thoughts and stick them in the thought bubbles on the page above. Fill in any empty thought bubbles with your own helpful thoughts

BE CAREFUL: Not all the thoughts are HELPFUL



I have fun even if I don't win

I'm just going to give up

I will do better next time

It's too hard

I always fail and always will

I have friends who care about me

Nobody likes me

I have lots of good qualities

It is ok to ask for help

If I put my mind to it, I can do it

I am a good person

I'm not good at it, so why try

**ACTIVITIES TO PRACTICE WHAT YOU HAVE LEARNT
MY HELPFUL THOUGHTS**



Appendix D: Knowledge of Intervention Skills Measure

Example of the Questionnaire

Knowledge of Intervention Skills

You are going to be asked a few questions. This is not a test, so you will not get a mark for getting answers right or wrong. Some of the words you might not have heard before, or some of the questions you might not understand. Just give the best answer you can or skip that question and go on to the next.

Name: _____ Class: _____

Put these in the order that they occur. (write the numbers 1, 2,3 in the boxes)

Feeling Thought Action

Imagine you just came third place in a running race

Write ONE helpful thought you could have

Write ONE unhelpful thought you could have

Write two examples of thinking traps (ways that your thoughts can lie to you)

Imagine that you have just done really well at something and you feel like a success.

Which TWO of these reasons are UNHELPFUL?

- I am good
 - It was easy
 - I tried different strategies
 - I was lucky
-

Now imagine that you have just done really badly at something and you feel like a failure.

Which TWO of these reasons are HELPFUL?

- I gave up too quickly
- The teacher hates me
- I was unlucky
- When I had a problem I didn't ask for help

Why can anxiety be helpful?

Why can anxiety be unhelpful?

When trying to solve a problem, which one of these would be the best way?

- Do the first thing that you think of
- Think of different possible solutions then choose the best one
- Think carefully about one really good solution

Write the names of the three super powers to defeat unhelpful thoughts.

Here is an explanation of one relaxation technique:

Deep Breathing is when you take deep breaths in and out. By breathing slowly and concentrating on your breaths it helps you relax. It sometimes helps to count your breaths, 1 - 2 - 3

Choose one of these relaxation forms and write your own short explanation

- Muscle Relaxation
 - Guided Imagery
-

Table D1. Example of marking criteria and student responses

Q1. Put these in the order that they occur:

Correct response: 1. Thought 2. Feeling 3. Action

Q2. Imagine you just came third place in a running race

Write One helpful thought you could have

Criteria:

- Needed to be a thought, not a feeling
- The thought needed to be linked to a possible helpful feeling (i.e. pride) or helpful action (i.e. trying)

Examples of correct responses

- I did very well.
- Maybe I can do better next time.
- I tried my best and gave it my all and that's all I can ask for.

Examples of incorrect responses

- Happy
- I didn't win so I am horrible
- Fall down

Q3. Write ONE unhelpful thought

Criteria:

- Needed to be a thought, not a feeling
- The thought needed to be linked to a possible unhelpful feeling (i.e. shame) or unhelpful action (i.e. giving up)

Examples of correct responses

- That was terrible, you are a bad runner
- I'm the worst
- I didn't win, it's the end of the world!

Examples of incorrect responses

- Sadness
 - I would be happy
 - I can do it
-

Q4. Write two examples of thinking traps

Correct responses:

- Making it Big
- Making it Small
- Have to be Perfect
- Mind Reading
- Fortune Telling
- Always and Never Monsters

Examples of incorrect responses

- Acting before you think
- I think I am great at everything but I am really not
- If I write the wrong answer and think it's right

Q5. Imagine that you have just done really well at something and you feel like a success.

Which TWO of these reasons are UNHELPFUL

Correct responses:

- It was easy
- I was unlucky

Q6. Now imagine that you have just done really badly at something and you feel like a failure.

Which TWO of these reasons are HELPFUL?

Correct responses:

- I gave up too quickly
- When I had a problem, I didn't ask for help

Q7a. Why can anxiety be helpful?

Criteria:

- Helps in dangerous situations (life threatening)
-

Examples of correct responses

- It can steer you away from dangerous situations
- To warn you of something dangerous
- It keeps you safe

Examples of incorrect responses

- It can make you make an effort (e.g. test)
- Anxiety is never helpful
- It could build up confidence

Q7b. Why can anxiety be unhelpful?

Criteria:

- Hinders performance in non-dangerous situations (non-life threatening)
- Causes lots of worries
- Stops you from enjoying or taking part in fun activities

Examples of correct responses

- You could be scared of something that won't harm you
- Stops you from doing things that are fun or safe
- It can make you stressed and it can cause panic if you are doing a test

Examples of incorrect responses

- It can be a thinking thought
- When you know you're not good at something and your anxiety agrees
- Something sad

Q8. When trying to solve a problem, which one of these would be the best way?

Correct response:

- Think of different possible solutions then choose the best one

Q9. Write the name of the three super powers to defeat unhelpful thoughts

Correct responses:

- Check that Thought
- Stop that Thought
- Change that Thought

Examples of incorrect responses

- Self confidence
 - Super strength
 - Just do it!
-

Q10. Here is an explanation of one relaxation technique:

Deep Breathing is when you take deep breaths in and out. By breathing slowly and concentrating on your breaths it helps you relax. It sometimes helps to count your breaths, 1 – 2 – 3...

Choose one of these relaxation forms and write your own short explanation.

Muscle Relaxation

Correct responses can include:

- Focusing on different parts of the body
- Tense/squeezing then letting go
- Imagining a nut

Examples of correct responses

- When you slowly turn yourself to jelly, relaxing each of your muscles separately and slowly
- Muscle relaxation is squeeze your muscles and then relax them
- You squeeze all your muscles like cracking a nut

Examples of incorrect responses

- Do yoga
- By resting and doing nothing
- Massage

Guided Imagery

Correct response can include:

- Imagining another place
- Going to a safe place
- Visualising a beach

Examples of correct responses

- Imagine a calm relaxing beach
- Think about a peaceful place
- Imagine you are somewhere you are not

Examples of incorrect responses

- Someone that can help you to relax
 - Deep breathes
 - Helps me calm down
-

Appendix E: Student Questionnaire

Example of the Student Questionnaire

Did you learn anything useful or helpful in the *Believing You Can is the first step to Achieving* program?

Tick the lessons you enjoyed and/or found helpful
(you can choose more than one)

- Thoughts – Feelings - Actions
 - Helpful & Unhelpful Thoughts
 - Success and Failure – Reasons Why?
 - Thinking Traps
 - Anxiety
 - Problem Solving
 - Super Powers
 - Relaxation
 - Personal Strengths / Best Possible Self
 - I didn't take part in the program
-

Have you used any of the skills you learnt in the *Believing You Can is the first step to Achieving* program? If yes, when did you use them?

Do you think students at other schools should learn the *Believing You Can* program?

Student Response: Example 1

Research June 2016 – Assessments # 2

Did you learn anything useful or helpful in the Believing You Can program? If yes, please explain.

yes, Because it taught me about what you can do when you are in trouble. Giving examples of success success and failure.

Tick the lessons that you enjoyed or found helpful
(you can choose more than one)

- Thoughts - Feelings - Actions
 - Helpful & Unhelpful thoughts
 - Success and Failure - Reasons WHY?
 - Thinking Traps
 - Anxiety
 - Problem Solving
 - Super Powers
 - Relaxation
 - Personal Strengths / Best Possible Self
 - I didn't take part in the program
-

Have you used any of the skills you learnt in the Believing You Can program? If yes, when did you use them?

I used the different strategies in maths.

Do you think students at other schools should learn the Believing You Can program? Please explain why?

yes, because it can help you with things like what do you do when a obstacle is on your way.

Student Response: Example 2

Research June 2016 – Assessments # 2

Did you learn anything useful or helpful in the Believing You Can program? If yes, please explain.

Yes, how to defeat thinking traps.

Tick the lessons that you enjoyed or found helpful
(you can choose more than one)

- Thoughts - Feelings - Actions
 - Helpful & Unhelpful thoughts
 - Success and Failure - Reasons WHY?
 - Thinking Traps
 - Anxiety
 - Problem Solving
 - Super Powers
 - Relaxation
 - Personal Strengths / Best Possible Self
 - I didn't take part in the program
-

Have you used any of the skills you learnt in the Believing You Can program? If yes, when did you use them?

Yes, when I thought that I couldn't do something I used one of the thinking traps to help me. 😊

Do you think students at other schools should learn the Believing You Can program? Please explain why?

Yes, you learn all sorts of things that you can't normally learn at school. It helps you a lot in life.

Student Response: Example 3

Research June 2016 – Assessments # 2

Did you learn anything useful or helpful in the Believing You Can program? If yes, please explain.

Yes, that you can defeat unhelpful thoughts.

Tick the lessons that you enjoyed or found helpful
(you can choose more than one)

- Thoughts - Feelings - Actions
 - Helpful & Unhelpful thoughts
 - Success and Failure - Reasons WHY?
 - Thinking Traps
 - Anxiety
 - Problem Solving
 - Super Powers
 - Relaxation
 - Personal Strengths / Best Possible Self
 - I didn't take part in the program
-

Have you used any of the skills you learnt in the Believing You Can program? If yes, when did you use them?

No, not yet

Do you think students at other schools should learn the Believing You Can program? Please explain why?

Yes because a lot of people struggle with anxiety and this program helps.

Student Response: Example 4

Research June 2016 – Assessments # 2

Did you learn anything useful or helpful in the Believing You Can program? If yes, please explain.

Not really, no.

Tick the lessons that you enjoyed or found helpful
(you can choose more than one)

- Thoughts - Feelings - Actions
 - Helpful & Unhelpful thoughts
 - Success and Failure - Reasons WHY?
 - Thinking Traps
 - Anxiety
 - Problem Solving
 - Super Powers
 - Relaxation
 - Personal Strengths / Best Possible Self
 - I didn't take part in the program
-

Have you used any of the skills you learnt in the Believing You Can program? If yes, when did you use them?

No.

Do you think students at other schools should learn the Believing You Can program? Please explain why?

Maybe. There are some low mark students that probably have bad thoughts.

Appendix F: Programme Conclusion Teacher Questionnaire

Example Response: Teacher 3

PROGRAM CONCLUSION - QUESTIONNAIRE

1. How much do you believe YOUR STUDENTS benefited from this program?

1 2 3 4
no benefit little benefit some benefit a lot of benefit

2. Do you feel that YOU gained knowledge or skills through your involvement in the program that you will be able to use in the future?

Definitely NO 1 2 3 4 5 6 Definitely YES

3. Do you feel that YOU had the resources (time/material) needed to implement the program?

Definitely NO 1 2 3 4 5 6 Definitely YES

4. To what extent were YOU able to implement the program as designed?

NEVER 1 2 3 4 5 6 EXACTLY AS PLANNED

5. How likely would YOU be to implement this program again in the future?

Definitely NO 1 2 3 4 5 6 Definitely YES

6. What aspect/s of the program did you find the most helpful or positive for your students?

Definitely felt that the activities were engaging
which made it more enjoyable for the students.

7. In your opinion, what areas could the program improve to make it a better or more useful tool for future teachers?

Maybe a few interactive activities online.

PROGRAM CONCLUSION - QUESTIONNAIRE

Please indicate to what extent you used the following elements in your classroom

VOCABULARY

	Not yet	a few times	regularly
Helpful & Unhelpful thoughts:	1	2	3
Thinking Traps:	1	2	3
Super Powers:	1	2	3

WORKSHEETS/SKILLS

Understanding Actions:	1	2	3
Explaining Why:	1	2	3
Problem Solving:	1	2	3
Relaxation:	1	2	3

POSTERS

Evaluating Thoughts:	1	2	3
Thinking Traps:	1	2	3
Problem Solving:	1	2	3
Super Powers:	1	2	3

Have you used any other ways to integrate skills from the Believing You Can program into your classroom ?

Yes, I have referred back to some skills after
hearing students with negative or unhelpful thoughts/
actions.

Example Response: Teacher 5

PROGRAM CONCLUSION - QUESTIONNAIRE

1. How much do you believe YOUR STUDENTS benefited from this program?

1 2 3 4
no benefit little benefit some benefit a lot of benefit

Program language is used within the classroom.

2. Do you feel that YOU gained knowledge or skills through your involvement in the program that you will be able to use in the future?

Definitely NO 1 2 3 4 5 6 Definitely YES

3. Do you feel that YOU had the resources (time/material) needed to implement the program?

Definitely NO 1 2 3 4 5 6 Definitely YES

easy to use and follow.

4. To what extent were YOU able to implement the program as designed?

NEVER 1 2 3 4 5 6 EXACTLY AS PLANNED

As well as I could have!

5. How likely would YOU be to implement this program again in the future?

Definitely NO 1 2 3 4 5 6 Definitely YES

6. What aspect/s of the program did you find the most helpful or positive for your students?

The positive talk. Real situations allowed
the students to relate more to the content.

7. In your opinion, what areas could the program improve to make it a better or more useful tool for future teachers?

Shorter? I'm not sure how but make the program
not run as long, with all school 'stuff' on
it's hard to be consistent with the
teaching of it.

PROGRAM CONCLUSION - QUESTIONNAIRE

Please indicate to what extent you used the following elements in your classroom

VOCABULARY

	Not yet	a few times	2 ^{more than a few, but not regularly}	3
Helpful & Unhelpful thoughts:	1	2	2	3
Thinking Traps:	1	(2)		3
Super Powers:	1	(2)		3

WORKSHEETS/SKILLS

Understanding Actions:	1	(2)		3
Explaining Why:	1	2		(3)
Problem Solving:	1	2		(3)
Relaxation:	(1)	2		3

I was absent for this lesson

POSTERS

Evaluating Thoughts:	1	2		(3)
Thinking Traps:	1	2		(3)
Problem Solving:	1	(2)		3
Super Powers:	(1)	2		3

posters made.

Have you used any other ways to integrate skills from the Believing You Can program into your classroom ?

W/A

Appendix G: Motivation and Engagement Scale – Junior School

Sample of the Scale



Office Use Only

Motivation and Engagement Scale – Junior School

Andrew J. Martin PhD

Dear Student

Welcome to the Motivation and Engagement Scale – Junior School.

This survey has been given to you to examine your motivation and engagement, how you do your schoolwork, and what you think of yourself as a student.

There are no right or wrong answers. Just make sure that your answers show what you really think about yourself. When answering the questions, if you want to change an answer, just cross it out and circle the answer that you prefer. If you are not sure which answer to circle, just circle the one that is the closest to what you think. You should have only one answer for each question. For the purposes of the survey, it is best that you do not leave out any questions.

If before, during, or after the survey you have any concerns, please talk to your teacher, tutor, counselor, psychologist, or the person who gave you this survey.

There are some questions that are very similar to each other. This is not a trick. It is just that this type of survey needs to ask some similar questions in slightly different ways. Just answer them in a way that shows what you really think about yourself.

Thanks for your participation.

Before you start, here is an example:

Disagree Strongly	Disagree	Neither Agree nor Disagree	Agree	Agree Strongly			
1	2	3	4	5			
			Disagree Strongly	Agree Strongly			
	I work hard at school		1	2	3	④	5

This student circled Number 4 ('Agree') because he does work quite hard at school. He didn't circle Number 5 ('Agree Strongly') because he doesn't work hard all of the time. He didn't circle Number 3 ('Neither Agree nor Disagree') because he works hard most of the time.

Ask your teacher, psychologist, tutor, or counselor if you have any questions. You can now begin.

Surname _____	First Name _____
ID Number _____	Grade/Year _____
Gender (Circle) Girl Boy	Age _____ years





Motivation and Engagement Scale – Junior School

Andrew J. Martin PhD

Disagree Strongly	Disagree	Neither Agree nor Disagree	Agree	Agree Strongly	
1	2	3	4	5	
PLEASE CIRCLE ONE NUMBER FOR EACH STATEMENT					
1. If I can't understand my schoolwork, I keep trying until I do	1	2	3	4	5
2. I feel very happy with myself when I really understand what I'm taught at school	1	2	3	4	5
3. I usually do my homework in places where I can concentrate	1	2	3	4	5
4. I'm able to use some of the things I learn at school in other parts of my life	1	2	3	4	5
5. Sometimes I don't try hard at school so I can have a reason if I don't do well	1	2	3	4	5
6. When I don't do well at school I don't know how to stop that happening next time	1	2	3	4	5
7. I feel very happy with myself when I do well at school by working hard	1	2	3	4	5
8. Each week I'm trying less and less at school	1	2	3	4	5
9. If my homework is difficult, I keep working at it trying to figure it out	1	2	3	4	5
10. When I have a project to do, I worry about it a lot	1	2	3	4	5
11. The main reason I try at school is because I don't want people to think that I'm dumb	1	2	3	4	5
12. When I get a good mark I often don't know how I'm going to get that mark again	1	2	3	4	5
13. If I try hard, I believe I can do my schoolwork well	1	2	3	4	5
14. Learning at school is important	1	2	3	4	5
15. I don't really care about school anymore	1	2	3	4	5
16. When I get a bad mark I don't know how to stop that happening next time	1	2	3	4	5
17. When I do homework, I get organized so I can do it well	1	2	3	4	5
18. I don't know how to get good marks at school	1	2	3	4	5



Appendix H: Intervention Fidelity Checklist

Example of the Checklist: Session 2

SESSION 2		Date:	School:	Class:	
Activity	Completed correctly	Completed with variations	Not completed	Time	Comment
2.1 Review of activities practiced at home					
2.2 Categorizing helpful and unhelpful thought-feelings-action sequences					
2.3 Helpful and unhelpful thoughts target game					
2.4 Identifying cognitive obstacles to learning					
2.5 I Love/Hate Math					
2.6 Relating thoughts, feelings, actions sequence to the school setting					
2.7 Activities to practice at home					

Example of a Completed Checklist: Session 2 Teacher 2

SESSION 2 Date: 9.5.16 School: 2 Class: Teacher 2

Activity	Completed correctly	Completed with variations	Not completed	Time	Comment
2.1 Review of activities practiced at home	✓				
2.2 Categorizing helpful and unhelpful thought-feelings-action sequences	✓				
2.3 Helpful and unhelpful thoughts target game		✓			The format was changed (sitting@desk) → the activity took longer than planned
2.4 Identifying cognitive obstacles to learning	✓				
2.5 I Love/Hate Math			✓		Forgot about the story
2.6 Relating thoughts, feelings, actions sequence to the school setting	✓				These activities were rushed
2.7 Activities to practice at home	✓				

Example of a Completed Checklist: Session 2 Teacher 6

SESSION 2 Date: 24.5.16 School: 4 Class: Teacher 6

Activity	Completed correctly	Completed with variations	Not completed	Time	Comment
2.1 Review of activities practiced at home		✓			Reviewed previous lesson, did not review home learning
2.2 Categorizing helpful and unhelpful thought-feelings-action sequences	✓				
2.3 Helpful and unhelpful thoughts target game		✓			Changed format (floor) - not all students took part. All students wrote a helpful AND unhelpful thought → did not finish ↓ will do tomorrow
2.4 Identifying cognitive obstacles to learning	✓				
2.5 I Love/Hate Math	✓				
2.6 Relating thoughts, feelings, actions sequence to the school setting	✓				
2.7 Activities to practice at home	✓				

Appendix I: Supplementary Figures

Figure I1. Average knowledge of intervention skills across time and between class for the intervention and control conditions separately

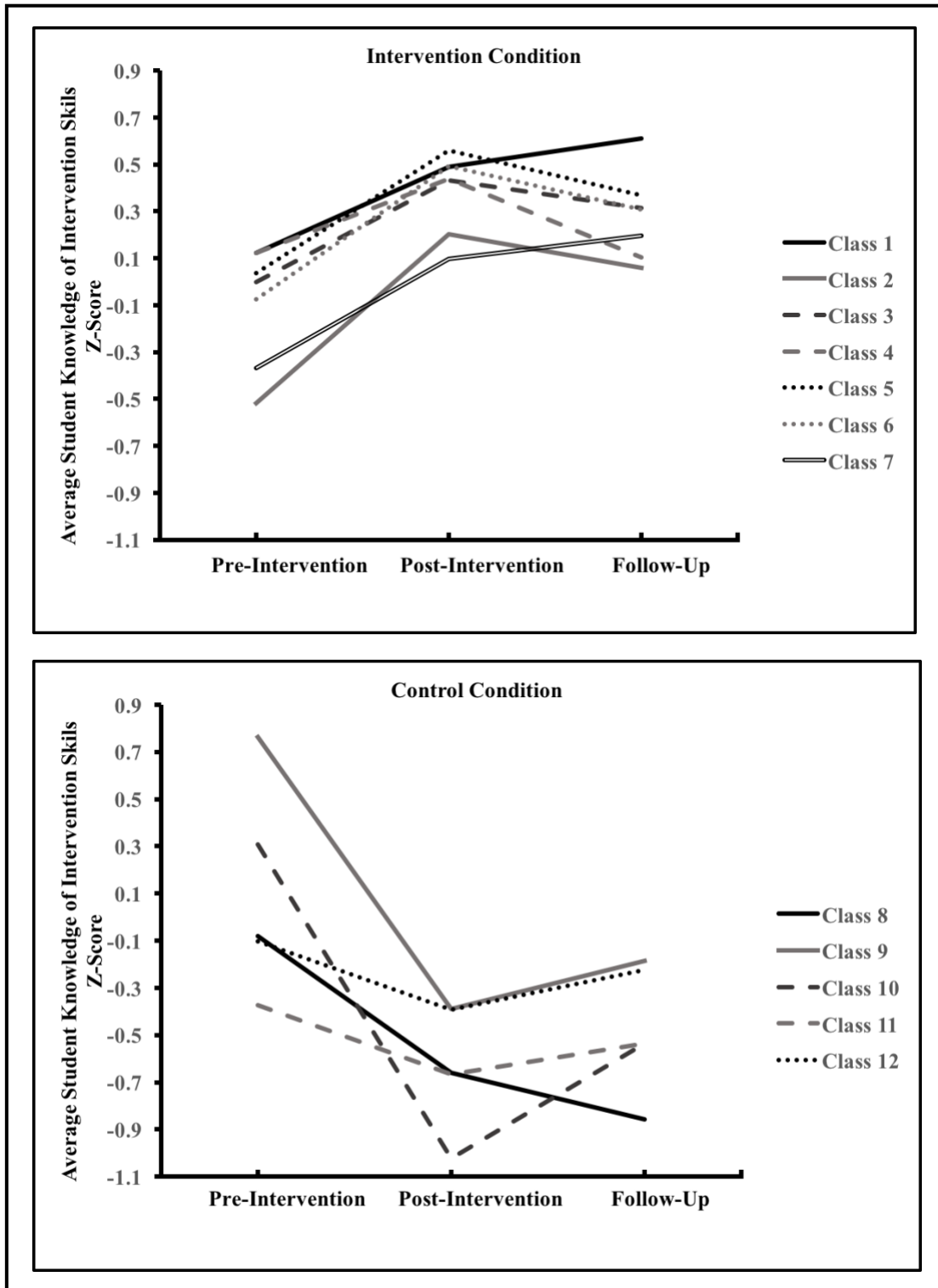


Figure 12. Average self-belief across time and between class for the intervention and control conditions separately

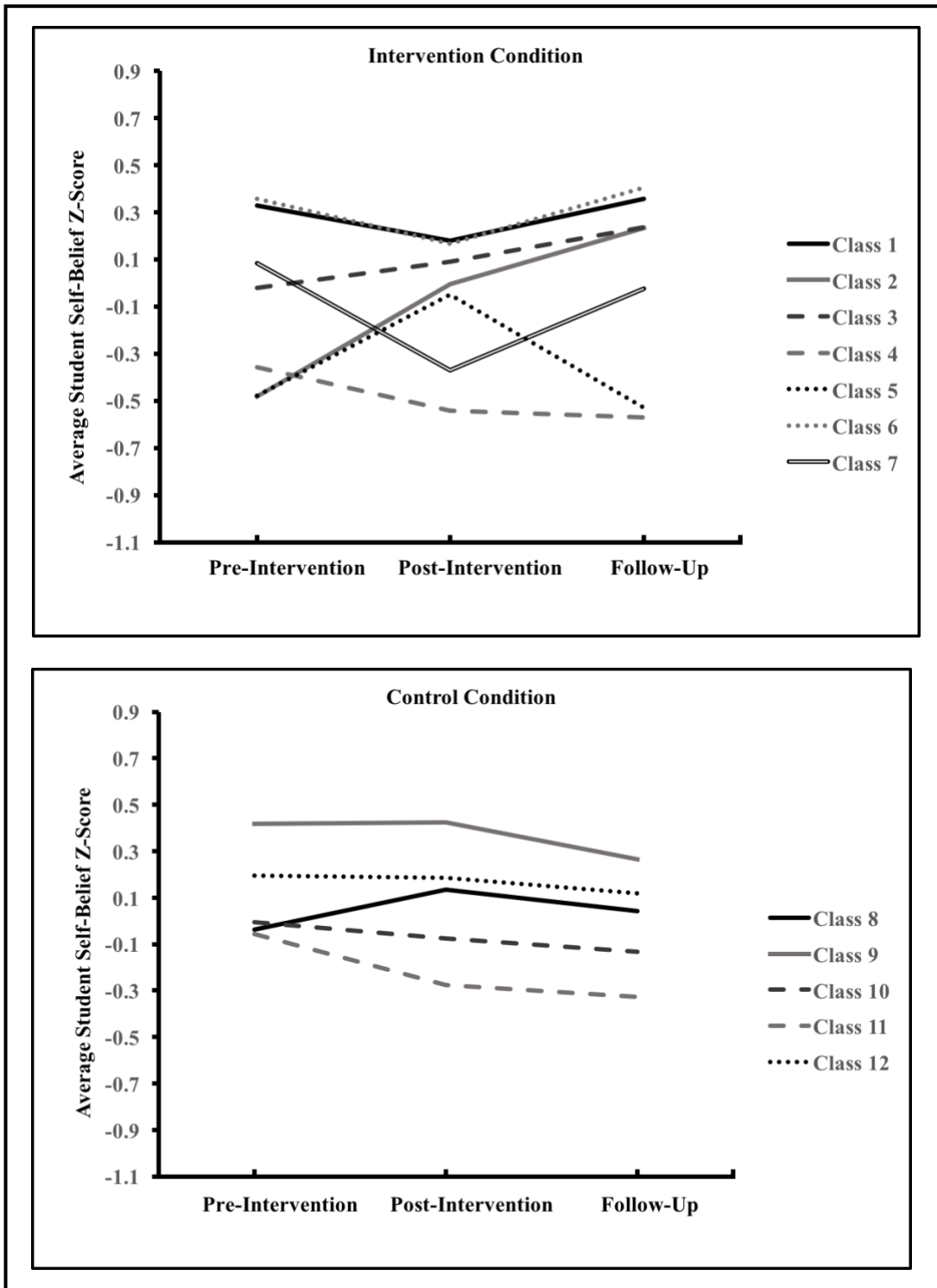


Figure 13. Average school valuing across time and between class for the intervention and control conditions separately

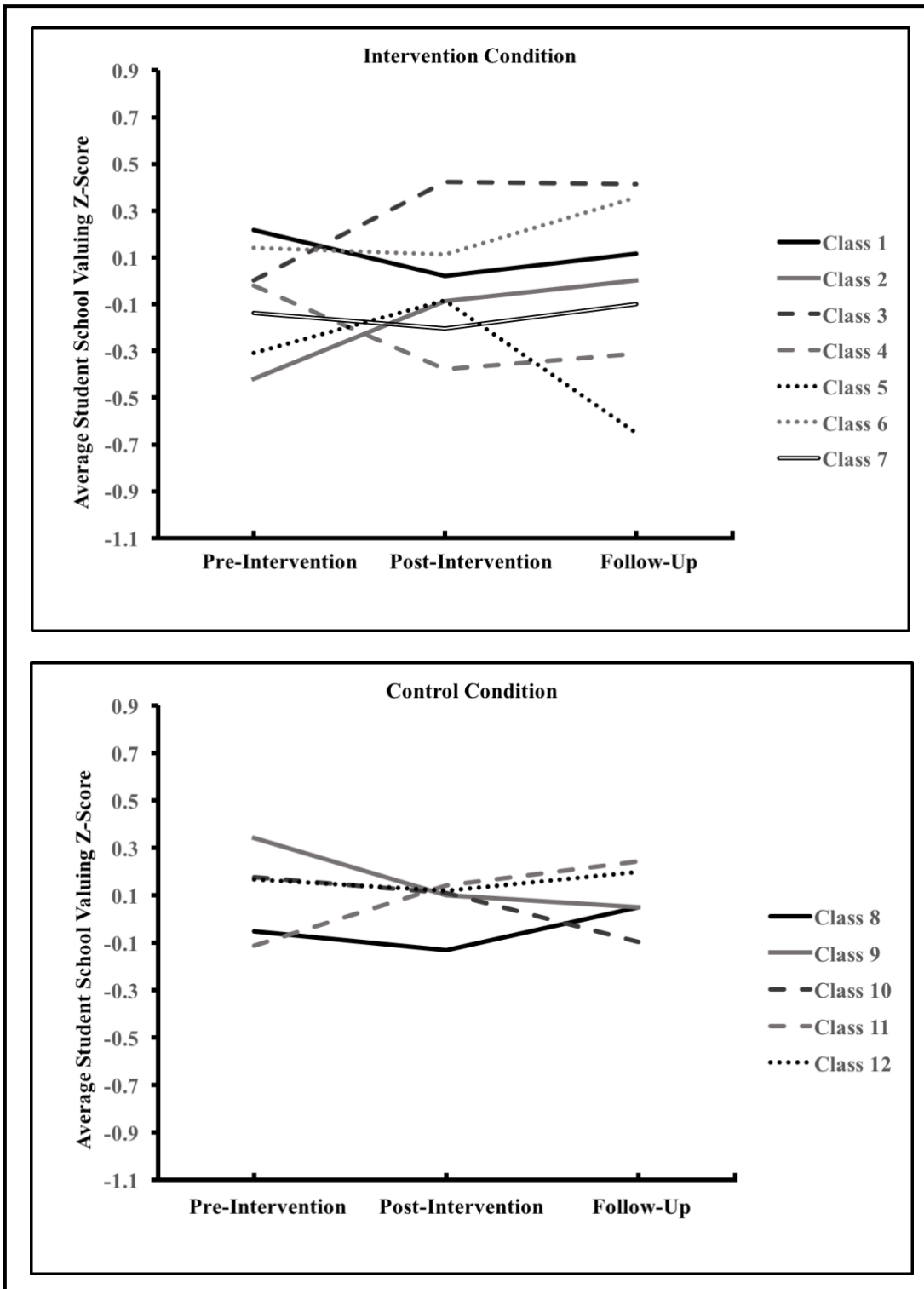


Figure 14. Average learning focus across time and between class for the intervention and control conditions separately

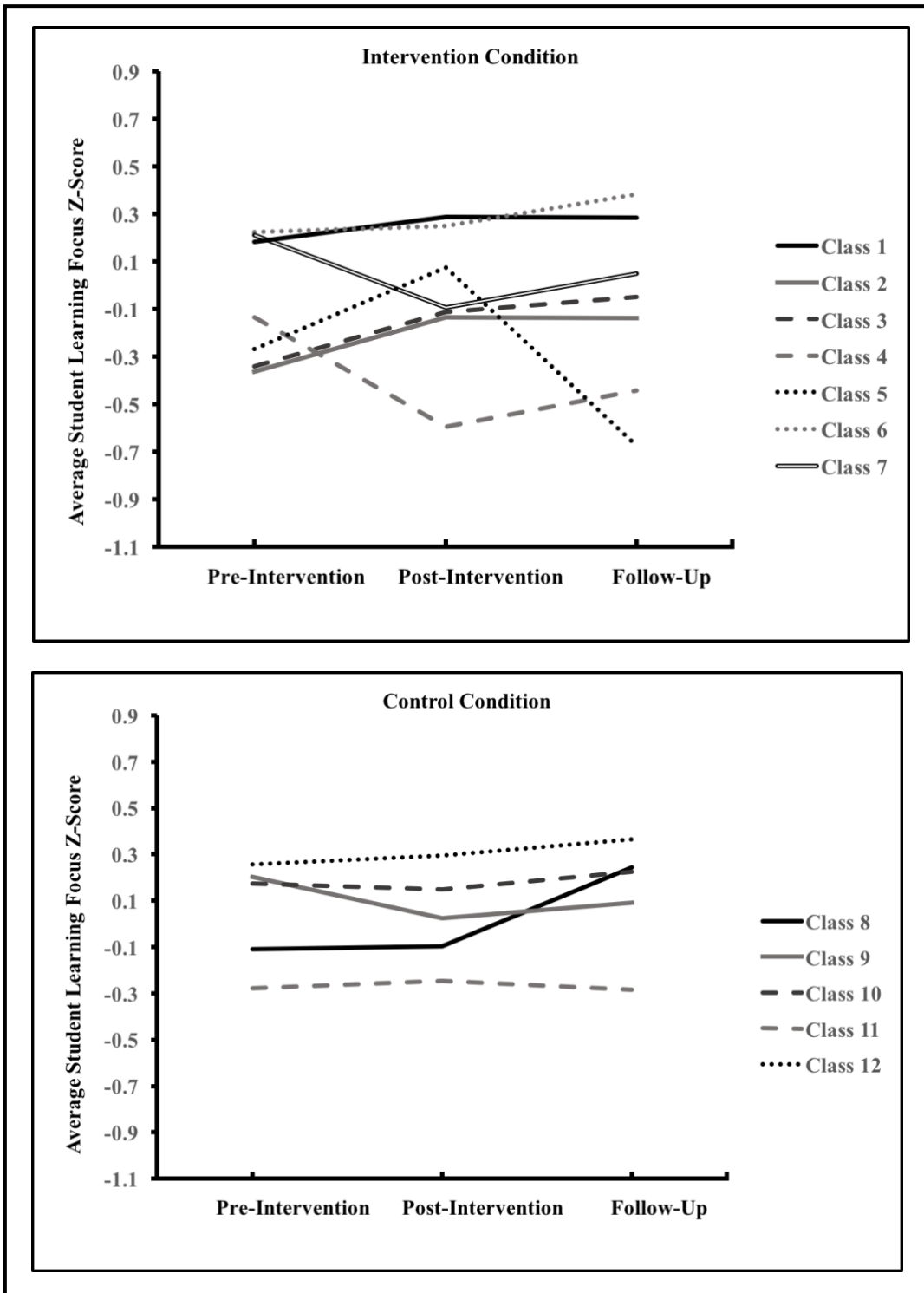


Figure I5. Average planning across time and between class for the intervention and control conditions separately

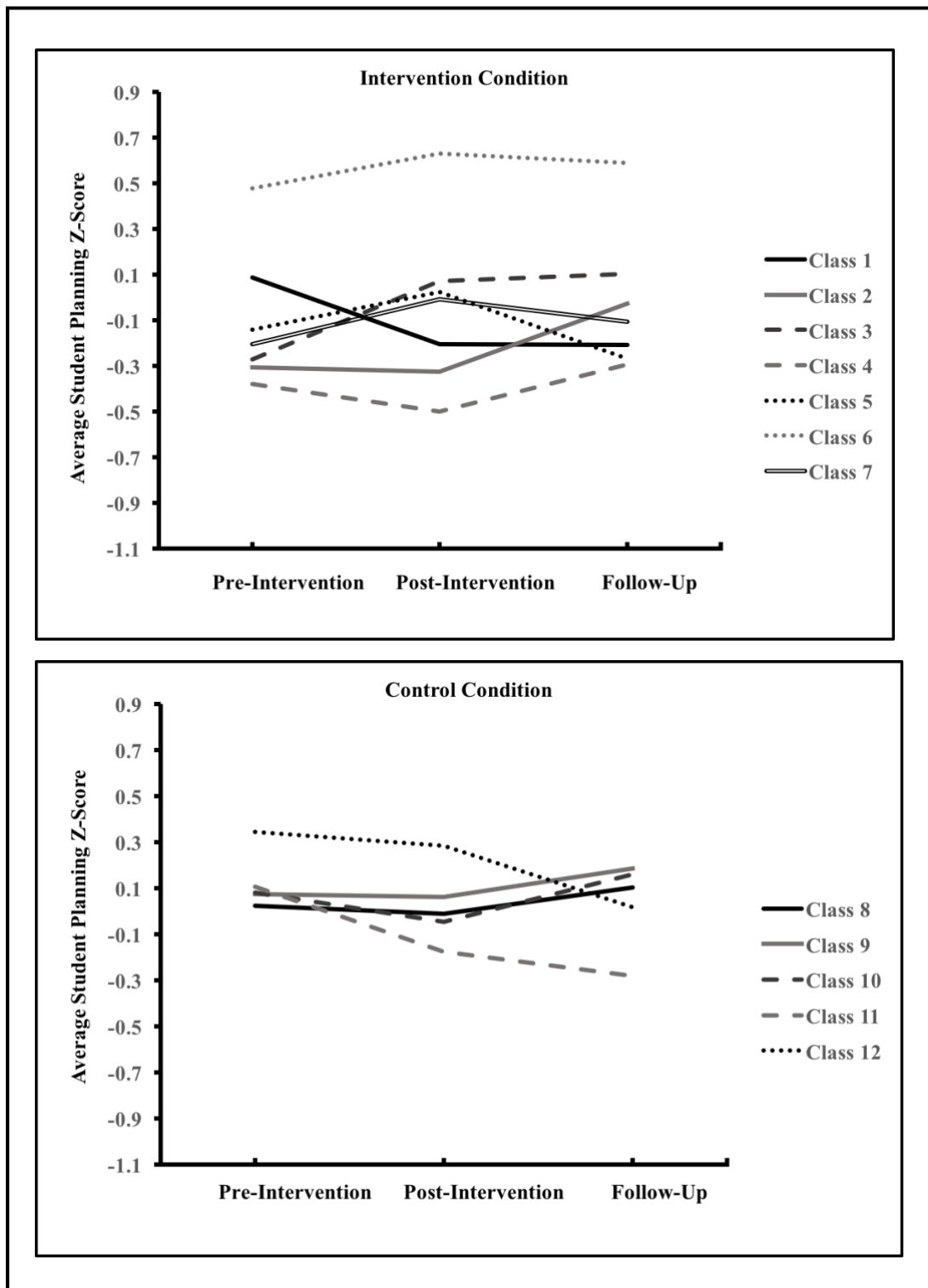


Figure I6. Average task management across time and between class for the intervention and control conditions separately

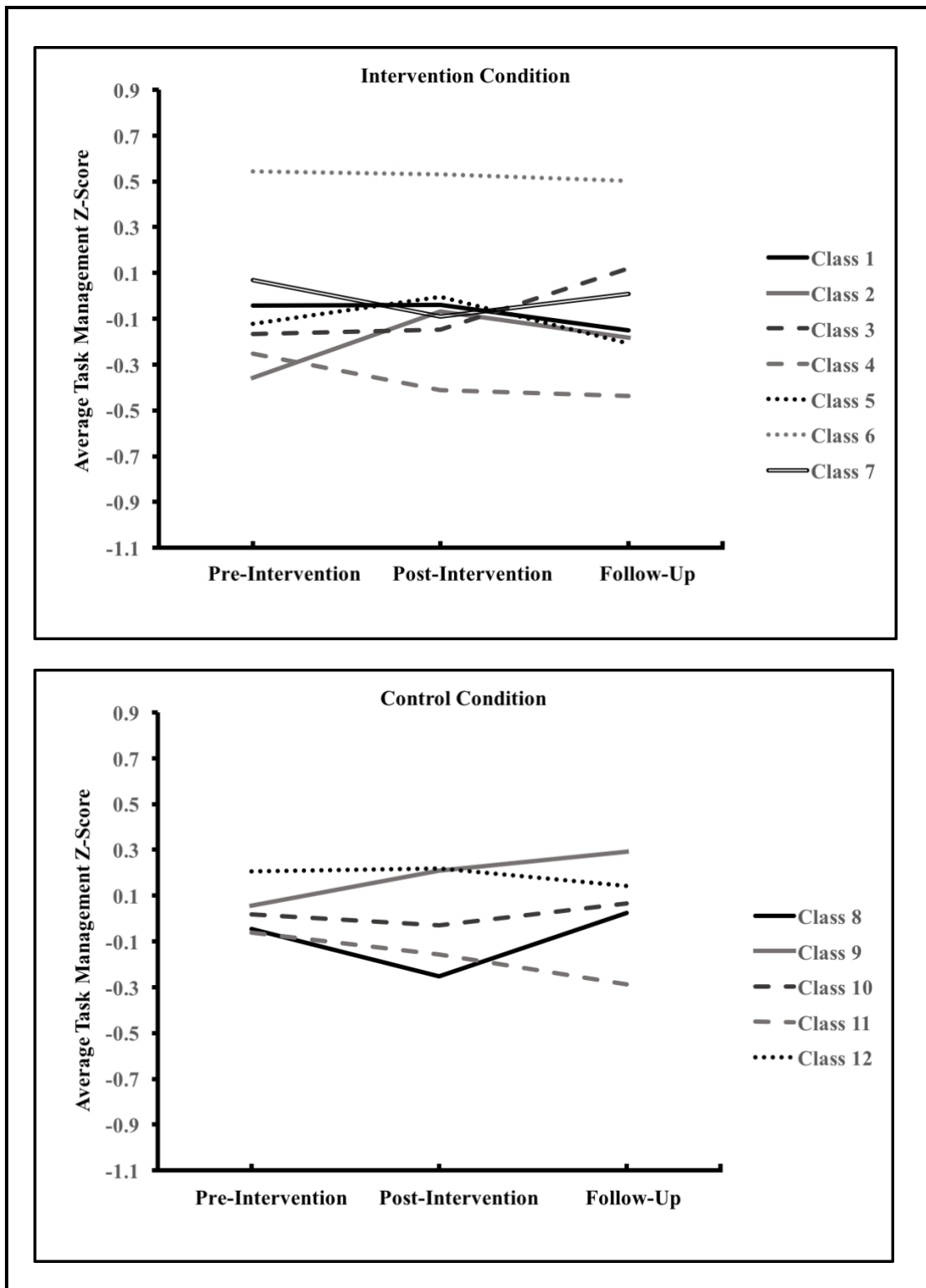


Figure 17. Average persistence across time and between class for the intervention and control conditions separately

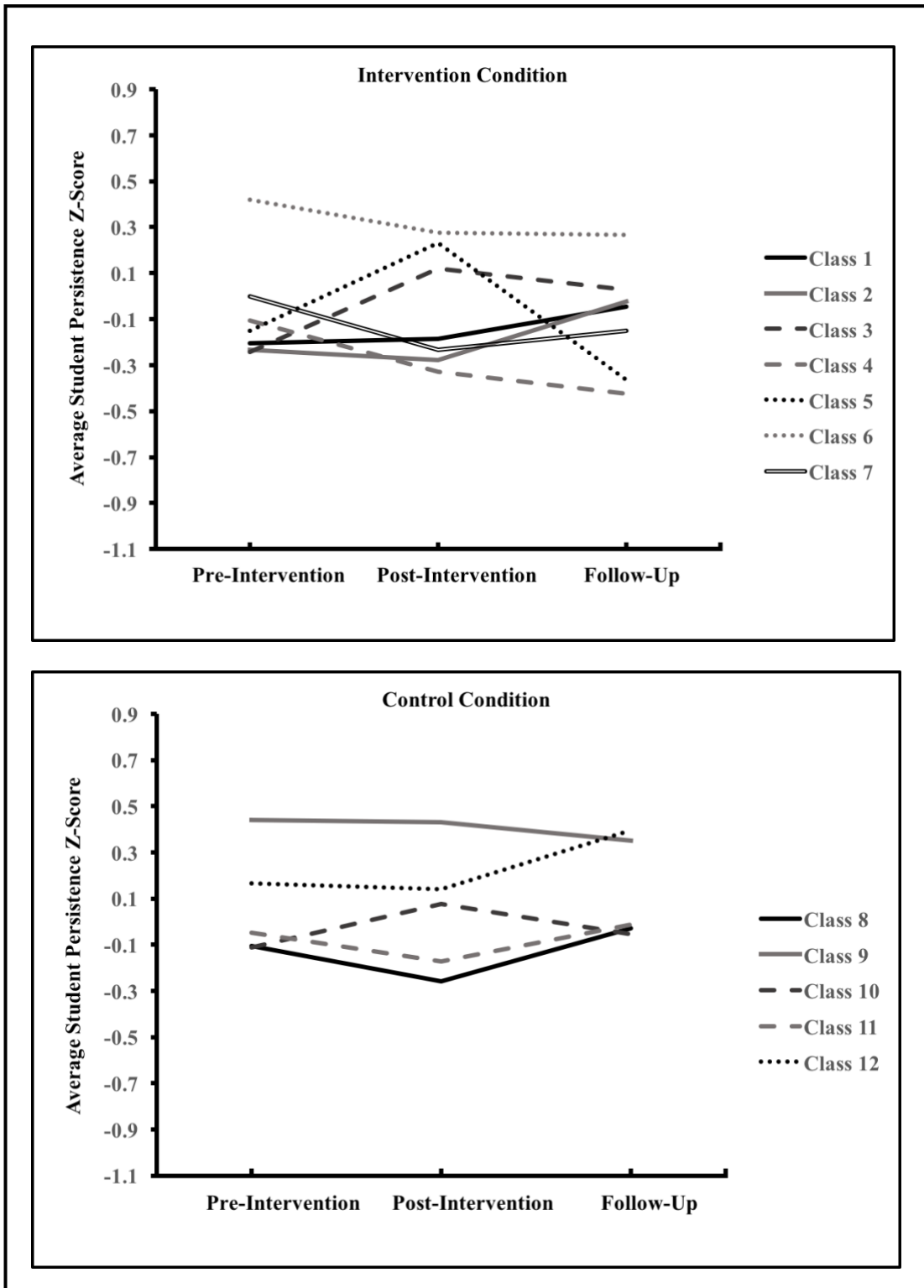


Figure 18. Average anxiety across time and between class for the intervention and control conditions separately

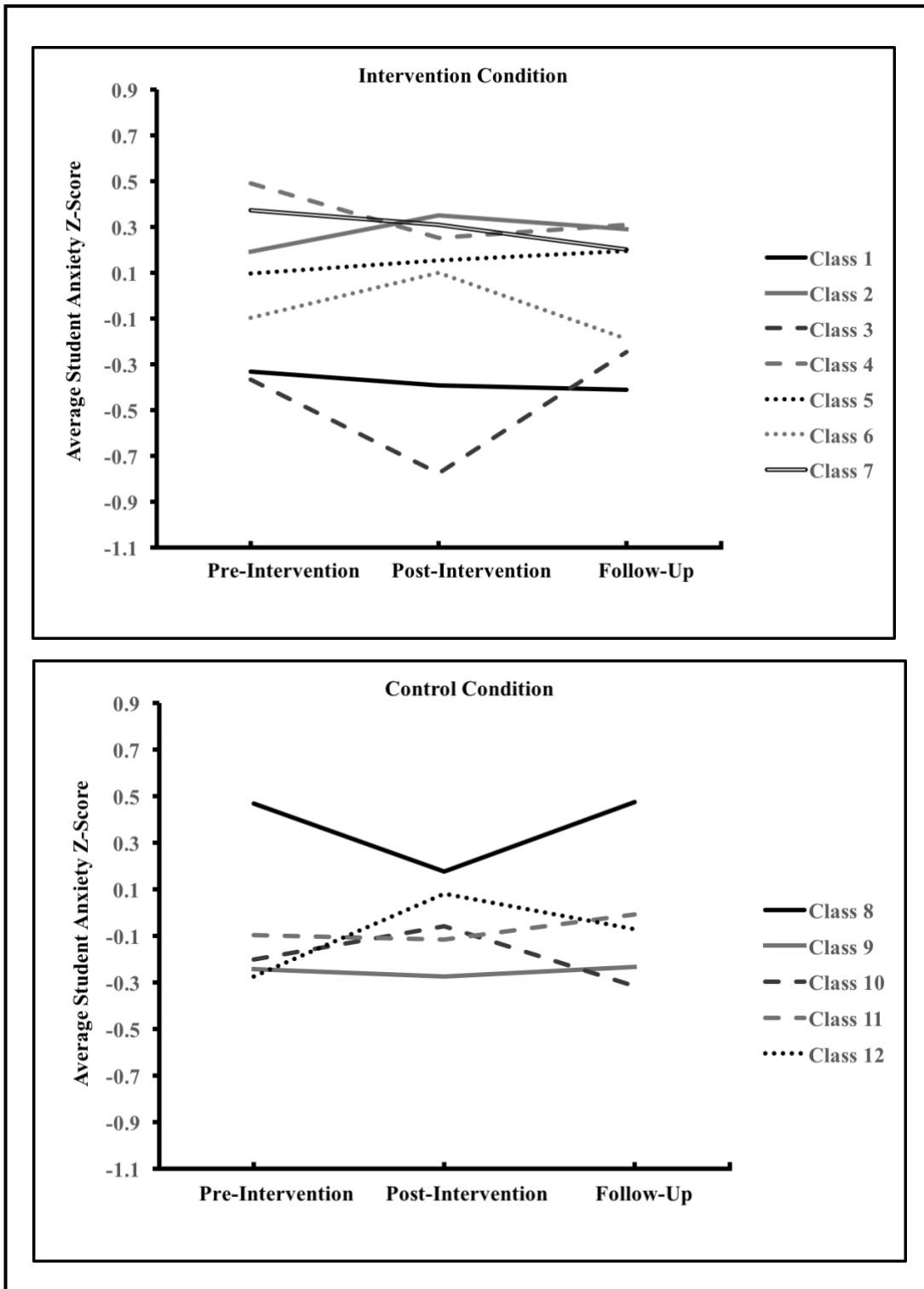


Figure 19. Average failure avoidance across time and between class for the intervention and control conditions separately

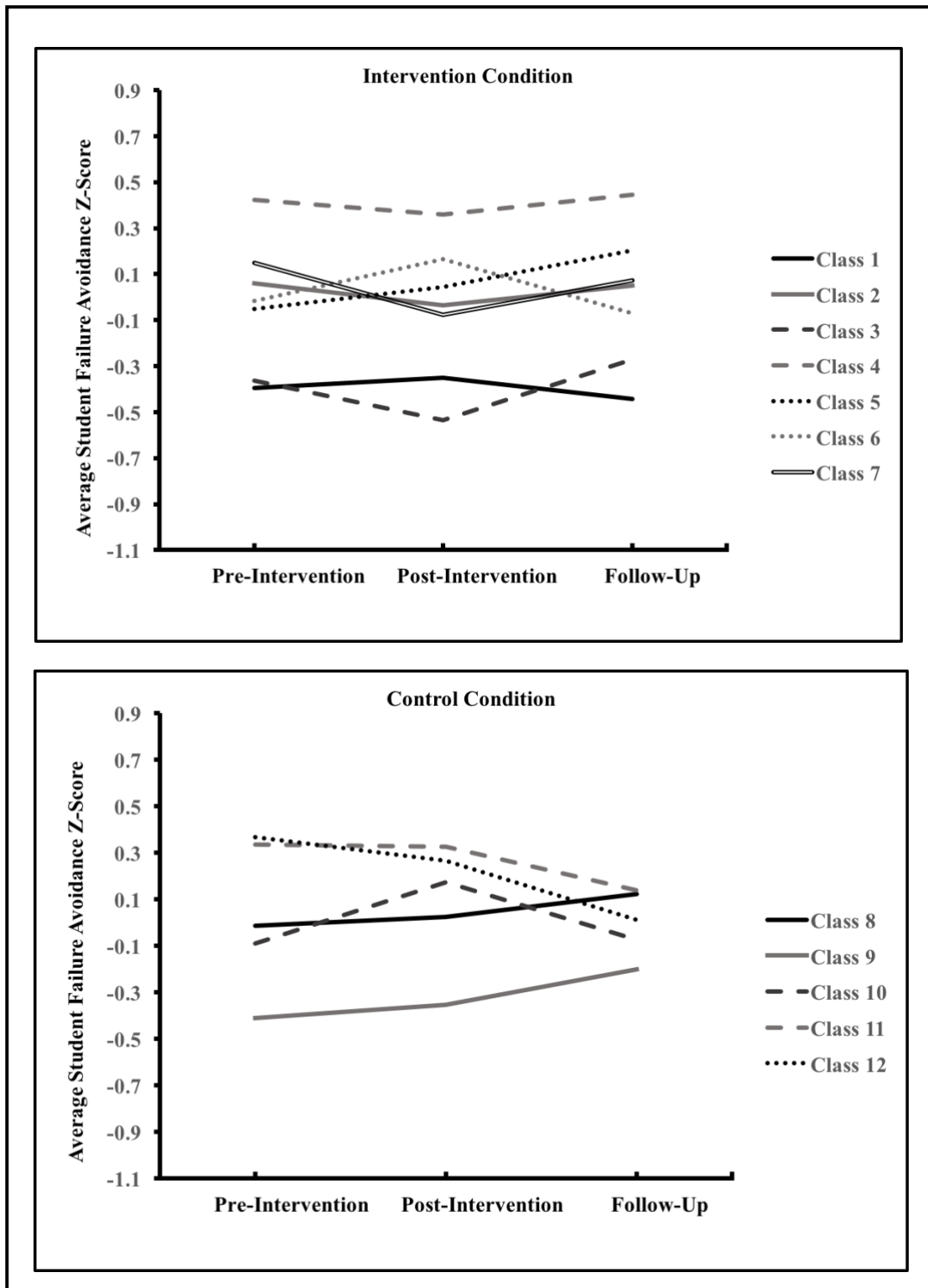


Figure I10. Average uncertainty control across time and between class for the intervention and control conditions separately

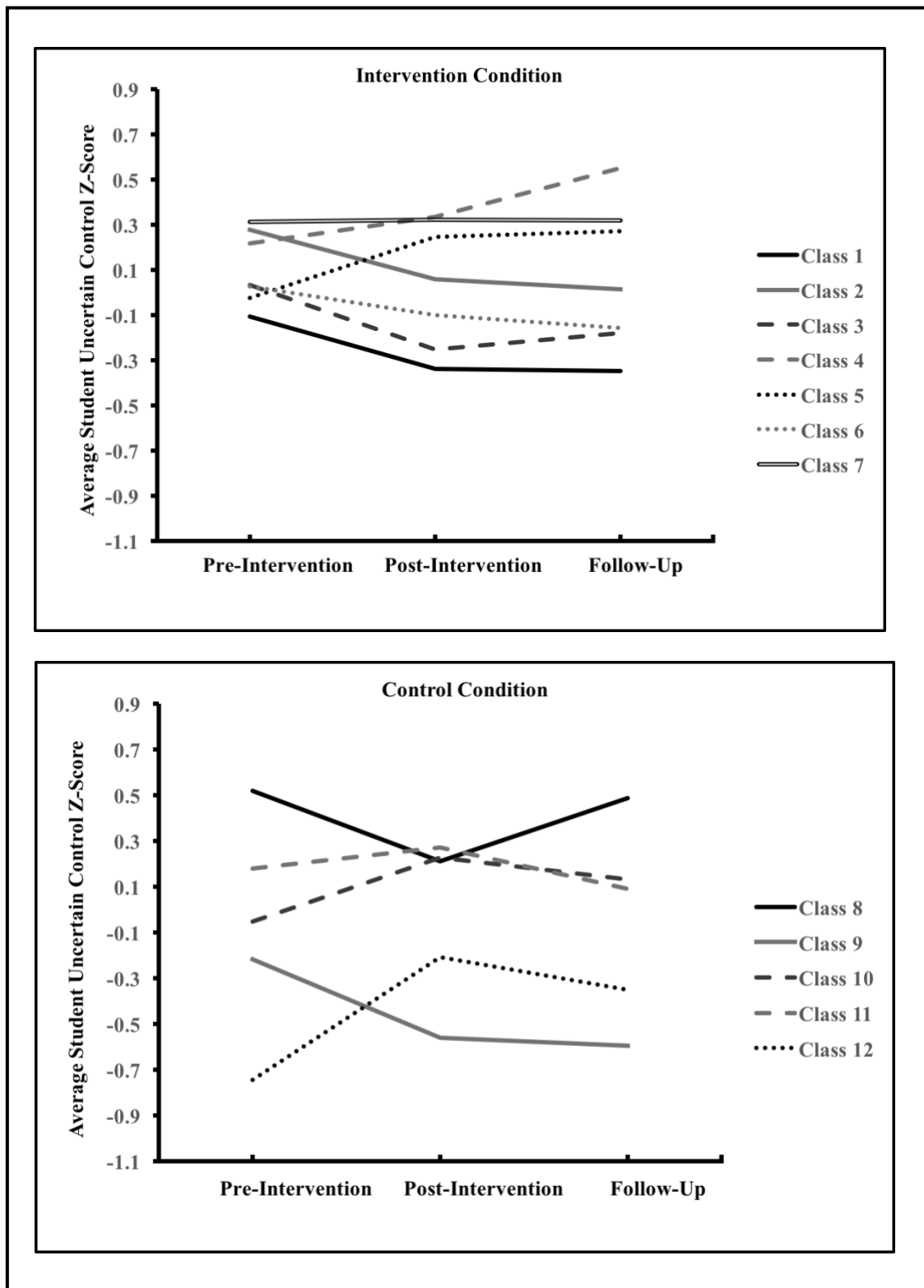


Figure I11. Average self-sabotage across time and between class for the intervention and control conditions separately

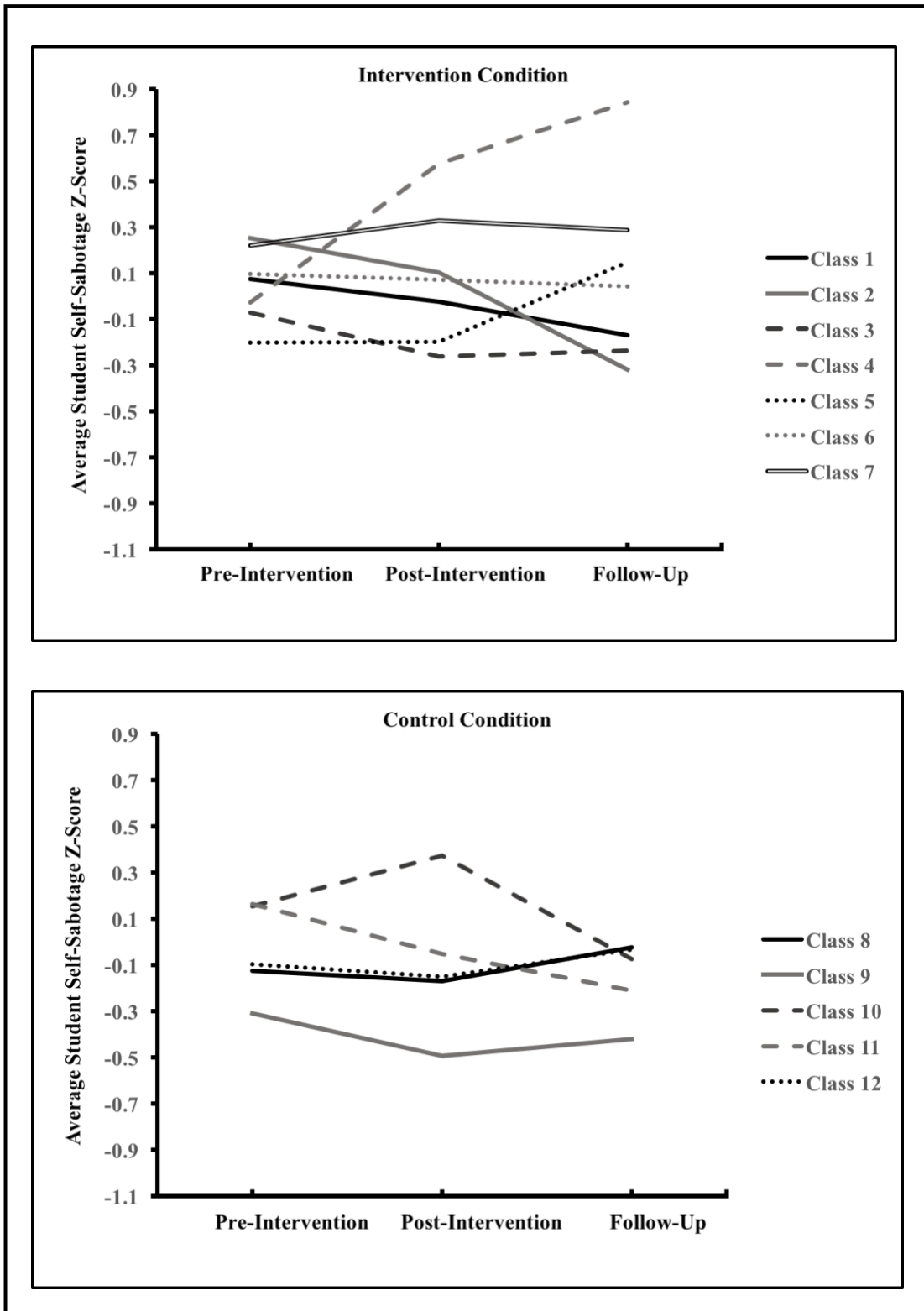
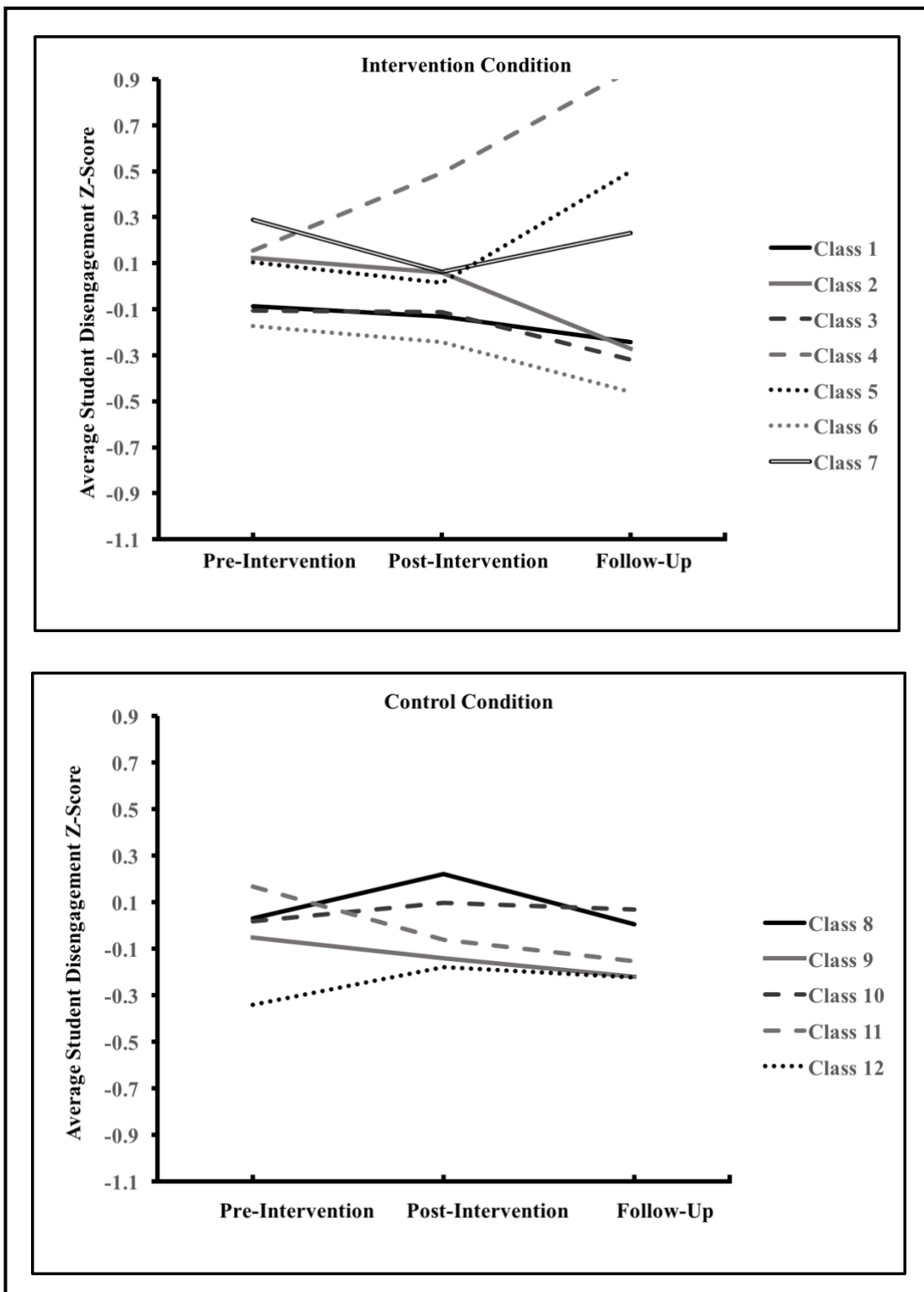


Figure I12. Average disengagement across time and between class for the intervention and control conditions separately



Appendix J: Coding of student voice data

Sample of coded student data to question “did you learn anything useful or helpful in the Believing You Can program?”

Student Response	Code
yes, it made me <u>think better thoughts about things</u>	1
the thinking traps helped me realise that i have <u>unhelpful thoughts</u>	1
Yes to fight the <u>unhelpful thoughts</u>	1
<u>no</u>	2
<u>no</u>	2
Yes, It has helped me <u>calm down</u> in many occasions especially when I get <u>frustrated</u> .	3
Yes, It was helpful knowing the <u>thinking traps</u> so i won't get caught	1
Yes i learned that if <u>you believe you can</u> then you are already half way there	4
If you <u>believe in something you can do it</u>	4
It helps you find new ways to <u>calm down</u> .	3
I learnt what to do when you have <u>unhelpful thoughts</u>	1
<u>no</u>	2
Yes, because I learnt how to control <u>my unhelpful thoughts</u> and to <u>relax</u> when I have bad thoughts	1 5
Yes, I learnt to <u>avoid thinking traps</u> .	1
I learnt how to <u>control and stop my unhelpful thoughts</u> and I learnt how to <u>problem solve</u> and I learnt about thinking traps and how to stop them and I <u>understand anxiety</u> a little bit more now	1 6 7
yes, i learned many <u>relaxation tecnics</u>	5
i learnt how to <u>control thinking traps</u>	1
how to <u>push unhelpful thoughts away</u>	1

I think the <u>superpowers</u> were helpful because I have used them when I have been stressed, angry etc.	1
To <u>change you unhelpful thoughts</u> to helpful thoughts and to <u>never stop trying</u> .	1 8
that you <u>don't always win</u>	9
I liked when we had <u>to breath out slowly</u> and it was fun	5
<u>Belive in yourself</u> . if you are going hrough hard times try and work your way out of the shell	4
I learnt how to <u>block out those unhelpful</u> thoughts and how to <u>relax</u> yourself when you are angry, sad or just having a bad day.	1 5
yes i learnt to <u>stop and think about your unhelpful thoughts</u>	1
Yes the <u>relaxing</u> part of the booklet was great	5
I learnt lots of things about being <u>resilient</u> like dealing with <u>anxeity</u> .	8 7
yes because I can do <u>deep brething</u> now	5
that you can <u>cool down</u> in lots of ways	3
I learnt how to <u>beat unhelpful thoughts</u>	1
I liked how we did the <u>relaxing</u>	5
you can all ways <u>calm your self down</u>	3
I learnt that being angry has no use <u>in</u> life and you just need to <u>relax</u>	5
Yes, i learnt <u>not to give up so easily</u> and also <u>not to get negative thoughts into my head</u> or else i will do worse in whatever im doing.	8 1
Yes, I have learnt how <u>to relax</u> at certain times where I am stressed out or have <u>anxiety</u> . I have learnt the ways of how to <u>calm down</u> when I'm angry or mad. I now know what anxiety is and how it is different from nervousness.	5 7 3
how to <u>calm my self down</u> , <u>deap breathing</u>	3 5
I learned to <u>relax my muscles</u>	5

Example of total number of coded responses for full sample of student voice data for the question “did you learn anything useful or helpful in the Believing You Can program?”

<i>Code</i>	1	2	3
<i>Descriptive category</i>	Identify and challenge unhelpful thinking patterns <i>(such as thinking traps)</i>	No	Managing emotions such as anger and frustration <i>(i.e. to calm down)</i>
<i>Number of responses</i>	73	2	24

<i>Code</i>	4	5	6
<i>Descriptive category</i>	Building self-belief	Relaxation techniques	Problem solving
<i>Number of responses</i>	9	40	9

<i>Code</i>	7	8	9
<i>Descriptive category</i>	Understanding and coping with anxiety	Buoyancy	Managing Failure
<i>Number of responses</i>	16	4	1

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