

EMOTIONAL INTELLIGENCE AND ACADEMIC ACHIEVEMENT IN
PRIMARY SCHOOLS: DEVELOPMENT AND INITIAL EVALUATION OF
THE EMIL PROGRAMME.

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A submission presented in partial fulfilment of the
requirements of the University of South Wales / Prifysgol De Cymru
for the degree of Doctor of Philosophy

September 2020

i. Acknowledgments

There are a large number of people without whom this project would never have been completed. First and foremost I would like to thank my supervisors, Dr Jane Prince and Dr Janet Pitman, for their amazing advice, support and guidance throughout the project.

Secondly, I am hugely grateful to my parents, Margaret and Nigel Nelson whose constant support, patience and supply of chocolate cake have kept me going through the whole process. Also to my sister, Heather Nelson, for her unwavering support and encouragement.

Similarly, I would like to express my gratitude to my amazing fellow ELSAs and supervising Educational Psychologists in my ELSA supervision group who have patiently provided guidance and been willing “guinea pigs” for the development of the Emil Programme.

I am forever indebted to everyone who has helped with the creation of the Emil Programme materials. Especially to Lyn Williams, who drew the emotion faces used throughout the programme. Also Lisa Gordon, who drew the body poses for sorting, and Margaret Nelson, who made the puppets. Additionally, I am extremely grateful to all the people whose royalty-free images I have used in the project.

Of course, the project could never have happened without the schools and children (and parents) who kindly agreed to take part. I will be forever grateful for your generosity in allowing me to work with you all.

Finally, I would like to say a huge thank you to all my friends and work colleagues (and horse), who have supported, helped and kept me sane during the last few years. In particular, I would like to say thanks to Hayley Wiffen, whose support was invaluable.

ii. Abstract

Academic achievement has traditionally been viewed as a product of cognitive abilities, separate to social and emotional skills; leading educators to question the value of developing emotional competence. However, there is emerging consensus that proficiency in both areas is required for success in the workplace and classroom. Accordingly, emotional intelligence has become a popular concept amongst both practitioners and researchers, but little is known about the construct in childhood; particularly in primary-school-aged children, for whom there is a lack of appropriate measurement tools. Given that it is believed to be developmental in nature, with findings from related fields of research suggesting the development of emotional intelligence abilities is heavily influenced by childhood experiences and interactions, it is important to develop an understanding of emotional intelligence in this age group.

Following a review of the literature, this project aimed to contribute towards three key areas of emotional intelligence research in children. Taking an ability approach to emotional intelligence, it firstly progressed the measurement of ability emotional intelligence in primary-school-aged children. Secondly, it increased the limited knowledge regarding the connection between ability emotional intelligence and academic achievement in primary-school-aged children. Finally, it explored the possibility and benefits from provision of targeted support for children with below average ability emotional intelligence.

To meet the need for a reliable performance measure of children's emotional intelligence, Sullivan (1999)'s Emotional Intelligence Scale for Children (EISC) was revised in two stages. Firstly, the EISC was revised and updated creating EISCr1. Internal consistency, concurrent validity, content relevance and usability of the new measure were assessed in Study 1. Following this, EISCr1 was further refined to create EISCr2; Study 2, trialled this. Internal consistency, content relevance and usability were re-assessed and the factor structure explored. Results indicated important progress was made towards creating a valid performance emotional intelligence measure for children; the resulting measure, EISCr2, can reliably assess children's global ability emotional intelligence, although the subtests require further improvement.

The contribution of ability emotional intelligence to academic achievement was explored in 2 ways. Study 1 carried out 2 regression analyses to establish if emotional intelligence predicted maths and English achievement. Results indicated ability emotional intelligence independently contributed to prediction of academic achievement. Study 2 further provided tentative evidence that improvement

in emotional intelligence may lead to improvement in maths achievement. In contrast, no improvements were found in English achievement.

Using the 4-branch ability emotional intelligence model and assimilated research knowledge, the Emil programme was developed within the project to facilitate exploration of the feasibility and utility of providing specific targeted AEI support for 7- to 9-year-olds with below average ability emotional intelligence. This programme is the first known example of a targeted emotional intelligence support programme which specifically targets both pure ability emotional intelligence content and the specific population. The programme was evaluated in Study 2 using an intervention study design. Results suggested it is effective in developing children's ability emotional intelligence within the target population.

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vi. Abbreviations

Abbreviation	Meaning
AA	Academic Attainment
ABCD Model	Affective, Behavioural, Cognitive, Dynamic Model
AEI	Ability Emotional Intelligence
ACT	Attentional Control Theory
CA	Cognitive Ability
CASEL	Collaborative for Academic, Social and Emotional Learning
DANVA	Diagnostic Analysis of non-verbal accuracy
DESTY	Education Desty® Emotional Wellbeing Programme
DwF	Dealing with Feeling
EC	The Emotional Curriculum
ECI	Emotional Competence Inventory
EI	Emotional Intelligence
EISC	Emotional Intelligence Scale for Children
EISCr1	1 st revised version of the Emotional Intelligence Scale for Children
EISCr2	2 nd revised version of the Emotional Intelligence Scale for Children
EL	Emotional Literacy
ELA	English Language and Arts
ELSA	Emotional Literacy Support Assistant (intervention)
EQ-i	Emotional Quotient Inventory
EQ-i:YV	Emotional Quotient Inventory: Youth Version
EQ-i:YV(S)	Emotional Quotient Inventory: Youth Version (Short)
ESES	Emotional Self-Efficacy Scale
FSEL	First Steps to Emotional Literacy
GEC	Geneva Emotional Competence test
GPA	Grade Point Average
IQ	Intelligence Quotient
MEIS	Multifactor Emotional Intelligence Scale
MSCEIT	Mayer, Salovey, Caruso Emotional Intelligence Test
MSCEIT:YV	Mayer, Salovey, Caruso Emotional Intelligence Test: Youth Version
PATHS	Promoting Alternative THinking Strategies programme
PCA	Principal Component Analysis

PSHCE	Personal, Social, Health and Citizenship Education
SA	Sustained Attention
SDQ	Strengths and Difficulties Questionnaire
SEAL	Social and Emotional Aspects of Learning (curriculum)
SEL	Social and Emotional Learning
SEMH	Social, Emotional and Mental Health
STEM-Y	Situational Test of Emotional Management – Youth
SUEIT	Swinburne University Emotional Intelligence Test
SUEIT-EY	Swinburne University Emotional Intelligence Test – Early Years
TEI	Trait Emotional Intelligence
TEIQue	Trait Emotional Intelligence Questionnaire
TEIQue:AFF	Trait Emotional Intelligence Questionnaire: Adolescent Full Form
TEIQue:ASF	Trait Emotional Intelligence Questionnaire: Adolescent Short Form
TEIQue:CF	Trait Emotional Intelligence Questionnaire: Child Form
THM	The Heart Masters
WM	Working Memory

1 Introduction

Over the past two decades, schools have faced increasing challenges to promote the social, emotional and mental health of pupils whilst simultaneously raising academic standards (Humphrey, 2013). This project investigated the relatively new construct of Emotional Intelligence as a potential facilitator for achieving this challenge. This introductory chapter begins with a broad overview of Emotional Intelligence and its current status in education, before introducing the project aims and objectives. It concludes with an overview of the chapters in this thesis.

1.1 Overview of Emotional Intelligence (EI)

Emotional Intelligence (EI) can be broadly defined as a person's aptitude in perceiving, reasoning with, and managing their own and others' emotions (Spector, 2005; Zeidner & Matthews, 2018). EI is a relatively new construct within psychological science, yet it has received an unprecedented amount of media, practitioner, research and public attention (Palmer, Gignac, Manocha, & Stough, 2005; Roberts, MacCann, Matthews, & Zeidner, 2010). Consequently, in adults, EI has been associated with a range of positive outcomes including workplace performance (e.g. Joseph & Newman, 2010); indeed it is listed as a top sought-after skill by the World Economic Forum (Perez-Gonzalez & Qualter, 2018).

However, despite this popularity, there are several sources of controversy within the EI field. Firstly, consensus on a universal definition of EI has failed to be established (Zeidner & Matthews, 2018); instead there are two main approaches to EI, known as ability EI and trait EI (Barchard, Brackett, & Mestre, 2016).

Ability EI (AEI) theorists define EI as a set of cognitive abilities which enable an individual to recognise, understand and reason about emotions (Mayer & Salovey, 1997). It is usually measured using performance measures as theorists believe it should be evidenced through measureable performance on emotion-related tasks (Mayer, Caruso, & Salovey, 2000). There is one predominant AEI model: the four-branch model of Mayer and Salovey (1997).

Trait EI (TEI) theorists define EI as a group of personality traits relating to emotional dispositions and self-perceived emotional abilities (Petrides, Furnham, & Frederickson, 2004). TEI is usually measured through self-report, because this is the favoured approach for measuring personality (Petrides, Furnham, et al., 2004). There are several competing TEI theories, each of which specifies a different variety of traits, meaning its scope is often criticised as too broad (Zeidner, Matthews, & Roberts, 2012).

Although, there is some evidence that the two constructs are likely interdependent (Mikolajczak, 2009; Vesely Maillefer, Udayar, & Fiori, 2018), studies have found only weak relationships between the two conceptualisations and their associated measurement approaches (Wigelsworth, Humphrey, Kalambouka, & Lendrum, 2010). Consequently, one must carefully consider which approach to take when working with EI.

The measurement of EI is a source of intense controversy (Spector & Johnson, 2006). The most readily available and widely used measures are the self-report based approaches favoured by TEI protagonists (Conte, 2005). Such measures are easy to create and administer and therefore are popular amongst business consumers (Conte & Dean, 2006). However, they are often criticised as being unreliable due to people's inaccuracy in self-assessing their own abilities and susceptibility to faking (Matthews, Zeidner, & Roberts, 2004). Furthermore, many researchers argue they are indistinct from personality measures and therefore conceptually redundant (e.g. Matthews, Roberts, & Zeidner, 2004). Consequently, many scientists express a preference for performance measures as these are believed to give a more direct assessment of a person's skills (Murphy & Sideman, 2006). There is, though, some debate about whether EI can be measured through performance as critics argue there is no clear correct answer to many emotion-related problems (Matthews, Zeidner, et al., 2004). Currently, this issue is most frequently addressed through the use of a consensus-based scoring model, whereby the consensus of test takers or a group of experts is taken as the correct answer (MacCann, Roberts, Matthews, & Zeidner, 2004). Although some praise this approach for its sensitivity to cultural variations in emotion evaluations (e.g. Legree, Psotka, Tremble, & Bourne, 2005), critics point out it measures emotional conformity rather than expertise. This is because, for the hardest problems most people would be expected to give the wrong answer; therefore the general consensus will be incorrect (Matthews, Zeidner, et al., 2004). Nevertheless, most reviews of EI measures have concluded that performance measures show more promise than self-report (e.g. Conte, 2005; Matthews, Zeidner, et al., 2004).

The above controversies have resulted in EI being understudied in childhood, particularly in pre-adolescence, where its measurement is problematic (Billings, Downey, Lomas, Lloyd, & Stough, 2014; Petrides et al., 2016). There are a few EI rating scales available for children (Brown, Qualter, & MacCann, 2018), but it is unclear whether such measures are appropriate for children younger than 10 years old, since evidence suggests children aged below 10 are less likely to have accurate self-perceptions of their abilities (Keefer, 2015) and are particularly susceptible to socially desirable responding (Keefer, Holden, & Parker, 2013), meaning self-reports are unlikely to accurately reflect young children's EI. Consequently, performance measures may be more appropriate for children but

there is only one comprehensive AEI performance measure for adolescents, and currently no accepted comprehensive performance measures for children under 10 years old (Brown et al., 2018; Rivers, Brackett, & Salovey, 2008); although a couple of studies (Akduman & Akaydin, 2016; Ulutaş & Ömeroğlu, 2007) have used an unpublished measure, the Emotional Intelligence Scale for Children created by Sullivan (1999).

Although the lack of measurement tools has prevented in-depth empirical examination of EI in children, both TEI and AEI theories expect development with age (Mayer, Caruso, & Salovey, 1999; Petrides, Pita, & Kokkinaki, 2007), albeit with different trajectories. In the only model to have specifically addressed the development of EI, Zeidner, Matthews, Roberts, and MacCann (2003) suggest EI develops in three stages: temperament, rule-based skills and self-aware regulation. Within this, the temperament stage is more closely linked to TEI, and the rule-based skills to AEI, although they argue the two constructs interact throughout development (Zeidner et al., 2003). Zeidner et al. (2003) do not specify age brackets for their stages, but they link temperament with infancy and it seems unlikely that self-aware regulation will occur before late childhood, as it dependent on self-reflection abilities which do not mature until early adolescence (Keefer, 2015). Consequently, it appears TEI may be more prevalent in infancy, but AEI may be dominant in the younger childhood years. Coupled with the above measure considerations, it seems likely therefore that researchers studying EI in pre-adolescent children are more likely to see sustained developments in AEI than TEI.

With regards to the importance of EI in childhood, although less comprehensively studied than adult EI, childhood EI is related to later life success including social and emotional competence, mental health and reduced likelihood of participating in risky behaviours such as smoking (Qualter, Gardner, & Whiteley, 2007; Rivers et al., 2012). Furthermore it is popularly believe to contribute to school success (Allen, MacCann, Matthews, & Roberts, 2014).

1.2 Current Status of EI in Education

According to a speech by the Schools Minister, Nick Gibb, in 2015, the purpose of education includes “ensuring that young receive the preparation they need to secure a good job and a fulfilling career and have the resilience and moral character to overcome challenges and succeed.” (Gibb, 2015, Purpose of education, para. 3). From research highlighted above, it appears that EI satisfies many of these criteria. Despite this, pure EI education has not been adopted within the education sector, instead it has mostly been subsumed into Social and Emotional learning (SEL;Humphrey, 2013).

SEL focuses on developing competence in a range of social and emotional skills including understanding and managing emotions, establishing and maintaining positive relationships and goal setting (CASEL, n.d.). Although this clearly encompasses aspects of EI, its broad coverage means that few programmes comprehensively cover all areas of EI, particularly the focussed skills coverage of AEI. This is of concern because there is limited evidence to suggest that AEI may be of more relevance to educators since it is considered to be more amenable to direct teaching (Qualter et al., 2007).

Support within the UK education system is usually structured around the *waves of intervention* model whereby *Wave 1* refers to whole-class instruction, *Wave 2* to structured catch-up support and *Wave 3* to highly specialised support for specific needs. SEL is usually taught through universal Wave 1 curriculums delivered to the whole class. Whilst this is considered a cost-effective way to promote students' social and emotional mental health (Humphrey, 2013), the approach raises a difficult conundrum whereby the nature of these programmes means pupils can only benefit if they have the pre-requisite emotional skills to cope in the socially and emotionally demanding classroom environment; meaning those students who potentially need SEL instruction the most are unlikely to be able to access it within the whole class environment (Matthews, Zeidner, et al., 2004; Mayer & Salovey, 1997). There are some targeted SEL support strategies available, such as the Emotional Literacy Support Assistant (ELSA) programme, however these typically operate on a Wave 3 reactive model whereby participants are identified for support when they exhibit concerning externalising behaviours; meaning children are more likely to receive such support for social rather than emotional problems (Wolpert et al., 2011). Given that primary schools are well-placed to help ratify missed early EI learning (Mayer & Cobb, 2000), there seems a clear need for a targeted EI Wave 2 programme which can provide an opportunity for children to develop the requisite skills to fully benefit from the universal SEL curriculums.

Whilst SEL has been reasonably well received in schools (Humphrey, 2013), as Brackett, Rivers, Reyes, and Salovey (2012) identified, we have entered "an era of academic accountability" (p. 218), with government policies emphasising attainment in maths and literacy. Indeed, since 2010, the English government appears to have increasingly de-emphasised the inclusion of SEL in schools with the SEAL programme being discontinued in 2011 (Humphrey 2013) and PSHE becoming non-statutory in the National Curriculum (Department of Education, 2015). Furthermore, several ELSAs have reported being asked to justify their work in terms of academic outcomes (personal communication). Therefore empirical evidence, demonstrating the effectiveness of SEL or EI education in raising both EI and Academic Attainment (AA) is required for the receptivity of

educators to such programmes to continue (Brackett et al., 2012; Humphrey, Curran, Morris, Farrell, & Woods, 2007). Unfortunately, such evidence is mixed with some studies reporting positive associations between EI and academic outcomes (e.g. Agnoli et al., 2012; Di Fabio & Palazzeschi, 2009; Ferrando et al., 2010) whilst others have found little or no relationship (e.g. Mavroveli & Sanchez-Ruiz, 2011; Mitrofan & Cioricaru, 2014; Woitaszewski & Aalsma, 2004). Additionally, there has been virtually no investigation of the relationship between AEI and AA in primary-school children (Agnoli et al., 2012; Billings et al., 2014; Humphrey et al., 2007; Wigelsworth et al., 2010). Theorists however, posit a larger role for AEI than TEI in AA, which has been tentatively supported in empirical studies (e.g. O'Connor & Little, 2003).

1.3 Overview of the Project and Research Questions

The project aims to contribute towards the understanding of EI in primary-school-aged children, specifically children aged below 10 years old, because, as identified above, it has been understudied in this population. From the reviewed literature, it appeared AEI may have higher relevance than TEI for primary education, given that the TEI construct is not well conceptualised in younger children and its measurement is likely unreliable (e.g. Billings et al., 2014). Furthermore, AEI is considered more amenable to direct teaching (Qualter et al., 2007); consequently likely to be of more interest to educators. Therefore the project takes an ability approach to EI.

The overall aim of the project was to contribute to the understanding of the impact of AEI support in children under 10 years old. More specifically, it wanted to establish whether it is possible and beneficial to create a Wave 2 targeted AEI-specific support programme to provide catch-up skill learning opportunities for pupils whose AEI is below that of their peers. Such a programme has not yet been developed but has potential to become an invaluable tool for educators to promote positive life outcomes for young learners. Once developed, the plan was to conduct an initial evaluation to establish its effectiveness at raising EI, and investigate impact on academic progress; consequently contributing much needed evidence relating to the effectiveness of support programmes in enhancing EI, and whether such support leads to enhanced academic progress.

However, following a review of the literature, it became clear that there is a lack of good quality evidence regarding the contribution of EI to AA in the target population and that this deficit is largely due to a lack of appropriate measures for this age group (Agnoli et al., 2012; Billings et al., 2014). This lack of evidence is significant because if EI is not linked to AA within the target age-range, it would be irrelevant to evaluate an EI programme in terms of academic progress. As established above, it would also limit educator receptiveness to a new EI support programme. The lack of suitable measures was also a huge limiting factor as it is impossible to investigate a construct

without being able to assess it. Therefore, an initial phase was necessarily added to the project with two further aims: to develop a suitable measure and investigate if AEI likely contributes to AA in the target population. Because creating a measure from scratch is a complex undertaking and beyond the scope of this project, it was decided to revise and update the EISC (Sullivan, 1999) for use in the project.

Consequently, the project occurred in two phases. In phase one, it focussed on revising the EISC to develop a suitable measure of AEI for the target age range, before conducting a preliminary evaluation to establish whether the revised measure was adequate alongside determining if EI contributed to AA in the target population. In phase two, a theoretically based Wave 2 AEI support programme, *The Emil Programme*, was created and an initial evaluation of its effectiveness in improving EI and AA, conducted. Figure 1 illustrates the project progression and gives the research questions for each phase. A quantitative empirical approach was taken for the studies.

The structure of this thesis maps the progression of the project. First, Chapters 2 and 3 report the initial review of the literature. Chapter 2 provides a brief background to the EI concept, beginning with a brief historical introduction before reviewing the two prevalent conceptualisations of EI and an overview of measurement approaches. Chapter 3 then reviews the current knowledge base regarding EI in children, starting with an examination of its conceptualisation in childhood, followed by a review of measures for children and the relationship between EI and AA. The chapter concludes with an examination of how EI may be acquired and how its acquisition is currently supported within schools. The focus of Chapter 3 is on the literature regarding EI in pre-adolescence, but where salient adult and adolescent EI research is drawn upon.

Chapters 4 and 5 cover phase one of the project. Chapter 4 details how the EISC was revised by implementing the changes suggested by Sullivan (1999) and ensuring the content remained relevant to create EISCr1. Chapter 5 then describes Study 1, a preliminary investigation to evaluate EISCr1 and establish whether EI contributes to AA in the target population. The study had two research questions. Firstly: Is the revised EISC (EISCr1) sufficiently reliable and valid to assess primary school children's AEI? Secondly: Can AEI directly contribute to the prediction of AA in children in school years one to four in an English School?

The contribution of EI to AA was assessed using two regression analyses, with EI being entered as a predictor variable along with two possible cognitive mediators, working memory and sustained attention, and maths and English scores as dependent variables. EISCr1 was evaluated by assessing internal consistency and concurrent validity.

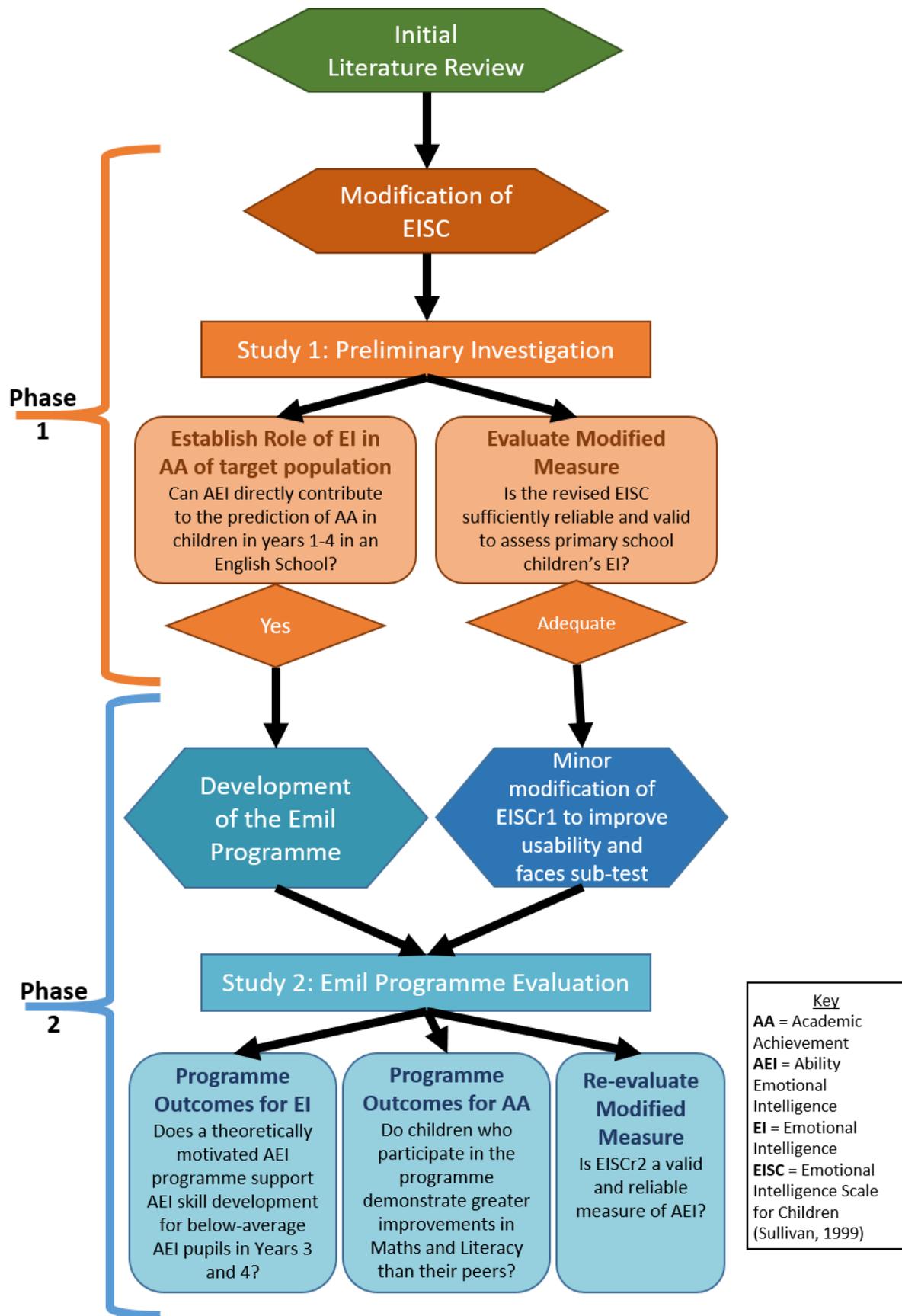


Figure 1: Flowchart illustrating the progression of the project and research questions.

The project then moved onto phase two, which is reported in Chapters 6 to 10. Chapter 6 details some extra refinements made to the revised EISC resulting in the creation of EISCr2. These refinements mostly centred on the removal of redundant items with the exception of the Faces subtest which required more extensive revision. Chapters 7 to 9 then describe the development of the Emil Programme. Initially, Chapter 7 reports a review of exemplar programmes, which was undertaken to establish the types of activities which may be effective in developing EI. Next the decision process regarding the scope of the programme is outlined in Chapter 8, followed by the selection of activities. Finally, Chapter 9 details the preparation of resources for the programme, beginning with a literature search to establish the necessary knowledge to be taught for each area of the programme curriculum, followed by details of the creation and piloting of the programme resources. Chapter 10 describes the second empirical study of the project: an initial evaluation of the newly developed Emil programme. This study was an intervention study, using a pretest – intervention – posttest methodology, with two research questions. Firstly: Does a theoretically motivated AEI programme support AEI skill development for below-average AEI pupils in School Years 3 and 4? Secondly: Do children who participate in the programme also demonstrate greater improvements in maths and literacy than their peers? In addition, the study also investigated the validity of EISCr2 with the research question: Is EISCr2 a valid and reliable measure of AEI?

The thesis concludes with Chapter 11 where revisit the project aims are revisited and conclusions regarding the progress made towards them given. Recommendations for directions for future research and modifications to the programme and measure, are also outlined.

2 Literature Review Part 1: Background

2.1 Introduction to Emotional Intelligence (EI)

Traditionally, many psychologists have defined intelligence as cognitive ability or rational thought and have seen emotions as completely separate entities from this (Daus, 2006). At most, emotions were seen as problems which prevented rational decision making (Humphrey et al., 2007). However, an interaction between emotions and thought whereby the two are interdependent and can both help and hinder each other is now becoming recognised (Damasio, 2006). At its broadest level, EI can be viewed as the embodiment of this process (Daus, 2006), defined as a person's aptitude in perceiving, reasoning with, and managing their own and other's emotions (Spector, 2005; Zeidner & Matthews, 2018).

Whilst the concept of an EI has been mentioned in various writings for many years, the modern scientific construct of EI is relatively new (Roberts et al., 2010). EI is mentioned in literary works as

early as the 1950's (Zeidner & Matthews, 2018). In the scientific community, although it is argued that early intelligence researchers recognised that understanding and processing emotional information may constitute part of intelligence (Murphy & Sideman, 2006), EI was mentioned in only a couple of journal articles in the 1960s and 1980s before the first theory of EI was proposed by Salovey and Mayer (1990) (Zeidner & Matthews, 2018). During the 1990's, EI became a popular construct, largely as result of Goleman (1996)'s book "Emotional Intelligence: Why it can matter more than IQ", which many believe was appealing as a more hopeful, malleable alternative to the elitist, fixed concept of IQ (Matthews, Emo, Roberts, & Zeidner, 2006). Following in the wake of popular interest, there has been a plethora of books and training programmes devoted to the concept (Landy, 2005), leading to EI being described as a "Zeitgeist" (Mayer, Salovey, & Caruso, 2000a, p. 92) and "Bandwagon" (Murphy & Sideman, 2006, p. 41). Scientific interest in EI also increased in parallel with the concepts popularity (Roberts et al., 2010), but opinion is more divided with some researchers agreeing that EI shows promise over and above existing constructs, whilst others are sceptical, arguing that it is a poorly re-defined version of existing constructs and its importance is highly exaggerated (e.g. Landy, 2005; Locke, 2005). Consequently, the research literature is more cautious and evidence has not kept pace with public opinion (Matthews, Zeidner, et al., 2004). This clash between the popular appeal of EI and traditional, scientific caution has led to different approaches to and conceptualisations of EI which Murphy and Sideman (2006) describe as practitioner versus scientist approaches. They argue that the scientist approach focusses on cautious testing of theory and collation of evidence so is likely to lead to a narrow theory with interventions that target a narrow limited skill area, whilst practitioners are more driven by the need to solve a problem, without waiting for positive evidence, and therefore are likely to develop over inclusive theories which lead to generic feel-good programmes with weak evidence bases.

2.2 What is Known About EI?

As mentioned above, there have been divergent approaches to the study and application of EI (Murphy & Sideman, 2006). This has resulted in a range of definitions for EI, many of which share little overlap with each other (see section 2.3 below), which is problematic for synthesis of findings (Matthews, Zeidner, et al., 2004). Alongside this range of definitions, a wide variety of EI measures have been created, which again tend to have little in common with one another (Spector & Johnson, 2006). However, it is notable that the vast majority of these measures are self-report paper and pencil type assessments; particularly those used in applied settings such as workplaces and schools (Brown et al., 2018), meaning much of the current EI knowledge base is based on people's self-reports. The pros and cons of this approach are discussed in more detail in section 2.4 below.

Despite the above concerns, in the last two decades, a reasonable amount has been learnt about EI associations in the adult population (Zeidner, Roberts, & Matthews, 2008). Although strengths of associations are still debated, EI has been linked to a number of desirable outcomes including health (Martins, Ramalho, & Morin, 2010) stress management (Laborde, Allen, & Guillén, 2016), social functioning (e.g. Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006), academic outcomes (Parker, Saklofske, Wood, & Collin, 2009), and workplace performance (Van Rooy & Viswesvaran, 2004). Consequently, despite its relative infancy as a construct, EI has become extremely popular with many workplaces now using it as a selection criteria (Palmer, Stough, Harmer, & Gignac, 2009). Indeed Perez-Gonzalez and Qualter (2018) report that the World Economic Forum has identified EI as a top skill sought in the labour market for 2020. Nevertheless, many areas of controversy remain including the appropriateness of the title Emotional *Intelligence*, its conceptualisation and measurement.

Currently, less is known about EI in children, particularly in pre-adolescence where there is a relative dearth of research (Papadogiannis, Logan, & Sitarenios, 2009; Qualter et al., 2007; Williams, Daley, Burnside, & Hammond-Rowley, 2009), although Qualter et al. (2007) asserted it has been linked to later success in a variety of outcomes including academic achievement for adolescents. Similarly, Parker et al. (2009) claimed that evidence is beginning to emerge for a link between EI and academic success in younger children, as will be discussed further in the next chapter. Furthermore, evidence suggests that there may be a link between EI and school adaptation (e.g. Mestre, Guil, Lopes, Salovey, & Gil-Olarte, 2006). These findings suggest that EI may be an important factor in schools.

Humphrey (2013) described EI as the “organising idea” (p. 39) for Social and Emotional Learning (SEL) which in turn has become “*the dominant orthodoxy in education*” (p. 4) worldwide.

Consequently, EI in schools has been subsumed under SEL which is defined by the Collaborative for Academic, Social and Emotion Learning (CASEL) as “The process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions” (CASEL, n.d.).

2.3 Conceptualisation of EI

The proposal of Petrides and Furnham (2000) that EI can be conceptualised either as a cognitive ability or as a set of personality traits is now widely accepted (Barchard et al., 2016). These two approaches are separated both by their theoretical positioning of EI and their approach to measurement (Roberts et al., 2010).

Ability EI theorists believe EI is best defined as a set of cognitive abilities which allow a person to reason about emotions (Mayer & Salovey, 1997). This includes applying their emotional knowledge in context to enhance thought and perceive, understand and manage their own and other's emotions (Mayer, Salovey, & Caruso, 2000b). Ability EI theorists argue that it operates in the same way as other cognitive abilities but involves processing emotional rather than intellectual information (Roberts et al., 2010). Consequently, they position it within traditional intelligence hierarchies such as the Cattell-Horn-Carroll structure (MacCann, Joseph, Newman, & Roberts, 2014). Ability EI should be measured through performance on related tasks (Mayer & Salovey, 1997).

Trait EI theorists view EI as the particular aspects of personality that relate to emotions (Petrides, 2009). This includes behavioural dispositions regarding emotions and people's self-perceptions of their emotional abilities (Petrides, Frederickson, & Furnham, 2004). It is believed to fit within the well-known models of personality such as the Big Five and Eysenckian hierarchies as a lower order trait (Petrides, Pita, et al., 2007). Given that Trait EI is considered a part of personality, and relates to people's self-perceptions, it is best measured through the aforementioned popular self-report measures (Neubauer & Freudenthaler, 2005).

Clearly these are two very different approaches to conceptualising EI. Although some critics argue that the ability approach is more scientific than the trait approach (e.g. Matthews, Zeidner, et al., 2004; Murphy & Sideman, 2006), the major issue appears to be avoiding confusion regarding what the EI label refers to (Matthews, Zeidner, et al., 2004).

A final key issue regarding the conceptualisation of EI is whether it is appropriate to use the *intelligence* label with regard to emotions (Gignac, 2009; Landy, 2005; Locke, 2005). To satisfy this question, (Mayer et al., 1999) identified three criteria which must be met for EI to operate as an intelligence, which are summarised in Figure 2.

Mayer, Caruso & Salovey (1999)'s Criteria for an Intelligence		
<p><u>Conceptual</u></p> <p>The intelligence must reflect mental performance (not preferred behaviours or self-esteem) in relation to a given concept</p> <p>EI must be described as abilities not behaviour</p>	<p><u>Correlational</u></p> <p>The intelligence specifies a set of connected abilities which are unique yet share some variance with existing intelligences</p> <p>EI abilities should be moderately intercorrelated with each other and existing intelligences</p>	<p><u>Developmental</u></p> <p>Intelligence develops from childhood to adulthood</p> <p>EI should develop in tandem with age and experience.</p>

Figure 2: Criteria for an intelligence identified by Mayer et al. (1999)

Firstly, Mayer et al. (1999) declared it should be possible to operationalise EI as abilities. By this they mean that an intelligence should relate to mental processing of information rather behavioural dispositions or self-beliefs (Mayer et al., 1999). Secondly, they stated “an intelligence should describe a set of closely related abilities that are similar but distinct from mental abilities described by already established intelligences (Carroll, 1993; Neisser et al., 1996).” (Mayer et al., 1999, p. 270). Consequently, they asserted EI should meet the correlational criteria of the abilities correlating amongst each other and showing some correlation, but also some variance, with established intelligences. Finally, Mayer et al. (1999) asserted a developmental criterion has been established whereby intelligence develops from childhood through adulthood; therefore this developmental progression should be evident for EI.

2.3.1 Ability EI (AEI).

As mentioned above, the AEI model views EI as a cognitive ability which links intelligence and emotion to enhance thought processes (Mayer, Roberts, & Barsade, 2008). The approach is dominated by the integrative four-branch model developed by Mayer, Salovey and colleagues (Mayer, Caruso, & Salovey, 2016a; Mayer & Salovey, 1997). In this model, EI works in a unitary manner but is subdivided into four components: Perception, Appraisal, and Expression of Emotion; Emotional Facilitation of Thinking; Understanding and Analysing Emotions; and Reflective Regulation of Emotions (Mayer & Salovey, 1997).

According to Mayer and Salovey (1997), the emotional perception branch incorporates both perceiving and expressing emotions. They identified a progression of four skills starting with being able to identify one’s emotions, followed by recognising emotions in others, objects, and the environment. The final two skills are accurately expressing emotions and knowing whether demonstrations of emotions are genuine. This branch appears to have been largely derived from the perception skills identified in the Salovey and Mayer (1990) EI model, which they asserted were derived from assimilating a variety of scattered research findings, particularly those concerning Alexithymia and empathy. In general, the perception skills appear relatively accepted; although Maul (2012) questioned whether it is possible to perceive emotions in objects. Mayer, Salovey, and Caruso (2012) defended this, however, arguing there is a body of research indicating that certain features have emotion connotations.

The emotional facilitation of thinking branch, refers to the way in which emotion can support intellectual processing. The branch begins with emotions acting as attentional filters to ensure attention to the most salient information, followed by emotions supporting memory and judgement. Thirdly, a person’s mood affects their outlook and therefore encourages acceptance of multiple

points of view. The final emotional facilitation skill involves using different emotional states to facilitate specific problem solving approaches. Again these skills appear to mimic those identified in the original Salovey and Mayer (1990) model, which they derived from various research findings. However, there is increasing scepticism regarding the facilitation branch of the model with various analyses failing to find support for it both empirically (e.g. Ciarrochi, Chan, & Caputi, 2000; Palmer et al., 2005; Roberts et al., 2006) and conceptually (Joseph & Newman, 2010; MacCann et al., 2014), leading several commentators to argue that it should be omitted from the ability model (Maul, 2012). Indeed, in recent years there have been several models and measures developed which, though based on the Mayer and Salovey (1997) model, have assumed a three branch structure omitting the facilitation branch (e.g. Joseph & Newman, 2010; Sanchez-Gomez & Bresó, 2019; Schlegel & Mortillaro, 2019). Mayer et al. (2016a) argued against this trend however. Whilst they acknowledged that research has not found support for the facilitation branch, they maintained that it makes conceptual sense to retain it as problem solving area, and that the failure of this branch to emerge as a factor on the MSCEIT (the predominant measure of AEI) is due to the separation of mental abilities from domain content. More recently, Elfenbein and MacCann (2017) proposed a re-defined model with six branches: perceive emotions, express emotions, understand emotions, regulate own emotions, regulate others emotions, and emotion attention regulation. In this model, emotion facilitation of thought is subsumed within the regulate own emotions branch rather than forming a branch on its own (Elfenbein & MacCann, 2017).

The understanding and analysing emotions branch refers to an individual's ability to understand the relations between emotions and use emotional knowledge. The first skill is being able to label and relate emotions to one another, followed by deciphering the meaning of emotions. The third skill involves recognising that emotions can occur simultaneously or as blends, whilst the final skill relates to knowing the frequent or likely transitions that occur between emotions. This branch was not represented in the original Salovey and Mayer (1990) model and therefore embodies much of the "thinking about feelings" (Mayer & Salovey, 1997, p. 10), which Mayer and Salovey (1997) stated was the key reason for updating the model. Although they gave illustrative examples of the skills within the branch, Mayer and Salovey did not indicate the sources from which they derived the skills. Nevertheless, encouragingly the branch progression concurs with other models of emotional understanding (Qualter, Urquijo, Henzi, Barrett, & Humphrey, 2018). However, Smieja, Orzechowski, and Stolarski (2014) suggested the skills may be more dependent on perception rather than analysis of emotions; questioning the *analysing* part of the branch label.

The reflective regulation of emotions branch refers to meaningful regulation of emotions in order to facilitate emotional and intellectual growth (Mayer & Salovey, 1997). Within this branch, Mayer and Salovey (1997) expect an emotionally intelligent person should first be able to tolerate comfortable and uncomfortable emotions as they occur. Secondly, they should be competent at choosing whether to attend to, or disregard, an emotional reaction; depending on its potential usefulness. Thirdly, they should understand whether a mood is useful to attend to. Finally, they can control emotions in themselves and others. According to Salovey and Mayer (1990), this branch was largely informed by research on mood. Some authors have suggested that the content descriptions is too subjective to be classified and objectively measured as intelligence abilities (Austin, 2018; Maul, 2012). Mayer et al. (2012) conceded this point to a certain extent, accepting that positive regulations is “dependent upon the individual’s goals and context” (p. 404), however they argued that it is acceptable to measure a person’s knowledge of emotions management assuming that they will apply it when required.

The Mayer and Salovey (1997) model is the predominant AEI model on which most research and AEI measures are based (Austin, 2018). Mayer et al. (2016a) recently updated the model to add some new areas to the perceiving and understanding branches. They have also added more detail to some of the areas, most notably splitting the final managing area into three separate processes. However, this model is too new to have been widely utilised as yet and was not available when the project started. Consequently, the majority of the literature reviewed here relates to the Mayer and Salovey (1997) model. For reference, the 1997 and 2016 models are summarised and compared in Figure 3.

Mayer et al. (1999) asserted that AEI meets all their standards for classification as an intelligence (see Figure 2). Clearly the model aims to operationalise EI as abilities, however some reviewers questioned whether this has been adequately achieved; arguing it confounds knowledge with abilities, in that it assumes EI is demonstrated through declarative knowledge, rather than implicit procedural knowledge and processes facilitating effective performance on tasks which require EI (Matthews et al., 2006). This is problematic because a person having a high level of knowledge regarding emotions does not mean that they will be skilled at using that knowledge when required (Brody, 2004). Austin (2018) further argued that some areas appear to combine intelligence with dispositional traits, citing as an example Robert et al (2008)’s (cited by Austin, 2018) observation that management of others emotions will be influenced by whether one cares if other people are experiencing negative emotions. Furthermore, critics argue that AEI measures fail to adequately assess EI abilities in the same way that standard IQ abilities are measured (Matthews, Roberts, et al., 2004), as will be discussed further in the measurement review.

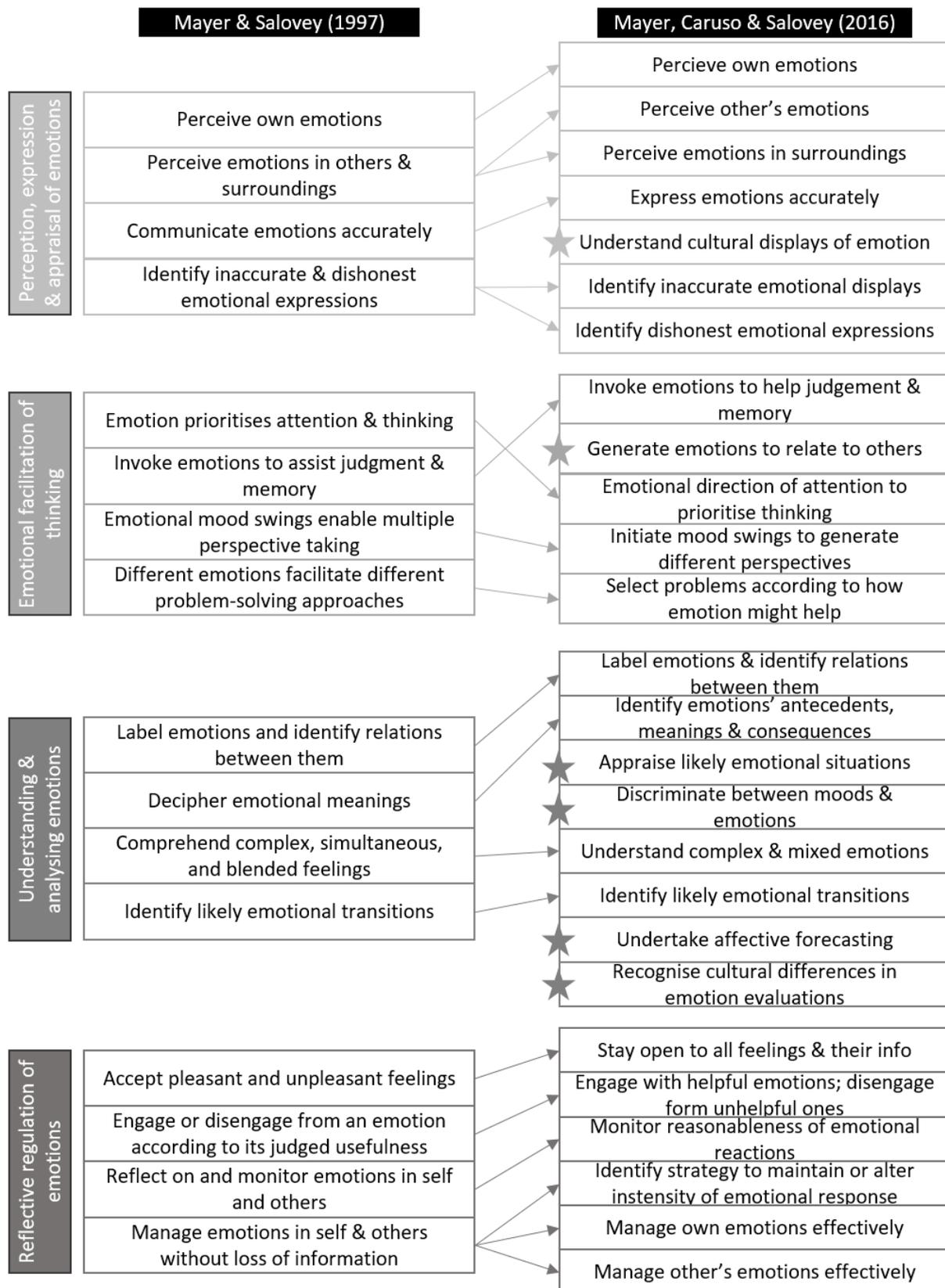


Figure 3: Comparison of the Mayer and Salovey (1997) and Mayer et al. (2016a) AEI models. Arrows indicate how the original abilities map onto the new model and stars denote newly added areas.

For the correlational criteria, with regard to the relatedness of abilities, Mayer and Salovey (1997) asserted that the branches progress from basic (Emotional Perception) to more advanced integrative psychological processes (Emotional Management) and Mayer et al. (2016a) clarified that the branches are not discrete but feed into one another. Support for this can be found from Joseph and Newman (2010)'s cascading EI model for job performance, in which they successfully demonstrated that perception of emotion contributed to appraisal of emotion, which in turn contributed to regulation of emotion, which finally predicted job performance. However, factor analytical investigations of measures based on the model have not always found an overall EI factor (e.g. Fan, Jackson, Yang, Tang, & Zhang, 2010). In terms of its relationship with other intelligences, most studies have found the expected small, but significant, associations between AEI and cognitive intelligence measures (e.g. MacCann et al., 2004; Palmer et al., 2005), although some authors report that only the understanding branch is substantially related to general cognitive intelligence; leading them to question whether EI as a unified construct meets the standard for intelligence (Austin, 2010; Roberts, Zeidner, & Matthews, 2001).

Finally, in relation to the developmental criteria, Mayer and Salovey (1997) asserted that EI develops throughout childhood into early adulthood. Most researchers concur with this (Matthews, Zeidner, et al., 2004) and there is some supporting evidence (e.g. Mayer et al., 1999; Rivers et al., 2012). However, there has been insufficient empirical investigation of EI in children to confidently confirm the developmental criteria.

Despite the above concerns, evidence is accumulating that AEI can be located within the intelligence domain, with research demonstrating the Cattell-Horn-Carroll intelligence model can be extended to add EI as a second-order factor (Evans, Hughes, & Steptoe-Warren, 2019; MacCann et al., 2014). This, coupled with the clear operational definition provided by the Mayer and Salovey (1997) model mean the AEI conceptualisation is favoured by those who take the scientist approach to EI (Murphy & Sideman, 2006). Nevertheless, there remain a couple of conceptual concerns. Firstly, as previously discussed, there is increasing scepticism regarding the four-branch structure of the model, with the emotional facilitation of thinking branch not being supported.

Secondly, there is concern regarding the model's applicability across different emotions (Austin, 2010; Matthews et al., 2006). Matthews et al. (2006) asserted that the different emotions are supported by different neurological systems therefore potentially limiting the generalisability of EI across emotions. In this line of thought, it would be unreasonable to assume that a person who is good at managing one emotion is necessarily good at managing all other emotions. As yet there appears to have been no empirical research regarding the cross-emotional variation in EI.

Similarly the cross-cultural applicability of the model is unclear. Many aspects of AEI are likely to be differentially displayed and valued in different cultures (Conte, 2005; Zeidner & Matthews, 2018). In particular emotional expressions are known to be defined by cultural norms (Lindquist, Gendron, & Satpute, 2016). Furthermore, different cultures have been found to value emotions differently with individualistic cultures tending to value expression of emotions whereas collectivist cultures place more value on regulation of emotional expressions (Camras, Fatani, Fraumeni, & Shuster, 2016). According to Zeidner and Matthews (2018) EI research has not generally included cross-cultural analyses, therefore it is unclear whether the skills of the four-branch AEI model, which were primarily derived within a western culture, are independent of culture.

In summary, the ability conceptualisation of EI and its dominant four-branch model are strong representations of EI as an intelligence. Whilst questions have been raised over the content and structure of the Mayer and Salovey (1997) model, most reviewers agree that it sufficiently well-defined and established to provide a starting point for research focussing on the science of EI (e.g. Daus, 2006), with most such research having been published in peer-reviewed journals (Murphy & Sideman, 2006), and therefore subjected to a high level of scrutiny. Furthermore, as will be discussed in the measurement section, most researchers see more value in the performance-based assessments associated with the ability model (e.g. Matthews, Zeidner, et al., 2004).

2.3.2 Trait EI (TEI).

In contrast to AEI, TEI proponents do not aim to align EI with cognitive intelligence but instead operationalise it as a person's self-perceptions of their emotional world (Petrides et al., 2016). There are a multitude of different models within the TEI domain (Zeidner et al., 2008). Indeed there is some disagreement amongst commentators on the best label for this domain, with some preferring the label mixed-models because they typically include aspects of both personality and abilities (e.g. Mayer, Salovey, & Caruso, 2008), and others arguing a distinction between pure trait models and mixed models (e.g. Zeidner et al., 2012). However, Petrides et al. (2016) argue that Trait EI encompasses all aspects of EI measured through self-perceptions and therefore, the label Trait EI will be used for such models in this review.

Although there are many different EI models within the trait domain, there are three models which have been particularly influential: Goleman (1996)'s conceptualisation was key for igniting interest in the EI concept (Murphy & Sideman, 2006); Bar-On's EQ-i model, first released in 1997, was the first and therefore most studied non-cognitive EI model recognised in research literature (Neubauer & Freudenthaler, 2005) and Petrides and Furnham (2001)'s definition was one of the first to specifically

locate within personality dimensions (Brown et al., 2018). Figure 4 briefly summarises the current version of each of these models.

Goleman, Boyatzis & McKee (2002)	Bar-On (2000)	Petrides & Furnham (2001)
<p>Self-Awareness</p> <ul style="list-style-type: none"> • Emotional self-awareness • Accurate self-assessment • Self-confidence 	<p>Key Components</p> <ul style="list-style-type: none"> • Self-regard • Interpersonal relationship • Impulse control • Problem solving • Emotional self-awareness • Flexibility • Reality testing • Stress tolerance • Assertiveness • Empathy 	<p>Facets of Trait EI</p> <ul style="list-style-type: none"> • Adaptability • Assertiveness • Emotion appraisal • Emotion expression • Emotion management • Emotion regulation • Impulsiveness • Relationship skills • Self-esteem • Self-motivation • Social competence • Stress management • Trait empathy • Trait happiness • Trait optimism
<p>Self-Management</p> <ul style="list-style-type: none"> • Self-control • Transparency • Adaptability • Achievement • Initiative • Optimism 		
<p>Social Awareness</p> <ul style="list-style-type: none"> • Empathy • Organisational Awareness • Service 	<p>Facilitators</p> <ul style="list-style-type: none"> • Optimism • Self-actualisation • Happiness • Independence • Social responsibility 	
<p>Relationship Management</p> <ul style="list-style-type: none"> • Inspiration • Influence • Developing others • Change catalyst • Conflict management • Teamwork & collaboration 		

Figure 4: Summary of the three most influential TEI models.

Goleman (1996) describes EI as “abilities such as being able to motivate oneself and persist in the face of frustrations; to control impulse and delay gratification; to regulate one’s moods and keep distress from swamping the ability to think; to empathize and to hope.” (p. 34). He has revised his model several times, leading some to question its conceptual integrity (e.g. Matthews, Zeidner, et al., 2004) as well making synthesis of research findings problematic (Landy, 2005). In the latest model, Goleman, Boyatzis, and McKee (2002) identified 18 competencies, organised into four areas: Self-Awareness, Self-Management, Social Awareness and Relationship Management (see Figure 4 for individual competencies).

Although Goleman’s model and writings have been highly influential with public and business audiences (Murphy & Sideman, 2006), they have been heavily criticised within the scientific community. For example, the model is regarded as being over inclusive (e.g. Locke, 2005; Matthews, Zeidner, et al., 2004), however the biggest issue that scientists have with Goleman’s work is the claims he made for the predictive importance of EI whilst failing to make the data on which he based

such conclusions available for scrutiny (Landy, 2005). In particular, one of his most notable claims, that EI is more important than IQ for life success (Goleman, 1996), has been shown to be both conceptually and empirically unfounded (Waterhouse, 2006). Waterhouse (2006) presented evidence that Goleman misinterpreted the data on which he based his claims and cited several subsequent studies that failed to find support for his claims. Van Rooy and Viswesvaran (2004)'s meta-analysis of the predictive validity of EI also found no support for Goleman's claims; although it should be noted that they did not use a measure based on Goleman's model. Nevertheless, in a study using the Goleman model based ECI measure, Byrne, Dominick, Smither, and Reilly (2007) found EI to be unrelated to academic performance and only weakly related to workplace success. Despite these concerns, the model has been used to develop the CASEL definition of Social and Emotional learning which is widely used in education (Brown et al., 2018).

Bar-On described emotional and social intelligence as "a multifactorial array of interrelated emotional, personal and social abilities that influence our overall ability to actively and effectively cope with daily demands and pressures." (Bar-On, 2000, p. 385). Although his original 1997 model identified 15 components of EI, he revised this in 2000 to 10 constituent components with an additional five facilitating components (Neubauer & Freudenthaler, 2005), as shown in Figure 4. This is due to findings from factor analyses using the Emotional Quotient inventory (EQ-i) measure (Bar-On, 2000). Despite this model being one of the most widely used definitions of EI (Roberts et al., 2010), it has been frequently criticised for being too broad (e.g. Locke, 2005). Furthermore, several reviewers have questioned its distinctiveness from personality, following evidence suggesting the EQ-i shows little discriminant validity from personality measures (e.g. Livingstone & Day, 2005; Webb et al., 2013).

Petrides and Furnham (2001) derived their sampling domain for TEI through content analysis of the EI models available at the time, which included early versions of both the aforementioned trait models as well as Salovey and Mayer (1990)'s original conceptualisation. This domain consists of 15 facets: adaptability, assertiveness, emotion appraisal, emotion expression, emotion management, emotion regulation, impulsiveness, relationship skills, self-esteem, self-motivation, social competence, stress management, trait empathy, trait happiness, and trait optimism (Figure 4). The model appears more conceptually valid than many other TEI approaches since it specifically treats EI as a personality trait, therefore avoiding any confounding with abilities (Zeidner et al., 2012). Nevertheless, as with the above models, critics have argued that the domain is too broad and shares too much overlap with personality dimensions (Austin, 2018; Zeidner et al., 2012), however the

authors have presented evidence to refute these claims demonstrating that trait EI is distinct lower order trait within both Eysenckian and Big Five personality hierarchies (Petrides, Pita, et al., 2007).

Although there is considerable overlap amongst the models described above, there are also notable differences in the competencies they identify (Brown et al., 2018). Indeed, Petrides and Furnham (2001) acknowledged it is unlikely agreement about the content of TEI will ever be reached, likening it to selecting sports to be included in the Olympic games. This seems particularly relevant given that it seems especially likely that TEI is culturally bound because it concerns people's self-perceptions of their emotional abilities, which will be shaped by culture (Zeidner & Matthews, 2018). Clearly this lack of cohesion is problematic for identifying the relationships of Trait EI to external variables since research using different conceptualisations cannot be confidently synthesised (Laborde & Allen, 2016; Landy, 2005; Petrides et al., 2016). As mentioned above, many researchers are sceptical of the breadth of TEI definitions; arguing that they represent a diluted construct of EI (e.g. Humphrey, 2013), which includes any affective positive quality (e.g. Matthews et al., 2006) and lacks meaning (e.g. Roberts et al., 2010). Furthermore, TEI models have been found to include concepts which are more likely to outcomes rather than determiners of EI (Austin, 2018).

Because TEI protagonists place the construct within personality domains, critics have argued that it cannot operate as an intelligence (Roberts et al., 2010). An evaluation of the three models discussed here, alongside the four-branch AEI model, using the criteria of (Mayer et al., 1999) is presented in Table 1. Briefly, in terms of the overall concept, TEI is often defined in terms of behavioural outcomes, rather than abilities (Roberts et al., 2010), and measures show little correlation with established intelligence measures (e.g. Bar-On, 2000); meaning it violates both the first and second criteria. Indeed in some cases, it has been shown to correlate negatively with academic intelligence (e.g. Brackett & Mayer, 2003), which is of concern if a TEI test is used as selection tool since it may unintentionally lead to recruitment of candidates who have low cognitive ability (Zeidner et al., 2012). With regard to the third developmental criteria, Petrides et al. (2016) conceded that TEI is not well understood in childhood, meaning evidence for this is scarce. Consequently, TEI does not fit within the traditional intelligence domain (Matthews, Zeidner, et al., 2004); on the other hand Petrides (2009) argued that EI is among a number of "faux intelligences" (p. 86) and the Trait approach allows it to be integrated into "mainstream differential psychology" (p. 88).

Table 1: A Concise Evaluation of Four Predominant EI Models in Terms of Intelligence Criteria

Mayer et al (1999)'s intelligence criteria	Goleman, Boyatzis & McKee (2002)	Bar-On (2000)	Petrides & Furnham (2001)	Mayer & Salovey (1997)
Operationalised as abilities	✓	?	✗	✓
	Goleman et al. (2002, p. 38) describe their competencies as “learned abilities”	In his description of the EQ-i Bar-On (2000, p. 364) emphasises it is “a measure of emotionally and socially competent behaviour”. However he also defines the subscales in terms of abilities (p365).	Petrides and Furnham (2001) emphasise that traits are dispositions. However they also acknowledge that their sampling domain includes some self-perceptions of abilities	Mayer and Salovey (1997) emphasise that EI must relate to mental abilities
Correlates moderately with existing intelligence measures	✗	✗	✗	✓
	Boyatzis and Sala (2004) report studies have found no relationship with cognitive abilities or intelligence	Bar-On (2000) reports low correlations of .01 to .12	Due to theoretical placement outside of intelligence domain, this has not been well studied but Mikolajczak, Luminet, Leroy, and Roy (2007) report no relationship with non-verbal ability	Mayer, Roberts, et al. (2008) report overall correlations for MEIS and MSCEIT with verbal intelligence of .36, and .10 to .20 for other intelligences.
Develops with age and experience	✓	✓	✗	✓
	Competencies have been found to be related to age but not level of education (Boyatzis & Sala, 2004)	Matthews, Zeidner, et al. (2004) report that scores have been shown to increase up to around age 30 and then plateau.	Petrides, Furnham, and Mavroveli (2007) report TEIQue scores to be relatively temporally stable, however they emphasise that they would expect differences between adult & child EI.	Mayer et al. (1999) reported that adults score higher than adolescents and studies using the MSCEIT:YV have found age-related score increases for overall EI

Despite the above concerns about the use of the intelligence label, the Trait conceptualisation is the most frequently used EI approach (Day & Carroll, 2004; Petrides et al., 2016; Roberts et al., 2010; Schutte et al., 1998), and is particularly popular amongst those taking a practitioner approach and within organisations (Day & Carroll, 2008; Murphy & Sideman, 2006). Murphy and Sideman (2006) suggested that the appeal of TEI may be due to apparent increased capacity for learning and development within these models compared to the potential to perceive one's abilities as somewhat fixed. However, a personality trait is often viewed as a stable and enduring part of a person (Day & Carroll, 2004; Zeidner et al., 2012) and therefore may not be malleable to change. Furthermore, as McCrae (2000) argued, any single personality trait is unlikely to be an advantage in every situation; therefore if EI is to be considered a global trait which universally enhances performance, it must be shown to have validity over and above its association with personality traits.

The question of the independence of TEI from personality is hugely contended. Whilst some evidence has emerged which shows the construct appears to be conceptually separable from the well-established personality constructs (Petrides & Furnham, 2001; Petrides, Pita, et al., 2007), several studies have highlighted a large overlap (Conte & Dean, 2006). Furthermore Zeidner et al. (2012) point out that even those aspects of EI which have been found to be reasonably distinct from personality, generally correlate around .40 with a quality that is covered by the Big Five on some level, therefore suggesting that there is little about TEI which cannot be explained by the Big Five in some way.

In summary, TEI presents a softer more encompassing approach than AEI which has simultaneously made it less attractive to many in the scientific community and more appealing to the general public (Zeidner et al., 2012). Although, the breadth of TEI and wide range of models makes it harder to operationalise for scientific study, the concept has been hugely influential in encouraging practitioners to consider the emotional aspects of performance. Furthermore, TEI concerns people's self-perceptions of their EI which some researchers point out can be more influential than their actual abilities in certain situations (e.g. Keefer, 2015). Nevertheless, questions continue to be asked about its distinctiveness from personality and validity as an intelligence.

2.3.3 Summary of the current status of EI conceptualisations.

As outlined above, EI models can be classified into two divergent areas: Ability (AEI) and Trait (TEI). AEI theorists emphasise the importance of the intelligence label for EI and therefore define EI as a set of mental abilities within the intelligence domain. In contrast, TEI theorists consider EI to be a faux intelligence and not part of the traditional intelligence domain, defining it instead as a part of a person's personality. Both approaches have pros and cons, as outlined above. In particular the ability

approach is praised for being more carefully defined and more deserving of the intelligence label (e.g. Matthews, Zeidner, et al., 2004) but is often criticised for being too difficult to operationalise objectively (e.g. Maul, 2012). Meanwhile, the trait approach is sometimes considered more promising for developing solutions to problems (Murphy & Sideman, 2006) but has a broad range of definitions and models, limiting its usefulness as a unified concept (Roberts et al., 2010).

Traditionally, each approach has appealed to somewhat different audiences with consensus amongst researchers that the ability model provides the best operationalisation of EI (Allen et al., 2014) whilst practitioners within workplaces and educational settings are often more likely to utilise a trait approach (Murphy & Sideman, 2006). However it is increasingly recognised that the two approaches, rather than being mutually exclusive, are likely to interact with each other (e.g. Austin, 2018; Kirk, Schutte, & Hine, 2008; Murphy & Sideman, 2006). From this viewpoint, one must have both the ability and the disposition to use their ability correctly in order to act in an emotionally intelligent way (Austin, 2018). Indeed, Mikolajczak (2009) presented a three-level model of EI which integrates both approaches. In this hierarchical model, emotional knowledge underpins emotional skills which then underpin emotional dispositions so that emotion knowledge is required to develop emotional skills which are only utilised when the individual has the disposition to do so. Clearly this implies that one must develop AEI first before TEI is utilised to determine how and when the abilities are acted upon. Very recently, Vesely Maillefer et al. (2018) have proposed an integrative model which proposes that Emotional Intelligence is the product of an interaction between AEI, TEI, and emotion information processing. In this model, there is no hierarchical structure but all three components are necessary for EI. Integrative models such as these present an enticing opportunity for EI to move past the much berated lack of unified approach issue (Brown et al., 2018). However as yet little research appears to have adopted these models; this is likely because of a lack of measures which can assess all the different aspects of EI within these integrated models (Brown et al., 2018).

2.4 Measurement of Emotional Intelligence

EI measures can be classified according to two different criteria. Firstly, an EI measure may be based on either an ability or trait model of EI. Secondly, the measure can utilise either a performance or report approach. Performance measures assess EI by asking respondents to correctly answer EI related problems (Matthews, Zeidner, et al., 2004). The underlying assumption for these assessments is that EI is demonstrated by being able to correctly answer such questions (Spector & Johnson, 2006). In contrast, the report approach relies on respondent's ratings of how they believe the person typically behaves in relation to EI competencies (Brown et al., 2018). The most common form of report measure is self-report, whereby participants rate their own EI (Matthews, Zeidner, et

al., 2004). Matthews et al. (2006) reported Perez (2003) identified over 50 different EI rating scales, whereas there is only one comprehensive performance measure in widespread use, the Mayer, Salovey, Caruso, Emotional Intelligence Test (MSCEIT; Mayer, Salovey, Caruso, & Sitarenios, 2003), though some newer performance measures have emerged in recent years (Sanchez-Gomez & Bresó, 2019; Schlegel & Mortillaro, 2019). By definition, if a measure is aligned to the TEI model it must use a report based approach since TEI concerns people's self-perceptions (Petrides et al., 2016). Ability emotional intelligence (AEI) models can theoretically be assessed using either report or performance approaches (Brown et al., 2018). However, several authors have argued that rating scales are an invalid assessment method of AEI (e.g. Perez, Petrides, & Furnham, 2005; Willhelm, 2005). This is because they can only measure people's perceptions of their or others' EI abilities rather than EI performance itself (Perez et al., 2005). Furthermore, studies have found little (Brackett & Mayer, 2003) or no (Brackett et al., 2006; Dacre Pool & Qualter, 2012; Schutte et al., 1998) relationship between self-report and performance AEI measures, with self-report AEI associating more strongly with TEI measures (Barchard & Hakstian, 2004; Brackett & Mayer, 2003; Dacre Pool & Qualter, 2012). Regardless of type, validity of the measure should be a paramount consideration when selecting an assessment tool (Matthews, Zeidner, et al., 2004).

2.4.1 What is a valid measure of EI?

As Conte and Dean (2006) highlighted, EI measures should be evaluated in the same way as most other psychological measures. Accordingly, EI measures should meet psychometric criteria for reliability and validity (Conte & Dean, 2006; Gignac, 2009; Matthews, Zeidner, et al., 2004). According to Matthews, Zeidner, et al. (2004), this means that measures of EI should be reliable and have content, predictive and construct validity. They further asserted that construct validity primarily consists of convergent and divergent validity, however Gignac (2009) added that factorial validity is integral to assessment of validity of measures, and defined convergent validity as a combination of predictive and concurrent validity. He also identified a face validity criteria, but acknowledged that high levels of face validity can be problematic; so this is probably not a particularly important criteria. Combining Matthews, Zeidner, et al. (2004)'s and Gignac (2009)'s criteria, it therefore seems that a valid EI measure should demonstrate reliability, and content, factorial, concurrent, divergent and predictive validity.

Reliability refers to the how consistently the test measures the underlying construct (Mayer, Roberts, et al., 2008). According to Mayer, Roberts, et al. (2008), this requires both internal consistency in that participants responses should be consistent across test items, and test-retest consistency giving consistent responses over time. Consistency across time is most frequently

measured through test-retest formats on the same test, although parallel forms may also be used (Gignac, 2009). Internal consistency can be calculated using split-half reliability, Cronbach's Alpha, or Macdonald's Omega, with the most popular method being Cronbach's Alpha (Gignac, 2009).

Content validity refers to the fact that the test contents should be an accurate representation of the construct being measured (Matthews, Zeidner, et al., 2004). This is a particularly problematic issue for EI measures given that, as Matthews, Zeidner, et al. (2004) highlighted, in order for a test to have good content validity the construct being measured must be well defined, and this has historically been a problem for EI.

Factorial Validity is demonstrated when a factor structure is consistent with the structure intended by the test's developer (Gignac, 2009). According to Gignac (2009), confirmatory factor analysis provides better evidence of factorial validity although Mayer et al. (1999) argued, in light of the relatively new nature of most EI assessment tasks, that exploratory factor analysis is preferable.

Concurrent validity, which appears to often be referred to as convergent validity, is demonstrated through large associations (correlations) with tests of related constructs (Schulze, Roberts, Zeidner, & Matthews, 2005). In particular for EI, scores on EI measures should increase with age and females are expected to score higher than males (Matthews, Zeidner, et al., 2004). Tests of EI should also demonstrate high correlations with each other, otherwise they are likely to be measuring different constructs (Gignac, 2009). In contrast, discriminant validity requires test scores to be unrelated to scores on a test of a theoretically unrelated construct (Schulze et al., 2005). For EI, this tends to focus on its discriminability from personality and cognitive intelligence, given its strong theoretical links with these constructs (Conte & Dean, 2006).

Finally, predictive validity refers to the tests ability to predict useful practical outcomes related to the EI construct in everyday life (Matthews, Zeidner, et al., 2004). It is often argued that, in order to be valid, EI measures must demonstrate incremental predictive validity, where a test can explain additional variance above other established constructs (e.g. Wilhelm, 2005).

An in-depth analysis of the validity of EI measures will not be undertaken here as the youth measures will be critically evaluated in the next section. Briefly however, TEI rating scales generally boast good reliability (Conte, 2005) but have been criticised for poor divergent validity from personality measures (e.g. Matthews, Roberts, et al., 2004). As previously discussed, AEI rating scales suffer poor concurrent validity, being more closely aligned with their TEI counterparts than AEI performance measures sharing common theoretical underpinnings (e.g. Dacre Pool & Qualter, 2012). Finally, performance AEI measures are considered more conceptually valid (e.g. Conte, 2005;

Matthews, Zeidner, et al., 2004; Willhelm, 2005) but are criticised for inconsistent factor structure (Fiori & Antonakis, 2011) and poor convergent validity with specific tests of EI-related abilities (Maul, 2012). The largest criticism of performance EI measures however, is the lack of a verifiably objective scoring criteria (Zeidner et al., 2012). The predominant MSCEIT relies on respondent consensus or expert consensus to establish the correct response, which is considered by many critics to be inadequate as they argue it measures emotional conformity rather than ability (e.g. Fiori & Antonakis, 2011; Matthews, Roberts, et al., 2004; Maul, 2012).

2.4.2 Other validity considerations.

In addition to the above psychometric criteria for validity, reviewers have raised more general concerns regarding the extent to which both rating scales and performance measures can accurately assess EI (e.g. Conte & Dean, 2006; Matthews, Zeidner, et al., 2004; Willhelm, 2005). Firstly, the majority of measures have been developed for a Western audience and therefore may not be sensitive to cultural differences in how emotions are experienced and expressed (Zeidner et al., 2012). The remaining concerns are different for rating scales and performance measures so the two types will be discussed separately below.

2.4.2.1 Specific concerns for rating scales.

Rating scales assess a person's self-perceptions of their EI rather than their actual abilities (Conte & Dean, 2006; Spector & Johnson, 2006). Consequently, in order to provide an accurate assessment of EI, rating scales are reliant on both people's self-conceptions being accurate (Brackett et al., 2006) and respondents being willing to give accurate and honest responses (Spector & Johnson, 2006). Therefore, critics argue that rating scales are unlikely to correctly reflect a person's true EI (e.g. Mayer, Caruso, et al., 2000; Willhelm, 2005).

More specifically, rating scales have been shown to be vulnerable to self-presentation bias, with participants purposefully distorting their responses in order to give a desired impression (e.g. Day & Carroll, 2008). Although some authors have attempted to control for response bias, critics have argued that they have not been wholly successful. For example Bar-On included positive and negative impression management scales on the EQ-i, but Matthews, Zeidner, et al. (2004) argued that they only control for moralistic bias and not egotistical. Furthermore, Day and Carroll (2008) argued that they simply identify very high scores and do not differentiate between faked and genuinely high scores. They also found the positive impression scale failed to identify all instances of faking, with participants who admitted faking being missed. Indeed, even some rating scale authors have repeatedly noted that their measure is susceptible to "faking good" and therefore caution against its use as a selection tool (Schutte, Malouff, & Bhullar, 2009; Schutte et al., 1998).

With regard to accuracy of self-perceptions, Brackett et al. (2006) suggested people generally receive little explicit feedback about their emotional performance and therefore are likely to be unaware of their own level of EI. They supported this claim with their finding that participants' perceptions of their performance on the MSCEIT were unrelated to their actual performance, with those who had lower MSCEIT scores overestimating their performance whilst those with higher MSCEIT scores underestimated it. Livingstone and Day (2005) similarly found participants performance on the EQ-i was related to their self-monitoring ability.

2.4.2.2 *Specific concerns for performance measures.*

Performance tests of ability require a *criterion of correctness* whereby answers must be able to be judged as correct or incorrect (Mayer, Caruso, et al., 2000). For most cognitive intelligence tests, this is achieved through objective verifiable criteria; which can be determined in advance with reference to formal knowledge sources such as dictionaries or textbooks (Legree et al., 2005). However, although Mayer, Caruso, et al. (2000) argued that there are cultural and evolutionary foundations for expecting correct answers to emotional problems, most reviewers agree that, with the exception of facial expressions, there is no objective knowledge base against which to check answers to emotional problems (Conte & Dean, 2006; Legree et al., 2005; Matthews, Zeidner, et al., 2004; Mayer, Caruso, et al., 2000; Petrides, Furnham, et al., 2004).

Mayer et al. (2003) therefore employed the consensus-based model to score the MSCEIT. Using this model, the correct answer is determined by majority opinion, either of the general population (consensus scoring on MSCEIT) or of a group of experts (expert scoring on MSCEIT) (Orchard et al., 2009). Mayer et al. (2003) utilised proportion scoring whereby responses are not scored as correct or incorrect, but rather each response option is assigned a proportional score based on the proportion of the consensus group who selected that option (Papadogiannis et al., 2009).

Consensus-based scoring methods have been widely criticised. Several researchers have criticised the assumption that the most popular answer is necessarily the correct one, pointing out that there are many examples where the majority of people choose the incorrect answer (Fiori & Antonakis, 2011; Matthews, Roberts, et al., 2004; Maul, 2012). In particular Maul (2012) gave the example of a camera smile, which the majority of people would interpret as happy, although it is a deception. Consequently, authors argue that consensus scoring is only effective in measuring conformity to social norms (e.g. Matthews, Zeidner, et al., 2004). Although expert scoring should be less susceptible to social norms, the EI domain covers a variety of emotional skills; consequently knowledge is likely to be fragmented amongst experts in differing fields of study, making identification of an EI expert problematic (Maul, 2012). On the other hand, Legree et al. (2005)

argued that EI falls within a group of knowledge domains which can only be assessed through agreement with societal views, because they are based on implicit knowledge or opinions rather than concrete knowledge. Other reviewers provide support for this viewpoint, for example Brackett et al. (2006) highlighted that being emotionally skilled requires integration with social norms and even Matthews, Zeidner, et al. (2004) accept that consensus scoring may be the best way to assess the appropriateness of emotional reactions, given that they are governed by culture. Because of these scoring difficulties, opponents of AEI argue that the measures are invalid (e.g. Petrides, Furnham, et al., 2004), nevertheless, consensus and expert scoring are considered acceptable scoring methods by many researchers and have been successfully used in various fields of psychology (Legree et al., 2005). However, even AEI proponents agree that verifiable scoring criteria would be preferable (Mayer, Caruso, & Salovey, 2016b) and following advances in emotions theories, some adult EI measures are starting to utilise veridical scoring (MacCann & Roberts, 2008; Sanchez-Gomez & Bresó, 2019).

3 Literature Review Part 2: The EI Construct in Children

As previously reported, EI has received little attention in children, largely due to measurement difficulties. This is problematic in two major ways. Firstly, the lack of information regarding its development hampers coherent conceptualisation of the construct (Papadogiannis et al., 2009). Secondly, given its emerging relevance to adult life success (Zeidner et al., 2008), it is necessary to know how EI develops in order to effectively foster this (Conte, 2005). Additionally, it is important to establish the nomological net of EI in childhood, particularly in reference to academic success, because a positive connection between EI and academic attainment will help convince educators of its importance (Humphrey et al., 2007). This section reviews what is known about the EI concept in childhood, available child measures, and its relationship to academic success; before investigating how it may be improved and briefly reviewing current EI education programmes.

3.1 Conceptualisation of EI in Childhood

Although relatively little attention has been devoted to the EI construct in children, both trait (TEI) and ability (AEI) models hold that EI is developmental in nature with neither construct fully maturing until adulthood (Mayer et al., 1999; Petrides, Furnham, et al., 2007). Clearly this means a child's EI will be less complete than an adult's. This section reviews what is known about TEI and AEI in childhood as well as examining a model specifically relating to children's EI.

3.1.1 Trait Emotional Intelligence (TEI) in childhood.

Little effort appears to have been made to establish the developmental trajectory of TEI. Indeed, even the original proposers of the construct recently conceded that TEI is not well understood in childhood (Petrides et al., 2016).

There appears to be some agreement that infant temperament is the likely precursor to TEI (Gardner, Qualter, & Whiteley, 2011; Petrides et al., 2016; Zeidner et al., 2003) and that, like personality, a moderate to large proportion of TEI is genetically determined (Vernon, Petrides, Bratko, & Schermer, 2008). Nevertheless, TEI is expected to change qualitatively and quantitatively as the individual matures (Petrides, Furnham, et al., 2007). Following this developmental expectation, Mavroveli, Petrides, Shove, and Whitehead (2008) identified nine TEI facets for the child version of the Trait Emotional Intelligence Questionnaire measure (TEIQue:CF), for 8- to 12-year-old children. This list was based on a content analysis of the socioemotional developmental literature (Mavroveli et al., 2008). These are listed in Figure 5 alongside the 15 facets identified by Petrides, Furnham, et al. (2004) as common to most adult TEI models for comparison. Interestingly, all other TEI conceptualisations have assumed construct invariance between child and adult EI and have not differentiated their model for the child measures (Qualter et al., 2015; Wood, Parker, & Keefer, 2009).

Child TEI ^a	Adult TEI ^b
Adaptability	Adaptability
Affective Disposition	Assertiveness
Emotion expression	Emotion expression
Emotion perception	Emotion management (others)
Emotion regulation	Emotion perception
Low impulsivity	Emotion regulation
Peer relations	Low Impulsiveness
Self-esteem	Relationship skills
Self-motivation	Self-esteem
	Self-motivation
	Social competence
	Stress management
	Trait empathy
	Trait happiness
	Trait optimism

Figure 5: Suggested facets for child and adult TEI

^a suggested by Mavroveli et al. (2008)

^b Common facets identified by Petrides, Furnham, et al. (2004)

In addition to specifying different facets for childhood TEI, Mavroveli et al. (2008) asserted TEI will be less differentiated in childhood in terms of the factor structure evidenced in their responses. In accordance with this, Russo et al. (2012) found a unidimensional factor to be the best fit for the TEIQue:CF, whereas Mavroveli and Siu (2012) found a three factor structure (sociability/emotionality, well-being, self-control) for 13- to 16-year-olds on the adolescent TEIQue; which in turn is fewer than the four factors (emotionality, self-control, well-being, sociability) usually associated with the adult TEIQue. However, it is possible that the change in number of factors between the child and adolescent measures, could be due to the differences in their sampling domains (see Figure 5), although this does not explain the difference between the adolescent and adult factors since both measures are derived from the same model (Petrides, 2009). Further supporting Mavroveli et al. (2008)'s assertion, Keefer et al. (2013), found the factors of the short Youth Version of the Emotional Quotient inventory (EQ-i) became more differentiated with age, evidenced by decreased inter-factor correlations; although they found all four factors to be present throughout the whole sample age range (10 to 17 years old). They also found some evidence of increasing differentiation within two of the factors (interpersonal and stress-management) as age increased.

All authors of the above studies attribute the developmental trend of increasing differentiation to an underlying developmental increase in the accuracy of self-perceptions (Keefer et al., 2013; Mavroveli & Siu, 2012; Russo et al., 2012). Whilst the accuracy of children's self-reports is undoubtedly poor, as is discussed further in section 3.2.1.2, it is unclear whether low-quality self-report is sufficient to indicate less-developed TEI, or whether the lowered differentiation in children's responses is merely highlighting a measurement issue. It could, for example, be the case that younger children have difficulty accessing the content of the scales, and that, if a different assessment approach was found, they would display similar factor structure to adults. However, since TEI concerns self-perceptions of emotional competencies (Petrides, Furnham, et al., 2007), it seems likely that its development is at least partially dependent on self-reflection ability. Given that this is believed to be poor until adolescence (Keefer, 2015), it seems likely that TEI awareness may mature during adolescence (Keefer et al., 2013).

3.1.2 Ability Emotional Intelligenge (AEI) in childhood.

As with TEI, AEI theorists explicate a developmental expectation for it to increase with age. Early research, using AEI measures, broadly supported this assertion with Mayer et al. (1999) demonstrating that adults scored higher than adolescents, although this difference was only significant for three out of the seven subtests they administered. More recently, two studies using the Mayer, Salovey, Caruso Emotional Intelligence Test: Youth Version (MSCEIT:YV) have found mixed results: Peters, Kranzler, and Rossen (2009) found positive correlations with age for all branches except the perceiving branch, whilst Rivers et al. (2012) found tentative overall improvements in AEI with age, but younger adolescents actually outperformed older adolescents on both the perceiving and regulating emotions branches. Although no published studies were found which examined a younger age range, Sullivan (1999) reported positive correlations with age for total EI and all subtests, except understanding, using an unpublished measure for 5- to 8-year-olds. These mixed results further highlight the need for more research into AEI in childhood to fully establish the developmental trajectory of overall AEI.

Unlike TEI, AEI theorists explicitly specify a developmental progression of skill acquisition within the model. Mayer and Salovey (1997) stated that skills should develop within and across branches. Figure 6 illustrates their expected acquisition period for each area, drawn from a variety of their writings about their model (Mayer & Salovey, 1997; Mayer, Salovey, et al., 2000b; Mayer, Salovey, & Caruso, 2004). As previously stated, Mayer and Salovey formulated their models by assimilating information from relevant literature sources (Mayer, Salovey, et al., 2000b); consequently, it is unknown to what extent their developmental progression has been empirically validated. Nevertheless, their expectations were formed following a review of available literature; hence should reflect known developmental trends in emotional abilities. Their described progression is outlined and then briefly reviewed below. A more in-depth analysis of the development of AEI skills is undertaken in Chapter 8.2.

As shown in Figure 6, Mayer and Salovey (1997) envisaged the most basic areas of each branch beginning development during early childhood whilst the higher areas emerge later in development. Nonetheless, they also specified that many of the skills do not fully mature until adulthood. Each of the branches is reviewed in greater detail below.

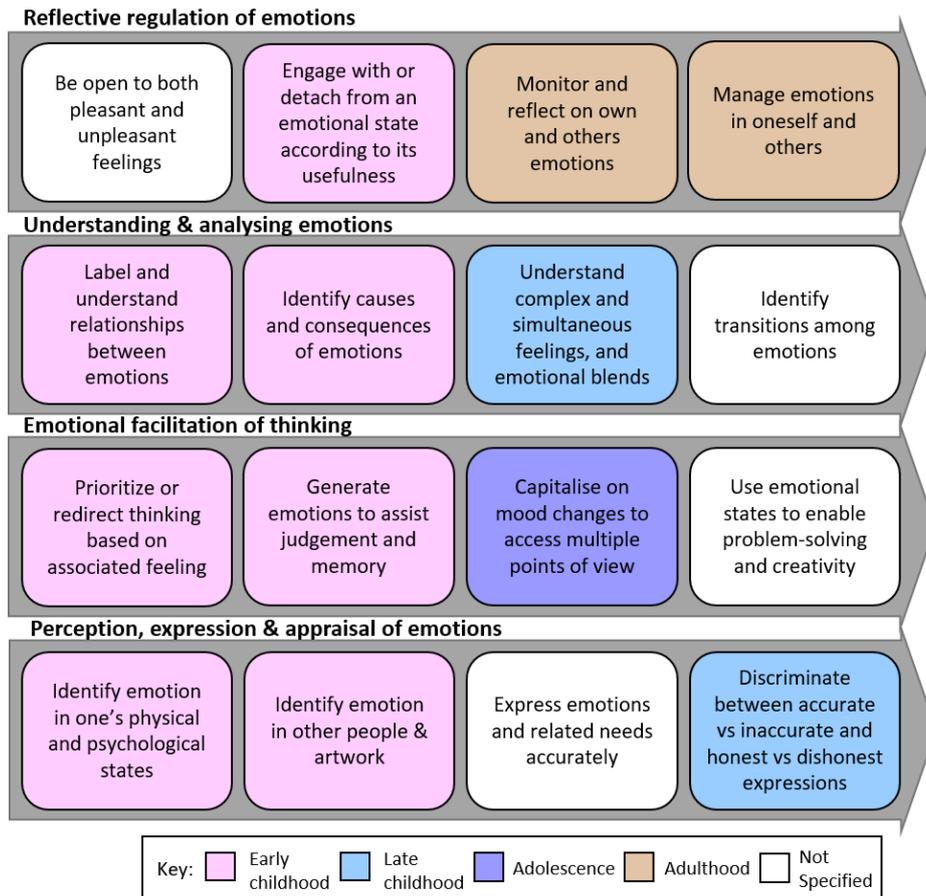


Figure 6: Illustration of developmental progression of AEI derived from Mayer and Salovey (1997), Mayer, Salovey, et al. (2000b), and Mayer et al. (2004).

For the perception branch, Mayer and Salovey (1997) asserted “Infants and young children learn to identify their own and other’s emotional states and to differentiate among these states” (p. 10); implying the skills for the first two areas begin developing in infancy. However, they further described that the skills become more refined with age, with “a grown person” (p. 10) able to identify complex combinations of emotions within themselves at any given time, and able to evaluate emotions expressed in abstract art works. For the final two areas of the perception branch, accurate expression and discrimination of genuineness of emotions, it is clear from Mayer and Salovey (1997)’s description that they expect them to emerge later in development than the first two skills but they did not specify a developmental period. In later writing though, Mayer, Salovey, et al. (2000b) stated, “As the child grows, he or she discriminates more finely among genuine versus merely polite smiles and other gradations of expression” (p. 400) suggesting they expect this skill to emerge later in childhood.

Interestingly, Mayer and Salovey (1997) appear somewhat conflicted about the first area of the second branch: Emotional prioritisation of thinking. On the one hand, they argued that young infants

demonstrate this to some extent when they use emotional expressions such as crying or laughing to signal a change in their environment. But, on the other hand, they went on to state:

As the person matures, emotions begin to shape and improve thinking by directing a person's attention to important changes. For example, a child worries about his homework while watching TV. A teacher becomes concerned about a lesson that needs to be completed for the next day. The teacher, with his better developed thinking moves on to complete the task before his concern overtakes his enjoyment. (Mayer & Salovey, 1997, p. 12)

This seems to indicate that, although they think the mechanism is functioning in childhood, they do not expect the skill to emerge until adulthood. Sadly, they failed to clarify their expectations in this area in any of their further writings.

Fortunately, Mayer and Salovey (1997) were much clearer regarding their expectations of generating emotions to aid judgement and memory, stating that it begins in childhood with assisting in judging in how a story character, or other person, feels and develops in accuracy and complexity through to adulthood where it will assist in making appropriate life choices. They went on to describe the final two facilitation areas as "examples of a larger set of emotional contributions to more sophisticated, efficient thoughts" (Mayer & Salovey, 1997, p. 13), implying they consider them to emerge later in development. They further gave an example of an adolescent applying to college for the third area (p. 13); thus it seems likely that they attribute the emergence of skills in this area to adolescence.

The third AEI branch begins with the ability to label emotions and identify relationships between them. Mayer and Salovey (1997) asserted that children start to label emotions shortly after they learn to recognise them (which begins during early childhood – see perception description) and then collate these labels into related sets such as liking and loving, and anger and annoyance; though Mayer et al. (2004) acknowledged that emotional vocabulary is likely to continue developing well into adulthood. Mayer and Salovey (1997) also attributed the initial development of knowledge about the causes, meanings and consequences of emotions to childhood, as they envisaged parents initially connecting up emotional experiences and meanings for the child, with greater complexity emerging with age, asserting "Emotional knowledge begins in childhood and grows throughout life, with increased understanding of these emotional meanings" (p. 13). The third skill area, understanding complex and mixed emotions was attributed to "the growing person" (Mayer & Salovey, 1997, p. 13), although they continue to refer to the child in their description; suggesting they envisaged these skills emerging in late childhood. Finally, reasoning about transitions in emotions was not specifically attributed to a developmental phase by Mayer and Salovey (1997) but

they referred to a person rather than a child, which may indicate they associated this area more with adults.

Mayer and Salovey (1997) also did not explicitly state a developmental period for staying open to feelings, but posited it as a prerequisite for the other skills in the managing emotions branch. They described the second skill as emerging through childhood, initially as parental-taught social rules, which become gradually internalised until the person can reflectively decide of their own accord when to detach or engage with an emotion. The final two areas of managing emotion are described by Mayer and Salovey as “meta-evaluation” and “meta-regulation” (p. 14) of emotions. They emphasised that both areas require constant reflection on mood and emotion by the individual and asserted that they emerge “as the individual matures” (Mayer & Salovey, 1997, p. 14). Elsewhere, Mayer et al. (2004) stated, “By early adulthood, the means of emotional self-management have grown” (pp. 199-200), providing further evidence they attribute effective regulation to adulthood.

The AEI skills progression suggested by the Mayer and Salovey (1997) model has received some support from reviewers in the field and research concerning related constructs. For example, research into emotional perception confirms that infants are able to discriminate positively versus negatively valenced emotions, and the recognition of emotions becomes more refined with age (Widen, 2016). Similarly, Qualter et al. (2018) noted progression within the understanding branch concurs with accounts of the development of emotional competence and the Eureka model of emotional understanding. Furthermore, Zeidner et al. (2003) concurred there is a clear progression in skills evident within each of the four branches, and the perception, understanding and management branches all begin development early in life; though they argued the use of emotion to facilitate thinking is limited in pre-schoolers due to their lack of knowledge about emotions, and can only really begin development during the school years and adolescence as insight into feelings and thoughts emerges. If this account is correct, it may question Mayer and Salovey (1997)’s branch hierarchy since it implies knowledge of causes and consequences of emotions, which currently fall under the third branch and therefore are assumed to be higher level skills, are a pre-requisite of the second branch, emotional facilitation of thinking (Zeidner et al., 2003). Since the facilitation branch has been found to be notoriously difficult to operationalise for measurement (Maul, 2011), it is difficult to confirm either Mayer and Salovey (1997)’s or Zeidner et al. (2003)’s account of this branch.

Zeidner et al. (2003) also questioned the hierarchy of the branches on another count, highlighting that they appear to develop in a parallel rather than sequential fashion. There is certainly some evidence to support this since, as previously highlighted, all branches appear to begin development

in infancy. Zeidner et al. (2003) further argued that some higher skills develop independently of the lower skills, citing as an example that primitive emotion regulation can occur independently of emotional understanding. This is problematic for the AEI model branch structure. Nevertheless, there is some evidence supporting the hierarchy of the branches since, if one compares the first skills of the perception and management branches, it would be impossible to stay open to feelings if one could not identify them in oneself, whereas one can identify an emotion but choose not to accept it (Mayer, Salovey, et al., 2000a). Izard (2001) similarly noted that emotion perception skills provide the foundation for emotional understanding and management, although not facilitation of thinking. Accordingly, Schultz, Izard, and Abe (2005) reported that studies have found emotional labelling at age three predicts emotional understanding at age six. Furthermore, Luebbers, Downey, and Stough (2007) found evidence that the lower branches develop faster than the higher branches. Indeed emotion regulation, which represents the highest branch, is one of the only skills to have been shown to continue to develop with age throughout adulthood, although this may be confounded by sample characteristics (Zeidner et al., 2012).

Overall therefore, the developmental progression of skills from childhood to adulthood within each branch proposed by Mayer and Salovey (1997) appears relatively well supported. The sequential development of the branches is less convincing, although some sequential dependence is evident. Consequently, it is likely that children will possess many of the AEI skills demarcated at the lower ends of each of the branches, though these are unlikely to be fully developed. In particular they are likely to be limited by children's emotional knowledge (Widen, 2016).

3.1.3 An alternative representation of EI in childhood.

Zeidner et al. (2003)'s investment model provides further insight into the potential trajectory of EI in childhood. The model does not prescribe to either the TEI or AEI conceptualisations but instead posits three stages of childhood EI through which TEI and AEI develop co-dependently. According to this model, EI evolves from a biological entity, relying on procedural knowledge, to a social entity, which consciously uses declarative knowledge (Zeidner et al., 2012). At its first stage, Zeidner et al. (2003) proposed that EI emerges as "temperamental qualities such as moderate-intensity positive affectivity and good attentional control" (p. 89), which will facilitate or impede the learning of emotion-related rules. These rules form the basis for the second level of EI, rule-based skills, which govern emotional displays and coping. These in turn, enable the development of flexible, self-aware emotional regulation, which Zeidner et al. (2003) described as the third level of the model.

Zeidner et al. (2003) emphasised that each level represents an additional degree of differentiation, rather than superseding the level before, and any level can be dominant depending on the situation.

They included feedback loops in the model such that emotional knowledge influences temperament and self-awareness influences knowledge. Figure 7 shows a diagrammatic representation of the stages of the model. Despite the fact that Zeidner et al. (2003) stated that their model “does not show the time course of events” (p. 90), they acknowledged that age and experience are necessary for progression of stages. They further specified that temperament is predominant in infancy whilst meta-cognitive abilities must be developed in order for the third stage to be achieved.

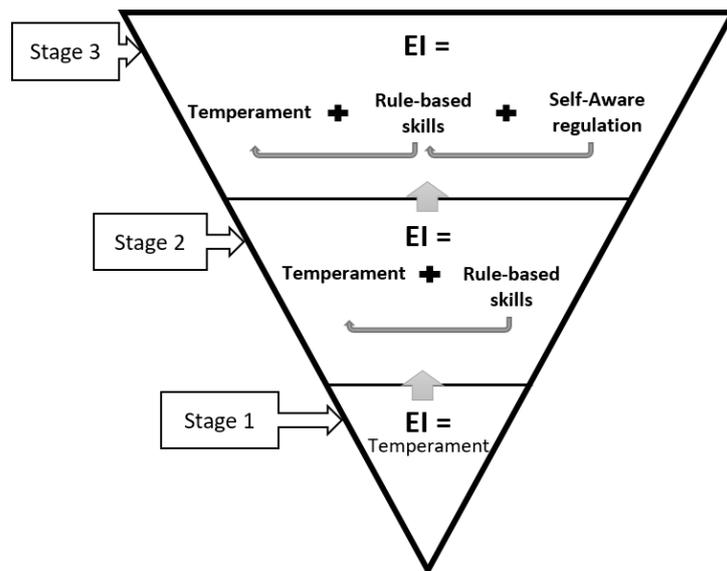


Figure 7: A diagrammatic representation of the stages of Zeidner et al. (2003)'s investment EI model. Progression takes place upwards through the stages with each new area added having the potential to feedback and alter previous areas.

The investment model was developed with reference to the emotional competence developmental literature (Zeidner et al., 2003) and draws on well-accepted findings that temperament is key to emotional development (Haviland-Jones, Gebelt, & Stapley, 1997) and emotion knowledge is socially constructed (Bailey & Rivers, 2018). Therefore, it appears conceptually valid, however it has been criticised for overemphasising the genetic component of temperament (Arsenio, 2003; Fox, 2003).

An interesting aspect of the investment model is that it implies close interaction between TEI, which the authors argued is represented as temperament in the model, and AEI, which they described as acquired skills, during development (Zeidner et al., 2003). Whilst some commentators have criticised this intertwining of what is commonly held to be separate constructs in adults (Arsenio, 2003; Fox, 2003), Matthews, Roberts, and Zeidner (2003) rebutted this, arguing that the two constructs will become more divergent in adulthood but are likely to be much more reliant on each other during childhood, although still separable when necessary. Other researchers conceded this point, acknowledging that is unlikely that one form of EI will develop without the other (e.g. Qualter et al., 2007). This is similar to the emerging arguments for the interdependence of the constructs in adults

(Mikolajczak, 2009; Vesely Maillefer et al., 2018). Nevertheless, researchers equally argue that it is necessary to be able to separate the two concepts in order to provide appropriate support for those struggling to develop their EI (Arsenio, 2003; Qualter et al., 2007). For example, Arsenio (2003) highlighted that many anger management programmes are aimed at increasing regulation skills and correcting inaccurate emotion perception, which clearly relate to the ability model and therefore are unlikely to be effective for individuals who have no deficiencies in their skills but are high in trait aggression, having learnt that it makes them feel good. Similarly, Qualter et al. (2007) argued more generally that because TEI is dependent on self-perceptions, it is more readily influenced by environmental factors that increase self-esteem, whereas AEI can be directly taught in terms of emotion perception and management skills. Hence, it is clearly important to be able to accurately describe and assess both constructs in childhood.

3.1.4 Summary of the conceptualisation of EI in childhood.

Theorists predict that both AEI and TEI develop with age throughout childhood and adolescence (Mavroveli et al., 2008; Mayer & Salovey, 1997), meaning children's EI is likely to be less mature than adults'. Although insufficient empirical investigation has taken place to fully establish the developmental course of either construct, current evidence suggests they follow different developmental trajectories (Qualter et al., 2007). Despite being closely linked to infant temperament (Zeidner et al., 2003), the key developmental period for TEI appears to be early adolescence (Keefer et al., 2013). Whereas the basic elements of AEI appear to develop rapidly in early childhood, with more advanced elements developing with age through to adulthood (Mayer & Salovey, 1997). This fits with Zeidner et al. (2003)'s three suggested phases of childhood EI: temperament, rule-based skills, and self-aware emotional processing, since TEI is present as temperament but will be dependent on the development of self-awareness to fully emerge, whereas many aspects of AEI are believed to begin as socially-learnt rules before developing into internalised meta-cognitive abilities. Zeidner et al. (2003) asserted the two concepts develop co-dependently with each phase influencing the others, therefore agreeing with recent suggestions around the adult conceptualisation of EI that both TEI and AEI are necessary for emotionally intelligent behaviour (Mikolajczak, 2009; Vesely Maillefer et al., 2018). Nevertheless, there is a desperate need for further research regarding childhood EI to fully understand its developmental trajectory (Papadogiannis et al., 2009). Unfortunately such efforts are hampered by a lack of assessment tools (Williams et al., 2009) as will be discussed next.

3.2 Measurement of Children's EI

As previously reported, EI is typically subsumed into SEL in schools; consequently assessment of children's EI has largely been incorporated in assessment of SEL. However, the definition of SEL is clearly more wide ranging than that of ability EI (AEI), although arguably not entirely dissimilar to some trait EI (TEI) definitions, including social as well as emotional skills. This broader definition is reflected in the array of available measures where reviews have noted fewer available measures of emotional than social skills (Halle & Darling-Churchill, 2016; Humphrey et al., 2011; Stewart-Brown & Edmunds, 2007). Illustrative of this, in their review of measures of social and emotional measures, Stewart-Brown and Edmunds (2007) noted that all 21 measures identified from peer-reviewed literature were designed to measure social competence. Similarly, out of the six strong measures Halle and Darling-Churchill (2016) identified for early childhood SEL, only half of them assess emotional competency. Whilst broad SEL rating scales may be adequate for educators who want an overview of pupil profiles in this area and even as outcome measures for broad SEL interventions, if they do not align to an EI model then they cannot be used to provide evidence of the development of EI. Moreover, they cannot provide information regarding a child's EI knowledge and are therefore unlikely to be sufficiently sensitive to assess outcomes of EI-specific interventions. It is also worth noting that SEL has largely been developed in Western cultures, therefore, as with EI assessment, most measures will align to social and cultural norms for these cultures and consequently their utility is likely to be confined to such cultures (Denham, Ferrier, Howarth, Herndon, & Bassett, 2016). Furthermore, Humphrey (2013) noted that, as often asserted with regards to EI, the assessment of SEL has lagged behind the rest of the field, with many schools failing to universally assess outcomes in this area despite having SEL programmes in place. Consequently, there is paucity of EI measures for children (Davis, 2018; Papadogiannis et al., 2009). This is even more salient for primary-aged or preadolescent children (Mavroveli et al., 2008; Williams et al., 2009), as illustrated by Windingstad, McCallum, Mee Bell, and Dunn (2011)'s observation that there was only one measure specific to assessing children's EI listed in the 2011 mental measures yearbook. Recently however, a few further pure EI measures for children have become available. These measures will be reviewed, according to type, using the validity criteria introduced in Chapter 2.4.12.4.

3.2.1 Rating scales.

Although there are a huge number of EI rating scales for adults (Matthews et al., 2006), there are only seven EI-specific scales for youth. Table 2 summarises the details of each of these scales.

Table 2: Details of EI-Specific Rating Scales for Youth

Measure			Related			Length/
Name	Acronym	EI Model	Adult Measure	Age Range	Assesses	Completion time
Trait Emotional Intelligence Questionnaire Adolescent Full Form (Petrides, 2009)	TEIQue-AFF	Trait EI	TEIQue (full form)	13-17	15 facets and 4 factors of TEI yielding global and factor scores	
Trait Emotional Intelligence Questionnaire Adolescent Short Form (Petrides, 2009)	TEIQue-ASF	Trait EI	Simplified version of TEIQue-AFF	13-17 ^a	Global TEI (15 facets). ^b	30 short statements
Trait Emotional Intelligence Questionnaire Child Form (Mavroveli et al., 2008)	TEIQue-CF	Trait EI	None ^c	8-12	9 emotion-related child personality facets yielding facet and global EI scores.	88 items ^d
Emotional Quotient Inventory: Youth Version (Wood et al., 2009)	EQ-i:YV	Bar-On's Emotional Social Intelligence	EQ-i	7-18	Total EI and 7 scales including positive impression & inconsistency controls	60 items, 25-30 mins
Emotional Quotient Inventory: Youth Version (Short) (Wood et al., 2009)	EQ-i:YV(S)	Bar-On's Emotional Social Intelligence	EQ-i:YV ^e	7-18 ^f	Total EI and 5 scales including positive impression control	30 items, 10-15 mins
Adolescent Swinburne University Emotional Intelligence Test (Luebbbers et al., 2007)	Adolescent SUEIT	Salovey and Mayer (1990)'s EI model ^g	Adult SUEIT	11-18 ^h	Overall EI and 4 sub-scales	57 items
Youth Emotional Self-Efficacy Scale (Qualter et al., 2015)	Youth ESES	Self-Confidence in Ability EI ⁱ	Adult ESES	10-13 ^j	Overall ESE and 4 subscales	27 items

Note. References refer to source of information used to complete table and are not necessarily the original scale authors. Many measures do not give completion time estimates.

^a According to (Petrides, 2009) this is the primary target age range but it can be used with children 11-years-old and older.

^b It is also possible to derive factor scores but they are unreliable compared to the TEIQue-AFF (Petrides, 2009).

^c The sampling domain was derived specifically for the measure to represent childhood EI (Mavroveli et al., 2008).

^d Petrides (2009) asserts it has 75 items.

^e According to Wood et al. (2009) the EQ-i:YV(S) consists of the 6 highest loading items for each of its chosen scales from the EQ-i:YV.

^f The short version is designed for use when the long version is inappropriate (Wood et al., 2009).

^g According to Palmer et al. (2009), the adult SUEIT is based on a five factor taxonomic model of EI derived by the authors but Luebbbers et al. (2007) do not reference this.

^h This is the age range of Luebbbers et al. (2007)'s validation sample. They do not state a target age range for the measure.

ⁱ Although the measure is structured on the AEI model, it is designed to measure people's self-confidence in their emotional abilities not the abilities themselves and therefore Kirk et al. (2008) argue it is more closely aligned with TEI than AEI.

^j The authors assert that the scale can be successfully used from age 10 although it has only been validated with 11- to 13-year-olds.

3.2.1.1 *Psychometric evaluation of youth EI rating scales.*

Independent psychometric evaluations of youth rating scales are relatively scarce (Davis & Wigelsworth, 2018; Kun et al., 2012), nevertheless, an evaluation of their validity will be attempted, although most conclusions must be treated as tentative until findings are replicated by researchers who were not involved in the creation of the measure. Firstly, with regards to reliability, reported internal consistencies tend to be in the adequate to good range. Similarly, most have limited reports of good test-retest reliability (Brown et al., 2018). Despite these positive reports, it is noteworthy that they have not been as widely tested as their adult equivalents. For example, reviews of the EQ-i:YV only cite the reliabilities of .65 to .90 given in the technical manual (e.g. Brown et al., 2018; Wood et al., 2009). It is notable, however, that reliabilities for children tend to be lower than adolescent and adult measures. For example, internal consistency of the TEIQue:CF was $\alpha = .73$ (Mavroveli et al., 2008) which is lower than alphas around .80 found for TEIQue:AFF (e.g. Davis & Humphrey, 2012), which in turn are lower than for the adult measure (Petrides, 2009). Similarly, Russo et al. (2012) found lower reliabilities for children than adolescents. Reliability for Youth-ESES was again found to be moderate to good (Qualter et al., 2015), but lower than that found for the adult measure (Dacre Pool & Qualter, 2012). Furthermore, internal consistencies of the short form measures have been found to be lower (e.g. Davis & Wigelsworth, 2018; Petrides, 2009).

It is especially hard to define what content TEI measures should sample due to the diverse range of constructs found in TEI definitions (Conte, 2005; Matthews, Zeidner, et al., 2004). Perhaps unsurprisingly therefore, TEI measures have been widely criticised as being simply another measure of personality (Conte, 2005; Matthews, Zeidner, et al., 2004; Zeidner, Roberts, & Matthews, 2002). For example, Conte (2005) noted that the majority of self-report measures with adequate reliability are linked to established personality dimensions. He further criticised the EQ-i as conceptually weak because it is not clear how the composite scales relate to EI theory. Supporting this view, Bar-On himself advocated it as a measure of social and emotional competence that may give an estimate of EI, not a direct EI measure (Bar-On, 2000), and Zeidner et al. (2002) concluded that the EQ-i is a proxy measure of a combination of the big-five personality factors. Since the EQ-i:YV is based on the original EQ-i, the same criticisms can be assumed to apply. There is more optimism, however, for the adolescent TEIQue and adolescent SUEIT since Petrides, Pita, et al. (2007) have demonstrated that scores from the adult TEIQue form a unique personality factor that correlates, rather than amalgamates, with existing personality constructs and a study of the Genos EI Inventory, a subsequent version of the adult SUEIT, found that it still demonstrated factorial validity when the big five personality dimensions were controlled for (Palmer et al., 2009), therefore suggesting these measures have some unique content. Unlike the adolescent version, TEIQue:CF doesn't sample

items from the adult measure; Mavroveli et al. (2008) instead derived the content from literature surrounding children's socioemotional development, with the aim of sampling all areas of children's personality which pertain to emotion. Whilst this seems an appropriate approach given that EI is expected to develop with age, it is unclear to what extent the TEIQue:CF contents relate to an EI model. Regardless of their distinctiveness from personality measures, the huge variety of content between measures brings into question whether they can all be measuring the same overall construct (Laborde & Allen, 2016). Indeed, even the original proposers of TEI recently identified the wide variety of conceptualisations and resulting measures as problematic for clarity in interpretation of results (Petrides et al., 2016).

With regard to factorial validity, investigations have found inconsistent structures compared to adult measures. Luebbbers et al. (2007) found no support for the five factor model of the adult SUIET with the adolescent SUIET, instead finding a four factor solution which explained only 30 % of variance. Furthermore, Maree and Pietersen (2008) found no support for the factor structure of the EQ-i:YV outside of North American populations. Factor structure of the short version appears to be even more problematic with studies of EQ-i:YV(S) repeatedly failing to find an acceptable fit for the proposed factor structure (Davis & Wigelsworth, 2018; Esnaola, Arias, Freeman, Wang, & Arias, 2017; Kun et al., 2012). Russo et al. (2012) found no support for the expected TEI four factor structure with the TEIQue:CF, instead finding a unidimensional structure for the measure. Similarly, Qualter et al. (2015) found the subscales of the Youth ESES to be less differentiated than the adult version. As Russo et al. (2012) highlighted, these results are not altogether inconsistent with TEI theory which predicts that it will be less differentiated in childhood; however it is unclear what structure the measures should therefore be showing.

In terms of concurrent validity, little comparison amongst rating scales seems to have occurred. Davis and Wigelsworth (2018) found some convergence between the EQ-i:YV(S) and TEIQue:ASF, though they expressed concern that this was lower than expected. Additionally, weak associations with AEI have been found for the TEIQue-ASF and Youth-ESES (Davis & Humphrey, 2012; Qualter et al., 2015). Generally, scores have been found to increase with age (e.g. Bar-On, 2000; Luebbbers et al., 2007) although Luebbbers et al. (2007) found no age-related changes for the management subscales of the Adolescent SUEIT. Some support has also been found for the gender differences suggested by the theoretical and adult literature (e.g. Luebbbers et al., 2007; Salguero, Fernández-Berrocal, Balluerka, & Aritzeta, 2010), but were not observed on TEIQue:CF (Mavroveli et al., 2008).

As previously highlighted, TEI is often criticised for being inseparable from personality and adult TEI scales are frequently berated as repackaged personality measures (Conte & Dean, 2006; Matthews,

Zeidner, et al., 2004). Interestingly, the EQ-i:YV appears to be less strongly related to personality than the adult version, with Qualter, Gardner, Pope, Hutchinson, and Whiteley (2012) finding that it related to neuroticism and extraversion for girls only, though they emphasise the need for further exploration of these results before conclusions are drawn. On the other hand, both the adolescent and child TEIQues are moderately related to personality (Davis & Humphrey, 2012; Russo et al., 2012). Whilst the magnitude of these correlations (.38 to (-).51) is not sufficiently high to suggest the measures are redundant, it does suggest that TEI may not show much incremental explanatory power over personality. In contrast, the measures show little relationship with cognitive abilities (Davis & Humphrey, 2012; Downey, Lomas, Billings, Hansen, & Stough, 2014; Mavroveli et al., 2008), as expected from TEI theory.

Scores from TEI rating scales have been associated with a variety of outcomes, including academic attainment (e.g. Downey, Mountstephen, Lloyd, Hansen, & Stough, 2008; Parker et al., 2004), and mental health (e.g. Davis & Humphrey, 2012), however, incremental predictive validity is less conclusive. Although studies have found incremental predictive ability for TEIQue:ASF and TEIQue:CF with regards to mental health (Davis & Humphrey, 2012; Russo et al., 2012), Davis and Wigelsworth (2018) found the EQ-i:YV(S) could not effectively predict mental health above the contribution of personality.

3.2.1.2 Further considerations for rating scale measures.

Accuracy of responses is a particular concern for measuring youth EI with rating scales. Many researchers have expressed concerns about children's ability to accurately self-assess (Wigelsworth et al., 2010; Williams et al., 2009). Roberts et al. (2010) point out the paradoxical situation whereby self-rating EI depends on a person's insight and self-understanding which are two of the key qualities that form EI. Drawing on this, since EI is held to develop with age (Mayer et al., 1999), it seems unrealistic to expect children to have sufficiently developed the necessary qualities to accurately self-report their EI. In support of this, research on development self-concept suggests that pre-adolescent children tend have overly simplistic and enhanced self-concept (Keefer, 2015), making this age group extremely unlikely to be able to accurately self-assess. For example, Keefer et al. (2013) reported that although children are believed to able to self-report from around age six, the accuracy of such reports remains questionable until late adolescence. Accordingly, they found the quality of responses from their youngest participants (aged 10 to 11) to be much lower than the rest of the sample. They also found that scores on the intrapersonal and adaptability decreased from age 10 to 11, to age 12 to 13, contrary to the expectation that emotional skills should increase with age and experience. Whilst they attribute this finding to a possible shift in standards around the

transition to high school, they acknowledge that the 12- to 13-year-olds are likely to give more grounded self-reflections than the 10- to 11-year-olds; thus suggesting younger children are unable to self-report with sufficient accuracy. Perhaps as a result of this, younger children are known to demonstrate a variety of response biases such as *response acquiescence* (endorsing all items regardless of their wording), *socially desirability*, *exaggeration* and *deviation* (responding to items in inconsistent ways) (Humphrey, 2013; Keefer, 2015). Illustrative of this, Esnaola et al. (2017) found that the positive impression scale of the EQ-i:YV(S) had a significant impact on model fit, suggesting that social desirability may have more effect on responses for adolescents than adults. Additionally, Qualter et al. (2015) found evidence of acquiescent responding amongst young adolescents completing the Youth-ESES, and Keefer et al. (2013) found 10- to 13-year-old boys showed acquiescent responding on the EQ-i.

Many SEL rating scales try to account for the lowered accuracy of children's responses by using teacher and/or parent rating scales (Wigelsworth et al., 2010), but the above measures do not generally include such scales. Wood et al. (2009) reported an observer form for EQ-i:YV was being developed but the form is not referred to in later reviews (Brown et al., 2018; Humphrey et al., 2011). Such approaches, may in any case, be ineffective because it is unclear whether an observer can accurately assess a child's emotion knowledge (Denham et al., 2016). Further, both parent and teacher reports are vulnerable to bias either for or against individual children, which can be influenced by factors unrelated to EI (Humphrey, 2013), and much of the variability in teacher report can be explained by teacher characteristics (Campbell et al., 2016). A commonly recommended solution is to triangulate responses from a variety of respondents such as student, parent and teacher (Denham et al., 2016; Humphrey, 2013; Wigelsworth et al., 2010), however studies have found low levels of inter-rater agreement between respondents, especially between child and adult (Darling-Churchill & Lippman, 2016; Gresham et al., 2018; Wigelsworth et al., 2010). A further note of caution should be applied if self- or other-report measures are used to evaluate the effectiveness of an intervention as the *hawthorn effect* will then apply whereby raters are liable to give higher ratings posttest when they know the subject has been part of an intervention (Matthews, Zeidner, et al., 2004).

In addition to self-reflection ability, reading ability is likely to be a limiting developmental factor for children (Brown et al., 2018). Although test creators have often controlled for vocabulary comprehension development (e.g. Luebbers et al., 2007; Qualter et al., 2015), many younger or low-ability children may struggle with the reading requirements and therefore obtain low scores due to an inability to access the scale (Keefer et al., 2013). For example, the EQ-i:YV specifies an age range

of seven to 18 years old, yet Wood et al. (2009) identify it requires fourth grade reading ability; meaning younger respondents are unlikely to be able to access the scale.

In addition to meeting the criteria discussed above, assessment choice will be influenced by practical considerations such as completion time, cost and resources available (Brown et al., 2018). Self-report measures are advantageous in that they require minimal time and effort to administer, since they allow a person to summarise their EI using a few simple statements (Matthews, Zeidner, et al., 2004) and do not require any specialist equipment or testing environment (Brown et al., 2018). Consequently, they are likely to be relatively low cost, fitting in with schools budgetary requirements.

Overall, rating scales are a quick and convenient way of providing an estimate of a child's EI. They have generally been found to be reliable (Conte, 2005), although youth versions less than adults (Petrides, 2009). For adults, Van Rooy and Viswesvaran (2004) found rating scales exhibited higher predictive validity than performance measures, however they also showed greater standard deviations than ability measures; suggesting that their increased predictive power may simply be due to their broader domain coverage. This broad domain coverage is problematic for establishing content, concurrent and discriminant validity of the measures, since broad definitions have led to a large overlap with personality constructs (Zeidner et al., 2012). Consequently, evidence for these three validities is not convincing. Furthermore, all rating scales are susceptible to response bias (Schutte et al., 1998), whether due to inaccurate perceptions or faking responses, meaning that they cannot be assumed to give accurate assessments of a person's EI. This is particularly true for youth measures since younger respondents are both less accurate self-perceivers and more susceptible to social desirability bias (Keefer, 2015). This susceptibility, in turn, brings into question the predictive validity of rating scales since faking has been shown to attenuate the predictive validity of personality measures (Day & Carroll, 2008).

3.2.2 Comprehensive performance measures.

Mirroring the adult measurement choice, there is only one widely recognised youth comprehensive performance measure currently available: the MSCEIT Youth Version (MSCEIT:YV, Rivers et al., 2008), which is designed for the age range 10 to 18 years old. Consequently, there appears to be no currently established performance EI measure for children aged below 10 years old with recent reviews either failing to include any performance measures (Stewart-Brown & Edmunds, 2007) or identifying only a couple of maximal measures which were not designed to specifically measure EI and at best assess only limited branches of the AEI model (Humphrey et al., 2011). However, both Mayer, Caruso, et al. (2000) and Perez et al. (2005) identified a performance EI measure which was

developed for children aged five to eight: the Emotional Intelligence Scale for Children (EISC, Sullivan, 1999). This measure was never formally published, appearing in an unpublished doctoral dissertation.

Like the adult MSCEIT, MSCEIT:YV is designed to map each of the four branches of the Mayer and Salovey (1997) AEI model, however each branch is assessed using only one task rather than the two in MSCEIT (Papadogiannis et al., 2009). The EISC is derived from the original performance adult measure the MEIS (Mayer, Caruso, et al., 2000), but, unlike the other comprehensive AEI measures, is only split into three subtests: Perceiving Emotions, Understanding Emotions and Managing Emotions. Three tasks measure the perceiving branch, with one task each for the other two branches (Sullivan, 1999).

3.2.2.1 Psychometric evaluation of performance measures.

As previously identified, the EISC has not been widely recognised, though a Turkish translation of the EISC has been used in a couple of research studies (Akduman & Akaydın, 2016; Ulutaş & Ömeroğlu, 2007), and therefore has received little psychometric attention. Nevertheless, it will be evaluated as far as possible using the little information available. Although still relatively new, the MSCEIT:YV has been more widely utilised so can be more comprehensively evaluated.

The reliability of MSCEIT:YV is generally good for whole scale and adequate for area and branch level (Brown et al., 2018). For example, Rivers et al. (2012) reported alphas ranging from .70 to .79 for the branches and a split-half reliability of .81 for the whole scale. The internal consistency of the EISC is rather low, Sullivan (1999) reported alphas between .39 to .66 for the subscales and .56 for total score. The Turkish translation though, which omits the music subtest, shows slightly higher internal consistencies of .54 to .76 for the subscales and .84 for whole scale (Akduman & Akaydın, 2016). Test-retest reliability of the Turkish version is also good (Akduman & Akaydın, 2016); Sullivan (1999) did not report test-retest reliability for the original version.

With regards to content, performance measures are at an advantage over TEI measures as there is a clear prominent model to guide sampling. Indeed, one of the few positives that Maul (2012) identified in his review of the MSCEIT is that the definition of AEI is sufficiently clear to set boundaries about what should be assessed. As previously identified, the MSCEIT:YV aims to assess each branch of the Mayer and Salovey (1997) AEI model. According to Papadogiannis et al. (2009), perceiving is measured using only the faces task whereby participants rate the extent to which each of six emotions are present in a facial image. Facilitation of thought is assessed using a synaesthesia task where participants are asked to rate how much a feeling matches a variety of physical sensations. For understanding emotions, participants answer multiple choice questions about

definitions, transitions and changes and blends of emotions. Finally, the emotional management task asks participants to rate how helpful a variety of actions would be for a story character trying to achieve a given emotional state. Whilst these tasks all undoubtedly assess skills that appear in the Mayer and Salovey (1997) model, it is clear that they cannot comprehensively sample all skills within it. Nevertheless, the measure shows content validity insofar as it clearly relates to a well-defined AEI model.

In contrast, the EISC only assesses the perceiving, understanding and managing branches. This is because Mayer et al. (1999) found the MEIS was best explained by three factors which they labelled *Emotional Understanding*, *Emotional Perception* and *Managing Emotion*. Although it could be argued that this limits the model coverage of the measure, this decision has recently been echoed in newer adult performance measures such as the Geneva Emotional Competence Test (GECe) and MEIT, because the facilitation branch has not been supported empirically (Sanchez-Gomez & Bresó, 2019; Smieja et al., 2014). Furthermore, even the authors of the ability model now concede that the facilitation branch is not likely to appear as an empirically measurable factor (Mayer et al., 2016a). In the EISC, Emotional Perception is measured through three subtests: faces (10 items), stories (6 items) and music (6 items). Understanding (12 items) and managing (6 items) are stand-alone subtests measuring their respective branches. Sullivan (1999) did not detail how tasks were constructed beyond “tapping” the MEIS, child development theory, and Mayer and Salovey (1997)’s EI definition, however it seems likely that “Faces”, “Music” and “Stories” represent simplified versions of these MEIS tasks. “Understanding” seems to resemble a simplified version of “Relativity” and “Managing” seems to link most closely to “Managing feelings of self”. Again it is unclear why Sullivan chose to operationalise the branches in this unbalanced way, however it is interesting that she has effectively retained the three subtests that Matthews, Zeidner, et al. (2004) argue should not have been omitted from the MSCEIT.

Unlike its preceding adult model measures (MEIS & MSCEIT), studies have so far found support for the proposed factor structure of MSCEIT:YV (Papadogiannis et al., 2009; Rivers et al., 2012), however these results are preliminary and independent verification of the factor structure does not appear to have taken place yet. Given that theorists have argued that the two tasks per branch in the MSCEIT is insufficient to establish factorial validity (Willhelm, 2005), replication will be needed in order to fully establish factorial validity. Sullivan (1999) did not assess the EISC factor structure in her validation study, so factorial validity is currently unknown.

Since AEI proponents assert that EI operates as a broad or second stratum intelligence (MacCann et al., 2014; Mayer et al., 1999; Mayer et al., 2016a; Mayer, Salovey, Caruso, & Sitarenios, 2001),

concurrent validity should include not only convergence with other ability EI measures, but also a small to moderate overlap with other intelligence measures and demonstration of development with age and experience (Mayer et al., 1999). Given the lack of youth ability measures, neither the MSCEIT:YV or EISC have been able to demonstrate convergence with other AEI measures, however MSCEIT:YV correlates weakly to moderately with the TEIQue:ASF and EQ-i:YV (Davis & Humphrey, 2012; Peters et al., 2009; Qualter et al., 2012; Windingstad et al., 2011), and Sullivan (1999) reported significant correlations for EISC with empathy and teacher EI ratings. Relationships with cognitive ability are similar, with weak to moderate correlations between MSCEIT:YV and GMA (Davis & Humphrey, 2012; Peters et al., 2009; Qualter et al., 2012; Qualter et al., 2015; Rivers et al., 2012) and weak non-significant correlations between EISC and cognitive abilities (Sullivan, 1999). Finally, both measures show positive correlations with age (e.g. Rivers et al., 2012; Sullivan, 1999).

The MSCEIT:YV has been established as reasonably divergent from personality, showing no or very weak correlations with personality measures (Davis & Humphrey, 2012; Qualter et al., 2012). No comparison between the EISC and personality measures have been made.

Finally, although its nomological net has not been as widely explored as its adult equivalent, MSCEIT:YV scores have been associated with various adolescent outcomes such as mental health (Davis & Humphrey, 2012), social and personal functioning (Rivers et al., 2008), and academic performance (Peters et al., 2009; Qualter et al., 2012; Rivers et al., 2012). Notably though, relatively little examination of incremental predictive validity appears to have occurred as yet. One of the few studies to have controlled for personality and cognitive ability found MSCEIT:YV to predict Academic Outcomes only weakly (Qualter et al., 2012). No studies have investigated the predictive ability of the EISC.

In summary, the MSCEIT:YV appears to be relatively psychometrically sound. The EISC has been explored less, but current validity results appear mixed, with sub-optimal reliability but promising concurrent validity; which is likely why it has not been widely adopted for use.

3.2.2.2 Further considerations for performance measures.

As previously detailed, the consensus-based scoring of the MSCEIT is often criticised for being non-verifiable (see Chapter 2.4.2.2). Interestingly, the MSCEIT:YV's authors initially claimed it uses veridical scoring since answers are scored as either correct or incorrect (Rivers et al., 2008), however they subsequently revised this to expert scoring (Rivers et al., 2012), which seems more accurate since the correct answer is determined by the agreement of three experts (Rivers et al., 2008). This means the MSCEIT:YV will still be vulnerable to some of the scoring criticisms of the MSCEIT. Sullivan (1999) did not specify how her mark scheme was created.

Performance measures are considered to be more robust than rating scales to response distortion because they are designed not to have obviously correct or desirable response options but instead require use of EI to answer the questions (Day & Carroll, 2008). Consistent with this hypothesis, Day and Carroll (2008) found MSCEIT scores did not significantly differ between “honest” and “applicant” (where participants were motivated to compete for a fictitious job) responding, whereas EQ-i scores did. Furthermore, Livingstone and Day (2005) found MSCEIT scores to be independent of self-monitoring ability. Similarly, Schlegel and Mortillaro (2019) found GECos scores to be unrelated to socially desirable responding. This suggests that performance measures may provide a more accurate assessment of EI than rating scales, although Brown et al. (2018) observed that answers may be “googled” if performance measures are administered unsupervised.

As with rating scales, reading ability may be a confounding limitation for performance measures if presented in a paper and pencil format requiring respondents to read the questions before responding (MacCann et al., 2014). Consequently, differences in performance on such measures may be due differences in reading ability rather than EI (Brown et al., 2018). It is unknown how the MSCEIT:YV is administered. Sullivan (1999) avoided reading problems by having the administrator read all EISC questions to the child, with the child then responding verbally. She found this method, however, led to difficulties with response acquiescence since the children seemed to agree with the experimenter, giving yes answers even when previous responses indicated they knew the option to be wrong.

In contrast to rating scales, performance measures tend to be lengthy to administer and score (Matthews, Zeidner, et al., 2004). For example, the MSCEIT:YV takes 45 mins to complete and has to be sent to its publishers for scoring (Humphrey, 2013). Sullivan (1999) reported the EISC took 30 to 45 mins to administer. Furthermore performance tests place more demands on personnel since they typically require a trained administrator to present them (Brown et al., 2018; Matthews, Zeidner, et al., 2004). The EISC is also administered on a one to one basis. As a result of these considerations, performance measures tend to be expensive (Goldenberg, Matheson, & Mantler, 2006), which is especially important when considering child populations since school budgets are typically tight (Humphrey, 2013).

3.2.3 Alternative EI assessments.

In addition to the above measures, there are also some performance tests that measure specific aspects of the AEI model. These include the Situational Test of Emotional Management-Youth (STEM-Y; MacCann, Fogarty, Zeidner, & Roberts, 2011), which targets the management branch and the Diagnostic Analysis of non-verbal accuracy (DANVA; Nowicki & Duke, 1994), which assesses

emotion perception. However, in order to provide a comprehensive overview of EI, one would have to utilise several of these measures, which is impractically time and resource consuming with child populations.

In addition, there is one further measure which attempts to comprehensively assess AEI. Lloyd (2012) developed the Swinburne University Emotional Intelligence Test – Early Years (SUIET-EY) for ages nine to twelve. In contrast to all other measures, this uses a mixture of typical and maximal items in that facilitation and regulation are assessed through self-report, perception is assessed using a mixture of self-report and performance items, and understanding using only performance (Billings et al., 2014). Consequently, although Lloyd (2012) described it as an AEI measure, given the previously discussed lack of convergence between self-report and performance measures (e.g. O'Connor & Little, 2003), it is unclear whether SUIET-EY can assess EI as unified construct or operationalise it as an ability. Furthermore, Billings et al. (2014) found that the self-report items were affected by socially desirable responding, leading them to suggest that performance measures may be more appropriate for younger children.

3.2.4 Summary of the current choice of measurement of children's EI.

It is clear from the above review that the selection of available measures becomes increasingly limited as the age of the target population decreases. Indeed, several researchers have identified this as problematic for the advancement of the field of EI (e.g. Billings et al., 2014; Papadogiannis et al., 2009; Williams et al., 2009). For all age groups, there are many more rating scale than performance measures available (Humphrey et al., 2011). But, as the target population gets younger, concerns about the accuracy of such measures increase. Research has shown that self-reflection is developmental in nature and therefore younger children are less likely to be able to accurately self-assess their EI (Wigelsworth et al., 2010). Many SEL measures circumnavigate this problem by triangulating responses from a variety of responders including teachers and parents (Humphrey, 2013), however this approach does not appear to have been widely adopted for EI assessments. Multiple responder approaches can also be problematic, since certain EI features do not result in easily observable behavioural patterns (Palmer et al., 2009). Furthermore, studies have found low levels of inter-rater agreement between respondents, especially between child and adult (Darling-Churchill & Lippman, 2016; Gresham et al., 2018; Wigelsworth et al., 2010).

In contrast, performance measures are commonly assumed to provide a more direct and objective measure of children's EI skills (Campbell et al., 2016; Humphrey et al., 2007; Wigelsworth et al., 2010). Consequently, some commentators view them as more appropriate for pre-adolescent children (e.g. Billings et al., 2014). However, some aspects of EI are difficult to measure objectively

(Cracco, Van Durme, & Braet, 2015), meaning performance tests are forced to use less desirable scoring procedures. Additionally, they are limited in choice with only one comprehensive measure available for adolescents and no established comprehensive measures available for children younger than 10 years old.

As with all assessment tools, practical considerations will impact choice of EI assessment (Brown et al., 2018). Since most assessments of children's EI will take place within school settings, completion time is necessarily limited and therefore should be kept to a minimum (Davis & Wigelsworth, 2018; Denham et al., 2016; Stewart-Brown & Edmunds, 2007). Whilst self-report measures are generally quicker to complete than performance assessments (Wigelsworth et al., 2010), given the aforementioned recommendations to utilise multiple raters for rating scale assessment in children (e.g. Humphrey, 2013), such measures may actually become very time consuming for teachers who have to rate every child in their class; furthermore, such an undertaking would require a large amount of effort and is likely to lead to fatigue causing lack a loss of sensitivity (Humphrey, 2013). Performance EI measures for adults are known to be time-consuming and difficult to mark due to the use of consensus-based scoring approaches (Matthews, Zeidner, et al., 2004). The MSCEIT-YV currently has to be submitted to the publishers for marking; whilst this obviously reduces marker burden, it makes assessment very costly (Humphrey, 2013). However, because youth performance measures use only expert scoring, it should be possible to produce a marking key, which could be used by school staff to mark the assessments. Such a tool, would markedly reduce cost but would increase teacher burden. Nevertheless, for an experienced teacher, who will be used to marking academic performance tests using a marking key, the burden may be less than completing a rating scale for each pupil in the class.

A further practical consideration is independence of answers. In general, assessments in schools take place within the class setting with classmates present. In such situations, performance may be enhanced by copying answers from nearby classmates. Theoretically this issue should be larger for performance measures than self-report since self-perceptions should be less tempting to "borrow"; however, since studies have shown that children are influenced by socially desirable responding (Billings et al., 2014; Esnaola et al., 2017), it seems plausible that children may be tempted to change their responses to be comparable with persons nearby.

Whilst many commentators place most value on performance measures (e.g. Conte, 2005; Matthews, Zeidner, et al., 2004; Roberts et al., 2010; Wilhelm, 2005), neither rating scales nor performance measures offer a perfect assessment method. Therefore, for EI assessments, the EI approach taken will likely ultimately decide which type of assessment should be utilised (Brown et

al., 2018). As previously stated, rating scales and performance measures assess different constructs. Rating scales give an insight into a person's self-perceived emotional competency and dispositions whereas performance measures assess their emotional skills and knowledge (Petrides, Furnham, et al., 2004). Research has shown both to be important in differentially predicting a range of outcomes (Humphrey, 2013; Keefer, 2015). As Keefer (2015) asserted, this makes conceptual sense since, in order to function competently, one must not only possess the necessary skills but also believe that they have and can use those skills appropriately. Consequently, one must consider what construct they wish to assess when choosing a measure (Brown et al., 2018). Current evidence suggests that the AEI conceptualisation may be more relevant to childhood (Zeidner et al., 2003) and school settings (Goetz, Frenzel, Pekrun, & Hall, 2005). Unfortunately, whilst appropriate measures for each approach are available for secondary-school-aged populations, the lack of an established brief comprehensive ability measure for children below 10 years old makes assessment of AEI in this age group problematic. However, there are some promising starts of AEI measures for children, which could be built upon.

3.3 The Relationship Between EI and Academic Achievement (AA)

One of many claims made by Goleman (1996) was that EI is integral to academic success. This link captured the interest of education practitioners; leading to the inclusion of EI principles in school curriculums around the world (Mayer & Cobb, 2000). Indeed, Humphrey (2013) described EI as the organising principle for SEL, which he asserted has received a great deal of attention within education systems worldwide, both at national policy level and at an individual school level. However, as with many applications of EI, practitioner enthusiasm has outpaced research (Mayer & Cobb, 2000), particularly at primary-school level where the aforementioned lack of suitable assessments has hampered research efforts (Perez-Gonzalez & Qualter, 2018).

There are a number of different theoretical explanations for the role of EI in Academic Achievement (AA). It may be directly and causally linked such that greater EI simply means greater AA; alternatively EI may affect some other factor which in turn affects AA (Zeidner et al., 2012). Different theorists have suggested different mediating routes. Many emphasise the social environment and the importance of being able to maximally function within it in order to maximise AA potential (Bailey & Rivers, 2018). For example, the CASEL logic model posits that Social and Emotional competence increases attachment to school and reduces risky behaviour which in turn lead to greater AA. Similarly Goetz et al. (2005), proposed intelligent processing of emotions which arise within the academic environment leads to greater motivation, better learning strategies, and more available cognitive resources, which in turn lead to increased achievement. Meanwhile others have

emphasised self-confidence as the mediating factor, as illustrated by Zeidner et al. (2012)'s mediating model whereby higher EI leads to higher awareness and confidence in abilities which in turn increased motivation, self-regulation and study habits; thereby increasing AA. Figure 8 presents an illustrative summary of frequently suggested routes in which EI may increase AA.

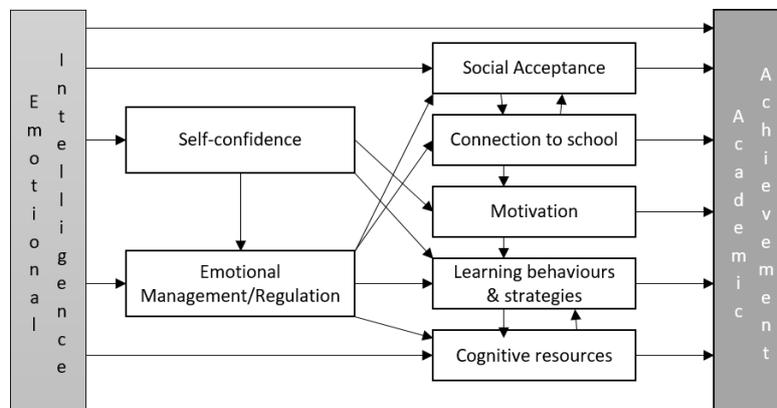


Figure 8: An illustrative diagram of some of the paths through which EI may influence AA.

This is not intended as an exhaustive representation of all possible mediators but a summative illustration of the more frequently suggested paths.

Although this project focuses on the primary age range, the evidence base regarding EI and AA in this age range is scarce, particularly for AEI (Billings et al., 2014). Therefore, the connection between EI in secondary school students is examined first to provide a more insightful overview of the area, however it is important to note that, because EI is developmental in nature, the relationship between EI and AA is likely to differ between primary and secondary school age-groups.

Unsurprisingly, results have differed according to the conceptualisation of EI used (Allen et al., 2014); therefore each conceptualisation will be reviewed separately.

3.3.1 TEI and AA for secondary school students.

Comparisons between groups of students have indicated TEI seems likely to be associated with academic success since more academically able students attain higher TEI scores than less academically able students (Downey et al., 2008; Parker et al., 2004). However, although Parker et al. (2004) found an increase in TEI from low to middle to high AA groups, Downey et al. (2008) found no difference between middle and top groups for some TEI subscales, and for Emotional Management and Control the middle AA group scored higher than the high AA group; suggesting that greater TEI may not always be associated with greater AA.

Indeed, several researchers assert that TEI should not be directly associated with AA due to its lack of relationship with cognitive abilities (e.g. Mavroveli et al., 2008). Accordingly, studies examining a correlational association between the two constructs, have found mixed results with several studies

reporting a positive correlation between overall TEI and AA (e.g. Ferrando et al., 2010; Joibari & Mohammadtaheri, 2011; Ogundokun & Adeyemo, 2010; Parker et al., 2004), whilst others have found non-significant correlations (e.g. Jordan, McRorie, & Ewing, 2010; Mitrofan & Cioricaru, 2014). Furthermore, global correlations have been criticised because they do not establish causality or direction of effects (e.g. Humphrey et al., 2007) and the use of global EI scores masks the differential effects of the various facets of TEI (Jordan et al., 2010; Qualter et al., 2007).

In support of the above criticism, Jordan et al. (2010) found that, although the correlation between total TEI and academic outcomes was non-significant, there were significant relationships between overall AA and the adaptability and stress management scales of the EQ-i. Furthermore, Parker et al. (2004) found different scoring patterns between high, middle and low ability groups depending on EQ-i subscale. In addition, several studies, which have examined the predictive validity of TEI in relation to AA, have found only one or two TEI subscales to be predictive of AA (Downey et al., 2014; Downey et al., 2008; Hogan et al., 2010). These findings suggest that certain aspects of TEI may be particularly important for AA, however, due to the wide range of measures utilised in studies it is difficult to draw conclusions because each measure features different subscales.

As discussed in the measurement section, EI must show incremental predictive validity above other known related constructs in order to be considered a valuable contributor. Some studies have examined the incremental predictive validity of TEI for AA. For example, Ogundokun and Adeyemo (2010) found TEI to be the strongest predictor of AA compared to intrinsic motivation, extrinsic motivation and age. Given the closeness of the construct to personality and Goleman (1996)'s claims regarding its superior importance to IQ, it is particularly important to evaluate incremental validity in relation to these constructs. Accordingly, a few studies have investigated such validity (Amelang & Steinmayr, 2006; Di Fabio & Palazzeschi, 2009; Downey et al., 2014; Hogan et al., 2010; Mavroveli et al., 2008). For example, Di Fabio and Palazzeschi (2009) found TEI explained incremental variance in AA above fluid intelligence and personality, although this was with a sample who would be more of college than secondary age in Britain (16- to 20-year-olds). Hogan et al. (2010) found only two (adaptability and stress management) out of the four EQ-i scales predicted Grade Point Average (GPA) above verbal IQ. Similarly Downey et al. (2014) found only the Emotion Management and Control scale of the Adolescent SUIET demonstrated incremental validity over IQ and personality in explaining GPA of Year 9 students, however this sample used only female students from the same school (although over a three year period); thereby, as acknowledged by the authors, limiting the generalisability of these results. Mavroveli et al. (2008) found TEI only showed incremental validity over verbal ability for spelling. Finally Amelang and Steinmayr (2006) found TEI showed no

incremental validity in predicting AA, although this again may have been influenced by sample characteristics since their sample was 16- to 20-year-olds who were preparing to enter university, and therefore presumably cognitively able.

As previously highlighted, a number of indirect routes through which EI may influence AA have been proposed. Accordingly, TEI has been associated with a variety of factors which are known to affect school success. For example, Petrides, Frederickson, et al. (2004) found TEI to be associated with lower truancy and exclusions, and Petrides, Sangareau, Furnham, and Frederickson (2006) found high TEI to be associated with pro-social behaviour and friendships. Furthermore, Mavroveli et al. (2008) found that children who had low TEI were more likely to display behavioural problems at school. On the other hand, Mestre et al. (2006) found self-perceived EI was not related to adolescent students' academic or social adaptation whereas AEI scores were, however they measured TEI using a measure which is modelled on AEI rather than TEI theory.

In addition, some studies investigating the TEI-AA relationship have suggested an interaction with cognitive ability. Petrides, Frederickson, et al. (2004) found that TEI moderated the effect of IQ on English and overall GSCE performance such that for low IQ it had a positive effect on AA but for high IQ the effect became negative. They explain this finding by suggesting TEI is only of importance for AA when the task demands outweigh the pupil's intellectual resources. Jordan et al. (2010) similarly explain their unexpected finding of a negative correlation between the EQ-i Stress Management subscale and AA using the "cognitive buffering hypothesis" (p. 43). They argue that, because their sample used cognitively able pupils, they had sufficient Working Memory (WM) resources to still perform the task even with interference from anxiety; had they used a lower ability sample, this would not have been the case and therefore stress management would have a positive effect on AA, because it would allow low cognitive ability students to free up needed WM resources.

Overall, the relationship between TEI and AA in Secondary School seems unclear. On the one hand researchers have demonstrated that the lowest performing students tend to score lowest on TEI (Downey et al., 2008; Parker et al., 2004). On the other hand, the relationship between TEI and academic performance is not always linear, because on some occasions high achievers have lower EI than lower achievers, and the relationship between TEI and AA varies across subjects (e.g. Downey et al., 2008). Furthermore, studies have not always accounted for the potential confounding effects of IQ and personality (Qualter et al., 2007). Whilst it seems plausible that TEI may have an impact on AA through indirect pathways, the literature seems to be lacking the necessary longitudinal studies to confirm or deny such assumptions (Zeidner et al., 2012).

3.3.2 AEI and AA for Secondary School Students

In contrast to TEI, most theorists agree AEI can be conceptually linked to classroom learning (e.g. Mayer & Cobb, 2000). Indeed, Allen et al. (2014) asserted that in general the association between AEI and AA is stronger than that between TEI and AA. There is some evidence to support this distinction within the secondary school age range, with several studies reporting more evidence of a link with AA for AEI than TEI (Costa & Faria, 2015; Di Fabio & Palazzeschi, 2009; Peters et al., 2009; Qualter et al., 2012). A positive link between AEI and AA has not, however, been universally found. Peters et al. (2009) found no correlation between MSCEIT:YV and Broad Maths (a general maths measure), although it was related to SAT-10 Maths, which they describe as a “high-stakes achievement test” (p. 80). Additionally, Woitaszewski and Aalsma (2004) found no relationship between the adolescent MEIS and GPA for gifted students. It is worth noting, though, that both the above studies used early research versions of the measures which may therefore be less reliable, indeed Woitaszewski and Aalsma (2004) question the adequacy of the MEIS in their analysis because there was very low variability in scores obtained.

Few studies appear to have addressed the relative strength of the different AEI subscales in predicting AA. Di Fabio and Palazzeschi (2009) found the managing branch to be most predictive. MacCann et al. (2011) also demonstrated emotional management was related to GPA, for high-school students. Crucially however, although they conducted an initial study finding the management branch to be most associated with AA in university students, they only used the STEM-Y with high-school students, meaning it is unknown how predictive the other AEI branches were for this population. More recently, Costa and Faria (2015) found scores from a performance understanding emotions measure to be more predictive of AA than scores from a self-report report measure of general AEI; suggesting the understanding branch may be most important, although this finding could likely be due to the confound between performance and self-report measures. Overall there appears to be some evidence to tentatively support Allen et al. (2014)’s observation that the two strategic AEI branches appear to be more important in predicting AA than the lower experiential branches.

As with TEI, incremental validity is vital for AEI to be considered a valid contributor to AA (Barchard, 2003; Qualter et al., 2007). Worryingly, Mayer, Roberts, et al. (2008) asserted that relationships between EI and AA often become insignificant when IQ is controlled, however this assertion was based mostly on studies which utilised post-secondary students, therefore it is important to examine findings for younger age groups. In accordance with Mayer, Roberts, et al. (2008), Woitaszewski and Aalsma (2004) found 0 % of 15- to 18-year-olds’ GPA scores to be predicted by AEI once cognitive

skills were removed. Furthermore, Amelang and Steinmayr (2006) found no incremental validity for AEI in academic success. Interestingly, both these studies' populations were restricted to the higher end of cognitive ability, leading one to wonder whether the lack of incremental validity can be explained using similar principles to the cognitive buffering hypothesis outlined above (i.e. higher cognitively able pupils have sufficient cognitive resources available to complete tasks even without controlling emotional interference). In support of this, several studies which have used more mixed samples, have found evidence of incremental validity (Di Fabio & Palazzeschi, 2009; Márquez, Martín, & Brackett, 2006; Peters et al., 2009; Rivers et al., 2012). On the other hand, it is notable that Peters et al. (2009) found incremental validity for one reading measure only and Márquez et al. (2006) calculated incremental validity over personality and cognitive ability separately, so it is unknown if AEI would have still shown incremental validity over the sum of both constructs.

With regards to the aforementioned cognitive buffering, there is limited evidence of interaction effects between AEI and cognitive ability. Qualter et al. (2012) found AEI moderated the influence of cognitive ability on GCSE results for both higher and lower ability boys, and for higher ability girls only. Although this study support the presence of an interaction between AEI and cognitive ability, it is not fully supportive of the cognitive buffering hypothesis because this posits that the effects of EI are greater for low cognitive ability whereas Qualter et al.'s results suggest an effect for boys of all abilities and only higher ability girls. Consequently, the relationship between AEI and cognitive ability needs further exploration.

As with TEI, AEI has been associated with a variety of variables known to affect school success, including school behaviour (Peters et al., 2009), academic adaptation (Mestre et al., 2006), and social and friendship skills (Qualter et al., 2007). Nevertheless, little exploration of mediating effects has taken place. In one exception to this, MacCann et al. (2011) found the relationship between the STEM-Y and GPA was fully mediated by coping and that problem-focused coping was the strongest mediator. Whilst the results need replicating before one can confidently extrapolate from them, these findings, along with the other associated school success variables, suggest that AEI may also exert an indirect influence on AA.

Overall, the evidence appears to provide tentative support for the conceptual link between AEI and AA in secondary-aged pupils, though research findings have been neither universal nor conclusive.

3.3.3 TEI and AA for primary school children.

As with secondary-aged children, there is limited evidence suggesting a small association between TEI and AA in the primary age range. Parker et al. (2009) reported a study by Eastabrook, Duncan and Eldridge (2005) which found that above average 7- to 12-year-olds scored significantly higher on

the EQ-i:YV compared to below average students. Ferrando et al. (2010) further found TEI to have incremental validity over IQ, personality, and self-concept. Caution must be exercised when interpreting these results, however, because both studies utilised forms of the EQ-i, which has been criticised for including correlates of EI within its scales, therefore potentially inflating relationships (Qualter et al., 2007). Studies utilising other measures have found less consistent results. Using the TEIQue:CF, Mavroveli, Petrides, Sangareau, and Furnham (2009) concluded there was no relationship between TEI and AA, for 8- to 12-year-old children, having found the correlations lost significance when age and non-verbal intelligence were held constant. In a later study, Mavroveli and Sanchez-Ruiz (2011), despite finding SEN children had lower TEI than non-SEN students, found TEI to be correlated with KS1 maths SAT scores but unrelated to reading or writing. Furthermore, the relationship with maths was found for Year 3 children only; no relationships were found for years four to six. These results may, though, have been influenced by their methodological approach, because they used retrospective academic data (KS1 SATs are completed at the end of School Year 2); given that EI is expected to develop quickly in this age range, the large gap between academic and EI data collection may have confounded results for years four to six (Mavroveli & Sanchez-Ruiz, 2011). Furthermore, the retrospective collection of academic data makes assumption of causality from correlations impossible. Nevertheless, Agnoli et al. (2012) found similar subject-related results to Mavroveli and Sanchez-Ruiz (2011): scores on TEIQue:CF only independently contributed to the explanation of Maths performance for 8- to 11-year-olds.

Although Agnoli et al. (2012) found a direct relationship for TEI and AA in Maths only, they found an interaction with cognitive ability for language performance whereby TEI had a positive impact for children with low and medium cognitive ability but not for highly cognitively able children. This finding echoes that of Petrides, Frederickson, et al. (2004) with Year 11 pupils, suggesting that available cognitive resources are likely a salient factor in the relationship between TEI and language AA. However, this finding needs replicating before confident inferences can be drawn.

No studies have specifically studied an indirect relationship between TEI and AA in primary school children. However, several studies have linked higher TEI with more peer and teacher nominations for prosocial behaviour in primary school (e.g. Mavroveli et al., 2009; Mavroveli & Sanchez-Ruiz, 2011; Petrides et al., 2006), which is linked with greater school success (Parker et al., 2009).

One other area, which appears to have not yet been explored for primary-aged children, is the relationship between AA and specific TEI sub-domains. This may be important since Qualter et al. (2007) suggested that specific traits predict AA in university students when overall EI does not.

Unfortunately, it seems such research will likely be hampered in younger age ranges by the lack of understanding of the TEI construct in childhood.

3.3.4 AEI and AA for primary school children.

Due to the aforementioned lack of AEI measures for primary-aged children, there is a severe lack of studies examining AEI in this age group (Agnoli et al., 2012; Billings et al., 2014; Humphrey et al., 2007; Williams et al., 2009). Indeed, the only study found which claims to have assessed the relationship between the whole AEI construct and AA in primary school is Billings et al. (2014) who found relationships between only the understanding branch and AA for 9- to 13-year-olds. Their measurement choice is likely to have influenced this finding, however, since they used the SUEIT-EY in which understanding is the only branch to be measured solely through performance (Billings et al., 2014) which, as previously discussed, tends to be more related to AA than self-report EI (Costa & Faria, 2015; Di Fabio & Palazzeschi, 2009; Peters et al., 2009; Qualter et al., 2012). Influence of measurement type seems especially likely in this study since Billings et al. (2014) found evidence of socially desirable responding in the other three subtests; suggesting these may not have accurately assessed their respective branches.

Given the lack of comprehensive AEI measures, some research has examined the relationship using specific skill measures. For example, Agnoli et al. (2012) assessed emotional facial expression recognition as a proxy of AEI and found an interaction with cognitive ability to predict maths and language performance. As with TEI, the interaction was such that emotion recognition ability was associated with AA for children with low and medium cognitive ability but not high. Additionally, Nowicki and Duke (1994) found the receptive subtest scores from DANVA to be associated with AA. Interestingly, both these results suggest that the perception branch may be relevant in explaining AA for primary-school-aged children. This is in contrast to findings with older students for whom emotion perception seems to be unrelated to AA (Di Fabio & Palazzeschi, 2009; O'Connor & Little, 2003). Such a relationship is important to explore, however it requires the development of appropriate measures which can accurately assess all AEI branches.

Finally, there is some evidence to suggest an indirect association between AEI and AA in this age group. Rhoades, Warren, Domitrovich, and Greenberg (2011) found attention skills mediated the relationship between pre-school emotion knowledge and first grade AA. Although these results seem promising, the emotion knowledge measures they used only assessed labelling of emotions in pictures and stories and therefore are not representative of the whole AEI domain. In addition to the potential mediating role for attention, Lopes and Salovey (2004) asserted that there is a good evidence base linking children's emotional skills to social adaptation. Whilst the evidence they quote

in support of this argument predates child performance EI measures, a very recent finding by Qualter et al. (2018) suggests AEI can be included in this assertion. They found higher scores on the MSCEIT:YV were associated with the developmental transition from direct to indirect aggression on the school playground for 10- to 11-year-olds. Interestingly, however, they found no association between AEI and prosocial behaviour; suggesting this area requires more exploration.

Overall, the tiny amount of research regarding AEI and AA in primary schools, seems to tentatively suggest a link between the two constructs. Nevertheless, it is abundantly clear that the lack of research in this area is a problem which needs addressing to properly inform educators (Humphrey et al., 2007).

3.3.5 Interaction mechanisms for EI and cognitive ability.

Several studies, examined above, have found an interaction between cognitive ability (CA) and EI in predicting AA (Agnoli et al., 2012; Jordan et al., 2010; Petrides, Frederickson, et al., 2004; Qualter et al., 2012). This is echoed in the newer approaches to decision making theory, highlighted by Humphrey et al. (2007), whereby effective emotional processing is acknowledged to facilitate reasoning, which is central to most aspects of academic performance. For example, Damasio (2006)'s semantic marker hypothesis postulated that emotion (manifested as somatic markers) effectively filters the options to be attended to, and reasoned about, in order to select a solution to a problem. Damasio emphasised that basic attention and working memory are essential to this process; hence, according to this theory, reasoning is the product of an interaction between emotion, attention and working memory.

Attention is described by Damasio (2006) as "the maintenance of a mental image in consciousness to the relative exclusion of others" (p. 287). The attention construct, especially sustained attention, has been shown to be integral to academic success (Betts, McKay, Maruff, & Anderson, 2006). According to Betts et al. (2006), this is because attention needs to be sustained in order to process all the information presented. Attention is also closely linked to AEI, with emotional direction of attention listed as a skill in Mayer and Salovey (1997)'s model. Furthermore, higher emotional management will minimise attentional interference. Thus, an interaction between AEI and attention seems likely, with higher levels of AEI facilitating effective direction and maintenance of attention. This relationship seem particularly relevant for primary-school children because sustained attention is known to develop until around age 10 (Betts et al., 2006). Therefore, it seems likely that sustained attention capacity may mediate the relationship between AEI and AA, especially for younger populations. Indeed, such a relationship was indicated by Rhoades et al. (2011) but does not appear to have been further examined by researchers.

According to Gathercole, Pickering, Knight, and Stegmann (2004), Working Memory (WM) is “a mental workplace in which information can be stored and processed for brief periods of time in the course of demanding cognitive activities” (p. 2). It is believed to be comprised of a *phonological loop*, *visuospatial sketchpad*, *episodic buffer*, and *central executive* (Gathercole, Pickering, Ambridge, & Wearing, 2004). The phonological loop and visuospatial sketchpad act as temporary storage components, whilst the episodic buffer is required to temporarily hold representations from different sources and the central executive is attributed to controlling a number of regulatory functions including attentional deployment and action selection (Gathercole, Pickering, Ambridge, et al., 2004). The capacity of WM is limited, with each individual having a personal limit on the amount of information they can process (Gathercole & Alloway, 2007). Hence, it is clear that WM is central to decision making and problem solving; indeed a relationship between WM and academic performance has been robustly demonstrated (Gathercole, Lamont, & Alloway, 2006; Gathercole, Pickering, Knight, et al., 2004).

The success of WM is dependent on a number of factors. The most crucial appears to be maintaining attention on the information required to solve the problem (Eysenck, Derakshan, Santos, & Calvo, 2007; Gathercole & Alloway, 2007). Accordingly, anything which prevents this from occurring is likely to be detrimental to the performance of WM. Gathercole and Alloway (2007) identified three situations which frequently lead to WM, and consequently task, failure in the classroom. Firstly, distractions, such as talking or irrelevant thoughts, can divert attention away from the important information. Secondly, due to the limited capacity, too much information can overwhelm WM. This is especially relevant for younger pupils given that the capacity of WM increases with age until adolescence (Gathercole, Pickering, Ambridge, et al., 2004). Finally, demanding tasks, that require a lot of processing, can also overload WM capacity.

Several connections can be made between EI skills and WM success. In particular, EI may play a preventative role to avert the failure situations identified above. As previously discussed, emotional facilitation of attention is listed as a skill in the Mayer and Salovey (1997) model; this will be directly relevant to both the first and second situation as it will both assist with maintaining attention on salient information and filtering incoming data to prevent capacity overload. Indeed, Damasio (2006) asserted WM performance is dependent upon affective emotional filtering because the number of possibilities to be processed would otherwise exceed its capacity. Further support comes from Eysenck et al. (2007)'s Attentional Control Theory (ACT), which explicates how anxiety affects WM performance. According to this theory, anxiety impairs the attention deployment function by disrupting its inhibition functionality to suppress interference from irrelevant stimuli. Thus WM

resources are consumed by processing task irrelevant stimuli such as external distractors or internal worrying thoughts; leading to reduced task performance. Clearly, this indicates that emotional management skills can also contribute to effective WM functioning, since, if the individual is able to manage their anxious feelings, their disruptive effects will be avoided. This interpretation must be made with caution, however, because ACT is largely informed by findings from individuals high in trait anxiety, rather than experiencing anxiety as a transient emotional state (Eysenck & Derakshan, 2011). Nevertheless, Eysenck and Derakshan (2011) asserted that effects of transient anxiety are considered within ACT, and some research with state anxiety has found support for ACT (e.g. Derakshan, Smyth, & Eysenck, 2009; Hadwin, Brogan, & Stevenson, 2005), although some have also found no effect for state anxiety (e.g. Eysenck, Payne, & Derakshan, 2005; Ng & Lee, 2015).

ACT also states that the effects of anxiety are more pronounced for tasks which are more cognitively demanding, because, when motivated to do so, people are able to employ extra effort to overcome anxiety effects at low cognitive loads but do not have sufficient WM resources to do so at high cognitive loads (Eysenck & Derakshan, 2011; Eysenck et al., 2007). In support of this, Eysenck et al. (2007) report studies (e.g. Ashcraft & Kirk, 2001) which demonstrated highly anxious individuals performed worse than low-anxious people only on tasks which have a hefty processing load. Such findings lend support to the cognitive buffering hypothesis proposed by Jordan et al. (2010) because they demonstrate that adverse effects from emotional interference are most likely to be evident when task demands outweigh WM resources, thereby implying that the enhanced emotional management skills afforded by high EI are more likely to have a positive impact on performance when WM capacity is near its limit.

Despite the theoretical connections outlined here, the relationship between EI and WM has not been systematically studied, with the exception of a recent investigation by Gutierrez-Cobo, Cabello, and Fernandez-Berrocal (2017) who found that higher emotional management skills, as measured by the MSCEIT, were correlated with better performance of a WM recognition task, but only when the stimuli had emotional content. These findings therefore, demonstrate a relationship between EI and WM performance, albeit only when processing of emotional content is required. Gutierrez-Cobo et al. also noted however, that their sample was limited to cognitively able students; thus, as has been found with direct comparisons of EI and AA, it may be that EI will have a greater impact on WM performance in less-able students whose WM capacity is likely lower. Consequently, given that children's WM capacity is markedly lower than adults (Cowan, 1997; Gathercole, Pickering, Ambridge, et al., 2004), it seems important to explore WM as potential moderating variable in the relationship between EI and AA.

3.3.6 Summary of the relationship between EI and AA.

Although intuitively appealing to EI enthusiasts, empirical evidence for EI's ability to predict AA in school-age children is too inconsistent and non-voluminous to confidently assert its truth.

Nonetheless, the evidence that has accumulated seems suggestive of a tentative link between the two constructs. For example, Perera and DiGiacomo (2013) conducted a meta-analysis of TEI and AA studies and found a modest to moderate effect size for the relationship between the two concepts, however they included studies which did not control for the influence of personality or cognitive ability, so the effect size may be inflated. They also included studies which looked at post-secondary education, an age range that has not been considered here due to the focus on children. In including all three age ranges, they found an Age x TEI interaction whereby TEI is more strongly associated with AA for younger (primary) aged children than for secondary or tertiary students. However, as Perera and DiGiacomo (2013) highlighted, this may be explained by a confound with verbal ability since tertiary education students will be sufficiently literate to access all the content of the measures but primary students are less likely to be able to do so.

No similar meta-analysis for the relationship between AEI and AA was found, though in a reviewing chapter, Allen et al. (2014) asserted there is stronger evidence of a link between AEI and AA, than TEI and AA. Furthermore, AEI theory is considered by several researchers to be clearer conceptualisation and a more promising framework for the prediction of AA (Goetz et al., 2005; Mestre et al., 2006). Unfortunately, a lack of appropriate measures has left researchers unable to investigate this relationship in younger children (Humphrey et al., 2007).

Models of the influence of EI on AA indicate that it is as likely to operate indirectly as exert a direct influence (see Figure 8), however insufficient research exists to clarify such routes, with many studies assuming the demonstration of a connection with factors, such as behaviour, which are known to influence to AA is sufficient to infer such a connection (Zeidner et al., 2012). More promisingly, some studies have shown interaction effects with cognitive ability (Agnoli et al., 2012; Petrides, Frederickson, et al., 2004; Qualter et al., 2012) but have failed to specify the mediating mechanism through which the two constructs interact.

A further issue with the extant research on EI and AA is that much of it relies on measuring EI at some point in the school year and using year end grades or GPA to assess AA. Whilst this enables a tentative directional effect to exist, EI is believed to take until middle adulthood to fully develop (Mayer et al., 2004; Petrides, Furnham, et al., 2007), meaning that there are likely to have been changes in participants' EI during the gap (which can be as long as nine months). This means that we cannot be certain that participant's EI is the same at the point of assessment of AA, as when it was

measured; it may have increased dramatically, increased slightly, stayed the same, or even decreased. This is especially relevant since many schools teach SEL programmes which are designed, in part, to improve EI.

Overall, it is clear that more research is needed to clarify the extent and ways in which both types of EI affect AA. Humphrey et al. (2007) cautioned that such research evidence is required to maintain practitioner enthusiasm. With younger populations, the need is more urgent for AEI since there is a severe lack of research in this area (Agnoli et al., 2012; Billings et al., 2014; Humphrey et al., 2007; Williams et al., 2009).

3.4 How is EI Acquired?

As previously stated, one of the main reasons why EI has become so popular is that has been posited as more malleable than traditional IQ (Matthews et al., 2006). Consequently, the question arises as to how EI can be acquired and improved. This is particularly relevant to childhood EI, given the recent enthusiasm around SEL, in order to inform educators whether EI can be taught and, if so, how this is best achieved. This section will briefly review how EI may be acquired and what factors might influence its development. Clearly the acquisition of EI will be closely related to children's emotional development, therefore this sections begins with a brief summary of current theories and knowledge regarding children's acquisition of emotions and emotional understanding. Following this the acquisition of EI will be examined. Because AEI and TEI involve different processes and are therefore likely to be acquired in different ways (Qualter et al., 2007), each construct is examined separately.

3.4.1 Child Emotional Development

There is disagreement amongst emotion researchers regarding when emotions first emerge. Some theorists (e.g. Izard, 2007) argue there is a set of basic emotions which are innate and can control behaviour from infancy. Others, however, argue that, although infants may display basic action tendencies which may interpreted by observers as emotions, true emotions do not emerge until the child is capable of conscious self-reflection (e.g. Lewis, 2016). Finally Widen (2013) proposed that emotions emerge first in terms of broad valence categories (feels good vs feels bad) and gradually develop into discrete emotion concepts. These disagreements are reflected in the research with some studies finding that 11 week old infants are able to imitate their caregiver's facial expression and respond with appropriate sensorimotor behaviours specific to each emotion (Haviland-Jones et al., 1997), whereas other studies have found the infant responds to the valence of the expressed emotion and does not discriminate between individual emotions beyond whether they are positive or negative (Widen, 2016).

One common theme evidenced throughout all accounts, however, is that a small selection of emotional responses are present from early infancy and the child's emotional lexicon grows as they develop. This is supported by research. For example, Widen (2013) found that children use a wider range of emotion labels accurately as they age and Pons, Harris, and de Rosnay (2004) demonstrated that children's emotional understanding consistently increased with age between three and 11 years. Furthermore, there appears to be broad consensus that emotion knowledge is organised into categories or schema consisting of an emotion label and associated displays, causes, meaning and consequences of that emotion (Izard, 2007; Widen, 2016). Such schema require the child to have developed the necessary vocabulary and knowledge to create them; consequently, a child's emotional development co-occurs alongside their social and cognitive development, and is necessarily dependent upon these (Lewis, 2016).

With regards to cognitive development, two aspects appear particularly important. Firstly, several commentators have argued that emotions require consciousness in order to be recognised and utilised (Lewis, 2016; Saarni, 2000). They assert that a person must be able to think of themselves in order to experience emotional action patterns within their body. Lewis (2016) asserts that such consciousness develops around 2 years of age, which is the age at which children have been first observed to begin to talk about their feelings (Harris, De Rosnay, & Pons, 2016). Secondly, there is a lot of evidence suggesting emotional development is tied to language acquisition. Lindquist et al. (2016) report that children's emotion face sorting differentiates into a greater number of categories as new emotion words are learned, and Izard (2001) reported that language ability and emotional labelling have been found to correlate between .16 and .63. Language appears to facilitate emotional development in three ways, firstly it allows the child to become aware of emotion concepts and label how they are feeling (Greenberg & Snell, 1997; Lindquist et al., 2016). Secondly it allows the child to communicate with others about feelings and build a narrative around their emotions. Finally it allows the child to begin to have some control over their emotions by expressing them verbally rather than through behaviour. Most children appear to have developed a basic feeling vocabulary by age three (Schultz et al., 2005).

In addition to consciousness and language acquisition, emotion theorists argue that early social interactions are key to developing the child's recognition of emotion (Bailey & Rivers, 2018). In particular parental or caregiver discourse about emotions seems to facilitate children's recognition of emotions with one study finding that it predicted emotion recognition with age and cognitive ability controlled for (Schultz et al., 2005). It has also been observed that infants who are securely attached are more willing to experiment with different emotions and therefore acquire a greater

emotional lexicon (Saarni, 1997). Furthermore, secure attachment seems to foster better emotional management (Garner, Dunsmore, & Southam-Gerrow, 2008; Kochanska, 2001). Indeed Saarni (1997) found that securely attached infants were more emotionally stable at age 18. Relatedly, many researchers have observed that parental responsiveness to young children's displays of emotion influences the child's self-awareness (e.g. Warren & Stifter, 2008). In addition, there is evidence to suggest that emotional expressions are influenced by non-verbal interactions with caregivers in infancy with Haviland-Jones et al. (1997) reporting that studies have found infants facial expressions of emotions mimic those of their primary caregiver. This means that if the adult experiences emotional difficulties, these may also be displayed by the infant, with some studies finding that infants of depressed mothers imitate their depression (Haviland-Jones et al., 1997).

Clearly therefore, early caregiver interactions are key facilitators for emotional development, and consequently EI, however other factors have also been found to facilitate development. Firstly, other human interactions can have an impact. For example Camras et al. (2016) observed that children can mimic teachers displays of emotion as well as their parents. Furthermore, culture has been shown to shape how emotions are labelled, managed and displayed with Lindquist et al. (2016) reporting differences in emotional vocabularies between cultures and reflected differences in emotion sorting. Denham et al. (2016) similarly reported that children from Asian cultures express and interpret facial expressions differently to children from America. Haviland-Jones et al. (1997) reported that children have developed culturally appropriate displays of emotions by school-age, quoting a study which found that North American children have learnt to suppress displays of less desirable emotions. Although this may in part be attributed to parental modelling in accordance with cultural expectations, it indicates that emotional development is shaped by culture.

Additionally, it seems likely that pretend play may help to facilitate the development of emotional understanding. Harris et al. (2016) reported a study by Wellerman which found that 2-year-olds attributed emotions to stuffed toys and imaginary in pretend play situations, suggesting this may help promote their understanding of emotional vocabulary. Similarly, Lindsey and Colwell (2003) found high levels of pretend play were associated with high levels of emotion understanding in pre-school children.

Researchers have also identified factors which may hinder emotional development. Firstly Greenberg and Snell (1997) asserted that a traumatic event can damage emotion synapses in the brain, which can alter arousal responses and reduces emotional stability for many years. Secondly, insecure attachments appear to reduce positive emotional experiences and increase negative emotionality and aggression (Kochanska, 2001). Similarly, persistent parental punishment of

negative emotions has been found to be associated with lower emotional competence (Zeidner et al., 2012)

Despite the large influence of environment on emotional development, there is some evidence that factors within the child, notably temperament, can also have an effect. Research has demonstrated that temperament affects how children interact with people and the environment around them which is likely to affect how others respond to them and therefore give rise to particular patterns of emotional development (Matthews, Zeidner, et al., 2004).

3.4.2 Acquisition of TEI.

With regard to TEI, the original TEI proposers appear to have paid little attention to how it may be acquired, with Petrides et al. (2016) asserting on the one hand “it is clear that the foundations of the multifaceted role of trait EI [...] are laid down in childhood.” (p. 339), whilst conceding on the other hand “Trait EI is less well understood in childhood.” (p. 338). However, using findings from Gardner et al. (2011) they did suggest that it is linked to temperament and likely “intrinsically determined” (Petrides et al., 2016, p. 339). Interestingly, this appears to suggest that TEI may be somewhat resistant to change and therefore not malleable, although Petrides et al. went on to describe findings regarding the successful training of TEI in adults.

Other commentators agree that TEI is partially defined by genetic temperament (e.g. Zeidner et al., 2003), however many also believe that it can be influenced by environment. For example, Qualter et al. (2007) asserted that, because TEI concerns people’s self-perceived emotional competency, it will be shaped by environmental influences which impact their self-beliefs. Similarly, Schultz et al. (2005) highlighted research indicating that early family environment influences later emotionality. Matthews, Zeidner, et al. (2004) also contended that a hostile school or community environment will lead children to internalise the negative affect and will therefore experience it in a high proportion of situations. In spite of these theoretical links, and the aforementioned importance of early experiences for emotional development, Qualter et al. (2012) found that early family environment did not influence TEI.

Given their established importance for emotional development, there is also widespread agreement that social interactions are hugely influential in the development of EI (e.g. Bailey & Rivers, 2018; Matthews, Zeidner, et al., 2004; Schultz et al., 2005), although many of these arguments centre around the social construction of knowledge, and are therefore probably more relevant to AEI. Nevertheless, Saarni (1997) asserted that children who are securely attached as infants, are more emotionally stable and have higher self-esteem as adults, therefore suggesting early social interaction can impact elements of TEI. In contrast, Vernon et al. (2008) demonstrated that TEI is

moderately genetically determined, like personality traits, and therefore likely resistant to change. This view is supported by findings, such as those of Qualter et al. (2012) that family and early childhood trauma were unrelated to TEI.

Finally, there are some associated developmental factors which are likely to influence TEI acquisition. Particularly relevant, is the development of self-reflection because TEI is dependent on this process (Keefer et al., 2013). In addition, verbal abilities are likely to impact the extent to which the child is able to interact with the social environment (Bailey & Rivers, 2018).

3.4.3 Acquisition of AEI.

Despite Matthews, Zeidner, et al. (2004) asserting there is likely to be a biological and genetic component underlying AEI, the model authors emphasised the social construction of knowledge as its primary method of acquisition (Mayer & Salovey, 1997). According to Mayer and Salovey (1997), early parent-child discussions are the fundamental building blocks of AEI with parents helping children to “identify and label their emotions, to respect their feelings, and begin to connect them to social situations” (p. 19). This is echoed by other researchers in the field who emphasise the importance of having parents who are good emotional coaches for the development of emotional understanding (Schultz et al., 2005; Zeidner et al., 2012). Parent-child discussions are also accepted as being fundamental to child development more generally including the development of language (Smith, Cowie, & Blades, 2003), which as previously discussed, is a necessary pre-requisite for emotion labelling and management.

Although they posited early parental discourse as the initial method of acquiring AEI, Mayer and Salovey (1997) also suggested that EI continues to be developed later in childhood, where schools can be a key facilitator. In particular, they posited that “some of the most important learning takes place in the informal relationships between child and teacher; teachers often serve the role of an important and potentially wise adult model” (p. 19). Again, other researchers concur with this view, with Matthews, Zeidner, et al. (2004) identifying that the child will both observe the teacher’s modelled EI behaviours and benefit from direct emotional coaching that the teacher is likely to give when the child is emotionally aroused. In addition to learning from teachers, children are known to develop emotional knowledge through social interactions with their peers (Bailey & Rivers, 2018).

Mayer and Salovey (1997) also suggested AEI may be fostered through elements of the standard school curriculum. For example, they highlighted that reading books in literacy will likely develop emotional knowledge since characters in stories will always experience emotions and therefore “one cannot evaluate a plot without asking ‘What does this character, with his history and personal style, feel in this situation,’ and then, ‘How reasonable is it that someone feeling this way would act as the

character does?” (Mayer & Salovey, 1997, p. 20). They further argued that the values which govern emotional responses are often explored in history, citizenship and religion.

Finally, though wary of the concept of teaching an intelligence, Mayer and Salovey (1997) conceded that it is likely that at least some AEI skills can be improved through education. Indeed, in their recent update, Mayer et al. (2016a) asserted “educators can develop new curricula that explicitly focus on the units of problem solving and that explain the varieties of reasoning involved” (p. 297). Other commentators concur that elements of AEI should be teachable, with Matthews, Zeidner, et al. (2004) asserting “Given that children can learn by observing and modelling real, as well as symbolic and representational models, curriculum based emotional learning comes naturally with many of the liberal arts” (p. 443). Whilst Qualter et al. (2007) asserted that AEI “is directly affected by the teaching of EI skills to do with perception and management of emotions” (p. 16).

As with TEI, there are a number of associated factors which are likely to affect the acquisition of AEI. Firstly, verbal ability is hugely influential for AEI: verbal comprehension is clearly required for the child to effectively participate in social discourse through which emotional knowledge is acquired (Bailey & Rivers, 2018). Furthermore, emotion labelling is a prerequisite for emotional reasoning and regulation (Izard, 2001), and Greenberg and Snell (1997) argued that emotion self-talk is necessary to enable young children to first start to connect their internal thoughts with behaviour and therefore consciously control their behaviour. Secondly, general cognitive development is believed to be influential because conscious regulation requires problem-solving skills which are dependent on efficient executive functioning (Greenberg & Snell, 1997). Additionally, the higher AEI skills are dependent on metacognition (Mayer & Salovey, 1997). Indeed, there is likely to be an interaction between verbal abilities and cognition as Greenberg and Snell (1997) pointed to the importance of strengthening neural connections between emotions, language and cognition highlighting that an emotionally stressful event can disrupt these pathways and cause problems with emotional stability for several years. Finally, Matthews, Zeidner, et al. (2004) suggested that the media may influence EI through models of emotion management or triggering emotional arousal.

3.4.4 Acquisition of EI according to the investment model.

As previously outlined, the investment model (Zeidner et al., 2003) set out a developmental progression of EI from temperament to rule-based skills to self-aware emotional regulation. They suggested a genetic precursor is likely for temperament, although, as previously noted, critics suggest they overemphasised the genetic component (Arsenio, 2003; Fox, 2003).

Similar to AEI theorists, Zeidner et al. (2003) posited social influences as the key facilitator for developmental progression. They suggested the network of influences widens with progression

through the stages from primarily caregiver at the temperamental stage to parents, peers and culture (including media) at the self-aware stage. In addition, they specified that the rule-based stage requires verbal ability and the self-aware stage additionally requires metacognitive abilities (Zeidner et al., 2012). There appears to be broad agreement that emotional development is the product of an interaction between temperament, environment, and cognitive ability (Fox, 2003; Haviland-Jones et al., 1997), although Fox (2003) argued that the cognitive abilities needed to be more precisely identified and defined in order to fully facilitate understanding of the interaction.

Clearly Zeidner et al. (2003)'s model integrates the TEI and AEI construct in childhood, and as such also integrates the potential influencing factors. This view is partially supported by Arsenio (2003) who asserted that both affective dispositions and emotional knowledge contribute to children's social competence, however, he also argued that the concepts must remain separable to inform intervention efforts. Nevertheless, Zeidner et al. (2003)'s delineation of the most influential factors at each stage may be helpful when considering how a child's EI may best be fostered.

3.4.5 Summary of the acquisition of EI.

It is believed that both AEI and TEI are likely to have some genetic underlying component, but this has not been widely explored (Matthews, Zeidner, et al., 2004). Their acquisition, however, is differently influenced with TEI believed to be largely intrinsic but potentially affected by temperamental and environmental influences on self-perceptions, whilst AEI is heavily influenced by the social construction of emotional knowledge (Qualter et al., 2007). As identified by Qualter et al. (2007), this has implications for educators wishing to foster EI since TEI will be more readily facilitated, if at all, through learning environments which enhance a person's EI-related self-esteem; whereas AEI can be facilitated through direct teaching of skills, along with carefully constructed opportunities to foster emotional knowledge.

3.5 Development of EI in Schools

The preceding review of the acquisition of EI suggested there are two ways in which schools may foster its development: through positive environmental affect and by teaching of skills or knowledge (Matthews, Zeidner, et al., 2004). Clearly, the affective environment is dependent upon both the teacher and pupils within it and will therefore vary from school to school and even classroom to classroom; thus it will not be the focus of discussion here. It is of note, however, that several programmes do target this as an improvement area and this will be highlighted where appropriate. Similarly, although Mayer and Salovey (1997) highlight the excellent opportunities that may be afforded to enhance EI within the standard curriculum, this is a further source of huge variability given schools' autonomy in selecting curriculum materials, and thus cannot be

systematically evaluated. As a result, this section focuses on programmes developed specifically to teach EI.

As established in previous sections, TEI is considered somewhat resistant to change (Vernon et al., 2008), whereas AEI is considered to be more amenable to direct teaching (Qualter et al., 2007), and a clearer concept to operationalise (Matthews, Zeidner, et al., 2004). Furthermore, evidence suggests AEI is more rapidly developed in the primary-school age-range (Zeidner et al., 2003). Consequently, AEI is likely the best model to underpin an EI education programme for primary schools (Goetz et al., 2005). In spite of this, most schools target the teaching of EI through delivery of an SEL programme, which are based on a definition derived from the Goleman (1996) TEI model (Brown et al., 2018; Humphrey, 2013). The implications of this will be discussed in the sections below.

SEL support can be organised in various ways (Humphrey, 2013). In England, the *waves of intervention model* from the, now discontinued, National Strategy continues to be widely used by educators to organise pupil support. As illustrated in Figure 9, in this model, programmes fall into one of three waves: a *Wave 1* programme is a universal curriculum, delivered to whole classes or cohorts designed to foster healthy development. *Wave 2* programmes are targeted additional interventions designed to catch-up lower attaining pupils up to the same attainment level as their peers. Finally, *Wave 3* is highly specialised support. Most SEL programmes fall under Wave 1, universal programmes, as this is the approach advocated by the influential collaborative for academic, social and emotional learning (CASEL; Zins & Elias, 2007), but some do take a more targeted approach to assist children identified as experiencing social and emotional problems (Humphrey, 2013). The effectiveness of each type of programme is reviewed below.

Historically, in England and Wales the main SEL approach was the Social and Emotional Aspects of Learning (SEAL) curriculum, published by the UK government (Humphrey, 2013). This had programmes for waves one and two of intervention; containing whole-school assembly materials, classroom curriculums and small group intervention materials. However, SEAL was archived in 2011, meaning there is no nationally endorsed SEL programme in England or Wales (Humphrey, 2013). Vostanis, Humphrey, Fitzgerald, Deighton, and Wolpert (2013) reported that schools in England have become largely autonomous in deciding their provision, with some choosing to utilise an externally developed prescriptive programme, as is typically done in the USA, whilst most relied on locally developed practices. Because there is a huge variety of programmes available, the primary aim of this section is not to comprehensively review each programme (although those which provide the

best AEI coverage will be highlighted) but to provide an overall evaluation of the effectiveness of SEL provision in raising EI and its impact on outcomes for children.

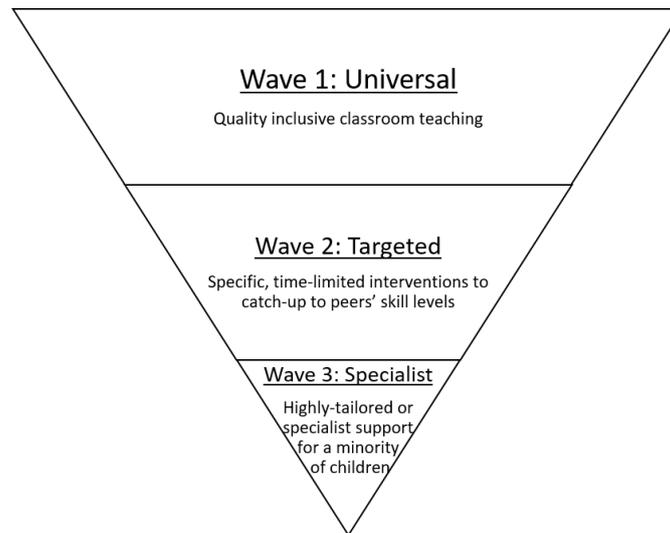


Figure 9: Waves of Intervention Model.

3.5.1 Universal EI programmes.

Universal EI or SEL programmes are curriculums of skills designed to be delivered to an entire population, generally by teachers in a classroom setting (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). They fall under Wave 1 of the waves of intervention model.

There are a huge number of universal SEL programmes available, however most have not been systematically evaluated, meaning their effectiveness is unknown (Perez-Gonzalez & Qualter, 2018). Illustrative of this, in America, despite Zeidner et al. (2002) reporting them finding over 150 programmes in use, CASEL have identified only 23 programmes for pre-school and elementary school which meet their criteria of being well designed, systematically improving social & emotional skills, ensuring quality implementation and evidence-based, to qualify as a “SElect” programme (CASEL, 2013).

Although all these programmes cover the five key SEL competencies – namely self-management, self-awareness, responsible decision making, relationship skills and social awareness (CASEL, 2013), from an AEI standpoint the broad scope of coverage, modelled on a TEI definition, means that the AEI related coverage is often sparse (Zeidner et al., 2012). Consequently, it is unclear whether they can be considered suitable tools for promoting AEI. Indeed, historically many commentators asserted that the only SEL programme to cover all aspects of AEI is the Promoting Alternative Thinking Strategies (PATHS) programme (e.g. Goetz et al., 2005; Matthews, Zeidner, et al., 2004),

although more recently Perez-Gonzalez and Qualter (2018) identify two universal programmes that are specifically structured on the Mayer and Salovey (1997) AEI model: RULER and INTEMO.

PATHS (Kusche & Greenberg, 1994b) is an elementary school programme that aims to promote social and emotional competence and understanding. Kusche and Greenberg (1994b) identify five domains within the programme: self-control, emotional understanding, building self-esteem, relationships and interpersonal problem solving skills. These domains not only relate to EI, but are also likely to benefit WM performance, particularly self-control, which will help maintain attention, and interpersonal skills, which may facilitate chunking of information to reduce storage burden. The programme consists of four sequential units: readiness and self-control, feelings and relationships, problem-solving, and supplementary lessons. Across the four units, PATHS seems to cover the majority of the Mayer and Salovey (1997) AEI model with only the “emotions prioritising thinking” and “emotion state encouraging different problem solving approaches” areas not appearing to be explicitly taught. However, PATHS pre-dates many of the theoretical models of EI and is grounded instead on the affective-behavioural-cognitive-dynamic model (Kusche & Greenberg, 1994b). Therefore it contains some aspects beyond the remit of AEI such as self-confidence and creativity. PATHS has not been directly evaluated in terms of its impact on AEI but findings regarding its impact on SEL have been mixed, with many suggesting a positive impact (e.g. Curtis & Norgate, 2007; Greenberg, Kusche, Cook, & Quamma, 1995; Kelly, Longbottom, Potts, & Williamson, 2004), but some finding no impact (e.g. Goossens et al., 2012; Malti, Ribeaud, & Eisner, 2011).

INTEMO is designed for adolescents (Ruiz-Aranda, Castillo, et al., 2012) and therefore, because this project focusses on the primary-school age-range, will not be discussed further here. It is interesting to note however, that despite having at least two empirical trials (Ruiz-Aranda, Castillo, et al., 2012; Ruiz-Aranda, Salguero, Cabello, Palomera, & Fernández-Berrocal, 2012), it is not listed in CASEL’s middle and high school programme guide (CASEL, 2015). It is unclear whether this is because it does not meet their standards or if it is due to the programme originating in Spain rather than the USA.

In contrast, perhaps not unexpectedly, as it was developed by some of its members, the RULER approach is considered by CASEL to be a SElect programme (CASEL, 2013). Indeed, apart from being specifically designed to encapsulate all aspects of the Mayer and Salovey (1997) model (Nathanson, Rivers, Flynn, & Brackett, 2016), it was created to adhere to the CASEL best practice guidelines (Brackett et al., 2012). The programme aims to enhance social emotional and academic learning through a combination of knowledge development and fostering an optimal learning environment. Students are taught the skills of recognising emotions, understanding causes and consequences of emotions, labelling emotions, expressing emotions appropriately and regulating emotions. Clearly,

all these skills are part of EI, but may also be beneficial to WM. It features a set of anchor tools which are designed to encourage children to use emotion skills in the classroom and a feelings word curriculum to develop students' emotional vocabulary and related knowledge. The feelings word curriculum is multiyear ranging from kindergarten to eighth grade and is differentiated in terms of complexity with age. It is designed to be incorporated into English Language Arts lessons. As such, the RULER approach clearly represents the first systematic approach to teach AEI to students, however it is clearly very language dependent which may be problematic for those with special educational needs (SEN). Surprisingly, RULER has also not been directly evaluated in terms of its impact on students' AEI. Instead, evaluations have focussed on demonstrating impact on shifts in positive classroom environment (e.g. Hagelskamp, Brackett, Rivers, & Salovey, 2013; Rivers, Brackett, Reyes, Elbertson, & Salovey, 2013), or change in teacher ratings of SEL skills (Brackett et al., 2012).

Both PATHS and RULER originated in the USA; in the UK, as previously mentioned, the SEAL curriculum (Department for Education and Skills, 2005c) was the primary SEL approach until 2011 (Humphrey, 2013). The programme was organised into seven themes, and was designed as a spiral curriculum such that themes were revisited each year throughout the school with increasing depth being introduced with age. Although materials were provided for each unit, teachers were expected to utilise the materials as they felt appropriate to support the individual needs of their class and fit into school ethos and priorities (Department for Education and Skills, 2005c). Humphrey (2013) reported the programme was strongly influenced by Goleman (1996)'s EI model, with its core aims being to develop self-awareness, empathy, managing feelings, motivation and social skills. Therefore, elements of AEI were included within each of themes, but the Mayer and Salovey (1997) model was not comprehensively covered.

In an evaluation of the primary SEAL curriculum, Hallam (2009) found school staff generally believed that it had an impact on improving emotional well-being, social skills, self-esteem and behaviour of pupils. However, just over half of teachers felt it was ineffective in reducing bullying, though non-teaching staff reported a reduction. Although Hallam (2009) interpreted this as potential evidence that it had more effect on bullying behaviours outside the classroom, it could be that the non-teaching staff felt more obliged to provide positive responses since, by profession, they are likely less frequently involved in objective evaluations of outcomes than teaching staff. In addition, Hallam (2009) reported some instances where the programme had a negative impact through pupil's being more willing to embrace their bully status. She interpreted this as evidence that some pupils may require more intensive individualised support, however she did not provide information on the proportion of pupils for whom it was reported to have a negative impact – if significant then the

programme clearly presents a risk which may outweigh benefits. Finally, all respondents were uncertain about the benefits of SEAL for academic work (Hallam, 2009), which may have been a contributing factor to archiving of the programme in 2011.

More generally, reviews and meta-analyses of universal SEL interventions (e.g. Durlak et al., 2011; Sklad, Diekstra, Ritter, Ben, & Gravesteyn, 2012), found they resulted in improvements in SEL skills, attitudes, behaviour and academic achievement. However all studies included in the Durlak et al. (2011) review originated in the USA, and only 35 % included a mixed-ethnicity student body and only 25 % mixed socio-economic status. Therefore it is unclear to what extent these findings can be assumed to generalise to different cultures. Furthermore, studies have often used inadequate outcome assessments. For example, Humphrey (2013) highlighted that, of the studies used in Durlak et al. (2011)'s meta-analysis, 53 % relied solely on child self-report, which is known to be unreliable; 24 % used measures with no reported reliability and 49 % used measures with no reported validity. Additionally, since most assessments utilise self or other report, they are susceptible to self-presentation effects or the Hawthorne effect whereby raters are liable to give higher ratings posttest when they know the subject has been part of an intervention (Matthews, Zeidner, et al., 2004).

Perhaps more concerning, Durlak et al. (2011) noted that only 32 % of studies in their meta-analysis included an assessment of SEL skills outcomes. This is a common problem with research studies in this area, as many rely on change in associated behaviours to infer improvements in skills being taught (Humphrey et al., 2007), however it makes it impossible to establish whether the behaviour change is caused by an increase in SEL competency or some other factor. This separation of causal effect is even more problematic from an EI perspective since most SEL programmes and assessments are much broader in scope than EI; therefore improvements in SEL competency cannot necessarily indicate improvement in EI competency (Matthews, Zeidner, et al., 2004). Clearly, in order to properly demonstrate that a programme has been beneficial to EI, an EI outcome assessment should be used (Zeidner et al., 2012); yet, as previously mentioned, even evaluations of the AEI based RULER approach (e.g. Brackett et al., 2012) fail to specifically assess EI as an outcome. In fact, only one programme study of children appears to have both targeted AEI improvement and used a performance EI outcome measure (Perez-Gonzalez & Qualter, 2018): Ulutaş and Ömeroğlu (2007) found participation in a 12-week EI programme resulted in greater improvement of scores on the EISC compared to placebo and control groups, however the programme was administered by a researcher rather than a member of school staff, meaning it is possible that the effects may not replicate in real-world conditions (Humphrey, 2013). Furthermore, they do not provide details of the

programme used, though the time-limited nature of it coupled with administration by a professional rather than school staff means it cannot really be considered a universal programme.

As previously discussed, much of the appeal of EI to educators rests on its purported influence on academic performance (Humphrey et al., 2007; Qualter et al., 2007). Consequently, schools are more likely to invest in EI programmes if they are shown to promote pupils academic achievement (AA) (AA; Zins, Bloodworth, Weissberg, & Walberg, 2007). At a surface level, universal programmes seem to hold promise in this respect. For example Durlak et al. (2011)'s meta-analysis found an average effect size of +0.27 for academic performance, however only 16 % of their included studies assessed AA post programme. Very recently Corcoran, Cheung, Kim, and Xie (2018) conducted a meta-analysis specifically reviewing the impact of universal SEL programmes on AA and found effect sizes of +0.25 for reading, +0.26 for maths and +0.19 for science. Using the "What Works Clearinghouse" guidelines, they interpret these as just meaningful for reading and maths and slightly below for science. However Humphrey (2013) interpreted the Durlak et al. (2011) finding in terms of the 0.4 effect size hinge point identified by Hattie (2008) and suggested that, by this standard, SEL programmes are somewhat ineffective at raising AA. The same argument could be applied to Corcoran et al. (2018)'s findings. Nevertheless, Humphrey (2013) conceded that AA is only considered to be a distal outcome of SEL and Lopes and Salovey (2004) argue that small changes can have a large impact long term. Interestingly the Corcoran et al. (2018) review does not appear to include any studies which utilised the RULER curriculum and only a couple that used PATHS, therefore it is hard to infer any EI contribution to AA. Looking specifically at studies that have used an adequate EI intervention, Brackett et al. (2012) found students who participated in RULER showed better English language (ELA) performance but found no effect for maths.

An important caveat to bear in mind when evaluating the above findings, is that many SEL programmes include an explicit academic component (Humphrey, 2013), which makes it impossible to establish whether the AA gains found are due to improved SEL competency or the academic instruction. Similarly, Brackett et al. (2012) acknowledged that the gains they found in ELA may be due to the heavy emphasis on writing in RULER.

In summary, universal SEL curriculums are increasingly viewed as effective ways to increase pupil's social and emotional competence and, as a secondary outcome, AA, however, outcomes in terms of EI are largely unknown due to the broad nature of outcome measures used. Because universal programmes are taught to a whole class simultaneously, they are considered a preventative or Wave 1 approach, reducing pupils chances of developing social and emotional difficulties (Zins & Elias, 2007); consequently are a cost-effective way of supporting social, emotional and mental health

(SEMH) (Zeidner et al., 2012). Due to their broad nature, it is likely that they will also enhance at least some aspects of AEI (Mayer & Salovey, 1997). Furthermore, universal approaches are more likely to foster a warm and supportive classroom and whole-school environment, which is believed important for encouraging TEI development (Matthews, Zeidner, et al., 2004). Nevertheless, most advocates recognise that some students will require a greater level of support with their SEMH (Humphrey, 2013; Merrell, 2002). Indeed both Mayer and Salovey (1997) and Matthews, Zeidner, et al. (2004) questioned whether universal curriculums are accessible to those student most in need due to the potential for them to feel overwhelmed by them. Notably many of the universal curriculums involve a written component. For example, in the RULER curriculum participants are required to write about each emotion word on two separate occasions (Brackett et al., 2012). This may make the programmes problematic for children who struggle with literacy. This has important implications for accessibility, especially since Elias (2004) highlighted that many students with learning difficulties also have social and emotional problems, meaning such students require SEL support but are likely to struggle to keep up with universal curriculums.

3.5.2 Targeted EI programmes.

Targeted or Indicated programmes provide more focussed intensive support for children who are already experiencing or at risk of social and emotional problems (Humphrey, 2013). They are positioned at Wave 2 or 3 of the waves of intervention model. Children are usually withdrawn from the classroom either in small groups or individually. Within the SEL approach they are much less common with the focus being on the Wave 1 universal preventative approach (Zins & Elias, 2007), however most SEL advocates recognise the need for both types of input and some SEL programmes such as “Kidsmatter” in Australia and the SEAL programme actually include a multi-level approach (Humphrey, 2013).

Humphrey (2013) reported that the small group aspect of SEAL was targeted as a Wave 2 programme and was largely unstructured with materials only being provided for four out of the seven themes and school staff expected to generate their own to fill the gaps. An evaluation of this programme found it led to improvements only in children’s self-report ratings of their social and emotional competence; not in parent or teacher ratings (Humphrey et al., 2010) suggesting its impact may be limited. It should be noted, however, that the evaluation was limited to only one theme (New Beginnings), so it is possible more gains could have been found for the other themes.

In contrast to Humphrey et al. (2010), a meta-analysis by Payton et al. (2008) found indicated programmes had positive effects on students’ social and emotional skills, attitudes, conduct problems, emotional distress, and social skills. In fact with an average effect size of 0.77, indicated

programmes led to greater increases in SEL skills than universal programmes, which had an average effect size of 0.68 in their review. This meta-analysis utilised mostly American studies (85 %), however, so it is unclear to what extent the results can generalise to other cultures. Clarke, Morreale, Field, Hussein, and Barry (2015) reported encouraging findings regarding the impact of small group interventions in the UK, but this was based on a low evidence base of three studies. Furthermore, rating scales, particularly child self-report, were the most common outcome measure utilised which, as previously demonstrated, are subject to a number of accuracy concerns.

Caution in generalising Payton et al. (2008)'s findings to the UK population becomes more pertinent when approaches to administering programmes is taken into account. Whilst the emphasis in the USA is on evidence based practice and highly prescriptive programmes (Humphrey, 2013), Wolpert et al. (2011) reported that most UK schools used locally developed practices with little evidence base. Furthermore, the majority of US indicated programmes were administered by external professionals (Payton et al., 2008), whereas the majority of UK provision is provided by school staff (Vostanis et al., 2013).

Whilst there appear to be relatively few validated targeted SEL programmes available in the UK, one approach that is becoming increasingly popular is the Emotional Literacy Support Assistant (ELSA) project (Burton, Traill, & Norgate, 2009). The ELSA project focuses on providing targeted support for children who struggle in school due to emotional difficulties, through training school support staff (generally teaching assistants) on the psychological foundations of emotional development, along with practical guidance for supporting pupils (Burton, 2008). Although this started as a locally developed programme, by 2015 it was being provided in 45 areas across England and Wales with further growth predicted (Burton, 2015). ELSAs are trained in six principal areas: emotional awareness, anger management, self-esteem, social and communication skills, friendship skills and therapeutic stories, but receive ongoing professional development training in areas such as loss and bereavement and attachment (Shotton & Burton, 2008). There is no set programme of work or progression of skills, with ELSAs being expected to develop appropriate aims and activities for students on an individual basis (Shotton & Burton, 2008). Therefore, ELSA support falls under Wave 3 (specialist support) of the waves of intervention, however the programmes are expected to have clear objectives and be time limited (Burton, 2008). There is no fixed duration for ELSA involvement but it is typically expected to last a minimum of six weeks and a maximum of two terms (S. Burton, personal communication; June 13 2018). Evaluation reports have found that educators believe it has a positive impact (e.g. Bravery & Harris, 2009) and demonstrated significant change in teacher and parent Strength and Difficulties Questionnaire (SDQ) ratings (Burton et al., 2009), however very few

evaluations have been published in peer-reviewed journals so it is unknown whether such findings would gain peer acceptance.

Although the ELSA approach appears a promising way to support children with emotional difficulties in a cost-effective manner, its broad underpinnings combined with individualised programme specification means it cannot be viewed as a targeted EI programme. Indeed, there appears to be striking lack of any targeted SEL programmes that are specifically derived from an EI model. This is perhaps because targeted SEMH support tends to operate at Wave 3, being reactive and targeting specific emerging problems rather than preventative like universal SEL (Humphrey, 2013). An associated issue with this is that programmes, such as ELSA, tend to rely on referral by school staff (Burton et al., 2009), which requires them to have noticed the child has a problem. Consequently, children with behavioural problems are more likely to receive specialist input than children with emotional problems (Wolpert et al., 2011). This may be due to the lack of an appropriate screening measure for EI skills in children (Allen et al., 2014).

In addition to those children at risk of or experiencing SEMH difficulties, Mayer and Salovey (1997) identify that some children may miss out on the early learning opportunities for AEI skills. Although they identify that this may lead to later emotional problems, they also assert that schools can provide opportunities to compensate for the missed earlier opportunities. With this in mind, it seems somewhat surprising that there has been little attempt to develop a Wave 2 EI catch-up programme to help struggling learners develop their basic skills in the same way that remedial reading and maths programmes target skill deficits in these areas. This may be due to the primarily reactive model of support mentioned above, since providing catch-up support relies on being able to identify pupils in need of such support. Indicative of this, Wave 2 SEL programmes that do exist tend to target behavioural issues such as social skills or anger management (Wolpert et al., 2011), which are much more observable problems than low EI (Mayer & Cobb, 2000). However, since much of the appeal of universal SEL programmes is believed to be the economic gains of preventing rather than treating problems (Humphrey, 2013; Zeidner et al., 2012), a simple catch-up EI skills programme positioned at Wave 2 may be an economically worthwhile tool to have.

3.5.3 Summary of EI programmes.

Despite AEI being more amenable to direct teaching than TEI (Qualter et al., 2007), EI improvement programmes have been subsumed under the more general banner of SEL in schools (Humphrey, 2013), which is based on Goleman (1996)'s TEI definition. The majority of SEL programmes are Wave 1 universal preventative approaches designed to be delivered to whole cohorts (Zeidner et al., 2002). Despite a large number of programmes being developed, only three cover all aspects of the

AEI model (Perez-Gonzalez & Qualter, 2018). Research suggests that universal programmes are generally effective in promoting SEL skills, reducing problem behaviours and raising AA. Evaluations which have specifically investigated their impact on EI are, however, rare, especially for primary-school curriculums (Perez-Gonzalez & Qualter, 2018). Furthermore, most have relied on rating scales or behaviour change to measure skill acquisition rather than direct skill assessment (Durlak et al., 2011).

In addition to universal SEL programmes, most schools provide targeted SEMH support to specific pupils. In the UK, this support is usually reactive in response to presenting problems and therefore frequently occurs at Wave 3 of intervention (Vostanis et al., 2013). Consequently most Wave 2 targeted programmes address problem behaviours rather than emotional difficulties (Wolpert et al., 2011). Currently, there appear to be no targeted programmes which are theoretically grounded on an EI model, although the ELSA training includes a brief EI overview. This is somewhat surprising given that EI skills are fundamental to most social and emotional activities (Mestre et al., 2006). Although the ELSA approach allows for the education of EI, ELSAs currently have no specific tools to facilitate this. Therefore, an AEI skills support programme positioned at Wave 2 of intervention may significantly enhance educator's capacity to support children who have missed out on early AEI skill acquisition.

Whilst there was a great deal of interest in SEL curricula during the late 1990's and 2000's, in recent years increased government pressures to enhance performance in core academic subjects seems to have reduced practitioner enthusiasm in SEL, and initiated a swing back to an emphasis on traditional cognitive approaches to learning (Zins et al., 2007). For example, Zeidner et al. (2012) reported that the number of (SEL) programmes has declined in the USA since the introduction of the "No child left behind" legislation. In England, the national SEAL curriculum has been discontinued (Humphrey, 2013) and personal, social, health and citizenship education (PSHCE) was made non-statutory in the 2013 National Curriculum (Department of Education, 2015). This will clearly have implications for the fostering of EI within schools, which may adversely affect some pupils' EI acquisition. Consequently, there is a greater need for evidence-based programmes, which are demonstrated to robustly enhance EI, in order to convince educators of their worth. If these programmes can also be shown to have a positive impact on AA, then educator enthusiasm will be enhanced (Humphrey et al., 2007).

3.5.4 What makes an EI programme successful?

The preceding review has demonstrated that SEL programmes are at least partially successful in improving outcomes for students. However, reviews have found that programmes are not

universally successful (e.g. Durlak et al., 2011). This section briefly reviews which variables are known to influence the success of SEL programmes alongside exploring some recommendations which have been made specifically targeting maximising the effectiveness of programmes in enhancing EI.

Reviewers of SEL programmes have found outcomes to be moderated by a variety of design-related factors. These include using active learning activities, having a structured, developmentally sequenced curriculum based on a clear theoretical model, integrating the programme into the school ethos, programme delivery by adequately trained staff, involving members of families and the wider community, ensuring adequate teaching time is focussed on the programme curriculum, and specifying explicit and clear learning outcomes for students (Clarke et al., 2015; Durlak et al., 2011; Elias et al., 1997; Payton et al., 2008; Weare & Gray, 2003). These suggestions can be largely summarised by the acronym SAFE (sequenced, active, focussed, explicit – see Figure 10) (Durlak et al., 2011; Payton et al., 2008) and have been empirically validated in that both Durlak et al. (2011) and Payton et al. (2008) found that programmes that used SAFE practices were more effective than those which didn't.

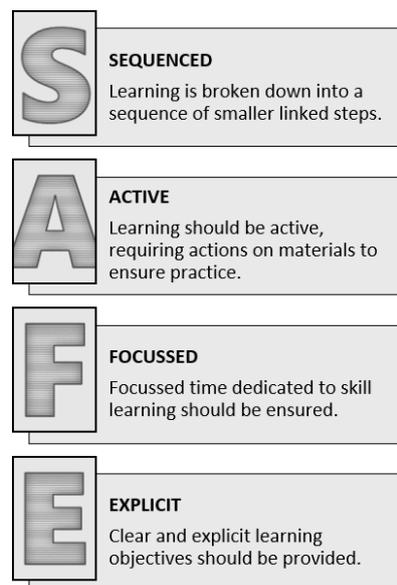


Figure 10: Explanation of the SAFE programme requirements.
Created using descriptions given by Durlak et al. (2011).

Some authors have focussed on specifying essential requirements to successfully specifically foster EI - as opposed to general social and emotional skills (e.g. Goetz et al., 2005; Matthews, Zeidner, et al., 2004; Perez-Gonzalez & Qualter, 2018; Zeidner et al., 2002). In general, these fall under the SAFE practices above but with specific considerations for EI elements, as described below.

Most recommended following a developmentally sequenced curriculum but emphasise that it should be based on an explicit EI model (Goetz et al., 2005; Perez-Gonzalez & Qualter, 2018; Zeidner et al., 2002). Goetz et al. (2005) further suggested the knowledge or strategies taught are integrated from associated, more established fields, such as clinical child psychology and research on emotions. Similarly, Salovey and Grewal (2005) asserted that EI programmes should have empirically-based curricula.

Interestingly, only Matthews, Zeidner, et al. (2004) and Perez-Gonzalez and Qualter (2018) explicitly stated the programme should involve active learning, but Zeidner et al. (2002) emphasised the need for instructional methods to be matched to children's developmental level. In contrast, all authors explicated a need to focus on the rehearsal of EI skills, again with the emphasis being that the programmes should specifically cover a selected EI model (Goetz et al., 2005; Matthews, Zeidner, et al., 2004; Perez-Gonzalez & Qualter, 2018; Zeidner et al., 2002). Unfortunately, as highlighted above, neither general SEL programmes, nor those which align to the AEI model have used an AEI measure to evaluate outcomes; consequently it is currently unknown whether alignment to an EI model does result in greater improvements in EI skills compared to non-specific SEL curriculums.

Zeidner et al. (2002) also advised explicitly stating the EI facets as programme goals whilst Goetz et al. (2005) recommended an emphasis on clearly linking the skills to classroom performance. Furthermore both Zeidner et al. (2002) and Perez-Gonzalez and Qualter (2018) emphasised a need to include opportunities to encourage skill generalisation.

Because these recommendations can be considered specific applications of the SAFE acronym, it seems reasonable to assume that they are empirically supported recommendations. In addition, effective implementation has been demonstrated as an important factor in programme success. For example Durlak et al. (2011) found programmes without implementation problems demonstrated significant effects in all outcomes areas whereas programmes which did encounter problems only showed significant effects for attitudes and conduct problems. Related to this, there is a recurring recommendation for staff to undertake training before delivering programmes (Goetz et al., 2005; Matthews, Zeidner, et al., 2004; Perez-Gonzalez & Qualter, 2018; Zeidner et al., 2002). Matthews, Zeidner, et al. (2004) further recommended that programme implementation should be carefully documented and monitored.

Finally, some authors contend that the programmes should be integrated into the academic curriculum rather than taught in specific lessons (Elias et al., 1997; Matthews, Zeidner, et al., 2004; Zeidner et al., 2002). There is an assumption that this will foster greater generalisation of skills (Zeidner et al., 2002). No studies have directly examined this, but Durlak et al. (2011) found multi-

component programmes (programmes delivered in multiple settings) were no more successful than classroom-only programmes. They asserted this was likely to be due to multi-component programmes being less able to follow SAFE practices. Matthews, Zeidner, et al. (2004) quoted contrasting evidence suggesting that multi-component programmes were more successful. Nevertheless, there is currently no conclusive evidence that EI will be more successfully promoted if taught in multiple areas. Furthermore, it would clearly be impossible for targeted programmes to meet this criteria.

Overall therefore, it appears that EI programmes are more likely to be successful if they incorporate SAFE practices, tailored to a specific EI model. Furthermore, they should be delivered by adequately trained staff to ensure high-quality implementation.

3.6 Summary of Key Findings

There are two conceptual approaches to EI: AEI places it as a cognitive ability whilst TEI operationalises it as a personality trait. Researchers are increasingly recognising both as valid approaches which are differentially applicable to different contexts (Arsenio, 2003). Developmental literature suggests that both develop throughout childhood and adolescence (Keefer et al., 2013; Mayer & Salovey, 1997), with limited indications that AEI is more easily influenced in early childhood and TEI in early adolescence. Both are believed to be developed by genetic, social and environmental influences, but some have suggested that AEI is more amenable to direct skills-based teaching (e.g. Qualter et al., 2007).

Early claims that EI influences academic success made the concept popular with educators and fed into the success of the SEL movement (Humphrey, 2013). Research did not keep up, however, and inconclusive findings regarding the impact of EI on academic achievement appear to be partly responsible for a swing back to focussing on cognitive abilities and achievements within education (Zins et al., 2007).

Nevertheless, many schools continue to offer some level of SEL programming. However, although influential in underpinning SEL concepts, EI appears to have become somewhat lost within it since most SEL programmes and assessments focus more on social than emotional aspects (Halle & Darling-Churchill, 2016; Humphrey et al., 2011; Wolpert et al., 2011). Furthermore, SEL programmes by definition focus primarily on prevention through wave universal curriculums with no well-established targeted curriculums available (Humphrey, 2013). Whilst this approach is undoubtedly useful and has many cost benefits (Zeidner et al., 2012), as with all educational curriculums, pupils must already have an age-appropriate level of knowledge to access them. Given the very social

nature of EI development, it is highly unlikely that all pupils will function at an equal level. Increasingly, this is being recognised with projects, such as ELSA, which provide one to one targeted emotional support to struggling pupils continuing to grow in popularity (Burton, 2015). Nevertheless, the current approach to emotional support in schools in England and Wales continues to be reactive, providing support on a needs-must basis as problems become apparent; meaning pupils are only likely to receive support if they exhibit problem behaviours (Vostanis et al., 2013). Since early preventative approaches are considered more cost effective than reactive support (Humphrey, 2013), there appears to be case for providing early catch-up support for those struggling with SEL skills in the same way that reading and maths difficulties are often addressed. Since EI underpins most of SEL (Humphrey, 2013), the AEI model seems a logical foundation on which to build such support.

A major limiting factor in the provision of such support is assessment tools. Struggling readers and mathematicians are usually quickly identified through screening assessments (Allen et al., 2014); enabling timely support to be offered. Whilst researchers have recognised the potential for EI assessments to be used in the same way (e.g. Allen et al., 2014; Qualter et al., 2007), there is currently no suitable measure available for primary-school-aged children.

4 EI Measure Development: Revision of the EISC

Because the literature review indicated that there was no adequate performance EI measure available, it was necessary to develop one for this project. Although no completely suitable measure existed, the EISC (Sullivan, 1999) has appropriate theoretical foundations and demonstrated promising concurrent validity. It was decided therefore, to revise the EISC to improve its reliability and provide a suitable measure of EI for the project.

Sullivan (1999) gave some suggestions for improving the measure, as outlined below, which were implemented. In addition, content was updated where appropriate to ensure that vocabulary was relevant, affirmative/denial responses were evenly distributed, and it was culturally appropriate for the target audience. The distribution of target emotions was also balanced as far as possible. This was done to prevent any inherent bias within the measure, given that is unknown whether EI acts equally across all emotions for all people (Matthews et al., 2006). The range of emotions was kept identical to the original version with the faces subtest using happy, sad, angry, scared, and surprised and the questions for the other three subtests asking about happy, sad, and angry, although some of the stories did feature surprised and scared too. Following this initial revision, a focus group of three primary education practitioners, who are trained in emotional literacy, tested the proposed revised

measure. Their feedback indicated that some stories and questions were not clear, with 10 questions not reaching 100 % consensus, and four stories being identified as ambiguous or having unclear emotional clues. These problematic items were revised and then re-tested by the focus group. Following this, one question remained at less than 100 % agreement. The wording of this question was revised further, after which the focus group reached 100 % consensus on all answers.

The final measure (EISCr1) consisted of four subtests featuring 40 questions, presented in 24 item parcels, and one practice item for each subtest. Six item parcels were retained in their original form from Sullivan (1999)'s measure, 18 were modified, and four new item parcels were constructed. Further details of the modifications applied are presented below, followed by a description of the creation of the materials for the administration of the measure. A transcript of EISCr1 is included in Appendix A .

4.1 Modifications Applied to the Whole Measure

4.1.1 Content.

The music subtest was removed because it demonstrated extremely low internal consistency (Sullivan, 1999). This matches the Turkish translation used in research (Akduman & Akaydın, 2016; Ulutaş & Ömeroğlu, 2007) and the current favoured adult performance EI measure, the MSCEIT (Mayer et al., 2003), which also do not feature a music subtest.

The qualitative questions were removed, leaving only multiple choice, because Sullivan (1999) believed asking both types of questions contributed to the low internal consistencies by encouraging response acquiescence in the faces subtest and creating frustration in the stories subtest. Additionally, the removal of open-ended responses should improve the utility of the measure for educational practitioners by reducing marking and administration time (Wigelsworth et al., 2010). Consequently, apart from the faces subtest, where participants select a picture, all questions are answered by responding yes, no, or don't know. Finally, the word *mad* was replaced with *angry* throughout the measure to make it more appropriate for a British audience, and remove ambiguity.

4.1.2 Presentation.

The original EISC was presented orally, by the experimenter, to participants on an individual basis. Verbal presentation seems necessary, given that reading skills are only just starting to develop within the measure's age range and MacCann et al. (2014) highlight reading skills as a possible confounding factor for performance EI assessments. Reliance on human presentation however, allows for inconsistencies and accidental influence through intonation. Consequently, a PowerPoint with computer-generated sound files was created to present the measure to improve consistency of

presentation and remove accidental experimenter influence. Additionally, the participant response format was changed from verbal responses to placing a “feely” character on an answer booklet (see Figure 17). This was designed to increase engagement and reduce the verbal demands of the tasks, a factor identified as important when assessing young children’s social & emotional skills (Denham et al., 2016). These modifications also enabled the measure to be delivered to small groups rather than one to one which, apart from improving usability for practitioners, will also help reduce any response acquiescence effects, which Sullivan (1999) found to be problematic in the original measure.

4.2 Faces Subtest

As suggested by Sullivan (1999), the format was altered so that participants identify a facial expression of a target emotion from a selection of four. Sullivan also identified the sole use of child models as a possible source of error, therefore two items (one using child models and one using adult models) were created to target identification of each of the emotions happy, sad, angry, scared, and surprised, giving a total of 10 items. Questions were ordered in the same way as the original measure and adult and child models alternated: practice (happy, adult), happy (adult), sad (child), scared (adult), surprised (child), angry (adult), happy (child), sad (adult), scared (child), surprised (adult), angry (child).

4.2.1 Selection of images.

Since Sullivan (1999) did not provide details of her pictures, images were sourced from the Radboud Faces database (Langner et al., 2010) because this uses the universal facial expressions identified by Ekman and Friesen (2003). Unfortunately the database only uses Caucasian models, which may be problematic as research has shown that people are more accurate at identifying facial expressions when the model matches their ethnicity (Elfenbein & Ambady, 2002). Because the target audience of this project is resident in England, however, this should not be problematic as the in-group advantage reduces when the cultural groups have a lot of exposure to one another (Elfenbein & Ambady, 2002), therefore all participants should be able to recognise facial expressions of Caucasian models. Forty (20 adult and 20 child models) of the frontal images which scored most highly for agreement, clarity, and genuineness in the validation data, were first presented for adult evaluation. An opportunity sample of seven adults were asked to work through the faces making a judgment, by themselves, for each one to decide which emotion they thought it most represented from a choice of angry, fearful, happy, sad, surprised or other (Figure 11). For the child models, they were also asked to identify their estimated age of the child in order to provide a means to match the model

age as closely as possible to the age of the population for the study. Figure 12 shows the emotion labels given by the group for each image.

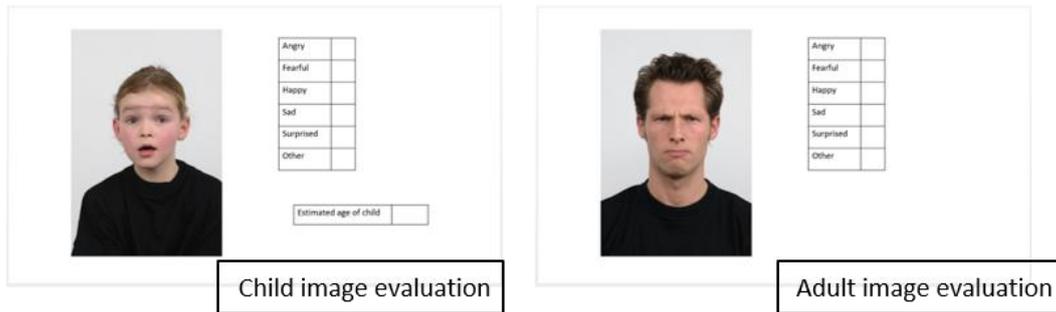


Figure 11: Screenshots to illustrate image evaluation tasks.

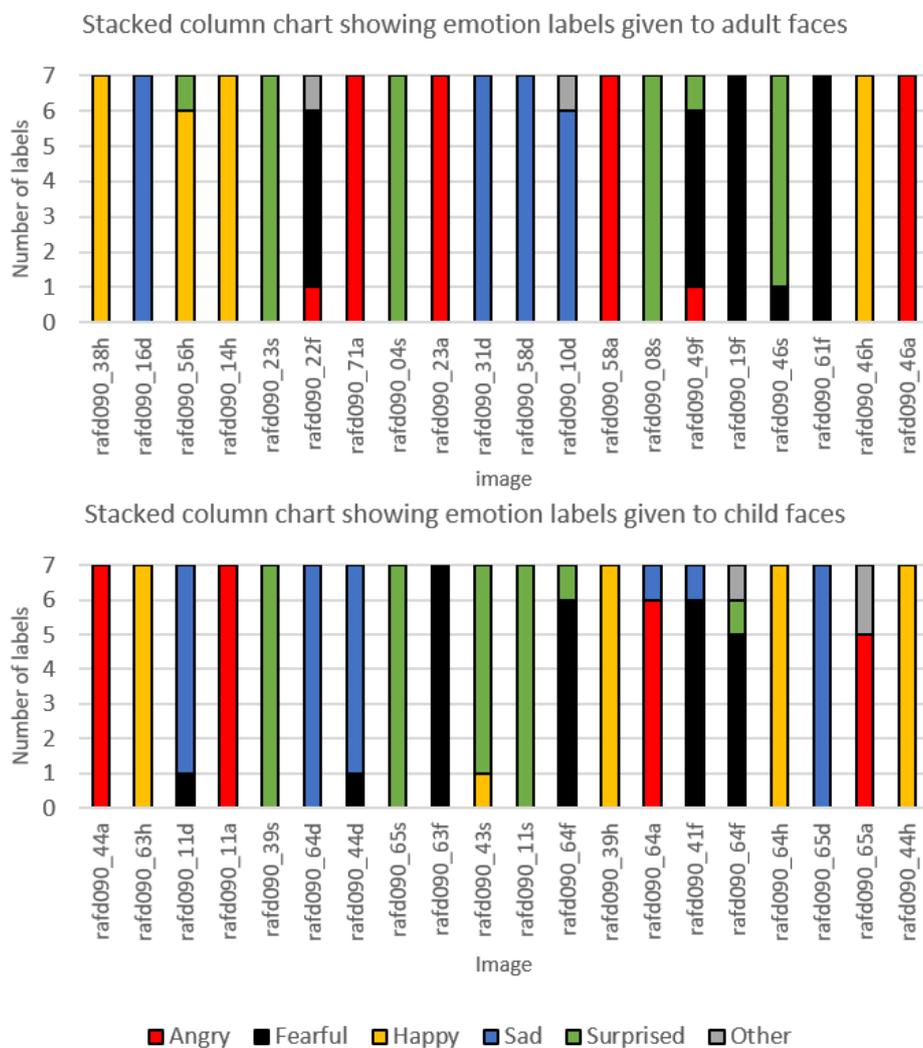


Figure 12: Results of adult focus group emotion labelling for adult and child faces.

Note: letter on end of image identifier denotes which emotion image was in Radboud database: a=angry, f=fearful, h=happy, d=sad, s=surprised.

Target faces were selected using the results of the evaluation. Firstly, any images that did not reach 100 % consensus by the evaluators were excluded. Next, the mean estimated age was calculated for each of the retained child images (Figure 13). For each emotion, the image with the lowest mean estimated age became the target child image. A visual check was carried out to ensure that there was a fair balance of sex of models. Adult target images were selected by referring back to the original validation data (Langner et al., 2010) and excluding any images that had a genuineness rating of less than three and for each emotion, the image(s) with the lowest percentage agreement on target categorisation. For sad and fearful, this process produced a clear “winning” image which was then included. For the remaining emotions a selection of two images was identified. The final image for use was selected arbitrarily from the choice of two, ensuring that there was no duplication of model, and that a fair balance of sex was maintained.

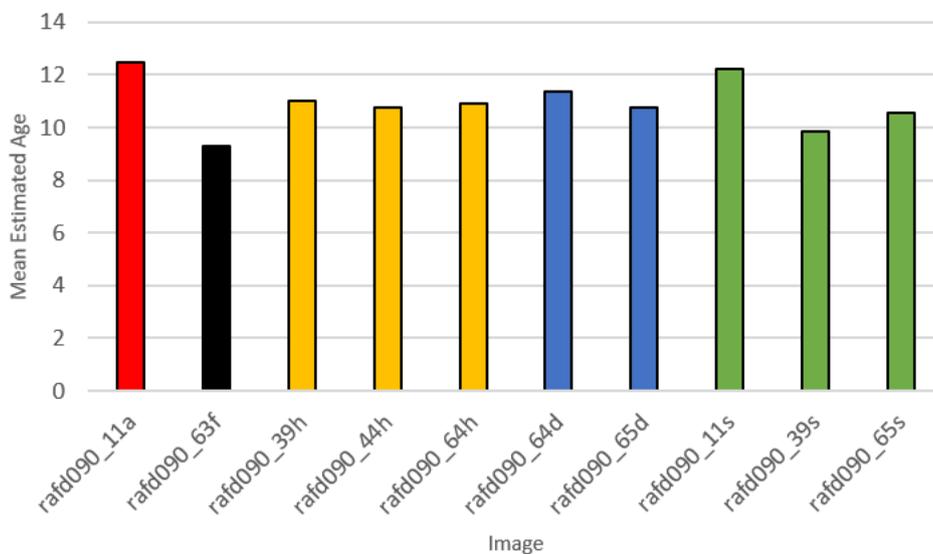


Figure 13: Means of age estimates for child faces provided by adult focus group.

Note: mean age was only calculated for images that had 100% agreement on emotion categorisation by the group.

To create the questions, three accompanying *in-fill images* were selected for each target image, so that each question featured four faces – one displaying the target emotion and the three in-fills displaying different emotions, from which the participants would select the one correctly displaying the target emotion. The in-fill images were also taken from the selection presented for adult evaluation. The first in-fill face matched the valence of the target face as closely as possible. The second had the largest difference in valence that could be achieved. The final in-fill face was simply an emotion not already featured on the slide. It was ensured that a model did not feature twice on a slide and that the emotion shown on the in-fill faces was not mistaken for the target emotion by any of the adult evaluators. Table 3 details the composition of the Faces subtest.

Table 3: Details of Images Used in the EISCr1 Faces Subtest

Question	Target Emotion	Adult or Child	Target Image	In-fill image 1	In-fill image 2	In-fill image 3	Order of positions on slide
Practice	Happy	Adult	Rafd090_31 (happy)	Rafd090_23 (sad)	Rafd090_25 (fearful)	Rafd090_02 (angry)	1,2,3,4
1a	Happy	Adult	Rafd090_38 (happy)	Rafd090_23 (surprised)	Rafd090_16 (sad)	Rafd090_49 (fearful)	2,1,4,3
1b	Sad	Child	Rafd090_65 (sad)	Rafd090_11 (angry)	Rafd090_43 (surprised)	Rafd090_64 (fearful)	1,4,3,2
1c	Scared	Adult	Rafd090_61 (fearful)	Rafd090_71 (angry)	Rafd090_46 (happy)	Rafd090_58 (sad)	2,1,4,3
1d	Surprised	Child	Rafd090_39 (surprised)	Rafd090_44 (happy)	Rafd090_65 (angry)	Rafd090_41 (fearful)	2,4,1,3
1e	Angry	Adult	Rafd090_23 (angry)	Rafd090_19 (fearful)	Rafd090_04 (surprised)	Rafd090_10 (sad)	3,1,2,4
1f	Happy	Child	Rafd090_63 (happy)	Rafd090_65 (surprised)	Rafd090_44 (sad)	Rafd090_64 (angry)	4,1,3,2
1g	Sad	Adult	Rafd090_31 (sad)	Rafd090_58 (angry)	Rafd090_56 (happy)	Rafd090_46 (surprised)	3,2,1,4
1h	Scared	Child	Rafd090_63 (fearful)	Rafd090_64 (sad)	Rafd090_39 (happy)	Rafd090_11 (surprised)	4,1,3,2
1i	Surprised	Adult	Rafd090_08 (surprised)	Rafd090_14 (happy)	Rafd090_46 (angry)	Rafd090_22 (fearful)	3,2,4,1
1j	Angry	Child	Rafd090_44 (angry)	Rafd090_65 (fearful)	Rafd090_64 (happy)	Rafd090_11 (sad)	3,1,2,4

Note: All images were sourced from the Radboud Faces Database (Langner et al., 2010) for the purpose of this research.

4.3 Stories Subtest

Sullivan (1999)'s stories subtest consisted of six items, each featuring a short story and accompanying question. Sullivan (1999) believed the low internal consistency ($\alpha = .56$) was due to the questions being too easy and therefore recommended reducing the number of emotional clues per story. Because stories two, four, and five contributed to the original measure (Sullivan, 1999), these were retained in their original form in the initial revision, whilst the remaining three stories were rewritten. Stories one and six used the same theme as the original but some clues were eliminated. For story one the reference to rain was removed and the setting details shortened. For story six, the ending was removed so that the only clear emotional clue was the character smiling. Story three was edited so that the emotion of the story was negative, in order to balance the number of positive and negative stories. Instead of the character smiling and singing as they got ready for the last day of term, the character has tears in her eyes at the end of the day because she won't see her friend for the whole holidays. For all items, the questions were not modified.

Feedback from the expert focus group on the initial revision, indicated that story four was more indicative of surprised than happy. Therefore, an extra piece of information, where the character smiles, was added to give clearer clues for happy. Consequently, in the final revision only items two and five were retained in their original form.

4.4 Understanding Subtest

The original managing subtest consisted of two item parcels, each featuring a short story about two characters in a social situation and six accompanying questions (three about each character). Sullivan (1999) attributed the low internal consistency of this subscale to the high cognitive processing load created by asking children to interpret the emotions of two different characters in the same story. Thus meaning task failure was more likely due to Working Memory (WM) overload than low EI. Consequently, following her recommendations, the focus for each item parcel was reduced to one character. In both cases, it was decided to retain the first set of questions since these had more contributors to Sullivan's measure than the second set. Following focus group feedback, story one was rewritten to focus on only the first character (James), removing the name of the second character, and make the situation more explicit by naming the dog and adding in the detail that he was not on a lead. The final question was also changed because, despite significant factor loadings, the original question gave no consensus amongst the focus group. Therefore instead of "Would James feel mad at the dog for getting hit?" (Sullivan, 1999, p. 106) the final question became "Would James feel sad because his dog got hurt?". This change of question emphasis to sad, also

enabled the target emotion of questions to be balanced across the subtest. The second story was left unchanged, but only the questions about the first character (Jane) were asked.

To keep the number of questions consistent with the original, two further items were constructed. The first of these was constructed to further assess understanding of the link between situations and emotions in a familiar classroom context. The second additional item attempted to capture the story of the second character from the original Item Parcel 2 (Tracy) in order to keep the original as closely as possible and allow for inclusion of a further contributing question. Thus, the revised subtest comprised four item parcels, each with one story and three accompanying questions.

4.5 Managing Subtest

This was the most coherent of the original subtests having demonstrated the highest internal consistency in Sullivan (1999)'s evaluation ($\alpha = .66$). Nevertheless, although Sullivan (1999) described it as moderate, the subtest alpha was below the generally accepted .70 minimum acceptable value for a new measure (Gignac, 2009); consequently, some modification was still required. As suggested by Sullivan, the number of item parcels was increased from two to four, each comprised of a short story and three accompanying questions about what action the character should take next. For the first item parcel, the story was retained in its original form, but further context was added to the first two questions for clarification because these were the only two items which did not contribute to the original measure. For the first question, the word *calmly* was added, and for the second question *go away* was replaced with *walk away* and the contextual information of other friends was added. Both these modifications were designed to give clearer indications of constructive management strategies. Because all questions from the second item parcel contributed to the original subtest e, the only modification made was that *tape* was replaced with *iPod* to make it relevant to a modern audience. The third and fourth item parcels were constructed to fulfil Sullivan's requirement to extend the range of this subtest and were intended to provide extra assessment of children's knowledge of basic emotion management in two new familiar situations: a fairground and the classroom.

4.6 Construction of the PowerPoint Presentation and Response Book

PowerPoint Slides were landscape orientation and standard (4:3) size. A theme was created with a colourful bar down the side of each slide to add visual interest. Each subtest was introduced with a title slide featuring the subtest title and instructions (Figure 14). Instructions were adapted from Sullivan (1999)'s original EISC instructions.

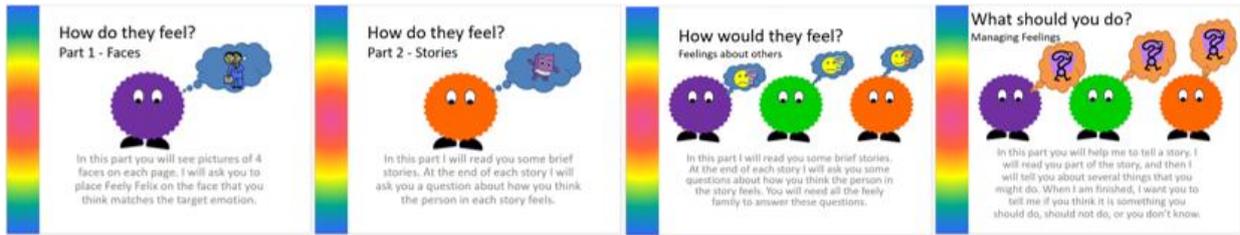


Figure 14: Screenshots of the EISCr1 subtests' instruction slides.

Slides for the Faces subtest featured four images sized at 7.5 cm high by 5.5 cm wide and arranged in two rows and two columns. Order of the images on the slide was decided by labelling each of the slide positions 1, 2, 3, or 4 (Figure 15) and allocating each image to a position using a randomly generated number between one and four. The target image was allocated a position first followed by in-fill images one, two and finally three (see Table 3).

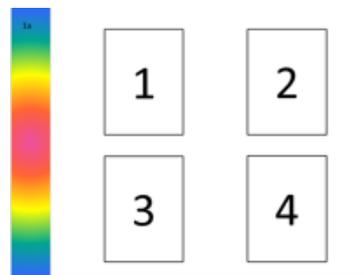


Figure 15: Drawing to indicate slide positions for faces images.

For the remaining three subtests, each item parcel was presented using two slides: the first slide instructed participants to listen to the story and the second slide featured answer boxes for the questions. The “Stories” question slide featured three boxes in the centre of the slide labelled *yes*, *no* and *don't know*. Question slides for “Understanding” and “Managing” featured three rows of *yes*, *no*, and *don't know* boxes with a feely family character next to each row. To make it easier for participants to keep track in their response book and add visual interest, the design of the listen slide varied by subtest and the positioning of the pictures varied slightly by question. In order to ensure that participants listened to both the story and the question, no text of stories or questions were displayed. Figure 16 shows example slides for each subtest.

Audio was created using NaturalReader Personal 13.0.004. The majority of the measure was voiced by the online voice UK Rachel from the programme, with the subtitles for each subtest using the online voice UK Peter.

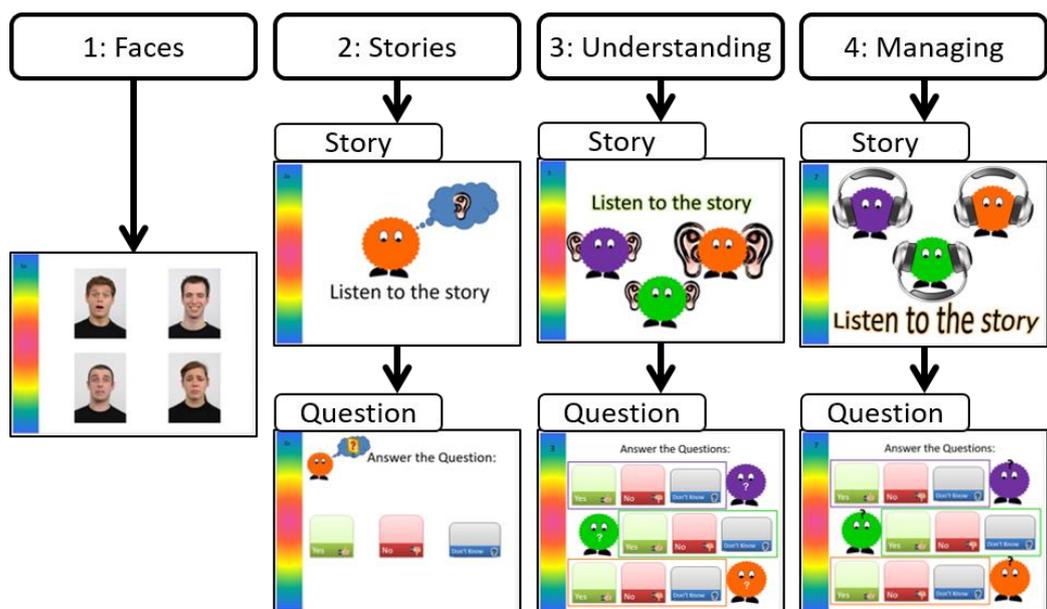


Figure 16: Diagram showing example slides from each subtest.

Participant response books were created by printing the PowerPoint Presentation one-sided on A4 paper, laminating the sheets and using a comb-binder to form them into a book. Each book was accompanied by a set of three feely characters, which were made from loom bands and cotton wool, using instructions for “Loom friends” featured in a YouTube video from <http://www.youtube.com/watch?v=jhnkaYH6q6Q>. “Feely Felix” was purple, “Feely Fifi” orange, and “Feely Fiona” green. Figure 17 shows an example response using the book and characters.

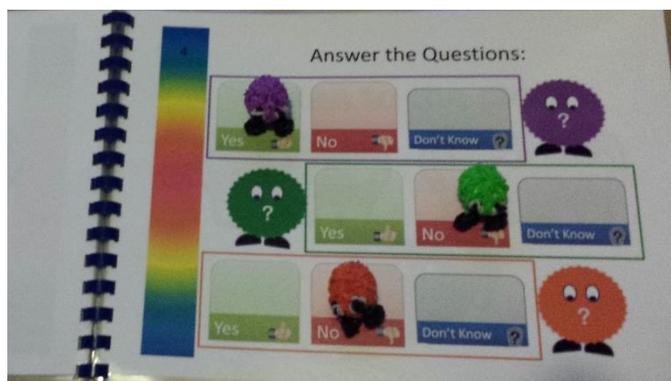


Figure 17: Photograph showing an example response using the feely characters and response book.

4.7 Scoring Criteria and Mark Scheme

It may be recalled that there are currently two main scoring criteria for performance-based EI assessments: expert and consensus (Orchard et al., 2009). It was decided to use expert consensus to establish the correct answer to the questions for EISCr1. This decision was made for the following reasons: Firstly, it was a logical derivative of the update process, since only questions which reached 100 % consensus from the focus group were included in EISCr1. Secondly, the MSCEIT Youth Version

uses expert scoring because it matches the scoring approach used in cognitive ability tests (Rivers et al., 2012). Consequently, the use of expert scoring matches other youth AEI measures. Thirdly, because the skills being measured are developmental in nature, the use of responder consensus to determine the correct answer amongst a population who are currently developing such skills is inappropriate.

As the measure targets the basic skills from Mayer and Salovey (1997) model, it was deemed that the focus group who had given feedback on the developing measure were sufficiently expert that their consensus could be taken to be the correct answer. Scoring of responses was kept identical to Sullivan (1999) with correct answers being awarded a score of 1 and incorrect, don't know, or missing responses scored 0. A full copy of the marking scheme can be found in Appendix B .

4.8 Pilot Test

Before use, EISCr1 was piloted with a small sample of children from each year group (eight Year 4 pupils, four Year 3 pupils, six Year 2 pupils and five Year 1 pupils). Each pilot group indicated that they understood the questions and could use the response book and feely characters to indicate their responses, although the practice questions were needed to help some of the younger participants understand the placing of the different characters in Understanding and Managing. No evidence of floor or ceiling performance was found in piloting, with only one Year 4 pupil who came very close to full marks (mean total score = 30.48, S.D. = 6.28, range = 15 - 39). As a result, the measure was deemed appropriate for use in the project.

5 Study 1

Following the creation of EISCr1, Study 1 investigated its adequacy as a performance ability emotional intelligence (AEI) measure for primary-school-aged children. A secondary aim was to carry out a preliminary exploration of the role of AEI in academic achievement (AA) for the target population, given the somewhat inconclusive findings in the literature. Consequently, it addressed the following two research questions:

1. Is the revised EISC (EISCr1) sufficiently reliable and valid to assess primary school children's AEI?
2. Can AEI directly contribute to the prediction of AA in children in school years one to four in an English School?

5.1 Methodology

The first research question was addressed by an initial examination of the psychometric proprieties of EISCr1. In this study the focus was on the internal consistency and concurrent validity of the measure, as these were the areas most comprehensively assessed by Sullivan (1999) and therefore allow for comparison of the original and revised versions.

The second question was addressed through a regression study comparing the contribution of AEI, Working Memory and Sustained Attention to the prediction of AA. An ability approach to EI was chosen because AEI has closer theoretical links with AA and concerns over young children's self-reflection abilities makes assessment of trait EI (TEI) unreliable in the primary age range. As highlighted in the literature review, it is unclear whether EI makes a direct contribution to the explanation of AA or whether it interacts with cognitive abilities; therefore two identified likely mediators were included: Sustained Attention (SA) which has been shown to mediate the relationship between EI and AA in pre-school children (Rhoades et al., 2011), and Working Memory (WM) which has been implicated in explaining interaction effects (e.g. Damasio, 2006; Jordan et al., 2010). A regression approach was deemed the most appropriate way of addressing the question because it allows for specification of direction of effects by predicting a dependent variable, rather than simply establishing an association as a correlational study would do and therefore is a more robust methodology (Humphrey et al., 2007).

5.1.1 Ethical Considerations

Because the study involved working with young children, it was necessary to gain informed consent from both the child participants and their parents or guardians. As detailed in section 5.1.2.1 parental/guardian consent was obtained via a letter and information sheet sent home by the school, along with SMS messages to increase likelihood of receipt of the letter. Child informed consent was trickier to address as children are not used to being asked to consent to participate in activities, particularly within a school setting. In order to ensure that the children understood they had a choice in whether they participated, a carefully worded child-friendly introduction to the research was shared orally by the researcher at the beginning of the first session (see section 5.2.2.1). In addition, the researcher reminded participants at the start of each subsequent session that they could choose whether they wanted to take part in the activities. Most children were happy to participate in the research and willingly completed all activities. A small minority of the youngest participants did, however, decide that they did not want to continue with first task after starting it. In these cases the task was immediately stopped; the researcher then thanked the child for trying and reassured them that she was pleased with them, before escorting them back to class.

Data collection took place within the school setting. Whilst this has the advantage of being a familiar environment for the child, it also raises some ethical challenges. Most notably the school setting may amplify the perceived power imbalance between adult and child, since children are usually expected to “do what they are told” in school. In addition to the careful consent process outlined above, the researcher, therefore, ensured she spoke to participants in a manner that treated them as equals. For example she asked them how they were and how their day was going before starting the sessions and always asked whether they were ready for the next trial rather than telling them to do it. Additionally, care was taken when setting up the research space. A quiet, but not completely secluded, room was used to ensure participants were not distracted by the activities of their peers, but were also not left feeling trapped with an unfamiliar adult. The seating was also arranged so that the researcher did not block the children’s exit from the room, leaving them a clear exit path should they feel uncomfortable.

The study involved asking children to complete assessments of a variety of skills. Therefore some parents or carers may have wanted to know how their child performed on these assessments. It was communicated to parents via the study information sheet that they could request the test reports for their child by contacting the research team, and the child participants were told this as part of their consent process. No such requests were received in this study. Had they been, however, test reports provided to parents would detail the scores obtained on the assessments but no judgements or interpretation of the child’s performance. This was important because, with the exception of the Automated Working Memory Assessment, the tests used were not diagnostic tools and should not be used to form a judgement of the child. Furthermore, the assessments are only the product of a moment in time for the purpose of the study and may not have reflected the child’s typical performance; this would have been emphasised on the report provided to the parent or carer.

Ethical approval was gained from the University of South Wales Faculty of Life Sciences and Education before commencing the study.

5.1.2 Participants.

Because that the target age range for the original EISC was five to eight, this was the target population for the current study. As mentioned in the literature review, there is also currently no research regarding the relationship between EI and AA in this age range. Given that the early primary years are one of the biggest changes in a child’s social world, as they spend more time with peers and less with parents, it is important to understand both how EI develops within this age range and its links with AA within the early school years.

Consequently, inclusion criteria were that participants must be aged between five and eight at the commencement of the study and be in school years one to four. Exclusion criteria were return of the opt-out consent form and pupils nominated by school staff as being unable to access the content of the tests.

5.1.2.1 Recruitment.

Twenty schools were approached in July 2014 via a letter to the headteacher and chair of governors inviting participation (Appendix C). As this recruited only one infant and one junior school, a reminder letter was sent in September 2014 to any schools that had not yet responded. This resulted in the recruitment of one further primary school.

An information sheet was provided to the three participating schools to send out to parents of pupils in years one to four, with an opt-out form for them to return if they did not wish their child to participate (Appendix D). In addition to sending the hard copy of the letter home, it was suggested that the schools sent an SMS, to advise parents that the letter was coming, and a further SMS the day before the opt-out deadline, to remind them to let the school know if they did not want their child to participate.

Opt-out consent was chosen following consultation with senior school staff and the British Psychological Society Code of Human Research Ethics (British Psychological Society, 2014). The school staff consulted with, felt that all of the assessments being used were akin to assessments that they regularly administer to pupils as part of the usual school curriculum. According to the BPS Code of Human Research Ethics Section 4 “Who can give consent?”:

where the research procedures are judged by a senior member of staff or other appropriate professional within the institution to fall within the range of usual curriculum or other institutional activities, and where a risk assessment has identified no significant risks, consent from the participants and the granting of approval and access from a senior member of school staff legally responsible for such approval can be considered sufficient. (British Psychological Society, 2014, p. 17)

This technically means that approval from a senior member of staff in each school is sufficient, however, the code further states in section 10.1.1 (p32) that parents must be informed about the study and given the option to withdraw their child. Since school staff also expressed that, in their experience, parents rarely return forms unless they have a specific motivation to do so, a detailed information letter with an opt-out option was considered the most appropriate way to meet the BPS

Ethics code whilst maximising recruitment. The additional SMS messages were designed to combat issues with hard-copy letters not being passed onto parents by pupils.

Once the deadline for receiving opt-out forms had passed, school staff were asked to nominate any pupils they felt would either be unable to access the testing process or the content of the tests. These pupils were not included in the final participant pool, so as not to cause any unnecessary worry or distress. As many of the remaining participants as could be assessed in the time frame available were included in the study. Pupils were selected opportunistically based on availability.

5.1.2.2 Final participant details.

A set time frame approach was taken to participant assessment due to the developmental nature and teachability of the skills being assessed, thus limiting final participant numbers by time availability, and absences on assessment days.

Initially, 171 participants attempted the SA task, however some pupils were unable to successfully complete this task or chose to withdraw. Consequently, 142 participants went on to complete the WM task. Finally, 117 were able to complete the EI measure in the given timeframe. Unfortunately, one school was unable to complete the academic assessments. This meant English data was available for 120 pupils and Maths data for 119 pupils, but many of these pupils had not completed either the WM or EI measure. As a result, complete data was obtained for 89 pupils for English and 86 pupils for Maths.

Of the 89 pupils in the English AA sample, 44 were girls and 45 boys. Thirteen pupils were in Year 1, 11 in Year 2, 34 in Year 3, and 31 in Year 4. For the 86 pupils in the Maths AA sample, 40 were girls and 46 boys. Eleven pupils were in Year 1, also 11 in Year 2, 34 in Year 3 and 30 in Year 4.

In addition, all 117 pupils who completed the EISCr1 were included in the validity analyses of the measure. In this sample, 64 were boys and 53 girls. Twenty-four were in Year 1, 25 in Year 2, 35 in Year 3 and 33 in Year 4. Their mean age was 91 months.

5.2 Data Collection

All testing took place in participants' own schools in order to minimise disruption and participant worry. This should also increase the ecological validity of the study since the setting is the same as that which would be used in real life.

5.2.1 Measures

5.2.1.1 *Sustained attention: Auditory Sustained Attention Task (ASAT).*

The ASAT is a counting measure of auditory sustained attention. It consists of 10 trials or *items*. For each item, participants are asked to silently count how many beeps they hear and give their answer orally when prompted. The ASAT used in this project was created by one of the project supervisors, Dr Janet Pitman using the “Score!” task from the Tests of Everyday Attention in Children (Manly et al., 2001) as a model. In each item between nine and fifteen identical tones were played, each lasting 345 ms. The tones were separated by silent interstimulus intervals which vary in duration between 500 and 5000 ms. The ASAT was created using E-Prime 2.0. The tone used was a 1 kHz monotone sampled at 44100 Hz (downloaded from MediaCollege.com). The ASAT was completed one to one with the experimenter in a quiet room, using a laptop computer to present the stimuli.

5.2.1.2 *Working memory: Automated Working Memory Assessment: screener version (AWMA).*

The AWMA (Alloway, 2007) is a widely-used computer based assessment for identifying children with suspected working memory difficulties. It is available for purchase from Pearson. For the screener version, children complete two tasks: listening recall and spatial recall.

For the listening recall task, participants are asked to listen to a series of sentences and say whether each sentence is true or false. Once all sentences in a trial have been presented, they are then asked to recall the final word of each sentence in the correct order. The trials start with one sentence being presented and increase by one sentence at a time up to a maximum of six sentences. Trials are presented in blocks of six trials of equal difficulty (i.e. six trials of one sentence are presented then six trials of two sentence etc.); participants must respond correctly to four out of the six sentences to move onto the next block. The test stops when they make three errors in a block of trials.

For the spatial recall task, participants are shown two shapes on the screen, the right hand one of which has red dot above it and may be rotated. They are asked to judge whether the shape with the dot is the same or opposite to the shape on the left. The pictures are presented in trials of one up to seven pictures. At the end of the trial, the participant is asked to try and recall the location of each red dot seen, in the correct order, by pointing to one of the three possible positions marked on a picture. As with the listening recall, trials are presented in blocks of six with one picture being added on each time the participant moves up a block. Testing is discontinued when a participant makes three errors in a block.

The AWMA was completed one to one, with the experimenter in a quiet room, using a laptop computer to present stimuli. Scoring was done by the programme with the experimenter pressing

keys on the laptop to indicate the responses given. For each task, a processing score, for judging accuracy, and a recall score are generated. Only the recall scores were used in the current project.

5.2.1.3 Emotional intelligence: the revised Emotional Intelligence Scale for Children (EISCr1).

The EISC (Sullivan, 1999), a performance measure of children's EI, was revised and updated for use in this study. Details of the revisions and a description of the final measure (EISCr1) are given in Chapter 4.

In contrast to the cognitive measures, EISCr1 was administered in small groups of four to six, in a quiet room with the experimenter. This was carried out to attempt to reduce response acquiescence and the potential for some participants to feel uncomfortable answering questions about emotions in a one to one situation. A laptop computer was used to present the stimuli. Participants indicated their responses by placing a marker on a response book and the experimenter recorded responses manually on a tick sheet after each item parcel had been completed.

5.2.1.4 Academic achievement: Progress in English (PiE) and Progress in Maths (PiM).

AA was operationalised through English and Maths achievement and measured using GL Assessment's Progress in English and Progress in Maths Series. These are sets of 11 classroom assessments designed to assess English and Maths attainment for 4- to 14-year-olds. There is a separate assessment for each year group covering the relevant curriculums for that year; Appendix E details the coverage of each of the relevant PiE and PiM tests. Consequently, Year 1 pupils completed PiE5 (Kispal, Hagues, & Ruddock, 2007) and PiM5 (Clausen-May, Vappula, & Ruddock, 2004a), Year 2 pupils PiE6 (Kispal & Hagues, 1999) and PiM6 (Clausen-May, Vappula, & Ruddock, 2004b), Year 3 pupils: PiE7 (Kirkup, Reardon, & Sainsbury, 2006) and PiM7 (Clausen-May, Vappula, & Ruddock, 2004c); Year 4 pupils PiE8 (short form) (Kirkup, Triga, & Sainsbury, 2006) and PiM8 (Clausen-May, Vappula, & Ruddock, 2004d). These assessments were chosen because they are relatively quick to complete, taking no longer than hour, and are often used as part of a school's assessment cycle anyway; therefore potentially limiting time costs to the school and reducing assessment burden from project participation.

Both Assessments were administered by the class teachers in the usual classroom setting. This was to maximise the ecological validity of the data, because this is how these assessments would normally be used. Teachers were asked to adhere to the administration guidelines in order to make the results as fair and comparable as possible.

5.2.2 Procedure.

In all schools, the assessments administered by the experimenter were completed during three separate sessions, in the order ASAT, then AWMA, then EISC. At the start of the first visit, the experimenter visited the classrooms of participants and was introduced to the children. Participating children were then withdrawn on an individual basis to do some “challenges”.

5.2.2.1 Session 1.

The experimenter introduced the project using the following wording:

I would like you to help me with some work I am doing for my university course. I am trying to find out whether what children know about feelings has an effect on how well they do in maths and literacy.

To find out the answer to this, I am asking lots of children to do some special challenges for me. The challenges will be easy for some people and tricky for other people. It doesn't matter whether you find the challenges easy or tricky, I would just like you to try your best. You will not pass or fail the challenges and your score will not count towards your normal school work. I won't tell anyone your score unless your parents ask for it.

There will be three challenges to do, each one will take about 15 minutes. We will do one today and then I will come back at other times to do the other two. If you ever feel uncomfortable or want to stop doing the challenges, you can just tell me you want to stop and we will. You don't have to give me a reason and I won't be angry with you for stopping.

Are you happy to have a go at doing the challenges?

If the child gave their consent, the experimenter then asked the child to complete two pretest tasks:

1. Count verbally to 15. This was checking that the child had the necessary pre-requisite counting ability to successfully complete the ASAT.
2. Complete two simple practice trials. This was checking that the child had understood the task and could follow the instructions. The task instructions appeared on-screen following launch of the programme and were read aloud to the child. During trials the experimenter was silent to allow the child to count. At the end of each trial, a message reading “How many beeps did you hear?” appeared; the experimenter asked the child the question.

If the child did not successfully count to 15, or answered both practice trials incorrectly, the programme was aborted and the session terminated. Otherwise, following successful completion of the practice trials, participants completed the 10 test trials. For these, the experimenter recorded the child's response on a paper record sheet (Appendix E).

During assessment, the experimenter spoke only to read on-screen instructions and the “How many beeps did you hear?” question at the end of each trial, or to respond to any participant queries. She ensured that she was silent during the beep counting part of the task.

At the end of the session, the experimenter thanked the participant for their time and invited them to return to their usual classroom. Responses were subsequently marked right or wrong using the “edat” data file, and totalled to give a score out of 10.

5.2.2.2 *Session 2.*

Participants again worked on an individual basis with the experimenter in a quiet room. The experimenter checked that participants remembered who she was and explained that today they were going to try some special memory challenges. She confirmed with each participant that they were still happy to take part in the challenges. Only participants that had successfully completed the ASAT were invited to take part in this session because the AWMA tasks are more complex than the ASAT; consequently it was decided that it would be unfair to ask children who struggled with the ASAT to complete the AWMA.

The AWMA programme was installed on a laptop computer for the project. Order of presentation of the two screener AWMA tasks was alternated between participants to counter-balance potential order effects. Both tasks started with practice items to familiarise the participant with the task requirements. For these trials, the programme provided feedback but the experimenter also clarified where required to ensure understanding. For the spatial recall all participants completed the easy practice trials as this was the recommendation for children aged seven or under (Alloway, 2007), which covered most of the population for this project.

All participants completed the tasks as administered by the programme, starting with one item per trial, therefore:

- If the first four trials in a block were answered correctly, the “move on rule” moved them up to the next block (and scored 6 for the block just completed).
- If three or more trials in a block were incorrect, the “discontinue rule” stopped the test.

Figure 18 diagrams this process.

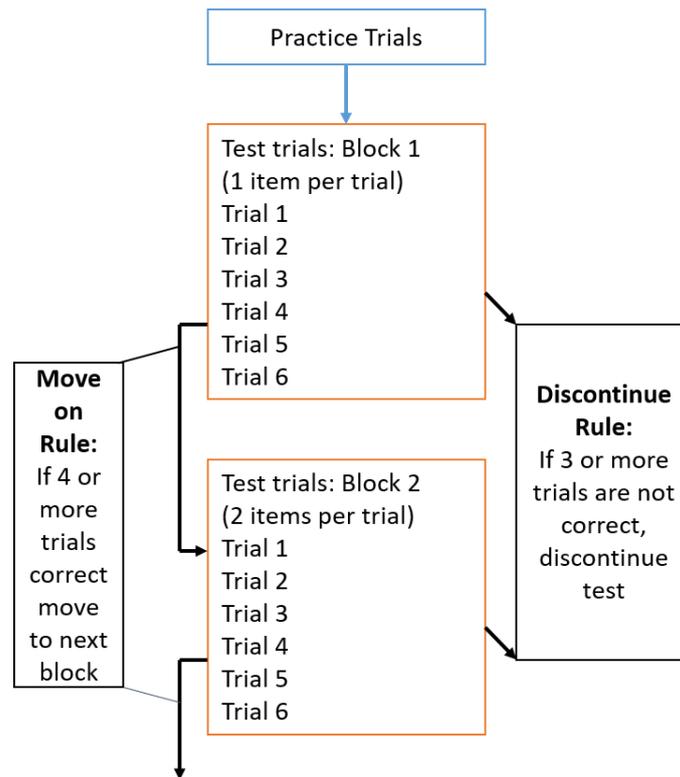


Figure 18: An illustration of the AWMA process.

Adapted from "An illustration of how the AWMA operates" Alloway (2007) Automated Working Memory Assessment Manual p24 © Pearson Education 2007.

The child answered trials verbally or by pointing to the screen and the experimenter pressed the arrow keys on the keyboard to indicate whether they had responded correctly or incorrectly. → indicated a correct response, and ← an incorrect or “don’t know” answer. A score book is provided for the administrator to reference for correct answers.

At the end of the session, scores were saved and the participant thanked for their help. Raw scores and age-standardised scores were retrieved from the saved information at a later date.

5.2.2.3 Session 3.

In this final session, participants completed the EISCr1 in groups of up to six, with the experimenter, in a quiet room. The experimenter presented the EISCr1 PowerPoint on a laptop computer. The computer was placed in a position where all participants could see it and the volume was turned up high to ensure everyone could hear it. Although there were important reasons for administering EISCr1 in small groups, independence of responses then becomes a concern so the room was set up with small screens in-between participants to discourage copying. Figure 19 shows an example room set up.

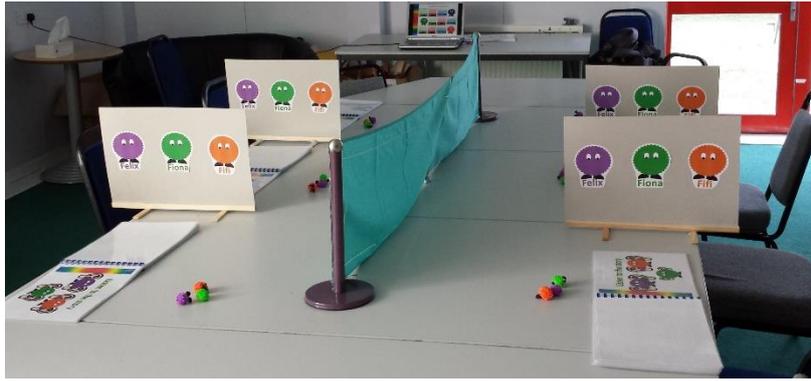


Figure 19: Photograph showing how an example room was set-up for the EISCr1 assessments.

The experimenter introduced the task by explaining:

Today we have some new friends in front of you, I would like you to use them to help you answer some new challenges about feelings. It is really important that I know what you think, so please don't look at anyone else's answers. As normal I won't be sharing your answers with anyone. The questions will all be given by the computer so we need to make sure we have our listening ears on and keep our mouths closed so that everybody hears all the questions. Are you all happy to have a go at the feeling questions for me?

Once all children had confirmed they were happy to have a go, she started the presentation and did not speak, other than to clarify instructions had been understood and redirect attention before moving on if required. Each subtest started with a practice question to ensure children understood the requirements of the task and how to show their responses.

Each participant had a laminated spiral-bound response book and a set of three feely characters (described in Chapter 4.6). They placed one of the characters in a box on the book to indicate their response to each question. After each item parcel, once participants had taken their hands off their characters, the experimenter recorded responses on a tick sheet (**Error! Reference source not found.**).

At the end of the session, participants were once again thanked for their time and told they had now completed all of the challenges.

5.2.2.4 AA assessments.

The age-appropriate PiE and PiM tests were administered by class-teachers, in the usual classroom setting, between October 2014 and January 2015. All teachers were asked to administer the assessments as specified in the manuals and to make the researcher aware of any children who were unable to complete the tests in this way, as these children would then be removed from analyses.

No additional children to those already identified by teachers at the start of the process (and therefore already excluded) were reported to be unable to access the assessments.

Tests were either scored by the researcher or the class teachers, depending on school preference. Raw scores were age-standardised using the tables provided in the manuals. The researcher retained a summary sheet detailing marks for each participants and test booklets were then returned to the school.

Unfortunately, one school was unable to administer the PiE and PiM due to curriculum constraints, meaning academic data was only available for two out the three participating schools.

5.3 Data Analysis

All scores were entered into SPSS. Two data files were created, one containing total scores and standardised scores where available for all measures; the other was a detailed question by question record of EISCr1 scoring to enable validity analysis. For the purpose of analysis correct answers on EISCr1 were given a code of 2 and other responses 1.

5.3.1 Validity of the revised EISC.

Because establishing a measure's validity is a complex and ongoing process with many different aspects to account for (Matthews, Zeidner, et al., 2004), this initial study focussed on assessing internal consistency and concurrent validity to compare with the original EISC validity findings.

5.3.1.1 *Internal consistency.*

To allow comparison between the revised and original measure, the methods used in the original validation study (Sullivan, 1999) were repeated as far as possible. According to Sullivan (1999), her first objective was to "identify scalable items for each subtest" (p. 38), which was achieved by conducting a principal component analysis (PCA) for each subtest; extracting a single principal component for each one. Although Sullivan (1999) does not specify whether she used linear or non-linear PCA, it was felt that the data was categorical, having only two response options (correct or incorrect), and therefore non-linear PCA was used for this project. Furthermore, the presence of only two response codes (see above) meant that only a nominal level of analysis was appropriate. Therefore a categorical PCA, with scaling level set to nominal for each variable, and a forced extraction of one component was conducted for each subtest (Table 4).

Again following Sullivan (1999)'s method, items with a positive loading of .30 or higher were retained for further analysis. This resulted in retention of five out of 10 faces items, five out of six stories items, 10 out of 12 understanding items and 12 out of 12 managing items. Contributing items

are highlighted in bold type in Table 4. All subtests of EISCr1 had a higher proportion of contributing items than the original EISC.

Table 4: Component Loadings from Individual SubTest Categorical Principal Components Analyses

Faces Subtest		Stories Subtest		Understanding Subtest		Managing Subtest	
Item	Loading	Item	Loading	Item	Loading	Item	Loading
Q1a	-.04	Q2a	.34	Q3a	.42	Q7a	.43
Q1b	.91	Q2b	.68	Q3b	.32	Q7b	.45
Q1c	-.01	Q2c	-.49	Q3c	.67	Q7c	.44
Q1d	.13	Q2d	.30	Q4a	.56	Q8a	.41
Q1e	.53	Q2e	.77	Q4b	.37	Q8b	.41
Q1f	.74	Q2f	.59	Q4c	.60	Q8c	.52
Q1g	.91			Q5a	.53	Q9a	.62
Q1h	.35			Q5b	.39	Q9b	.69
Q1i	.07			Q5c	.53	Q9c	.61
Q1j	.15			Q6a	.23	Q10a	.72
				Q6b	.29	Q10b	.45
				Q6c	.53	Q10c	.33

Note. Subtests Analysed individually using CATPCA with forced extraction of 1 component. Component Loadings > 3.0 are in **boldface**.

For the Faces subtest, Questions 1b (child, sad), 1e (adult, angry), 1f (child, happy), 1g (adult, sad) and 1h (child, scared) were retained. Interestingly, neither of the questions targeting surprised were retained. For Stories, the only item not retained by the PCA was 2c. This was the story which had been rewritten to describe a sad character whilst the original question was retained, which asked if she was angry. In Understanding both non-retained questions were from Item Parcel 6 (Questions 6a and 6b) which featured the story which had been constructed to give the viewpoint of the second character from the original Item Parcel 2 in this subtest.

Next, Alpha Reliability Coefficients were computed using items retained from the PCA (Table 5). Faces, Stories, and Understanding all showed low internal consistency ($\alpha = .53, .52, .67$ respectively). However Managing demonstrated acceptable internal consistency ($\alpha = .74$) and consistency for the whole scale was good ($\alpha = .84$). Comparison with alpha's reported by Sullivan (1999) showed EISCr1 to have higher internal consistency with the exception of Stories and Faces. The Stories alpha was equal to that reported in the original validation study, whilst for Faces it was lower.

Table 5: Descriptive Statistics, Reliability and Age Correlations for EISCr1

Scale	Minimum Percentage Score	Maximum Percentage Score	Mean Percentage Score	Standard Deviation	Alpha Reliability Coefficient	Correlation with Age in Months
Faces	0.00	100.00	94.70	12.97	.53	.35**
Stories	20.00	100.00	73.33	24.77	.52	.34**
Understanding	10.00	100.00	73.25	22.00	.67	.40**
Managing	16.67	100.00	75.07	21.54	.74	.40**
Whole	34.38	100.00	77.30	16.43	.84	.46**

Note: n=117

**correlation is significant at 0.01 level (2-tailed)

5.3.1.2 Concurrent validity.

Sullivan (1999) assessed concurrent validity by comparing correlations with verbal comprehension, processing time, age, and adult ratings of participants' emotional intelligence and empathy. Because research has now shown little relationship between performance and report measures of EI (Wigelsworth et al., 2010), it was decided not to administer TEI measures in this study. Instead, validity was assessed through correlations with age and the cognitive abilities assessed in the study, because AEI theory posits that EI should increase with age and be modestly related to cognitive abilities (Mayer et al., 1999).

Sullivan (1999) chose to convert her subtest and total scores into percentages for analysis. Although she does not give reasons for doing this, it seems to allow easier comparison of scoring profiles across subtests and therefore was also done here. For each subtest, a percentage score was obtained based on items retained by the aforementioned PCAs (see Table 4). Additionally, a total percentage score was calculated based on all 32 retained items. Table 5 gives descriptive statistics for the measure using these scores. All validity checking used these scores for analysis. It is notable that performance on Faces was close to ceiling level ($M = 94.7\%$), and much higher than the other subtests.

Assumption checking, revealed that all EISC data was not normally distributed as demonstrated by significant Shapiro-Wilk scores ($p < .001$). Therefore, a Spearman's correlation with participant's age in months was conducted (Table 5). All subtests and the whole scale correlated moderately but significantly with age at the .01 level. This is similar to Sullivan's (1999) findings, although she found Understanding did not correlate significantly with age.

Because the EISC data was known to be non-normally distributed, Spearman's correlations were also utilised to assess its relationship with cognitive abilities. Visual inspection of scatterplots revealed

approximately monotonic relationships between all variables. EISCr1 total percentage score correlated positively with raw scores of sustained attention $r_s(115) = .41$ $p < .001$, verbal WM $r_s(114) = .37$ $p < .001$, and visuospatial WM $r_s(114) = .33$ $p < .001$ (Table 6). These correlations were modest but significant at the .01 level. As expected, the three cognitive ability measures correlated more strongly with each other than with EISCr1.

Table 6: Intercorrelations amongst EI, WM and SA measures

Measure	1	2	3	4
1. EISCr1 ^a	-	.37**	.33**	.41**
2. AWMA:LR ^b		-	.52**	.53**
3. AWMA:SR ^b			-	.44**
4. ASAT ^a				-

Note: EISCr1=Total Percentage Score from PCA contributors to EISCr1, AWMA:LR= Raw score from Automated Working Memory Assessment Listening Recall Task (Verbal Working Memory), AWMA:SR= raw score from Automated Working Memory Assessment Spatial Recall Task (Visuospatial Working Memory), ASAT= raw score from Auditory Sustained Attention Task.

^an=117. ^bn=116.

**p<.001

Finally gender differences in scoring were investigated. Inspection of boxplots revealed no outliers in the data. Inspection of QQ plots suggested female scores were approximately normally distributed and a slight negative skew for male scores. However, calculations of skewness and kurtosis were all within acceptable limits, therefore it was decided that all data was approximately normally distributed and an independent samples t-test was carried out. There was homogeneity of variances as assessed by Levene's test ($p = .607$). There were 64 male and 53 female participants. Males ($M = 78.17$, $SD = 17.10$) scored slightly higher than females ($M = 76.24$, $SD = 15.67$). This difference was not statistically significant $M = 1.94$, 95% CIs [-4.12, 7.99], $t(115) = .63$, $p = .528$.

5.3.2 The relationship of EI & AA.

5.3.2.1 Multiple regressions.

To establish which of the tested skills impact AA, two multiple regressions were carried out: one predicting maths scores and one English. The predictor variables were EISCr1 score, Verbal WM (verWM) score, visuospatial WM (vsWM) score, sustained attention (ASAT) score and gender.

Assumption checking, revealed independence of residuals, assessed by Durbin-Watson values of 2.37 and 1.94 for English and Maths respectively. Visual inspection of scatterplots of studentized residuals vs unstandardized predicted values, revealed an approximately linear relationship between dependent and independent variables collectively for both English and Maths and indicated

homoscedasticity. Partial regression plots also revealed approximately linear relationships between each independent variable and English or Maths score. Inspections of correlations and tolerance revealed no multicollinearity issues for either model. There were no outliers, leverage or influential points for the English model. One outlier was identified for the maths model, however there were no leverage or influential points (as assessed by cooks distance) and no clear reason to remove the outlier so it was left. Finally, residuals were approximately normally distributed for both models as observed by inspection of histograms and normal P-P plots.

For English, the multiple regression model statistically significantly predicted PiE standardised score $F(5,83) = 19.41, p < .001, \text{adj. } R^2 = .51$. EISC, verbal WM and ASAT significantly contributed to the prediction ($p < .01$). Visuospatial WM and gender did not contribute significantly. Regression coefficients and standard errors are given in Table 7.

Table 7: Multiple Regression Predicting English Achievement

Predictor	B	95% CI	β	t	Sig.
Constant	6.17	[-14.84, 27.18]		0.58	.561
Sustained Attention	1.30	[0.35, 2.25]	.23	2.73	.008
Verbal Working Memory	0.42	[0.24, 0.59]	.40	4.61	.000
Visuospatial Working Memory	0.11	[-0.02, 0.24]	.15	1.71	.090
Emotional Intelligence	1.31	[0.81, 1.81]	.43	5.22	.000
Gender	-0.78	[-5.10, 3.55]	-.03	-0.36	.723

Note: $R^2 = .51$, CI= Confidence Interval

PiM standardised score was also statistically significantly predicted by the Maths regression model $F(5,80) = 20.85, p < .001, \text{adj. } R^2 = .54$. The only predictor variable that did not significantly contribute at the $p < .05$ level was gender. Regression coefficients and standard errors for this model are given in Table 8.

Table 8: Multiple Regression Predicting Maths Achievement

Predictor	B	95% CI	β	t	Sig.
Constant	-11.26	[-34.17, 11.64]		-0.98	.331
Sustained Attention	1.50	[0.45, 2.55]	.23	2.85	.006
Verbal Working Memory	0.51	[0.32, 0.71]	.44	5.14	.000
Visuospatial Working Memory	0.17	[0.03, 0.31]	.20	2.38	.020
Emotional Intelligence	1.06	[0.51, 1.61]	.31	3.83	.000
Gender	4.60	[-0.20, 9.40]	.14	1.91	.060

Note: $R^2 = .54$, CI= Confidence Interval

5.3.2.2 Hierarchical regressions.

Although the multiple regressions indicated that EI does significantly contribute to the prediction of AA, they did not test its incremental predictive validity. Two hierarchical regressions were therefore conducted to test whether the addition of EISC scores improved the prediction of AA scores over WM and SA. As sample sizes were small, it was important to keep the number of predictor variables low; consequently gender was omitted from the hierarchical regressions because it did not significantly contribute to either multiple regression. As above, assumption checks revealed no significant violations.

For English the full model of EISCr1, verWM, vsWM, and ASAT scores to predict PiE scores was statistically significant, $R^2 = .54$, $F(4,84) = 24.49$, $p < .001$, $adj.R^2 = .52$. The addition of EISC score led to a significantly significant change in R^2 of .15, $F(1,84) = 27.83$, $p < .001$. Details of both models are given in Table 9.

Table 9: Hierarchical Multiple Regression Predicting English Achievement

Variable	English Achievement Standardised Score		
	Model 1 B	B	95% CI
Constant	39.89	5.62	[-15.05, 26.28]
Sustained Attention	2.23	1.28**	[0.34, 2.22]
Verbal Working Memory	0.33	0.42**	[0.24, 0.59]
Visuospatial Working Memory	0.12	0.11	[-0.02, 0.24]
Emotional Intelligence		1.31**	[0.82, 1.81]
R^2	.39		.54
F	17.76**		24.49**
ΔR^2			.15
ΔF			27.83**

Note: n = 89, CI = Confidence Interval

**p<.01

The full model of EISC, VerWM, vsWM, and ASAT predicting PiM was also statistically significant, $R^2 = .55$, $F(4,81) = 24.36$, $p < .001$, $adj. R^2 = .52$. The addition of EISC score again led to a significantly significant R^2 increase of .08, $F(1,81) = 13.50$, $p < .001$. Details of both models are given in Table 10.

Table 10: Hierarchical Multiple Regression Predicting Maths Achievement

Variable	Maths Achievement Standardised Score		
	Model 1 B	Model 2	
		B	95% CI
Constant	17.68	-7.93	[-30.93, 15.08]
Sustained Attention	2.29	1.57**	[0.51, 2.64]
Verbal Working Memory	0.47	0.52**	[0.32, 0.72]
Visuospatial Working Memory	0.17	0.16*	[0.02, 0.30]
Emotional Intelligence		1.03**	[0.47, 1.59]
R ²	.47	.55	
F	24.28**	24.36**	
ΔR ²		.08	
ΔF		13.50**	

Note: n = 86, CI = Confidence Interval

*p<.05 **p<.01

5.4 Discussion

5.4.1 Validity of the revised EISC.

Although analyses focussed on internal consistency and concurrent validity, the study additionally yielded information regarding content relevance and usability which will also be discussed here.

5.4.1.1 Content relevance.

Overall 80 % of items in EISCr1 were retained by the PCAs, a large increase from the 53 % retained for the equivalent subtests from Sullivan (1999)'s original measure. This suggests that implementing the modifications suggested by Sullivan (1999) has resulted in more items effectively contributing to the assessment of their specified construct. It is notable however, that only half of the Faces items were retained suggesting a large amount of redundancy within this subtest. Furthermore, ideal retention would be 100 %, thus suggesting further modification to eliminate redundant items would be beneficial.

Investigation of redundant items revealed that neither of the surprised faces were retained by the PCA. There were no obvious difference in scoring patterns between the retained and redundant items for Faces so it is unclear why this was the case. One possible explanation is that, although surprise is commonly accepted as a universal basic facial expression (Ekman & Friesen, 2003), it is somewhat unique amongst the basic emotions in that it is not typically either positive or negatively valenced (Roseman, 2001) and therefore does not cohere well with the other emotions tested in the faces subtest. This explanation may be relevant taking into account the younger age range utilised within the study given Widen (2016)'s assertion that younger children's emotion identification is

largely valence based. Furthermore, recent research by Jack, Garrod, and Schyns (2014) suggests that initially surprise shares the facial features of fear and is only discriminated later in the recognition process. This again makes it unique from happiness and sadness which are consistently independent expressions (Jack et al., 2014), although in this case it is unclear why a fear expression would be retained by the PCA. The other three redundant faces items were the adult happy expression, adult scared expression, and the child angry expression. There is no obvious lack of coherence evident from the results; thus, other than the potential of unidentified bias in the sample leading to a cohort effect, it is hard to think of any theoretical reason for their redundancy.

The redundant item from Stories (Question 2c), was the one which had been modified to portray an emotion with negative rather than positive valence in order to address the imbalance of valences in the original stories subtest. Consequently, the story was designed to describe a sad character whilst the question asked if they were angry, with the correct answer being no. Although this question was answered with 65 % accuracy – in line with the accuracy for the remainder of the Stories questions, sadness and anger are two commonly confused emotions (Ekman & Friesen, 2003) and this may have led to subtle differences in response patterns which caused the item not to cohere with the other Stories items. At present, however, there is no data to support this conclusion.

Finally, the two redundant items from Understanding both came from Item Parcel 6 (Questions 6a and 6b). Inspection of scoring, revealed markedly lower accuracy for these two items (44.4 % and 47.9 % respectively) compared to the rest of the Understanding items (64.1 % - 85.5 % accuracy). Item Parcel 6 featured the story of the second character from Item Parcel 2. It was initially included to see if children could understand the contrasting viewpoints. However, feedback during assessment sessions revealed that participants found it confusing with many commenting “we’ve already had this story”; this likely explains the low accuracy of responses for the redundant items.

It is notable that the content revisions were applied with an English audience in mind and the adults who evaluated the measure were English. Therefore, the promising improvements in content relevance seen here may be limited to use within an English culture. Further investigation of cross-cultural validity would be required before the measure can be introduced in other cultures.

5.4.1.2 Internal consistency.

The good alpha coefficient of .84 for the whole scale suggests EISCr1 shows promise as a coherent measure of overall EI, and again is a large improvement over Sullivan (1999)’s original whole scale alpha of .56. The current whole scale reliability is also similar to that found for the MSCEIT:YV (e.g. Peters et al., 2009; Rivers et al., 2012), suggesting EISCr1 is equally reliable as existing youth AEI measures at a whole scale level. At the sub-scale level however, the results are not so promising. The

EISCr1 Faces, Stories and Understanding reliabilities were all low at .53, .52 and .67 respectively. Meanwhile the Managing subscale reliability ($\alpha = .74$) could be considered to just reach acceptability, given that the measure is new (Gignac, 2009). The pattern of these reliabilities is similar to that observed with the MSCEIT:YV, where the perceiving and using branch reliabilities were weaker than the understanding and managing branches (Papadogiannis et al., 2009). On the other hand, the values are much lower than the branch reliabilities for MSCEIT:YV which are in the range $\alpha = .72$ to $\alpha = .88$ (Papadogiannis et al., 2009). Given that Matthews, Zeidner, et al. (2004) argue much of the utility of comprehensive tests rests on their ability to compare performance in the different areas, this low reliability of most sub-scales is worrying. Furthermore, Faces demonstrated a lowered alpha compared to the original, which suggests the modifications had a negative effect. Given that most pupils scored at ceiling level on this subtest, with the average percentage score being much higher than the other subtests and overall score (Table 5), it seems likely that the new Faces was too easy. Therefore, revision to increase difficulty is likely required.

5.4.1.3 Concurrent validity.

The fact that all aspects of the measure show positive correlations with age suggests that the measure is sufficiently developmentally sensitive to be able to demonstrate the increase in EI skills which is associated with increase in age (Rivers et al., 2008). Furthermore, the pattern of modest correlations with cognitive abilities suggests EISCr1 is successfully measuring AEI in children, since AEI should be related to other mental abilities but not identical to them (Mayer et al., 1999). The strength of the present correlations is in-keeping with those found for the MSCEIT:YV where Brown et al. (2018) report weak to moderate correlations have been found with general cognitive ability. More significantly, Sullivan (1999) found no relationship between the EISC and cognitive ability; therefore, although the present study used different cognitive ability measures to Sullivan (1999), it is possible that the presence of a relationship between EISCr1 and WM and SA indicates the modifications applied have improved the validity, as well as the reliability of the measure. Additionally, EISCr1 predicted both maths and English performance in the current study; demonstrating some predictive validity too.

Finally, the lack of gender differences in scores is somewhat out of sync with the existing literature where studies have found females tend to score higher than males both on the adult MCSEIT (e.g. Brackett & Mayer, 2003) and MSCEIT:YV (Rivers et al., 2012). It is unclear why no differences were found in the present sample. It is possible that, given Zeidner et al. (2003)'s assertion that EI becomes increasingly differentiated with age, gender differences in EI do not emerge until later childhood, however research into emotional management strategy use has found gender differences

in children as young as seven (Brenner & Salovey, 1997), suggesting that some evidence of gender difference should be evident in the current sample. Consequently, it may be that EISCr1 is not sufficiently sensitive to capture gender differences in AEI. Further research will be needed to clarify this issue, particularly since the groups were unbalanced with the current sample having 11 more boys than girls, which is known to have impact on the accuracy of the t-test (Laerd Statistics, 2015).

5.4.1.4 Usability.

Denham et al. (2016) asserted that a measure is only useful if it gives both relevant information and minimises the amount of time, effort and attention required from both educators and children to complete it. Although they were specifically reviewing pre-school SEL assessment, the same pressures remain evident throughout the education system and therefore practical usability of a measure is important in addition to psychometric characteristics. With this in mind, many of the presentation and response format changes applied to EISCr1 were designed to enhance usability.

Firstly, with regards to completion time, EISCr1 took 40 to 60 mins, which is longer than the original EISC which Sullivan (1999) reported took 30 to 45 mins; the measure was clearly not improved in this aspect. Much of the additional time may be attributed to the pauses in-between item parcels whilst the experimenter recorded responses, which is necessarily longer for multiple compared to individual responders. These gaps also provided more opportunities for off-task behaviour and loss of attention, with the experimenter often having to re-focus attention of participants before starting the next item parcel. However, although completion time increased, the use of a non-verbal response format enabled multiple participants to be assessed at once which should reduce overall assessment time if large quantities of pupils need to be assessed.

A further reason for increasing the participant group size was that Sullivan (1999) felt that many of her respondents had answered to comply with the experimenter (i.e. answered yes even if they thought the answer was no); removing the 1:1 adult to child ratio was intended to reduce this. The change to computer presentation and asking the children to help fictional characters answer the questions, should also have helped to reduce any pressure children may have felt to show compliance. Indeed, the high proportion of accurate responses (mean total percentage score was 77.69 %), many of which would require a negative response, suggests that neither compliance nor acquiescence were problematic in EISCr1. Nevertheless, some participants did occasionally try to hide their responses from the experimenter when recording, which may be an indication that they were feeling a little uncomfortable and judged, although the experimenter emphasised that she was not judging them.

Finally, the use of characters was intended to increase pupil engagement with the measure; reducing attentional demands. Participant's expressions of interest (e.g. "Wow, what are they?") when they first saw the characters and positive responses when the characters asked for help indicated that this was initially effective. As the measure progressed however, some appeared more distracted by fiddling with the characters rather than engaged in the tasks. This may have been a side-effect of the length of the measure exceeding the attention span of the participants. There were also occasional instances of a participant removing their character from the page before the experimenter had recorded their responses and therefore having to replace them from memory, which may have reduced accuracy of responses in occasional instances.

5.4.2 The contribution of EI to AA.

The significant multiple regression models suggest that, in this sample, children's AA can be partially explained by EI and basic cognitive functioning. For maths, the model explained 54 % of the variance in scores, suggesting a large effect size. The English model, explained slightly less variance (51 %), but still a large effect (Cohen, 1988). Whilst there is no previous research which has utilised these models to compare results, this magnitude of effect size seems appropriate given that cognitive ability is usually moderately predictive of AA (Downey et al., 2014), and EI has been generally been modestly related to AA (Márquez et al., 2006). Furthermore, the models explained greater variance than the 25 % typically accounted for by cognitive intelligence alone (Murphy & Sideman, 2006), although it should be noted that cognitive intelligence was not directly assessed in this study.

The statistically significant contribution of EI to both regression models suggests that, in this sample, it made a direct contribution to the prediction of AA. This was confirmed by the hierarchical regressions which demonstrated that EISC explained an additional 15 % and 8 % of variance in English and Maths scores respectively, above the contributions of WM and SA. Indeed examination of the multiple regression coefficients suggests that, of the variables included, EI was the largest contributor to the English model and second biggest contributor to the maths model.

Because this study was relatively exploratory in nature, having no previous research within the population age-range or utilising the same predictor variables, there is little context in which to place these findings. Nevertheless, the findings provide tentative support for those who have asserted a direct link between AEI and AA (e.g. Billings et al., 2014; Costa & Faria, 2015; Di Fabio & Palazzeschi, 2009; Peters et al., 2009; Qualter et al., 2012); extending the positive evidence base to a younger age range. Furthermore, the present findings suggest AEI may hold incremental validity over some cognitive functions; the magnitude of the contribution appears to be approximately the same as that found by Di Fabio and Palazzeschi (2009) who established AEI explained 7 to 12 %

greater variance in 16- to 20-year-old students' grade point average over fluid intelligence and personality traits. However, the two studies are not directly comparable because no personality measures were included in the present study and cognitive intelligence was only measured by proxy through two closely associated constructs: SA and WM. Using a closer age range, Billings et al. (2014) found scores from the understanding of branch of the SUIET-EY explained a similar incremental amount of variance for both English and Maths scores (11 %). Once again, however, the studies are not directly comparable because they only tested incremental ability over gender, having not measured cognitive ability. Therefore, despite lacking a direct comparison study, there is some evidence that the effect sizes found here may reasonably be within the expected magnitude although conclusions must remain tentative until further evidence has been collated.

It is interesting that in the current study, gender did not significantly contribute to the prediction of either English or Maths achievement. Given the well-established and publicised pattern of girls outperforming boys at school (Department for Education, 2019), this is unexpected. However investigation of Key Stage One and Two standards in England reveals that there was negligible gender difference in Maths achievement for this age range (Department for Education, 2019); suggesting that the lack of gender difference in the current study may be appropriate for Maths, although girls did outperform boys in reading (Department for Education, 2019). It may be that the limited sample for the current study was not sufficiently diverse for gender differences to emerge. Equally, it may be that the developing nature of cognition and EI means that these were simply much more powerful predictors than gender in this sample. Further research will be needed to clarify this finding.

Although many of the results were common across both the English and maths models, there were also some interesting differences between the two. Firstly, the multiple regression explained marginally more variance in maths performance (54 %) than English (51 %). One possible reason for the difference in effect size is the contribution of visuospatial WM to the maths model whilst it was insignificant in the English model. This is perhaps unsurprising since the PiE tests comprise mainly text-related content which would employ verbal WM whereas the PiM tests include a mixture of shape, arithmetic and reasoning questions (see Appendix E for details of test contents); requiring visuospatial WM, to answer the shape questions, in addition to verbal WM to process question instructions and complete the arithmetic (Eysenck & Keane, 2000).

Despite the greater overall predictive power of the maths model, it appears that EI was more predictive of English than maths performance. This was demonstrated both in the multiple regression where the regression coefficient of EI was greater for English ($b = 1.31$) than maths ($b =$

1.06), and in the hierarchical regression where EISC added a greater amount of incremental validity to the English model (R^2 increase = .15) than the maths model (R^2 increase = .08). Again there is little existing research to compare this finding to, but it appears that the MSCEIT:YV has also been found to be more closely associated to English than maths performance: Peters et al. (2009) found it significantly correlated with both measures of reading with intelligence controlled, but only one maths measure; Rivers et al. (2012) found it remained significantly related to English Language and Arts scores when intelligence was controlled, but not to maths scores. Furthermore, a stronger link between EI and language than maths makes conceptual sense, given that Mayer and Salovey (1997) specifically list the ability to infer how a character in a story is feeling within their model. Clearly, further replication and more robust findings with larger, more diverse samples are required, but the above results tentatively suggest that EI skills are more instrumental for English than maths performance.

Overall the study has provided preliminary evidence that EI contributes to English and maths performance in the lower primary age range (5- to 8-year-olds). This contribution appears to be direct, although indirect associations are still likely in terms of behaviour and classroom adaptation, which were not assessed in the current study. It further appears that EI is more influential for English performance than maths. It must be cautioned, however, that several factors were not ideal within this study, including the protean nature of the EI measure used, and the small and limited sample. At this stage it is therefore not appropriate to generalise from these findings. Nevertheless, within this sample, it seems age-appropriate EI skills would be important to facilitate academic learning.

5.4.3 Limitations of Study 1.

Due to time and access restrictions, along with one school unexpectedly being unable to provide academic data, the sample size for this study was smaller than intended. Additionally participants were recruited from only one geographical area. Consequently, the power of the study is limited, which in turn limits the generalisability of the results. Furthermore, there were insufficient participants to be able to examine how the relationship between EI and AA changed across the age range which would have increased the utility of the results. Similarly, information regarding the SEN status, ethnicity or socio-economic status of pupils was not sought as there was no ethical reason for doing so. This means that it was not possible to explore any differences in predictions or the suitability of the measure for groups of pupils with differing needs. It will be important to investigate the cross-cultural suitability of the measure in future because it was revised with an English audience in mind. The stories therefore had an inherent western cultural bias and the voices used had a British accent. This, coupled with the sole use of Caucasian faces, mean the generalisability of the measure

across cultures is likely limited. Equally, the regression results will need to be replicated in other countries and cultures before the relationships found here can be assumed to be universal.

Related to the above, the age range of the current sample was weighted towards the upper end of the age range with many more participants in Years 3 and 4 than Years 1 and 2. This is likely to have biased results towards relationships for the older rather than younger participants.

A further unexpected methodological issue, is that the final timeframe, over which data was collected for each participant, was much longer than originally planned. As noted in the literature review, all skills being assessed are known to be developing within the age range and can be taught to some extent, therefore it was originally intended that for each individual participant all assessments would take place within a single academic term, to increase the probability that effects observed were relatively uncontaminated by other developmental factors. Due to unforeseen difficulties, the assessments were more spaced out than originally intended, with the typical timeframe for individuals being around two terms and for some longer. Although, this is not markedly longer than elapsed time between EI and AA assessments within the existing literature (e.g. Mavroveli & Sanchez-Ruiz, 2011), it makes it harder to confidently assert that the relationships observed are pure.

Furthermore, although there were valid reasons for doing so, using class teachers to administer the AA assessments may have impacted the reliability of these results. This is because, although teachers were asked to stick strictly to the administration procedure in the manual, there will naturally be individual differences in delivery between teachers; whereas because all other assessments were administered by one individual only, this variability was eliminated.

Because the children being assessed were young, it was felt important to keep the number of assessments they were undertaking to a minimum. Consequently, because AA is more associated with cognitive abilities, and the study targeted AEI, no personality measure was used in the current study. This means that it was not possible to examine the incremental prediction of AEI over personality for AA, and the discriminant validity of the EISC from personality was not examined. Future research will need to establish this distinction. Furthermore, cognitive intelligence was not directly measured, therefore strictly speaking incremental predictive validity for cognitive intelligence has not fully been established within this study. Future research will need to more fully establish the incremental predictive validity of EISCr1 over both personality and cognitive intelligence before it can confidently be asserted.

Several other aspects of measure validity were not assessed in the current study. Firstly, the measure was administered only once so test-retest reliability has not been assessed. Secondly, although EISCr1 has been shown to predict AA, its predictive validity in relation to emotional wellbeing has not been explored. Finally, convergence with other tests of emotional abilities has not been established.

In addition to the lack of a personality measure, the focus on only AEI means that this study cannot contribute to the knowledge base regarding the relationship between TEI and AEI in children. Again, although it may be tricky given that no TEI measure targets the lower extreme of the current target age range, future research regarding this issue is required to add validity to the current findings and in particular establish the status of the EISC as an ability measure.

Finally, although analysis suggests that EISCr1 is reliable at the whole scale level, the measure is in its infancy, with this study being the first investigation of its validity. This means that the regression analysis must be tentatively treated since one cannot be 100 % sure that AEI was accurately assessed by the EISCr1. Nevertheless, given that the reason for developing EISCr1 was because there is no other suitable measurement tool for this age range, these results represent the best possible effort in this regard.

5.4.4 Conclusions from Study 1.

Overall EISCr1 showed promise with improved reliability compared to the original EISC and positive validity results. However, the continued low reliability of three out of the four subtests is concerning. Furthermore, the measure was lengthy to administer, taking 45 mins to 1 hr; this is too long for a measure for children (Denham et al., 2016). Further refinement is therefore needed to produce a successful measure of AEI for children.

The significant regression models provide tentative evidence that AEI is linked to AA in primary-aged children. Although wider replication is required before such associations can be confidently asserted, this suggests that it may be important for children to have age-appropriate EI skills in order to fully access the curriculum. Consequently, there is likely to be a need for a programme which helps young learners who are lower in AEI to develop their skills.

6 Refinement of EISC: Creation of EISCr2

Following the evaluation of EISCr1 in Study 1, it was further refined to shorten administration time and attempt to improve reliability. EISCr2 therefore represents a shortened version of EISCr1 consisting of 30 items plus four practice items. The changes applied are described below.

6.1 Content Changes

All items not retained by the EISCr1 subtest principal component analyses (PCAs) in Study 1 were removed to eliminate redundancy within the measure. In addition, further attention was given to the faces subtest, due to the observed reduction in reliability from the original measure. Finally, because development of EISCr2 took place after Mayer et al. (2016a) updated their Ability Emotional Intelligence (AEI) model, content was checked against this update to ensure continued relevance. The specific details of the refinements to each subtest are given below. Appendix G contains a full transcript of EISCr2.

6.1.1 Faces subtest.

Questions 1a, 1c, 1d, 1i and 1j were not retained by the EISCr1 Faces PCA and therefore were eliminated. This left five questions for Faces: 1b (child, sad), 1e (adult, angry), 1f (child, happy), 1g (adult, sad) and 1h (child, scared). Neither of the questions targeting surprised were retained.

Inspection of EISCr1 contributing item scores showed participants scored near ceiling level (Table 11), which likely contributed to the low internal consistency of this subtest. As shown in Table 11, scores were particularly close to ceiling on Question 1f (happy, 97 % correct) and Questions 1b and 1g (sad, 99 % correct); therefore these questions were revised to increase difficulty.

Table 11: Analysis of Scoring on Contributing Items from EISCr1 Faces Subtest

Question	Correct Responses	Incorrect Responses	Percentage Correct
1b	116	1	99.1
1e	105	12	89.7
1f	113	4	96.6
1g	116	1	99.1
1h	104	13	88.9

Note. N = 117

Firstly, Question 1b was eliminated in order to balance the number of questions per emotion and adult/child models. Next, image selection was altered for Questions 1f and 1g to make them theoretically harder. For each question the target image was retained, but in-fill images were changed so that at least two out of the three featured an emotion that either blends, or is frequently

confused with the target emotion, whilst still retaining the original valence-based selection criteria. Question 1f had a target emotion of happy. Ekman and Friesen (2003) asserted that the happy expression is very simple to identify and noted no frequent confusions, but noted it often blends with surprise, contempt, anger and fear. Consequently, the second in-fill image was changed from sad to angry; this also gave a slightly larger difference in valence. The third in-fill image was changed from angry to fearful, because this image met the more stringent of the original selection criteria. The first in-fill image still depicted surprised, but the image was amended to one with a slightly closer valence, and to male instead to female in order to retain sex balance on the question. For Question 1g the target emotion was sad. According to Ekman and Friesen (2003), the sadness brow is most likely to be confused with fear, and the mouth with disgust or contempt; sadness most commonly blends with fear, anger, disgust and anger. As a result, the third in-fill image was changed from surprised to fearful. The other two in-fill images were retained because these represented the best fit using both the original valence selection criteria and the above confusions.

Finally, because no surprised faces questions contributed to the EISCr1 PCA, the practice question was changed to target surprised in order to eliminate practice effects. Questions 1e and 1h remained unchanged. Therefore, the EISCr2 faces subtest contained four items (plus one practice), one each targeting identification of angry, happy, sad and scared.

Table 12 details the composition of the EISCr2 faces subtest.

Table 12: Composition of EISCr2 Faces Subtest

Question	Target Emotion	Adult or Child	Target Image	In-fill image 1	In-fill image 2	In-fill image 3	Order of positions on slide
Practice (P1)	Surprised	Child	Rafd090_11 (surprised)	Rafd090_64 (fearful)	Rafd090_44 (happy)	Rafd090_65 (angry)	1,2,3,4
1	Angry	Adult	Rafd090_23 (angry)	Rafd090_19 (fearful)	Rafd090_04 (surprised)	Rafd090_10 (sad)	3,1,2,4
2	Happy	Child	Rafd090_63 (happy)	Rafd090_39 (surprised)	Rafd090_44 (angry)	Rafd090_65 (fearful)	4,1,3,2
3	Sad	Adult	Rafd090_31 (sad)	Rafd090_58 (angry)	Rafd090_56 (happy)	Rafd090_61 (fearful)	3,2,1,4
4	Scared	Child	Rafd090_63 (fearful)	Rafd090_64 (sad)	Rafd090_39 (happy)	Rafd090_11 (surprised)	4,1,3,2

Note: All images were sourced from the Radboud Faces Database (Langner et al., 2010) for the purpose of this research

6.1.2 Stories subtest.

The only item from stories which was not retained by the EISCr1 PCA was 2c; therefore this was excluded in EISCr2. The story had been rewritten to describe a sad character whilst the question asked if she was angry. In contrast, the original story had a happy character but equally did not contribute to the PCA (Sullivan, 1999); suggesting this story and question combination is not effective. Consequently, EISCr2 Stories contains five item parcels each consisting of a story and accompanying question.

6.1.3 Understanding subtest.

Questions 6a and 6b were not retained by the EISCr1 Understanding PCA. In order to maintain consistency of presentation, it was decided to remove the whole of Item Parcel 6, rather than have one isolated parcel with only one question accompanying the story whilst the others have three accompanying questions. In addition, the story in Item Parcel 6 targeted the story of the second character from Item Parcel 4; several participants in Study 1 indicated they found this confusing, therefore removal of the whole item parcel eliminated this source of confusion. Furthermore, the item parcel was primarily created to allow for the inclusion of Question 6b, which contributed to the original EISC (Sullivan, 1999), however its exclusion by the EISCr1 PCA indicated this was not successfully achieved. Thus, EISCr2 Understanding consisted of three stories, each with three accompanying questions or nine items organised into three item parcels.

6.1.4 Managing subtest.

Since all 12 questions (four item parcels) were retained by the Managing EISCr1 PCA, no changes were required for this subtest. Therefore Managing continued to consist of four stories, each with three accompanying questions, equivalent to 12 items organised into four item parcels.

6.2 Administrative Changes

Items were renumbered to avoid any possible confusion for participants. Consequently, item parcels one to four formed *Faces*, five to nine *Stories*, ten to twelve *Understanding* (these items have one story, then three questions: 10a, 10b, 10c etc.), and thirteen to sixteen *Managing* (again each question has three parts).

6.2.1 Presentation.

The measure continued to be presented via a PowerPoint slide show with standard size (4:3), landscape orientated slides, however the design of the slides was changed slightly: firstly, the slide background was coloured pale yellow to help reduce screen glare; secondly, the side border was

changed to allow easy discrimination between EISCr1 and EISCr2 presentations. As before the pictures changed slightly for each item parcel to help participants keep track.

Two new characters were created to present the measure “Fi” and “Lee” (Figure 20). This was done because the change in response format (see below) meant the EISCr1 characters were no longer required, but it was felt that the use of characters was conducive to pupil engagement in the target age group. Furthermore, using Fi and Lee to ask the questions continued the reduced role of the experimenter in presentation, which would hopefully more children to feel confident to answer independently and reduce experimenter acquiescence. Finally, Fi and Lee had female and male voices respectively, meaning that there was more variation in presentation tone which should help sustain attention amongst the young age range.

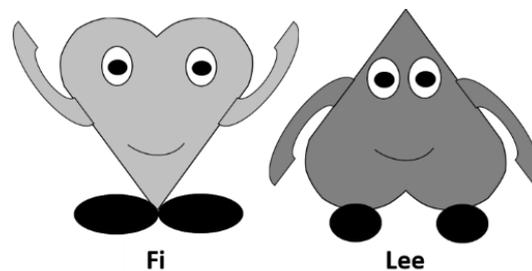


Figure 20: Drawings of the Fi and Lee characters created for EISCr2.

The new audio was created using the free online text to speech service www.texttospeech.com. Fi’s voice was the “British English – Emma” voice available on the website, and Lee’s voice was “British English – Harry”. For both voices speed was set to medium.

6.2.2 Response format.

The response format changed to ticking a paper answer booklet, to eliminate redundant time in-between questions whilst the experimenter recorded responses, because this added unnecessary length to the assessment time. These “recording gaps” also seemed to make it harder for pupils to focus on the content of the measure since they typically became distracted during the wait. Furthermore, it was hoped that the use of answer booklets would help pupils feel more comfortable giving their answers because, during EISCr1, a few pupils displayed behaviours, such as trying to hide their responses whilst the experimenter was recording them, which indicated they were worried about the experimenter judging their response.

In order to ensure the response format was still accessible to all participants, an initial practice was added to ensure participants could tick a box (Figure 21). In marking, any clear indication of answer selection was accepted.

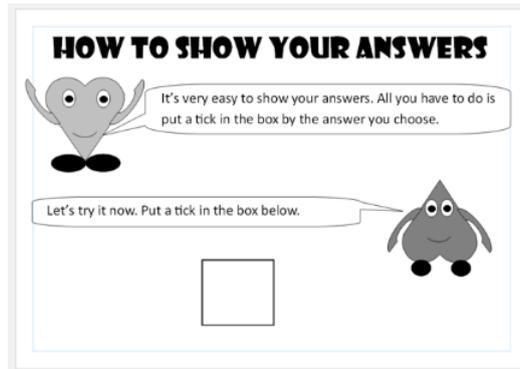


Figure 21: Screenshot of page added to response book to check participants understood how to respond.

A Publisher file was created to provide a template for the answer booklets. The background design was kept plain to save ink, but pictures were retained to match the display presentation. Booklets were created using a photocopier to reduce the printed document to a black and white A5 booklet. Figure 22 shows the cover and a sample page from each subtest in the booklet.

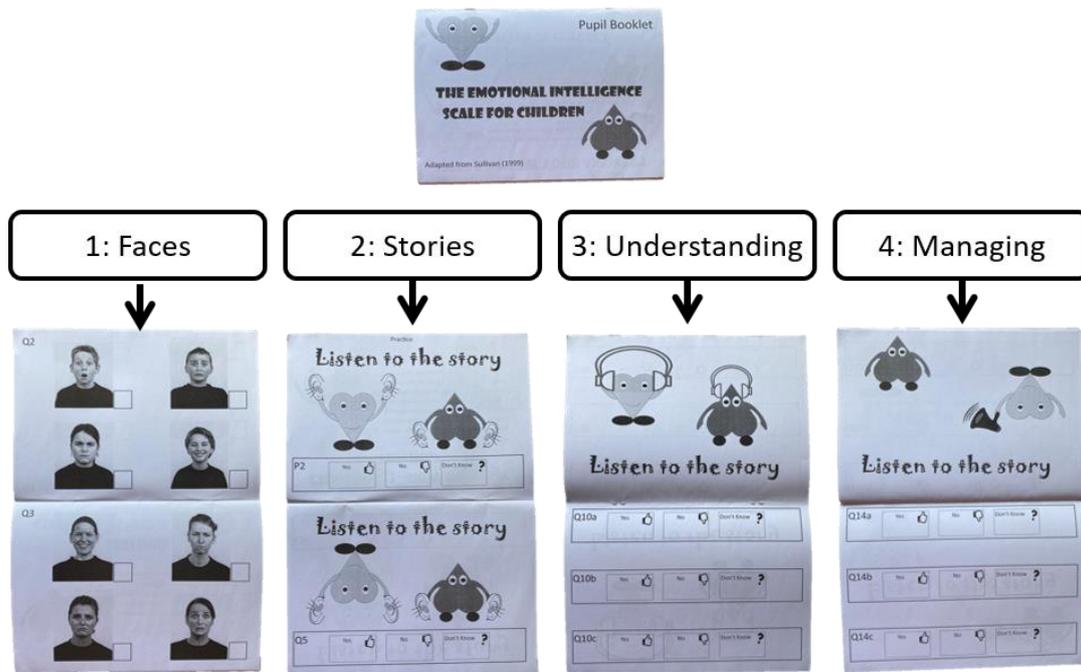


Figure 22: Photographs of example pages from the participant response book.

Finally, a new mark scheme was created for marking the booklets. This can be found in Appendix G .

6.3 Pilot

A sample of 51 Year 4 children from an English Junior School piloted the new measure. The pilot testing focussed on the upper end of the age range as the primary concern was that EISCr2 has a sufficient level of difficulty to differentiate amongst those expected to perform the highest.

As expected, all pilot participants were able to complete the measure. Verbal feedback highlighted no difficulties with question instructions or task requirements, however participants reported that

they found questions 11a, 12b, practise 4a, practice 4b, 13a, and 14a hard to follow. Inspection of the creation script revealed punctuation had not been placed in-between the question number and the question for these questions whereas it had for the other ones, therefore this was added in to make a clearer separation of question and number. Additionally, question marks were removed from the end of the questions when entering the text for speech conversion, because having a question mark on the end made an upward tone inflection be inserted towards the end, which made the final word harder to discern. The revised audios were re-presented to a sub-set of 20 children from the pilot sample, who reported they were now easier to follow.

Results from the pilot sample (Table 13) revealed no problems with ceiling level performance, with the mean percentage score from EISCr2 being 86.27 %. Although performance on the faces subtest remained high, it was lower than the mean score for Year 4 pupils on EISCr1 (see Table 13) and emotional development literature suggests that most Year 4 pupils should be accurate in identifying happy, sad, angry and scared facial expressions (e.g. Widen, 2013). Therefore the measure was deemed appropriate for use for children living in England.

Table 13: Comparison of Percentage Scores for Year 4 pupils on EISCr1 and EISCr2 Pilot

Score	Mean (SD)	95% CI	
		LL	UL
EISCr1^a			
Faces	98.18 (05.84)	96.11	100.25
Stories	82.32 (16.64)	76.42	88.22
Understanding	79.04 (17.07)	72.99	85.09
Managing	82.58 (20.67)	75.18	89.98
Total	86.38 (11.71)	81.23	89.53
EISCr2^b			
Faces	95.10 (14.16)	91.12	99.08
Stories	89.41 (17.60)	84.46	94.36
Understanding	86.71 (10.19)	83.14	89.58
Managing	81.70 (20.00)	76.07	87.32
Total	86.27 (11.69)	82.99	89.56

^aN = 33. ^bN = 51

7 Emil Programme Development Part 1: Review of Exemplar Programmes

As explained in Chapter 1.3, Phase 2 of this project focussed on the development and evaluation of a unique Wave 2 Ability Emotional Intelligence (AEI) support programme. The AEI model was chosen as the programme base due to the greater chance of AEI being fostered by direct teaching (e.g. Qualter et al., 2007). The first stage in developing this programme was an in-depth examination of some exemplar SEL programmes, which largely target emotional knowledge. This examination focussed on AEI content taught and how skills were developed within the programmes. The aim of the review was to identify age-appropriate approaches to effectively developing children's EI.

Initially, efforts were made to source those programmes identified in the literature review as covering most aspects of EI: namely PATHS and RULER. In addition, the SEAL and ELSA programmes were also sourced as these were specifically designed for UK children so are likely to utilise culturally appropriate activities. It was not possible to view the materials for the RULER programme because they are only available to schools who have undergone RULER training, however the approach is described in some depth in two papers (Brackett et al., 2012; Nathanson et al., 2016), and in the books "Emotional Literacy in the Middle School" (Maurer & Brackett, 2004) and "Creating Emotionally Literate Classrooms" (Brackett & Kremenitzer, 2011). The PATHS and ELSA materials also require attendance at a training to receive them, however, as a trained ELSA the researcher has a copy of the ELSA materials and the PATHS UK website provides a good overview of the PATHS programme which the researcher was able to supplement through meeting with a PATHS school co-ordinator who also allowed her to view the introductory manual. Although the SEAL curriculum has now been archived, it is still available to view via the national archives website (<https://webarchive.nationalarchives.gov.uk/20110812101121/http://nsonline.org.uk/node/87009>).

In addition to the above programmes, the DESTY programme for social and emotional wellbeing (educationdesty.com) has recently become available following a pilot study in the UK. Additional searches were conducted on amazon.co.uk and known educational resources websites (TTS, Winslow resources, Hope Education) using the terms "emotional intelligence programme" and "emotional literacy programme" to identify programmes which have been published in the UK but not necessarily empirically evaluated. A further three programmes were identified and purchased for review. Consequently, the final review sample consisted of eight programmes: PATHS, RULER, SEAL, ELSA, DESTY, "First Steps to Emotional Literacy", "Dealing with Feeling", and "The Heart Masters". Figure 23 illustrates where each of these programmes sit within the waves of intervention model.

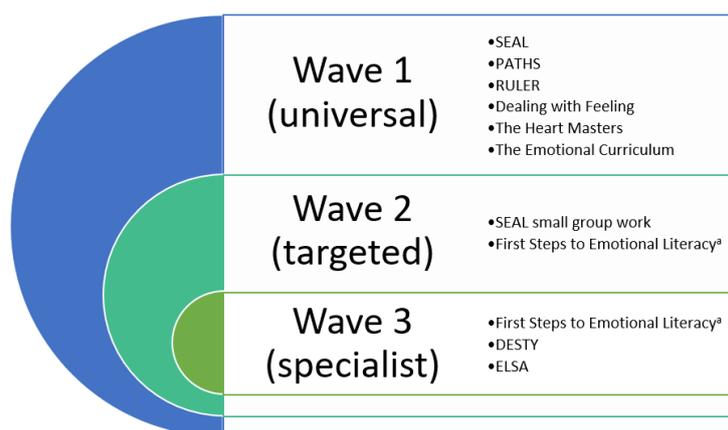


Figure 23: Illustration of placement of reviewed programmes within the waves of intervention model.

^a Note the First Steps to Emotional Literacy Programme is primarily a Wave 3 programme (see description in section 7.1.7).

7.1 Description and Review of the Individual Programmes

In the sections below, each programme identified above, is briefly described. Findings regarding the programme coverage, effectiveness and types of activities within each programme, are discussed.

7.1.1 Social and Emotional Aspects of Learning: primary curriculum (SEAL).

SEAL was developed by the Department for Education and Skills and was designed to “provide schools and settings with an explicit, structured whole-curriculum framework for developing all children’s social, emotional and behavioural skills” (Department for Education and Skills, 2005c, p. 5). The primary curriculum runs from foundation stage through to School Year 6, with materials organised into four sets: red set for foundation, blue set Years 1 and 2, yellow set Years 3 and 4 and green set covers Years 5 and 6. The programme is designed to cover self-awareness, managing feelings, motivation, empathy and social skills. Elements of the Mayer et al. (2016a) AEI model are contained within the self-awareness, managing feelings and empathy skills areas (see Figure 24); notably the only branch which appeared to be fully covered is the final branch, managing emotions, which is considered to be the most developmentally advanced (Mayer & Salovey, 1997). The programme is taught in seven themes which are revisited cyclically each year: “New beginnings”, “Getting on and falling out”, “Say no to bullying”, “Going for goals!”, “Good to be me”, “Relationships” and “Changes” (Department for Education and Skills, 2005c, p. 19). All themes cover at least one of the skill areas relevant to the AEI model. The SEAL guidance states “sessions have deliberately been presented as a series of flexible, related learning opportunities, to allow for a variety of learning and teaching styles” (Department for Education and Skills, 2005c, p. 28); consequently each teaching session is provided with ideas for circle time, pairs, small group and individual activities. According to the guidance document, many of the activities are designed to be exploratory and open-ended, due to the subjective nature of SEL. Additionally, they encompass a range of verbal, visual and kinaesthetic approaches to allow for different learning styles. For example

the Year 3 suggestions for teaching surprised include a round game of “I was surprised when...”, discussion of a photo card depicting surprised using a “feelings detective” poster for structure, and group-work task to finish a surprise story using a picture, writing or role-play (Department for Education and Skills, 2005a).

In addition to the curriculum for the whole school, which was delivered by teachers in a whole class setting, SEAL also included materials for small group work (Department for Education and Skills, 2005c). This was positioned at Wave 2 of the waves of intervention model and therefore was intended for children who need additional help in developing their SEL skills (Department for Education and Skills, 2005b). Groups were composed of a mixture of children identified as needing extra support and role models who were competent in at least one of the skills. Like the main SEAL curriculum, it is not a prescriptive programme, but instead gives a suggested session structure (see Figure 25) and menus of activities that may be used within each part of the structure. For example, the core activities for the key stage one new beginnings programme featured ideas such as making a group “about me tree” and paired discussions on how character values are demonstrated (Department for Education and Skills, 2005b). Each session was expected to last a minimum of 40 mins (Department for Education and Skills, 2005b). The key stage one group work materials covered all themes except “Say no to bullying”, whilst the key stage 2 materials covered four of the seven themes: “New beginnings”, “Getting on and falling out”, “Going for goals” and “Good to be me” (Department for Education and Skills, 2006). Although not explicitly stated, it appears each theme was expected to be covered in six sessions, since the booklet contains a planning pro-forma with spaces for six sessions (Department for Education and Skills, 2005b, pp. 13-15).

Humphrey et al. (2010) evaluated the effectiveness of the KS2 New Beginnings small group intervention and found evidence for a positive impact from the child’s point of view only. Although teacher and parent ratings did indicate an improvement in SEL skills between the beginning and end of the intervention period, this improvement was universal across target and control groups. Furthermore, they found a small decline in the children’s own ratings at a seven week follow-up, which, although non-significant, meant there was also no significant difference in scores between the pretest and seven week follow up; suggesting the programme did not have a sustainable impact. A further area for concern within Humphrey et al. (2010)’s findings is that the role-models within the groups reported no change in their self-perceived SEL skills; meaning that the time spent completing the programme had no observable benefit for these children. It appears therefore, the SEAL activities may have limited effectiveness in raising EI.

Perceiving emotion
<ul style="list-style-type: none"> ✓ Identify own emotions through physical states, feelings and thoughts <ul style="list-style-type: none"> • "I can identify, recognise and express a range of feelings" (SA) • "I know that feelings, thoughts and behaviour are linked" (SA) ✓ Recognise emotions in other people using vocal cues, facial expression, language & behaviour <ul style="list-style-type: none"> • "I can recognise the feelings of others." (E) ✗ Perceive emotional content within environment, art and music ✗ Accurately Express emotions when desired ✓ Understand how emotions are shown within culture and context <ul style="list-style-type: none"> • "I know that all people have feelings but understand that they might experience and show their feelings in different ways or in different circumstances" (E) ✗ Discriminate between accurate and inaccurate expressions of emotions ✗ Recognise deceptive/dishonest emotional expressions
Facilitating thought using emotion
<ul style="list-style-type: none"> ✗ Generate emotions to assist judgment and memory ✓ Generate emotions to help relate to other people's experiences <ul style="list-style-type: none"> • "I can understand another person's point of view and understand how they might be feeling." (E) ✗ Prioritise thinking through direction of attention according to current feeling ✗ Initiate mood swings to facilitate different cognitive perspectives ✗ Select problems according to how present emotion may assist thinking
Understanding emotions
<ul style="list-style-type: none"> ✗ Label emotions and appreciate relations between them ✓ Identify antecedents, meanings and consequences of emotions <ul style="list-style-type: none"> • "I know that feelings, thoughts and behaviour are linked" (SA) ✓ Appraise situations which are likely to generate emotions <ul style="list-style-type: none"> • "I understand that changing the way I think about people and events changes the way I feel about them." (MF) ✗ Discriminate between moods and emotions ✗ Understand mixed and complex emotions ✗ Identify likely transitions between emotions ✗ Evaluate how a person might feel under certain conditions in the future (affective forecasting) ✗ Recognise cultural differences in emotion evaluations
Facilitating thought using emotion
<ul style="list-style-type: none"> ✓ Stay open to all feelings and their associated information <ul style="list-style-type: none"> • "I know that it is OK to have any feeling, but not OK to behave in any I feel like" (SA) ✓ Engage with helpful emotions; disengage from unhelpful emotions <ul style="list-style-type: none"> • "I can calm myself down when I choose to." (MF) • "I have a range of strategies for managing my worries and other uncomfortable feelings." (MF) • "I have a range of strategies for managing my anger." (MF) ✓ Assess reasonableness of emotional reactions <ul style="list-style-type: none"> • "I can recognise when I am becoming overwhelmed by my feelings" (SA) ✓ Appraise strategies for maintain, enhancing or diminishing and emotional response <ul style="list-style-type: none"> • "I can stop and think before acting" (MF) • "I understand that changing the way I think about people and events changes the way I feel about them." (MF) • "I know that I can seek support from other people when I feel angry, worried or sad." (MF) • "I know what makes me feel good and know how to enhance these comfortable feelings." (MF) ✓ Manage own emotions effectively to achieve intended outcome <ul style="list-style-type: none"> • "I can express a range of feelings in ways that do not hurt myself or other people" (MF) • "I can adapt the way I express my feelings to suit particular situations or people." (MF) • "I can change the way I feel by reflecting on my experiences and reviewing the way I think about them." (MF) ✓ Manage others' emotions to affect wanted outcome <ul style="list-style-type: none"> • "I understand that the way I express my feelings can change the way other people feel." (MF) • "I know that my actions affect other people and can make them feel better or worse." (E)
<p>✓ = covered ✗ = not covered, SEAL Skill Areas: SA = Self-Awareness, MF = Managing Feelings, E = Empathy</p>

Figure 24: Coverage of the AEI model by the SEAL curriculum.

AEI skills taken from Mayer et al. (2016a, p. 294), and SEAL 'I can..' statements quoted from Department for Education and Skills (2005c, pp. 40-42)

1. Welcome & Check-In	<ul style="list-style-type: none"> • Each child says or shows how they are feeling • Children say if they have any issues or concerns
2. Warm-up activities	<ul style="list-style-type: none"> • Intended to increase group cohesion and practice group-work skills • Mostly game-based activities
3. Reminder of group aims & rules	<ul style="list-style-type: none"> • Developed in first session • Development of skills to enact rules is considered core part of sessions
4. Review of previous week	<ul style="list-style-type: none"> • Discuss developments during week • Reflect on how applied learning from previous sessions
5. Plan for today	<ul style="list-style-type: none"> • Includes 'I can' statements for session • Group may decide group aims for session alongside intended learning outcomes
6. Core Activity	<ul style="list-style-type: none"> • Relates to theme being addressed & addresses 'I can' statements for session • Variety of activity types used e.g. rounds, structured group work & enquiry
7. Review & Reflection	<ul style="list-style-type: none"> • Children given time to review what achieved against aims for session & consider how can apply during week • Suggest use of scaling activities to achieve
8. Plans for coming week	<ul style="list-style-type: none"> • Children given task to attempt during week
9. Relaxation	<ul style="list-style-type: none"> • Children given task to attempt during week

Figure 25: Structure of SEAL group work session.

Figure created using information from Department for Education and Skills (2005b, pp. 8-11).

7.1.2 Promoting Alternative Thinking Strategies (PATHS).

Originally created for deaf children, but then expanded to be a universal programme for all elementary school children, PATHS is designed to enhance social and emotional competence and understanding in children (Kusche & Greenberg, 1994b). It is founded on the affective-behavioural-cognitive-dynamic (ABCD) model of development; incorporates emotional, behavioural, and thinking skills with the dynamic element referring to the ongoing integration of these to produce healthy self-esteem and personality development (Kusche & Greenberg, 1994b, pp. 6-8). Consequently, its coverage is broader than that of AEI, with the authors identifying five key conceptual domains: self-control, emotional understanding, building self-esteem, relationships and interpersonal problem-solving skills (Kusche & Greenberg, 1994b, p. 15). Nevertheless, it does comprehensively incorporate AEI skills into the curriculum having historically been recognised as the only SEL programme to cover all aspects of the Mayer and Salovey (1997) model (e.g. Goetz et al., 2005; Matthews, Zeidner, et al., 2004). The programme is divided into three sequential units: readiness and self-control, feelings and relationships, and interpersonal cognitive problem-solving, with the majority of EI related content appearing in the feelings and relationships unit (Matthews, Zeidner, et al., 2004).

In contrast to SEAL, the PATHS lessons are very prescriptive, each one having a pre-determined set of activities and a suggested script for delivery (Humphrey, 2013). The feelings and relationships unit comprises 56 lessons and introduces 40 to 50 different affective states. According to Kusche and Greenberg (1994b), the main focus of the unit is on labelling emotional states, because this is central to the ABCD model's approach to facilitating self-control. Instruction on identifying cues for self- and other- feeling identification, self-monitoring, attributional causes of emotions, empathy, and the effect of self and other's behaviour, is also included. This content appears to mostly be covered within a series of basic feeling lessons, each of which focusses on a specific emotion state and follows the set format illustrated in Figure 26. The lessons are organised in a developmental hierarchy with basic emotions being introduced first followed by a gradual introduction of complex emotions (Kusche & Greenberg, 1994b). The unit concludes with advanced lessons which introduce concepts such as experiencing different emotions simultaneously, distinguishing between affective states and actions, privacy of emotions, and hiding or changing one's feelings (Kusche & Greenberg, 1994b).

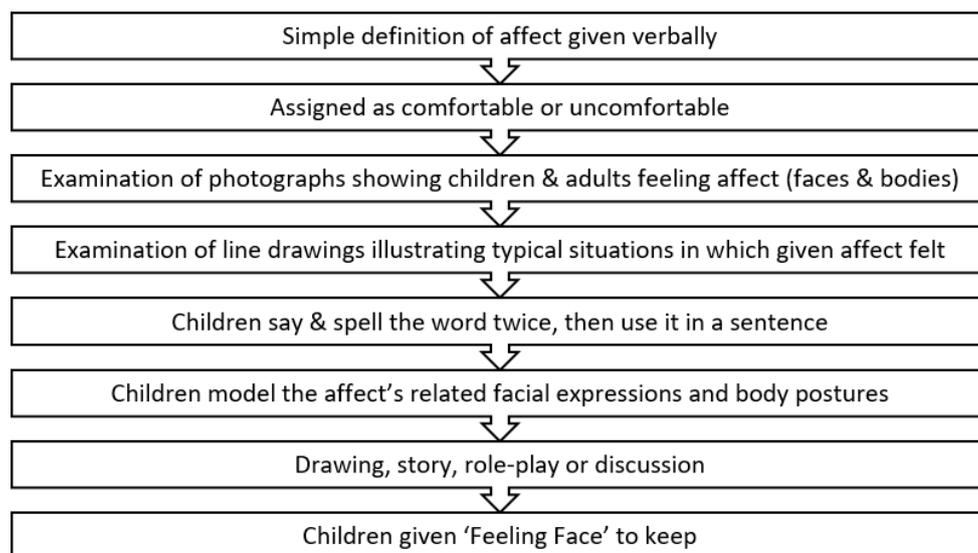


Figure 26: Flow chart of format for PATHS basic feelings lessons.
Created from description given in Kusche and Greenberg (1994b, p. 20).

PATHS has been extensively empirically evaluated, however, despite receiving numerous accreditations including as a Collaborative for Academic, Social and Emotional Learning (CASEL) SElect programme (see Chapter 3.5.1), results of these evaluations in terms of the impact of PATHS on SEL skills have been mixed (Humphrey et al., 2016). Encouragingly, early evaluations, by the programme authors in the USA, indicated participation led to improvements in social and emotional understanding for both mainstream and special education pupils (Greenberg et al., 1995; Kusche & Greenberg, 1994b). Early evaluations in U.K schools were equally positive (Curtis & Norgate, 2007;

Kelly et al., 2004). On the other hand, more recent international evaluations have found no evidence of impact on participants SEL skills (Goossens et al., 2012; Malti et al., 2011) and a recent U.K. evaluation by Humphrey et al. (2016) found that, although PATHS did have positive impact on participants SEL outcomes, this was smaller than that found for schools' usual provision; suggesting it may have limited impact in raising SEL skills.

7.1.3 RULER feeling words curriculum.

As identified in the literature review, RULER is the only SEL programme available to primary schools known to be explicitly informed by the Mayer and Salovey (1997) AEI model (Perez-Gonzalez & Qualter, 2018). The programme is a universal SEL programme, and is specifically designed to be infused throughout the learning environment and integrate with the academic curriculum (Brackett & Rivers, 2014). Therefore, the authors describe it as a synergistic approach to education; incorporating the learner, learning process and the learning environment (Brackett et al., 2012). In order to develop the learning environment, RULER aims to develop the adults EI skills alongside those of the students (Nathanson et al., 2016). Maurer and Brackett (2004) originally identified a wide ranging list of 18 different programme goals; this was summarised more succinctly by Nathanson et al. (2016) who identified two proximal outcomes of improved emotional climate and improved emotional intelligence, along with a further five distal improvement outcomes: attention, memory and learning; health and wellbeing; relationships; decision making, and performance. The acronym RULER stands for the five key skills the programme is designed to develop: Recognising emotions in self and others, Understanding causes and consequences of emotions, Labelling emotions accurately, Expressing emotions in a constructive way, and Regulating emotions.

The programme has two main components. A set of four *anchor tools*, described in Table 14, are introduced first, and are intended to create an optimal learning environment and promote the use of EI skills in everyday school and classroom routines (Brackett & Rivers, 2014). These are followed by the *feelings word curriculum* which teaches EI skills and emotional vocabulary (Nathanson et al., 2016).

The feelings words curriculum is expected to be introduced in the second year of the programme (Nathanson et al., 2016) and explicitly teaches emotions vocabulary by focussing on introducing one word at time and exploring it in many different ways so that "words become whole concepts" (Maurer & Brackett, 2004, p. 3). Each word is introduced through the six step process illustrated in Figure 27 (Brackett et al., 2012).

Table 14: Details of the Anchor Tools from the RULER Programme

Anchor Tool	Brief Description	Purpose
Charter	A collaboratively agreed class (or learning community) 'mission statement'. It sets out how all members want to feel and be treated.	To foster a supportive and productive learning environment.
Mood Meter	A four-quadrant grid, on which emotions are represented as combination of feelings and energy.	To develop self-awareness of emotions.
Meta-Moment	A three-step process: take a deep breathe, imagine 'best-self', then respond as 'best-self' would.	To enable the person to become less quickly reactive to emotional triggers.
Blueprint	A set of five questions which encourage reflection and modification of maladaptive behaviour.	To facilitate interpersonal problem-solving and conflict-resolution, and plan for future events.

Note: Information given in table assimilated from Brackett and Rivers (2014), Brackett, Rivers, Maurer, Elbertson, and Kremenitzer (2011), and Nathanson et al. (2016).

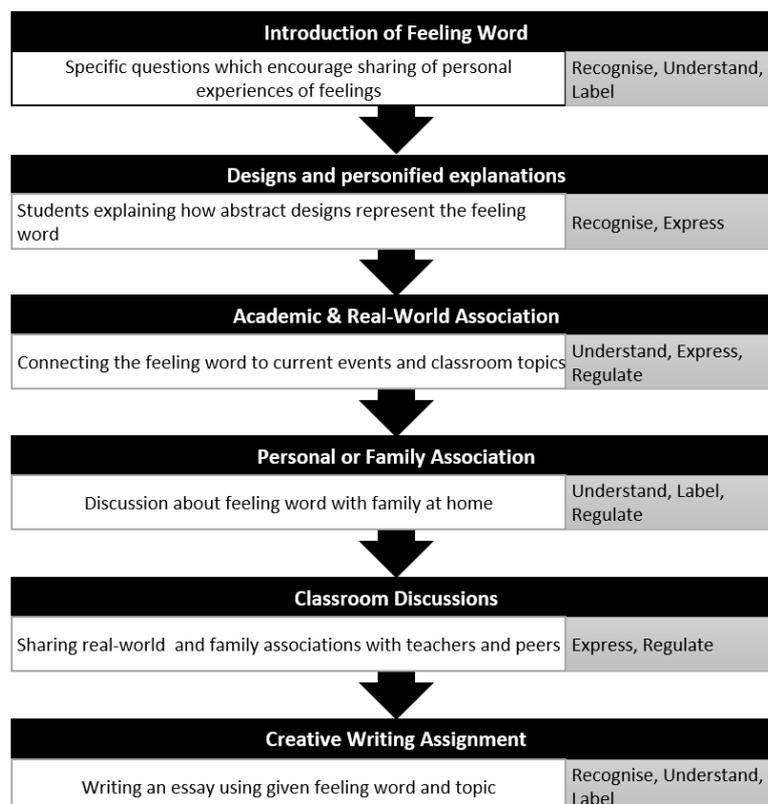


Figure 27: Flow Chart of RULER six step process.

Grey boxes indicate RULER skills covered by each step. Chart created using information from Brackett, Maurer, et al. (2011) and Brackett et al. (2012).

Surprisingly, there appears to have been little research investigating the impact of RULER on students' EI knowledge with even the RULER website only listing evidence of its successful impact for positive shifts in school climate, enhanced academic performance, better quality relationships and less bullying and aggressive behaviour (Yale University, 2019). Indeed, the largest number of studies seem to have focussed on the change in classroom atmosphere as a result of RULER (Hagelskamp et al., 2013; Rivers et al., 2013). However, Brackett et al. (2012) claim to have evidenced a positive impact on students SEL skills although this was confined to adaptability and school problems and was inferred from teacher ratings of behaviours rather than being directly assessed. Reyes, Brackett, Rivers, Elbertson, and Salovey (2012) did directly measure emotional literacy using the strategic EI component of the MSCEIT:YV, but they were specifically measuring the impact of training dosage and implementation quality so only concluded that high or medium quality implementers had higher numbers of high EI children when the training dosage was high. Although this suggests that RULER, when delivered in a high quality manner, likely has a positive impact on EI, it is not conclusive evidence given the lack of a control group. In fact, the only study found to have directly measured the impact of RULER on EI or SEL skills is an evaluation by Castillo-Gualda, García, Pena, Galán, and Brackett (2017) who found an increase in MSCEIT perception, understanding and regulation scores for teachers after attending RULER training. A further note of caution with regards to the empirical evidence for RULER is that, so far, all evaluations appear to have been authored by at least one member of the programme team; according to Humphrey (2013) this can produce inflated impact results. Consequently, its impact cannot fully be assessed until independent evaluations take place. Nevertheless, RULER is recognised by CASEL as a SElect programme indicating they believe it to be an effective SEL programme.

7.1.4 Dealing with Feeling (DwF)

Dealing with Feeling (DwF; Rae, 2007) is a universal preventative programme for children aged seven to 13 years old, which targets the development of feelings and emotions skills. According to Rae (2007, p. 1), although she originally developed the programme based on her observation that most children experience difficulties with managing their emotions at some point, she was motivated to further develop the programme using the research around emotional literacy. Therefore, the development of children's emotional literacy is the central aim of the programme. Rae (2007, p. 5) specifically lists six core objectives for the programme, of which five appear to relevant to one or more AEI branch (see Table 15).

Table 15: Dealing with Feeling Objectives and Likely Associated AEI Areas

Dealing with Feeling Objective	Likely related AEI Area(s)
Develop pupils ability to identify and understand regularly experienced feelings	Perceiving emotion <ul style="list-style-type: none"> — Perceive own emotions — Perceive others' emotions
	Understanding emotions <ul style="list-style-type: none"> — Label emotions & identify relations between them — Identify emotions' antecedents, meanings & consequences
Develop pupils' emotional vocabulary	Understanding emotions <ul style="list-style-type: none"> — Identify emotions' antecedents, meanings & consequences — Discriminate between moods & emotions
Increase pupils' empathy for others and awareness of impact of personal feelings and behaviours on others	Facilitating thought using emotion <ul style="list-style-type: none"> — Generate emotions to relate to others
	Understanding emotions <ul style="list-style-type: none"> — Appraise likely emotional situations
Enable pupils to develop a range of self-control strategies and encourage them to express difficult emotions appropriately	Perceiving emotion <ul style="list-style-type: none"> — Accurately express emotions — Understand how emotions are shown within culture and context
	Managing emotions <ul style="list-style-type: none"> — Engage with helpful emotions; disengage from unhelpful emotions — Assess reasonableness of emotional reactions — Appraise strategies for maintain, enhancing or diminishing and emotional response — Manage own emotions effectively to achieve intended outcome
Encourage pupils' to increase reflection and deepen understanding of consequences	Understanding emotions <ul style="list-style-type: none"> — Identify emotions' antecedents, meanings & consequences
	Managing emotions <ul style="list-style-type: none"> — Stay open to all feelings and their associated information — Assess reasonableness of emotional reactions
Improve pupils' self-concept and self-esteem	None

Note: Dealing with feeling objectives retrieved from Rae (2007, p. 5), and AEI areas from Mayer et al. (2016a, p. 294).

The programme consists of 40 lessons of approximately one hour's duration, each of which focusses on one specific emotion. The lessons are developmentally sequenced in that they begin with the "main" emotions and then introduce more sophisticated ones (Rae, 2007, p. 9). Each of the lessons

is structured in a similar manner and includes a variety of group discussion, stories, role-play, and self-reflection activities (Figure 28). Although the programme was informed by the EI and emotional competence research base, it does not specifically align to any EI model. DwF has not been empirically evaluated; consequently the effectiveness of the activities has not been investigated.

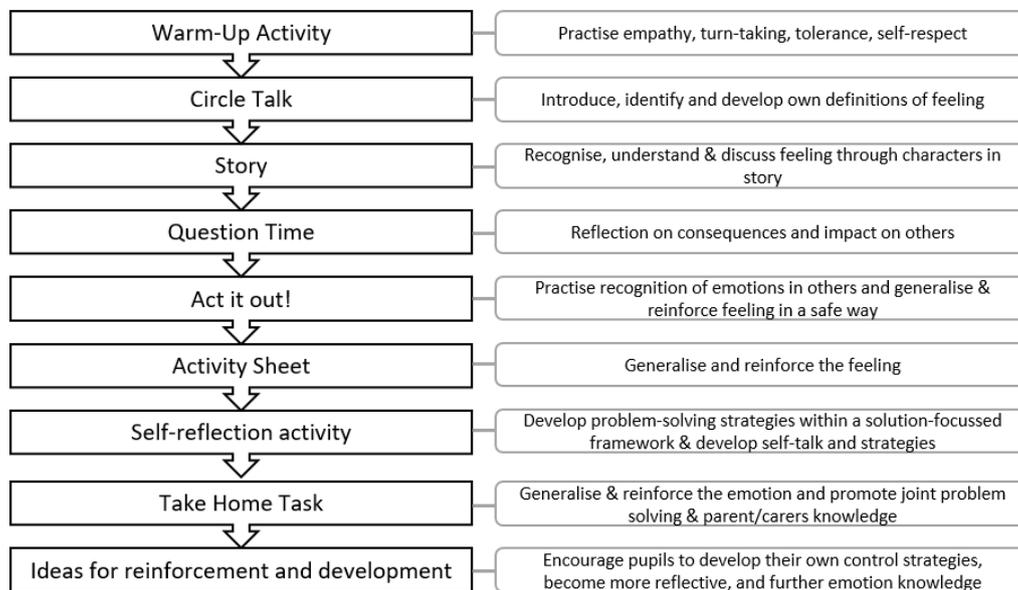


Figure 28: Standard structure of a dealing with feeling lesson, with emotion-related objectives for each activity. Information for image retrieved from Rae (2007, p. 8).

7.1.5 The Heart Masters (THM).

Designed to promote both EI and resilience, the Heart Masters (THM) is contained in three books: blue for children aged five to eight, red for ages nine to eleven, and green for 12- to 14-year-olds. This review is based on the blue programme (Johnston, Guthrie, Fuller, & Bellhouse, 2003), which has 4 key aims and draws on five key learning areas as shown in Figure 29.

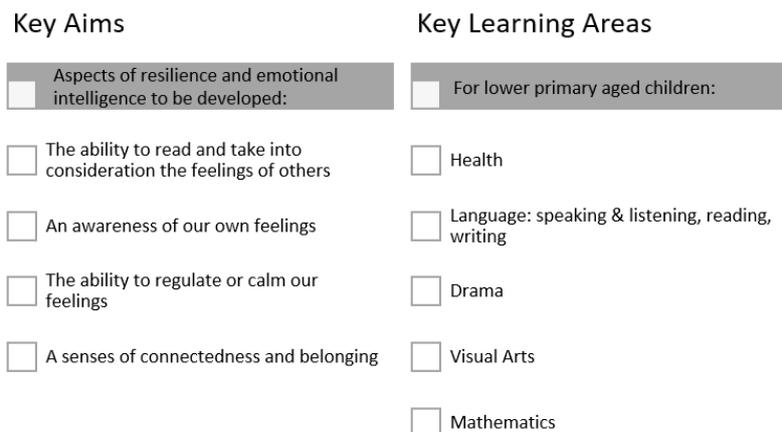


Figure 29: Key aims and learning areas for "The Heart Masters" blue book. Quoted from Johnston et al. (2003, p. 4).

The programme consists of 20 whole-class lessons that are organised into eight themes: “1 - Welcome”, “2 - Rules Rules Rules”, “3 - I’m special, You’re special”, “4 - Learning about Feelings”, “5 - Cool, Calm and In Control”, “6 - Mistakes and Muck-ups”, “7 - Bunji” and “8 – Party Time!” (Johnston et al., 2003). Themes four to seven cover content relevant to AEI. Like RULER, THM has a lot of language focussed activities, and therefore, Johnston et al. (2003) recommended that many of the activities are delivered during usual literacy lessons. Nevertheless, the programme also uses a large variety of activities including a lot of class discussions, role-playing scenarios, decorating feeling masks and active games. Table 16 shows the types of activities used within the AEI-relevant themes.

Table 16: Types of Activity Used in Themes Four to Seven of "The Heart Masters"

Activity	Theme			
	4	5	6	7
Circle-Time/ Brainstorm	✓	✓	✓	✓
Examination of Photos	✓			
Practicing Expressions	✓	✓		
Written Activity	✓	✓	✓	✓
Role-Play	✓	✓	✓	
Art & Crafts	✓			✓
Games		✓		✓
Guided Imagery		✓		
Story			✓	

Johnston et al. (2003) further recommended that THM is taught in the first term of the school year, because many of the activities target supporting students to settle into the class. Assuming it is delivered using the literacy lessons as intended, Johnston et al. (2003) asserted THM takes five to eight weeks to complete. As with DwF, THM is not founded on a specific model of EI although it cites the improvement of EI as one of its central themes. Similarly, it has not been empirically evaluated.

7.1.6 The Emotional Curriculum (EC).

The Emotional Curriculum (EC) (Cornwell & Bundy, 2009) is a framework describing the expected progression of children’s emotional development during the primary school years. Cornwell and Bundy (2009) asserted they created the curriculum from a broad research base. In particular they referenced Elias et al. (1997)’s definition of emotional competence, also both Goleman (1996)’s and (Mayer & Salovey, 1997)’s EI definitions. EC is divided into four strands, which are revisited each year with increasing complexity: Recognising and understanding emotions in self, recognising and understanding emotions in others, management and regulation of emotions, and relationships (Cornwell & Bundy, 2009). Cornwell and Bundy (2009, p. 6) further identified five primary objectives for EC:

- To develop and extend emotional vocabulary;
- To enable pupils to recognise and understand their own emotions;
- To enable pupils to recognise and understand the emotions of others;
- To encourage pupils to express their emotions in acceptable ways through the development of a range of self-control strategies;
- To develop the social skills required to establish, develop and maintain reciprocal relationships and friendships.

In addition to the primary objectives, EC gives specific objectives for each strand in each year group along with suggested activities to meet them. There are a variety of activities including circle time discussions, games and written activities. Figure 30 briefly lists the suggested activities for Year 3 in each of the strands. Although it targets EI competencies, the effectiveness of EC for improving EI has not been empirically evaluated.

Recognising & understanding emotions in self	Recognising & understanding emotions in others	Management & regulation of emotions	Relationships
<ul style="list-style-type: none"> • Exploring examples in Stories/DVDs/Cartoons • Circle time activities • Discussion of newspaper & magazine articles • Listening to & creating emotional music • Creating calligrams for emotion words • Creative writing (poems) • Feelings box/diary • Scenarios for discussion or role-play regarding usefulness of emotion • Discussion of pictures of emotional display • Miming game 	<ul style="list-style-type: none"> • Circle time activities • Paired observation and discussion • Writing stories involving characters emotion • Scenarios to decide whether to engage with others emotion – board game (snakes & ladders) or discussion cards • Class debate for and against attaching to others emotion 	<ul style="list-style-type: none"> • Creating class model of stages of emotion • Circle time activities to encourage self-reflection on stages • Developing scripts for managing certain emotions • Identifying triggers which can be avoided • Role-playing use of positive self-talk • Making bookmark of traffic light strategy • Guided practice of breathing techniques • Categorising emotional responses as positive or negative 	<ul style="list-style-type: none"> • Creating personal strengths & weaknesses profiles • Identifying others strengths • Group-work activities such as baking, creating a board game, re-creating a painting in smaller parts. • Reflection on success of group-work activities

Figure 30: Lists of suggested activities for each of the strands for Year 3 children in the Emotional Curriculum (Cornwell & Bundy, 2009).

Note: Accompanying specific objectives for the activities are not included in this figure.

7.1.7 First Steps to Emotional Literacy (FSEL).

According to the programme authors, First Steps to Emotional Literacy (FSEL) “was devised to replicate the early pre-school learning experiences which are, for many children, a part of everyday family life, in a form that could be included in the PHSE curriculum or as part of the literacy hour.” (Ripley & Simpson, 2007, p. 12). It focuses exclusively on the identification of emotions in oneself because the authors argue this element is often overlooked by traditional SEL programmes (Ripley &

Simpson, 2007). Unlike the above programmes, FSEL can be considered a targeted programme because it specifically targets children who may have missed some pre-school emotional learning experiences. Ripley and Simpson (2007) identify three groups of children who are likely to fall into this category: children in families who engage in little feelings-state talk at home, children in day nurseries, and children with social communication problems. However, they equally contend the programme is relevant for all foundation and early years children, as well as older children who struggle with language, or are diagnosed with Autism Spectrum Disorder (Ripley & Simpson, 2007, p. 9). FSEL is designed to be used flexibly on an individual, small-group, or whole-class basis (Ripley & Simpson, 2007), making it unique amongst the reviewed programmes. However, given the highly-targeted nature of part one, it appears to primarily be a Wave 3 programme (Figure 23). Children are selected for participation based on observed difficulties with early emotional literacy. An assessment story is included with the programme to check potential participant's emotion recognition, but this is only used following teacher observation of difficulties (Ripley & Simpson, 2007). The programme draws on the EI theories of Mayer and Salovey (1997) and Goleman (1996) alongside Gardner's theory of multiple intelligences, but focuses exclusively on emotional self-awareness (Ripley & Simpson, 2007).

FSEL is split into two stages: Part 1 involves both individual and group work which should be delivered daily for eight to ten weeks; Part 2 extends the knowledge built in Part 1 and can be delivered to small groups or the whole class (Ripley & Simpson, 2007). Daily delivery is encouraged for Part 2 but is not essential (Ripley & Simpson, 2007). Ripley and Simpson (2007) list specific aims for each element of FSEL as shown in Table 17.

The individual component of Part 1 is opportunity based, in that a trained adult engages in feelings-state conversation with the child when they see them give an emotional response to an event. At the end of each day, there is group plenary, where one of the emotions experienced during the day is discussed and explored. The group work sessions follow a set format illustrated in Figure 31. Part 2 continues to rely on class discussion but introduces a variety of activities such as word-webs, sorting tasks and choice boards to introduce the various elements.

Although the authors make reference to pilots of the programme (Ripley & Simpson, 2007, p. 5), they do not give any details regarding the outcomes of the pilot. Similarly, no published evaluations of the programme were found. As a result, the effectiveness of Ripley and Simpson (2007)'s unique approach is unknown.

Table 17: Aims for First Steps to Emotional Literacy Programme

Part 1			
Element	Individual feelings-state talk	Group work	Part 2
Aims	<ul style="list-style-type: none"> Learn to recognise own emotional states Use words to label core emotions experienced during day Identify triggers for feelings experienced 	<ul style="list-style-type: none"> Learn that others experience similar emotional states Understand that others' triggers may be the same or different to their own Provide opportunities to discuss past and future emotions Develop the ability to discuss feelings with adults and other children 	<ul style="list-style-type: none"> Extend the range of emotional states that children can recognise and label Identify own and others triggers for range of emotions Recognise that triggers for emotions may be the same for themselves as for others Further develop the ability to discuss feelings with adults and other children

Note: Aims extracted from Ripley and Simpson (2007, pp. 30, 41)

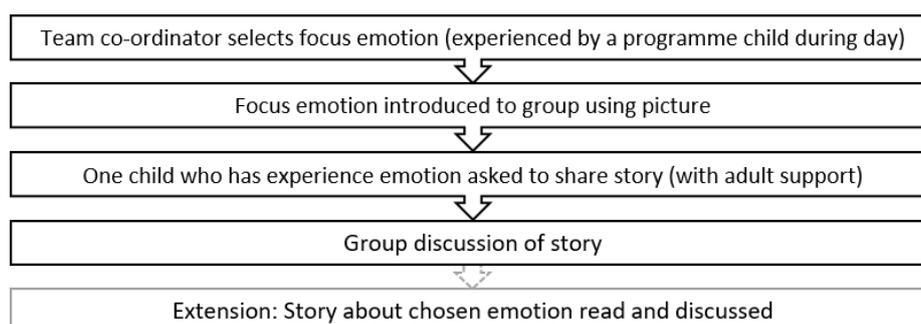


Figure 31: Flow chart showing format of FSEL Part 1 group work session.

Note that final step (grey outline) is an extension activity and not compulsory for every session. Information assimilated from Ripley and Simpson (2007, pp. 33-35).

7.1.8 Education Desty® (DESTY).

According to a promotional leaflet obtained in 2017 (see Appendix H), DESTY is “An Emotional Wellbeing Programme for Children in Care”. It originated in Ireland, and was created by Stephanie O’Malley. The theoretical framework for the programme is not explicated in any of the literature viewed. The leaflet lists Emotional Literacy amongst the targets for DESTY, but like many other SEL programmes it also targets other skills (see Figure 32). Like FSEL, it is a targeted programme, being specifically aimed at children with additional emotional needs. However, it targets an older range than FSEL (7- to 12-year-olds) and is exclusively a one to one programme. The programme can be administered by anyone who has trained as “Desty mentor”, which, according to the leaflet, can be a parent, foster carer, educator, or healthcare professional.



Figure 32: DESTY target areas as identified in the 2017 promotional leaflet.

The programme is based around an online learning platform featuring a fictional character “Desty” who is their “guide and friend” on Desty Island (Education Desty, 2017). The programme is divided into three modules: “About Me”, “My Feelings Tower” and “My Feelings Workshop” (O'Malley, 2016). According to O'Malley (2016), each lesson should take at least three sessions of 25 to 30 mins to complete. Although the programme is described as an online learning programme in the leaflet, as illustrated in the example feelings tower session outline in Figure 33, there is offline preparation, largely in the form of completing mind maps, for the student and mentor to complete before completing the online input (O'Malley, 2016). The majority of on-line work involves the student inputting their ideas, following modelling by Desty, using drawing, writing or pictures, however Desty also has some tools for the student including a guided mindfulness script and emotion management strategies (O'Malley, 2016). At the end of each module the student can choose to download and print their input as a book chapter. O'Malley acknowledged that “the success of this intervention programme relies heavily on the quality of the relationship between the child and their mentor” (p. 2). She further added that mentors may wish to complement the programme with other tools from their existing repertoire of resources (O'Malley, 2016, p. 5).

The leaflet asserts that the programme is evidence based and the website gives summary details of a 2015 pilot study including 20 students and ELSAs who had trained as Desty Mentors. Stephanie O'Malley also kindly provided a copy of the executive summary of this pilot. Positive feedback was received from both ELSAs and student participants regarding the usefulness of each of the modules, with modules two and three appearing most relevant to increasing AEI skills (Education Desty, 2016). Furthermore, improvements in Strength and Difficulties Questionnaire (SDQ) scores were reported for 80% of student participants (Education Desty, 2019), with an average improvement of more than

five points (Education Desty, 2016), however the pilot did not include a control comparison group. Further empirical evaluations have not yet been undertaken (S. O'Malley, personal communication, October 28, 2019).

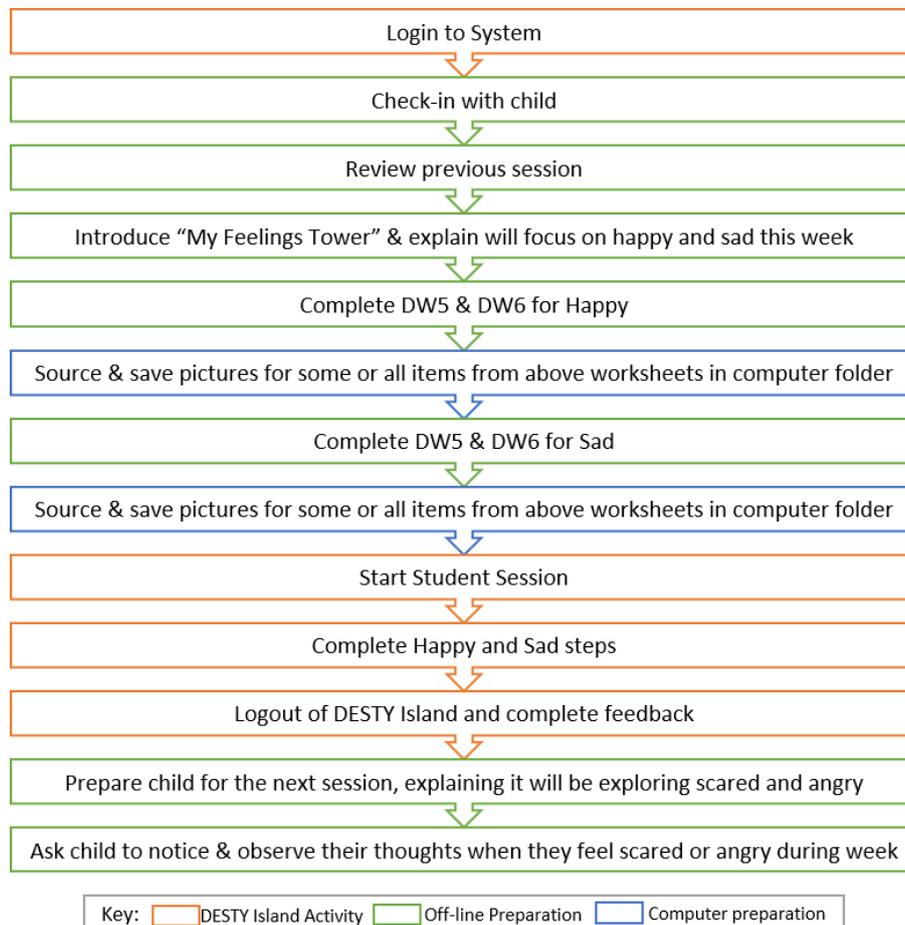


Figure 33: Flowchart for first session of "My Feelings Tower" from the Education Desty® programme. Adapted from O'Malley (2016, pp. 16-17)

7.1.9 Emotional Literacy Support Assistant (ELSA)

ELSA roles were first created in 2001 by Sheila Burton as peripatetic posts within the Southampton Psychology Service. These ELSAs visited city primary schools to work with children who were unable to maximise their educational opportunity due to their emotional needs (Shotton & Burton, 2008). The programme was then expanded to enable teaching assistants to take on the ELSA role; consequently the current ELSA model involves training selected assistants to "think beyond presenting behaviours to the needs those behaviours may be expressing" (Burton, 2018, p. 2) by providing an overview and elementary psychological understanding of requirements for children's healthy emotional development (Burton, 2018). ELSAs are trained in six key areas: emotional awareness, anger management, self-esteem, social and communication skills, friendship skills and

therapeutic stories (Shotton & Burton, 2008). Burton (2018) provides an expanded list of nine difficulty categories with which ELSAs can provide support:

- Self-esteem/ personal identity;
- Self-regulation;
- Anxiety;
- Identifying, understanding and discussing feelings;
- Resolving conflicts;
- Forming and sustaining relationships;
- Managing change;
- Motivation;
- Bereavement and other kinds of loss;

The ELSA training draws on a variety of theories to provide psychological foundations for ELSAs, including both Goleman (1996)'s and Mayer and Salovey (1997)'s EI theories, alongside Sharp's definition of emotional literacy, Maslow's self-actualisation concept, Bandura's self-concept and Gardener's multiple intelligences (Hampshire Educational Psychology Service, 2010/11). Like FSEL and DESTY, ELSA is a targeted Wave 3 programme designed to support children with emotional difficulties. Children are usually referred by school staff when they notice difficulties. It is primarily delivered one to one but can also involve small group work when appropriate (Burton, 2018). The ELSA project takes a different approach to the above programmes in that it does not provide a suggested curriculum, although Burton (2008) suggests starting with developing a pupil's emotional awareness as this is central to emotional literacy. Instead, ELSAs are expected to develop their own programmes following consultation with referring staff members to establish the aims for each particular child (Burton, 2018). Nevertheless, Burton (2018) emphasises that programmes should be preventative proactive approaches with clearly measurable and achievable aims. Each ELSA support programme should focus on one key area only and be time-limited. Although there is no set duration for ELSA support, it is typically expected to last half a term to one term (Burton, 2018). ELSAs are provided with a bank of possible activity ideas for each of the key areas during their training (see Figure 34) and are expected to develop their own activities to supplement these. Emphasis is placed on the use of experiential learning using "lively and interesting" resources rather than a reliance on worksheets because "the development of emotional literacy in children is facilitated rather than didactically taught" (Shotton & Burton, 2008, p. 13).

Emotional Awareness	Self-Esteem	Anger Management	Social Skills	Friendship Skills
<ul style="list-style-type: none"> • Facial Expression Snap • Make emotion masks • Moving to music in emotion relevant manner • Colouring facial expressions • I feel.. When.. Book • Read stories featuring emotions • Feelings diary • Photograph discussion • Expressing emotions through drawing • Emotional Literacy Traffic Lights • Feelings opposites game • Identifying where feel emotions in body • Feelings Vocabulary building e.g. word search 	<ul style="list-style-type: none"> • Identifying Strengths (strength cards) • Charting competencies • "About Me" book • Teaching positive messages • Self-Esteem group • Scaling to reach target • Identifying successes & achievements • Important people in my life • Linking thoughts & feelings 	<ul style="list-style-type: none"> • Explore a variety of calming strategies • "I messages" • Puppet Work: Explore typical animal behaviours & consequences or role-play • Anger-management group • Optical illusions • Firework Model 	<ul style="list-style-type: none"> • Social Stories • Secret instruction cards (listening skills) • Guessing communication from gesture • Scenario cards • Puppet Work • Turn-taking games • Listening & attention games 	<ul style="list-style-type: none"> • 'Circle of Friends' approach • Friendship groups • Characteristics of good & bad friends • Scenario cards

Figure 34: Examples of suggested activities for each of the key areas of ELSA work.

Assimilated from Shotton and Burton (2008) and Hampshire Educational Psychology Service (2010/11). Note that 'therapeutic stories' is not included as a category as these are a tool which can be used to support any of the other areas.

ELSA work has been subjected to a variety of reviews at a local authority level, with all indicating it has been positively received within schools. Interestingly, most reports seem to have used ELSA or teacher impressions rather than validated rating scales to evaluate outcomes and many of the evaluations did not explicitly investigate emotional skills (e.g. Burton, 2008). Of those that asked about impressions of impact on Emotional Literacy (EL) or emotional awareness, most reported positive outcomes. For example, Bravery and Harris (2009), Mann and Russell (2011), and Murray (2010) all reported that ELSA work is perceived to have a positive impact on emotional literacy skills by school staff. Similarly, in one of the few evaluations published in a journal, Wilding and Claridge (2016) found parents believed ELSA support had resulted in improved Emotional Literacy skills for their children. However, using more objective outcome data (SDQ scores), Burton et al. (2009) found a non-significant change in parent ratings for emotional problems, although the change in teacher ratings was significant. A later report, however, found no improvement in teacher SDQ ratings for emotional problems, finding only teacher ratings of emotional literacy showed significant increases (Burton, Osborne, & Norgate, 2010). Interestingly, the same report also found no evidence of change in children's ratings of their own emotional literacy. This finding was echoed by Mann and Russell (2011) who found significant improvements only in teacher ratings of EL, not parent or child. On the other hand, Hardman (2011) found improvements in teacher, parent and child ratings in both emotional health and wellbeing perceptions and SDQ data. These mixed findings are perhaps unsurprising given the wide variation in ELSA programmes' aims and activities.

7.2 Universal Success Criteria for Support Programmes

As detailed in the literature review, reviewers of SEL programme effectiveness have identified four areas of good practice: programmes should have developmentally sequenced activities, use active learning activities, provide focussed learning time, and have clear and specific objectives (e.g. Durlak et al., 2011). Durlak and colleagues summarise these using the acronym *SAFE*: Sequenced, Active, Focused and Explicit (Durlak et al., 2011; Payton et al., 2008). Some researchers have further specified specific guidelines for EI programmes (e.g. Goetz et al., 2005; Matthews, Zeidner, et al., 2004; Zeidner et al., 2002), most of which fall under one of the *SAFE* elements; thus Figure 35 illustrates how the *SAFE* elements should be operationalised within an EI programme.

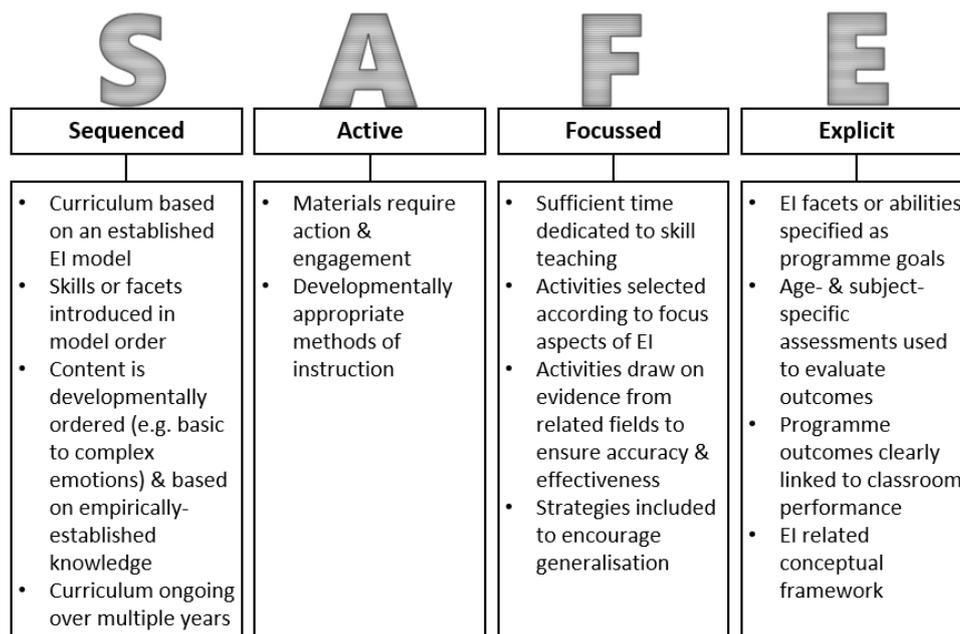


Figure 35: Assimilated recommendations for SAFE practises with specific reference to enhancement of EI. Information assimilated from Durlak et al. (2011), Goetz et al. (2005), Matthews, Zeidner, et al. (2004) and Zeidner et al. (2002).

In addition to the above recommendations, programme success is known to be affected by implementation quality (Clarke et al., 2015; Durlak et al., 2011; Payton et al., 2008). Durlak (2016) identified eight areas of implementation that affect programme success, as shown in Figure 36. Of these, at least three can partially be addressed during the programme design phase: Participant engagement can be planned for by producing attractive and engaging materials, programme differentiation can be ensured during the curriculum planning, and the chances of high quality delivery can be maximised through producing easy to use programme materials and quality session plans.

Fidelity	The extent to which the major programme components are included when it is administered
Dosage	The proportion of the programme utilised
Delivery Quality	The competence of the administrator in executing the programme
Adaptation	Whether changes are made to the programme when it is administered
Participant Engagement	The extent to which the programme successfully achieves participant participation
Differentiation	The programme is unique and discriminable from other programmes
Monitoring Control conditions	Checking whether the control condition shares any commonality with critical programme components
Programme Reach	The proportion of the target audience that took part in the programme

Figure 36: Areas of implementation identified by Durlak (2016) as affecting programme success.

Quality of delivery will clearly also be affected by the adult implementer's skill set (Durlak, 2016); several of the targeted programmes reviewed highlighted the importance of a good relationship between the adult facilitator and the child (e.g. DESTY, ELSA). Indeed, several of the ELSA reviews highlighted how the children had perceived this as one of the most important facilitators for them (e.g. Cripps, White, Wong, & Young, n.d.; O'Hare & Weidberg). Accordingly, most reviewers recommend that programmes are delivered by adequately trained staff (e.g. Elias et al., 1997; Matthews, Zeidner, et al., 2004). Goetz et al. (2005) and Zeidner et al. (2002) also suggested that programmes should include training packages for delivery staff, whilst Weare and Gray (2003) recommended providing detailed session plans for deliverers to follow.

7.3 Summary of Observations from the Review of Programme Literature

Although programmes were selected for review based on a reference to EI or EL, there was a large amount of diversity between the programmes. The following observations summarise the themes found in this review:

- Most programmes fall under either the first (universal) or third (specialist) wave of the waves of intervention model, leaving a gap at Wave 2 for a programme which helps children who are slightly behind to catch-up with their peers.
- Despite all programmes referencing the EI body of research, only RULER satisfies the criteria of aligning to a specific EI model, whilst the remaining programmes cover a diverse and nonspecific range of topics and themes.

- There are large variations in programme duration, with universal curriculums ranging from one term to the entire primary phase (seven years), whilst targeted programmes range from six weeks to two terms.
- Most universal programmes can be applied across the primary phase, but content taught is tailored to the age of participants. Targeted programmes either targeted a specific age group (e.g. FSEL), or relied on practitioners to develop their own curriculums and objectives (e.g. ELSA).
- Quality implementation is emphasised in several of the programmes (RULER, ELSA, DESTY) and a separate body of research literature (e.g. Durlak, 2016) highlights the importance of good programme implementation.
- The programmes use a wide variety of activities but nearly all centre on the stimulation of discussion.
- Active learning activities featured in all programmes and have been identified as crucial to programme success (e.g. Payton et al., 2008).
- Unlike in most other school subjects where screening tools are frequently used, selection of children for targeted programmes largely relies on teachers and other school staff noticing a problem behaviour.
- Although many of the above programmes report positive outcomes, much of this is measured through either teacher or parent perceptions of behaviour, which, as demonstrated in the literature review, can be unreliable and subject to bias.
- The majority of programmes reviewed originated either in the USA or UK and therefore are probably based on these cultures. There is some evidence that they may be less effective in other cultures (see PATHS section above). Consequently the culture in which the programme is intended for use must be taken into account.

7.4 Action Points for the Emil Programme

7.4.1 Programme aims.

The Emil programme was specifically developed to fulfil the gap identified by the preceding reviews: namely a targeted, Wave 2, programme which specifically focuses on plugging an identified AEI skills gap. Therefore, the following aims were identified:

- The programme is based on a specific AEI model;
- The programme facilitates acquisition of basic AEI skills to enable participants to access their schools age-appropriate universal curriculums;
- Outcomes of the programme are assessed using an objective performance AEI measure;

- High-quality implementation is facilitated through programme design and materials.

7.4.2 Programme audience.

Given the rapid developmental nature of AEI within the primary-school age range (Mayer & Salovey, 1997; Zeidner et al., 2003), it was necessary to identify a specific target age-group for the Emil programme. Because research has suggested that early interaction with peers plays a developmental role in some EI skills (Schultz et al., 2005), and children tend to show a major developmental transformation between the ages of five and seven (Greenberg & Snell, 1997), there is a chance that children in infant schools may spontaneously catch up to their peers without the need for additional support. Therefore, it was decided to target the programme at pupils who were still below their peers in the lower year groups of junior school (Years 3 and 4) as these children were more likely to need extra support to develop their EI, but the developmental gap would be more likely to still be small enough to close with such support than older junior school children.

7.4.3 Identification of participants.

Most of the above targeted programmes rely on teacher observation of externalising behaviours to identify participants. Whilst such children undoubtedly require support, it is often argued that early intervention before problem behaviours become apparent can be more effective and cost efficient (Denham et al., 2016). Consequently, it was decided to trial using the revised EISC as a screening tool to identify children who may benefit from support.

7.4.4 Length of programme.

Because the programme is targeted rather than universal, it must be time-limited. This is especially true as the programme is intended to build missing skills quickly to facilitate better access to classroom SEL curriculums. Furthermore, the implementation literature suggests that implementation quality can drop if programmes run for extended periods of time (Humphrey, 2013). The targeted programmes reviewed above typically last six to 18 sessions; this programme should be similar. It was therefore decided to design a 12-session curriculum which could be delivered at a dosage of one to two sessions a week, making total completion time around six weeks and no longer than one whole term.

7.4.5 Scope of programme.

As mentioned above, the Emil programme is differentiated from existing SEL programmes through its exclusive focus on the AEI model. More specifically, given the target age-range, the programme should target AEI skills which have typically securely emerged by age seven. This more focused

approach should facilitate more rapid development of AEI skills which are known to underpin most areas of SEL (Nathanson et al., 2016).

7.4.6 Programme implementation.

The programme must incorporate SAFE components in order to maximise its effectiveness. Clearly, some of the recommendations identified in Figure 35 are only relevant to universal curriculums (e.g. programmes ongoing over multiple years), however the Emil programme should encompass all practically possible recommendations from the figure. Session plans and materials must therefore be sufficiently detailed and clear to ensure effective implementation in regard to these areas.

Furthermore, in order to ensure quality implementation, the delivery of the programme needs to be by an adult who is competent in EI. Therefore the programme either needs to incorporate a training package for staff or be targeted as tool for those trained to deliver SEL interventions such as ELSAs.

8 Emil Programme Development Part 2: Creation of Curriculum

In order to develop the curriculum for the programme, it was necessary to first determine the coverage of the programme before setting programme objectives and finally selecting activities to meet these objectives. This chapter details this process.

With regard to coverage, as set out above, the programme is intended to cover the ability emotional intelligence (AEI) knowledge and skills which are assumed to be typically securely developed by age seven. There were two coverage areas to determine with regard to this: Firstly the range of emotions to include and secondly which aspect of the AEI model should be covered.

8.1 Emotional Range

Two sources were consulted to help establish this: the emotional range of the programmes reviewed and the emotional development literature.

8.1.1 Emotion coverage of exemplar programmes.

There was a large amount of variation amongst the programmes regarding the range of emotion labels taught. Table 18 summarises the emotion coverage of each programme by approximately age seven (the target lower age limit for the Emil programme). As a general rule, the universal programmes teach more feelings vocabulary than the targeted programmes, with PATHS, which places a large emphasis on the labelling of emotional states, covering the widest range (25) whilst DESTY covers the least (six). Interestingly however, none of the universal curriculums cover surprised and PATHS is the only universal curriculum to teach disgusted, despite these two emotion labels forming part of Ekman and Friesen (1971)'s basic emotions. In fact, an examination of Table 18

reveals little overlap between the programmes beyond the universal emotions of happy, sad, angry, and scared.

Table 18: Emotions Covered by Exemplar Programmes by Age Seven

Programme	PATHS	SEAL	Heart Masters	The Emotional Curriculum	First Steps to Emotional Literacy	Education DESTY
Emotions Covered by approx. 7- years-old	Happy Sad Angry Scared Disgusted Private Fine Excited Frustrated Disappointed Hopeful Proud Ashamed Guilty Curious Bored Confused Worried Sure Anxious Calm Shy Lonely	Happy Sad Angry Scared Excited Frustrated Proud Bored Worried Anxious Relaxed Jealous Determined Loved	Happy Sad Scared Excited Tired Calm Annoyed	Happy Sad Angry Scared Excited Bored Worried Lonely Nervous Loved	Happy Sad Angry Scared Surprised Disgusted + synonyms for above emotions, generated as a group/class	Happy Sad Angry Scared Surprised Disgusted

Note: The RULER programme is omitted from this table because it was not possible to gain this data for it. The ELSA programme is also omitted because emotion coverage is decided by each ELSA on an individual programme basis.

One reason for the variation in range between programmes may be that little research appears to have explored children’s acquisition of emotion labels beyond the basic categories. This is perhaps unsurprising given the wide cultural variations in emotional vocabulary (Lindquist et al., 2016). Indeed, in some cases it can be argued the different programmes have simply selected different synonyms for the same emotion (e.g. anxious in PATHS and SEAL, and nervous in the Emotional Curriculum).

8.1.2 Emotional development literature.

There appears to be agreement amongst emotion theorists that knowledge about emotions is organised into *emotion schema* (e.g. Izard, 2007; Widen, 2016). Emotion schema can be briefly summarised as consisting of an emotional label along with related knowledge about the emotion that belongs with that label (Widen, 2016). There is some disagreement however, about how these schema are developed. Differential emotion theorists (e.g. Izard, 2007) argue for an innate set of basic emotions, to which cognitive knowledge about the emotional experience is added as the child's language develops, to form the first schemas, with more complex emotional schema being developed once the child's cognition is sufficiently developed. In contrast, Izard (2007) reported that some emotion theorists argue emotions are generated only as result of cognitive reasoning about a situation, therefore schema can only be developed through cognitive consideration of emotion labels. Finally, Widen (2016) argued that children start with broad valence based schema (feels good/feels bad) and gradually refine these over time with the addition of new knowledge to form specific differentiated emotional schema. Consequently, whilst there is some disagreement about the precise way in which the schema develop, most theorists (e.g. Izard, 2007; Widen, 2013) agree that young children start with a small emotional lexicon which is added to and broadened with age and experience.

In addition to the broad agreement regarding the development of emotion labelling, it also accepted amongst researchers that there is a set of core or basic emotions which are universally recognised from an early age (Ekman, 1999; Izard, 2007; Schultz et al., 2005). The most frequently identified lists are those of Izard (2007) and Ekman (1999); these both feature six emotions, five of which are common to both lists: happiness, sadness, anger, disgust and fear. However, they do not agree on the sixth emotion, with Izard (2007) arguing that interest is a key motivating emotion throughout the life span, whilst Ekman (1999) argued it is a cognitive state not an emotion, and instead placed surprise on his list of basic emotions. Interestingly, few empirical studies appear to have included interest as an emotion, with the most commonly researched being Ekman (1999)'s list of happiness, sadness, anger, fear, disgust and surprise (Elfenbein & Ambady, 2002).

There also appears to be some disagreement regarding the status of surprise as an emotion as Ekman (2004) states "some emotion scholars do not consider surprise to be an emotion because they say that it neither pleasant or unpleasant and they claim that all emotions must be one or the other" (p. 150). Whilst Ekman (2004) disagrees with this reasoning, he does concede that he has some doubt about the inclusion of surprise as an emotion because it is only ever very brief in

duration. He additionally admits that the surprise expression was less universally recognised than his other basic emotions in his earlier research (Ekman, 2004, p. 150).

Widen (2013) reported the developmental trajectory of children's identification of expressions of the basic emotions. Combining data from several studies, she suggested that children correctly label happy, sad and angry expressions from a young age (80 % accuracy or higher by age four), whilst surprise was the next quickest to develop (80 % accurate at age six) with fear and disgust being much slower to develop. Indeed, according to her graph, less than 30 % accurately labelled the disgust expression at age seven, and fear was identified with around 45 % accuracy. She further suggested that children freely use a fear label at an average of 64 months, whereas the disgust label is not reliably used until an average age of 80 months (Widen, 2013); indeed, in one study they found that even the majority of 8- to 9-year-olds labelled the disgust expression as anger (Widen & Russell, 2010). Widen (2013)'s observations are in agreement with similar studies in the literature which have found an inferiority of labelling for the disgust expression compared to the other basic emotions (e.g. Vicari, Reilly, Pasqualetti, Vizzotto, & Caltagirone, 2000).

8.1.3 Emotional range for the Emil programme.

Combining the results of the programme and literature review, it seems there is a consistent core group of four emotions which are both universally recognised and taught: happy, sad, angry and scared. Although many programmes teach a wider range of vocabulary for emotions, many of these can be argued to be labels for particular intensities of one of these four emotions. Furthermore, although surprise and disgust are frequently accepted by researchers as basic emotions, they are much less frequently included as emotions in programme curriculums. Since research has shown that understanding of disgust is low amongst 7-year-olds (Vicari et al., 2000; Widen, 2013), its exclusion from an EI programme for this age seems appropriate. Similarly, the time-limited nature and neutral valence of surprise make it difficult to relate to some of the AEI skills (e.g. deciding whether to engage or detach from the emotion).

Consequently, it was decided to focus the Emil Programme on the identified core group of happiness, sadness, anger and fear. This has the advantage of keeping the vocabulary learning requirements low and allows for more comprehensive exploration of the emotions in the limited timeframe. The different intensities of the emotions can be explored within the broad category labels. It was hoped that having a secure understanding of basic emotions will make it easier for participants to then assign new emotional vocabulary encountered through every day interactions and classroom SEL curriculums to their emotional lexicon.

8.2 AEI Model Coverage

Given that EI is believed to be developmental, it was important to establish which AEI areas a 7-year-old should be expected to demonstrate competence in. This was achieved through consultation of: the AEI model's authors' expectations, emotional development literature and exemplar programmes.

8.2.1 Authors expectations.

As stated in the literature review, Mayer and Salovey (1997) clearly articulate that they expect AEI to develop progressively throughout childhood and adulthood, therefore the first step in defining model coverage was to check their model descriptions to establish which of the Mayer et al. (2016a) problem solving areas they expected young children to perform. Since the 2016 model represents an expanded version of the 1997 model (Mayer et al., 2016a), the developmental expectations established for the Mayer and Salovey (1997) model (Figure 6) were translated to the new model as an initial starting point, with the aim of then adding expectations for the newer areas. Unfortunately, Mayer et al. (2016a) provide little detail regarding the new areas they added, meaning the only clues to their developmental expectations is where they placed the new areas in the branch hierarchy.

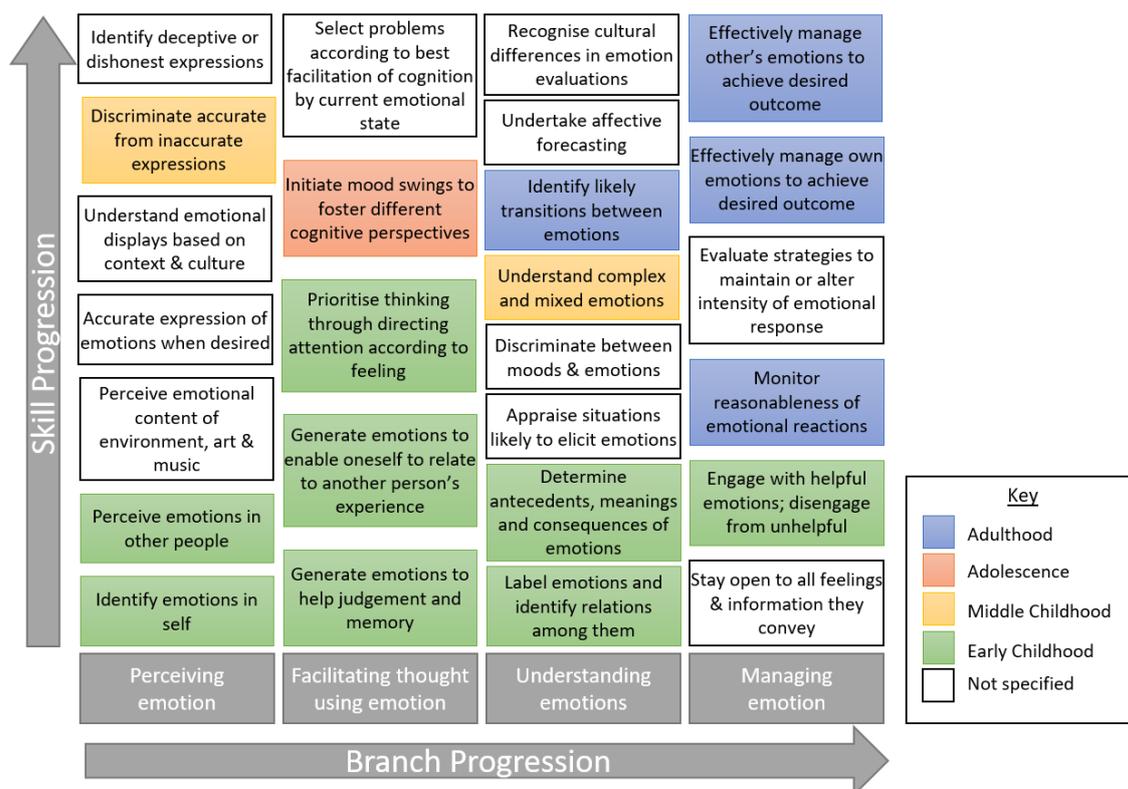


Figure 37: Illustration of the age of acquisition of Mayer et al. (2016a) AEI competencies as described by the model authors and colleagues.

Thus, Figure 37 represents the best summary of the developmental age expectations explicated by the AEI model authors. Green areas indicate those in which they expect competency to emerge in early childhood, yellow areas later childhood, orange areas adolescence and blue areas adulthood. As noted in the literature review, the Mayer and Salovey (1997) description of several of the green areas in Figure 37 clearly argues that although they expect the relevant skills to emerge in childhood, they will not fully mature until the individual has reached maturity. Therefore it was important to establish to what extent competency can be reasonably be expected in early childhood. Additionally, there are several areas for which no developmental period was specified (shown in white on Figure 37). Consequently, it was decided to additionally consult summaries of research knowledge regarding emotional development to more clearly establish the development trajectory of the AEI areas.

8.2.2 Emotional development literature.

Figure 38 presents an overview of research consensus regarding the developmental emergence of competency in the AEI areas. In this figure the green areas represent early childhood (birth to six), yellow represents middle childhood (age seven to 12), orange adolescence and blue adulthood. It is important to note that the purpose of undertaking this review was not to exhaustively review all the available literature but to establish overall consensus amongst researchers; therefore, in general, summaries of the literature were consulted rather than individual research studies. For some areas (left white), insufficient empirical evidence was located to place an age bracket on the development. In these cases, consideration was given to how the area fits into relevant models of the development of EI and related constructs to examine if Mayer et al. (2016a)'s developmental expectations seem appropriate.

It can be seen from Figure 38 that there are several areas of agreement between the research knowledge and the developmental progression proposed by Mayer, Salovey and colleagues (Mayer et al., 2016a; Mayer & Salovey, 1997), however, there are also some areas of disagreement.

Starting with the perceiving emotion branch, for the first two areas, research confirms Mayer and Salovey (1997)'s assertion that children begin to recognise and perceive emotions from a young age (e.g. Harris et al., 2016). However, as discussed in the emotion coverage section, it seems that emotional recognition is initially valence-based and becomes more refined with age, therefore competency in these areas is likely to continue to develop into adulthood. In addition, research suggests that the third and fourth areas begin development in childhood: There is evidence that young children can correctly identify emotions portrayed in pictures and music (e.g. Mote, 2011;

Winston, Kenyon, Stewardson, & Lepine, 1995). Similarly, researchers assert that children express emotions accurately from a young age (e.g. Greenberg & Snell, 1997).

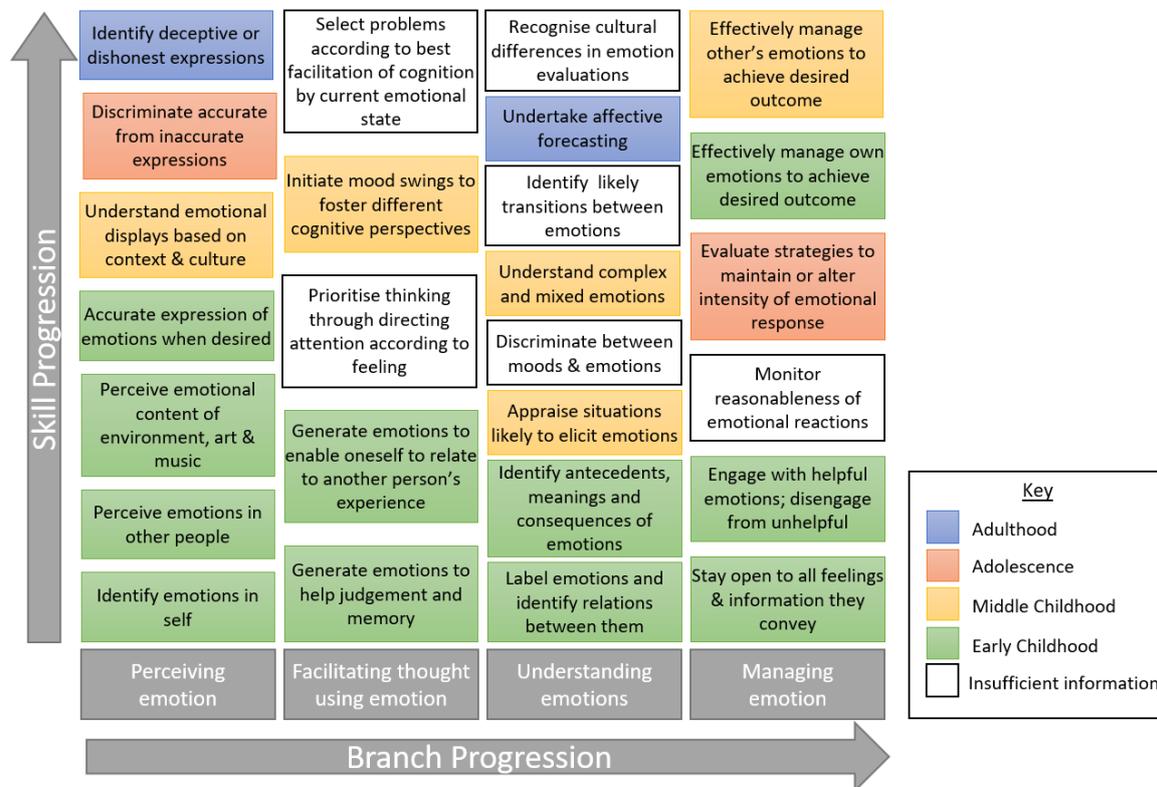


Figure 38: Summary of age of acquisition of Mayer et al. (2016a) AEI competencies as derived from emotional development literature.

The fifth area of branch one "understand how emotions are displayed depending on context and culture" (Mayer et al., 2016a, p. 294) is newly added to the 2016 model and the authors do not provide detail of their interpretation of competency in this area. Consequently, it is unclear whether they intend the person is able to express and read emotional displays using the display rules for their culture or whether they expect the person to understand how emotional displays change across cultures. Clearly the second interpretation requires more in-depth knowledge than the first and therefore is unlikely to emerge early in life. In contrast, infants are socialised to their parents emotional display rules from birth (Zeidner et al., 2012); Haviland-Jones et al. (1997) assert that children usually use a range culturally-appropriate emotional expressions by school age. However, Saarni (2000) reports that children do not demonstrate understanding of the "norms for expressive behaviour" (p. 76) until middle childhood. Furthermore, Haviland-Jones et al. (1997) note that children in middle-childhood are often observed to exhibit less obvious displays of negative emotions because they have refined their emotional expressions to comply with cultural norms. Therefore, it seems likely that this area of perception emerges around middle childhood.

In relation to the sixth perception area, there is some evidence that children are able to discriminate between genuine and posed expressions of happiness, however this does not appear to extend to any other emotion (Dawel, Palermo, O'Kearney, & McKone, 2015). Furthermore, Dawel et al. (2015) reported that children use only intensity as a criteria for discrimination; consequently they suggested that that this skill largely develops in adolescence. These findings also relate to the final perception area, since clearly a person must be able to discriminate the accuracy of an expression before they can judge its honesty. Indeed, most researchers concur with Mayer et al. (2016a) that this is the latest perception skill to develop with Gosselin, Beaupre, and Boissonneault (2002) demonstrating that explicit perception of masked emotions does not emerge until adulthood and several researchers asserting that most adults are not proficient at discriminating honest and dishonest emotional expressions (e.g. O'Sullivan, 2005).

As previously discussed, the second branch, facilitating thought using emotion, has been found to be problematic to measure empirically (Mayer et al., 2016a); therefore there is relatively little research knowledge covering the emergence of competence in its component areas. There is limited consensus that a reasonable level of competency within the first two areas, is likely to emerge in early childhood. For example, Harris et al. (2016) reported that studies have found 2-year-old children attribute emotions to inanimate toys in pretend play situations, suggesting they are recalling their own emotional experiences to enact the situation; which is concordant with the first area. Furthermore, Saarni (2000) asserted that empathy largely develops in early childhood, with early forms emerging in toddlerhood; progressing to use of socially constructed emotional scripts to relate to one another by age seven. This emergence of empathy clearly links to understanding the emotional experiences of another person. Importantly though, Pons et al. (2004) reported that the understanding of desire and belief emotions does not fully develop until age nine to 11; it seems unlikely that children will be able to fully relate to the emotional experience of others until these skills have been mastered.

Mayer and Salovey (1997) give somewhat conflicting information regarding their meaning of emotion directing attention (see Chapter 0); therefore it is hard to locate research which may be related to this area. There is consensus that emotions do interact with attentional processes, for example both adults and children with high anxiety show threat perception bias (LaBar, 2016), but it is unclear whether most people would make conscious use of such processes.

Similarly, little information was found about the use of mood swings to enable differences in thinking. Haviland-Jones et al. (1997) argued that teachers are often skilled at inducing such shifts in their pupils in order to enhance their creative writings, though they did not specify at what age they

would expect such competence to emerge. Pons et al. (2004), in their exploration of the development of emotion comprehension, seem to suggest that this might be possible from middle childhood since they concluded “the third period (around 9-11 years) is characterized by an understanding of how an individual can reflect upon a given situation from various perspectives and thereby trigger different feelings either concurrently or successively” (p. 146).

With regard to the last emotional facilitation of thinking area, although it is evident that emotional moods are related to different thinking patterns (Clore & Schiller, 2016), no mention of the emergence of reflective self-use of this knowledge was found in the literature reviewed. However, since a high-level of self-awareness and meta-cognition is required to be successful in this area, it clearly falls in the final layer of development in both Zeidner et al. (2003)’s investment model of EI acquisition and Pons et al. (2004)’s levels of emotional comprehension, suggesting it is indeed a late-developing skill.

The first area of the understanding branch relates to the labelling of emotions; research confirms Mayer and Salovey (1997)’s assertion that children begin to use emotion labels early in life, with reports of emotion labels being used from around two years old as the child acquires language (e.g. Schultz et al., 2005), although it is also clear that a full range of emotional labels does not emerge until much later in development (Vicari et al., 2000; Widen, 2016). Widen (2013)’s broad to differentiated hypothesis suggests that children start to label emotions from an early age, but use only broad valence based categories (feels good/feels bad) which are gradually refined over time to add further labels. Since she also found that children consistently sort according to valence, regardless of labelling level, i.e. a child at labelling level two (happy, and sad or angry) would label a fear expression sad or angry but not happy, this implies valence-based understanding of relations between the emotion labels: a further aspect of this area specified by Mayer et al. (2016a). Consequently, it seems that competence in labelling and understanding relations between emotions emerges early in childhood with a small selection of emotions and develops and expands gradually over time.

A similar pattern emerges with regard to the second area (identifying antecedents, meanings and consequences of emotions), with Pons et al. (2004) finding that most children are able to identify external causes of emotions by age five, whilst understanding of desire and belief based emotional triggers does not occur until around age seven. In fact, several theorists describe emotional understanding as evolving around *emotion schemas* (Harris et al., 2016) or *scripts* (Saarni, 2000), which begin with limited specific instances and examples and gradually become more abstracted to

give general themes of knowledge. This fits with Mayer and Salovey (1997)'s description of how a child's abilities in this area are developed.

The third understanding area (appraising situations likely to trigger emotions) is newly added to the 2016 model and unfortunately this means that the authors have not explicated their expectations with regard to what sort of appraisals they expect the individual to undertake. If they intend this in terms of the ability to understand what emotions are likely to result from a given situation, then, as discussed in terms of appreciating the causes of emotions, external causes are identified from a very young age, whilst appreciating the impact of a person's desires and beliefs on emotion does not occur until middle childhood (e.g. Pons et al., 2004). They could though, also be referring to control-based appraisals since Saarni (2000) asserted regulation of emotions varies according to a person's appraisal of control over the trigger situation. She asserted that this kind of appraisal emerges in middle childhood and is refined in early adolescence. Consequently, although further information is required to explicate the sort of appraisal, it seems likely that competence in appraisal of emotion eliciting situations begins to emerge in middle childhood.

The differentiation of mood and emotions is also a newly added area. Beedie, Terry, and Lane (2005) asserted that little consensus has been reached regarding a scientific separation of the two concepts; nevertheless they demonstrated that most adults are able to identify ways in which they are distinct from one another. No research was found regarding children's differentiation of mood from emotion. However, this area would require a considerable level of self-awareness and therefore fits into the final layer of Zeidner et al. (2003)'s investment model; suggesting it is one of the later developing areas.

For the fifth area, despite Schultz et al. (2005) reporting some evidence that young children can partially understand mixed emotions, most researchers agree that children become proficient at identifying mixed emotions in middle childhood (Pons et al., 2004; Saarni, 2000; Schultz et al., 2005). Little information was found about the development of understanding of transitions between emotions. Haviland-Jones et al. (1997) asserted elementary-aged children frequently do not perceive emotional transitions in on-going situations and Greenberg and Snell (1997) asserted the brain development required for reasoning does not develop until age seven. Accordingly, research has found children do not reason about the emotional consequences of actions until seven to eight years of age, and appreciation of the effect of morality in triggering emotions emerges late in childhood (Harris et al., 2016; Pons et al., 2004); suggesting that appreciation of transitions is unlikely to fully emerge before adolescence.

The final two areas of understanding are newly added to the 2016 model. The study of affective forecasting is relatively new (Hoerger, Chapman, Epstein, & Duberstein, 2012). Nevertheless, Lagattuta (2014) reported evidence that children as young as four understand that worry can be caused by negative thoughts about the future and knowledge about how past, present and future events link to elicit emotions develops during childhood. On the other hand, Dunn, Brackett, Ashton-James, Schneiderman, and Salovey (2007) found affective forecasting was only performed accurately by adults who had high levels of EI; suggesting this is a higher-level EI skill and competence is likely to be associated with adulthood. For appreciating cultural differences in how emotions are evaluated, Matsumoto and Hwang (2011) asserted that the aforementioned basic emotions (Ekman, 1999) are relatively universally experienced in terms of types of triggering events and physiological symptoms, although there are differences in the frequencies with which they are experienced and some culture-specific triggers. Therefore, appreciating differences in cultural evaluations would require relatively in-depth knowledge of the variations in values and expectations between cultures which can only be acquired with experience. Consequently, although no research was found investigating this area with children, it seems unlikely that competence can be demonstrated before adulthood.

The managing emotions branch begins with staying receptive to feelings; Zeidner et al. (2012) observed that children whose parents blocked expression of negative emotions, are less emotionally competent than their peers, providing support for Mayer and Salovey (1997)'s assertion that openness to feelings is a pre-requisite of successful emotional management. Similarly, most researchers agree with Mayer and Salovey (1997) that children begin to use simple strategies to disengage from unhelpful emotions. For example, Haviland-Jones et al. (1997) reported that children as young as five were able to recommend behavioural distraction as a way to deal with uncomfortable feelings and Pons et al. (2004) asserted that 6- to 7-year-old children use behaviour changes to regulate negative feelings whilst 8-year-olds and older were able to use thought distraction to disengage. In contrast, Harris et al. (2016) reported evidence that children are not able to disengage from a positive emotion (wanting a sticker) until aged seven to eight; suggesting that competence in this area may be slower to emerge for positive than negative emotions.

With regard to third area (monitoring the reasonableness of emotional reactions), insufficient research was found to place a developmental age bracket on it. However, Brenner and Salovey (1997) reported a study by Terwogt (1986) which found that 5-year-olds who were cued to think about the effect their mood could have on their problem solving performed better than those who were not cued, whereas there was no difference amongst 10-year-olds. This suggests, children

toward the end of middle childhood, are more competent at monitoring their emotions, though the study did not directly test for the monitoring of reasonableness of emotional reactions.

For the fourth area, Zeidner et al. (2012) asserted emotional regulation becomes more planned and strategic during adolescence, and its development is reliant of the development of metacognition. Clearly, such regulation would require the ability to evaluate strategies in order to select the most appropriate; suggesting this skill may develop in adolescence too. Yet, they also reported children in early elementary school years have acquired “a flexible repertoire of coping strategies” (Zeidner et al., 2012, p. 157); meaning the evaluation of strategies may emerge earlier in development. Nevertheless, since Mayer and Salovey (1997) ascribe this area to meta-regulation of emotion, it seems likely that it is reliant on a person having relatively well developed metacognitive abilities and more likely associated with adolescence.

Interestingly, there appears to be some disagreement between the model authors and researchers regarding the development of competence in the fifth managing area: “effectively manage one's own emotions to achieve a desired outcome” (Mayer et al., 2016a, p. 294). Mayer and Salovey (1997) suggested this is associated with maturity, whereas several other authors suggested children begin to regulate their emotions from a young age (e.g. Greenberg & Snell, 1997; Saarni, 1997). There are many different aspects of emotion regulation, including situation selection or modification, attentional control, cognitive reappraisal and response modification (Suri & Gross, 2016). Research suggests a developmental trajectory amongst strategy use, beginning with simple physical response modulation or suppression, according to socially constructed rules, and gradually becoming more self-reflective and cognitively based (Haviland-Jones et al., 1997). For example, Pons et al. (2004) found that the majority of children did not identify cognitive reappraisal as an effective strategy until nine years of age. Further, Somerville (2016) reported children use cognitive reappraisal less frequently than adolescents, who in turn use it less frequently than adults. Consequently, it seems that the majority of regulation observed amongst children relates to limiting expression of negative emotions using behavioural strategies (Pons et al., 2004; Zeidner et al., 2003), which could be better interpreted as disengaging from unhelpful emotions (area two). This interpretation seems appropriate, given that the Mayer and Salovey (1997) model emphasised that the this area related to meta-regulation of emotion, and should not result in loss of informational utility or meaning of the emotion being regulated. Clearly, this aligns with the final developmental stage of Zeidner et al. (2003)'s model involving self-conscious awareness, rather than the initial rule-based regulatory phase.

The final managing emotions area involves managing the emotions of other people, which is referred to as interpersonal emotional management in the research literature. Research regarding interpersonal emotional management seems to suggest a similar pattern to the management of one's own emotions, in that younger children tend to use more concrete, less cognitively demanding strategies; with strategy complexity increasing with age (López-Pérez, Wilson, Dellaria, & Gummerum, 2016). Indeed, López-Pérez et al. (2016) found that, although children as young as three to four were able to regulate others emotions, they relied on attention diversion strategies, which effectively work by encouraging disengagement from the emotion and are more likely to result in loss of the information being communicated by the emotion. In contrast, they found 7- to 8-year-old children showed greater use of affective and cognitive strategies, which require greater emotional understanding, so are more likely to satisfy Mayer and Salovey (1997)'s criteria of management without loss of information. López-Pérez et al. (2016) set an upper age limit of eight as they argued little difference in self-regulation appears between 8-year-olds and older children, however, given the findings regarding self-regulation above, it seems likely that there will be further developments between childhood and adolescence. Consequently, although further research is needed to clarify the precise developmental trajectory, it seems likely that the management of other's emotions, as described by Mayer and Salovey (1997), largely emerges in middle childhood.

8.2.3 Target areas for the Emil curriculum.

Comparison of Figure 37 and Figure 38 reveals that the model authors and emotional development researchers are largely in agreement that competence in each of the first two areas of each of the Mayer et al. (2016a) model's branches can be demonstrated in early childhood (before age seven), however some disagreements emerged regarding some of the higher branch areas. Consequently, after careful consideration it was decided to primarily focus the Emil programme on developing competence in the lower areas. Each branch is briefly reviewed below to explicate the final coverage decisions made. At this stage, the coverage of the exemplar programmes reviewed above was also examined. Although many of these programmes have not been subjected to the same level of scrutiny as the scientific writings, the authors often have large amounts of experience with the target age-range and therefore can provide insight into age-appropriate expectations for children's knowledge and skills.

8.2.3.1 *Perceiving emotions branch.*

Both Mayer and Salovey (1997) and the emotional development literature suggest that children should be reasonably competent at recognising emotions in themselves and other people by age seven, although further refinement of these skills is likely to take place as the child matures (Mayer

& Salovey, 1997; Widen, 2013). There is evidence that children of the target age range should also be able to perceive emotions in more abstract forms such as art and music (Mote, 2011; Winston et al., 1995), but no consistent universal rules have emerged in these areas (Johnson-Laird & Oatley, 2016). Consequently, this is quite an abstract problem solving area and will require a high level of cognitive development to explicitly understand and explain. Illustrative of this, the RULER curriculum requires children in middle school (age 11+) to interpret emotions shown in abstract designs, but simplifies the task to drawing a concrete representation of the emotion for younger pupils (Brackett et al., 2012). Therefore, it was decided not to explicitly teach competence in this area although some of the materials would naturally encourage practice of these skills.

The review of research also suggested young children should be able express emotions accurately (Greenberg & Snell, 1997). However, as is implied by Mayer et al. (2016a)'s branch sequencing, it seems that accurate emotion expression is reliant upon accurate perception of others expressions, because a child will need knowledge of how the emotion should be displayed in order to produce their own display. Hence the programme focuses more on identifying facial and postural cues to emotions in order to facilitate informed expression of them. Nevertheless, the curriculum includes self-reflection times for the child to consider how they would display each emotion. For the remaining three areas, young children were not expected to demonstrate competence by either the model authors or researchers.

In summary, therefore, the Emil curriculum specifically teaches the first two emotion perception areas and further provides practice and reflection time for the third and fourth areas.

8.2.3.2 Facilitating thought using emotion.

As with the perceiving branch, both Mayer and Salovey (1997) and the research literature suggest that children should be reasonably competent in the first two areas from a young age. For the third area, as previously discussed, Mayer and Salovey (1997) gave conflicting information, on the one hand arguing that emotions direct attention from a young age but on the other hand claiming that only adults will act upon the information. The research literature examined was not able to provide any further information regarding competence in this area. It is notable, however, that Mayer and Salovey (1997) originally placed this area first within the facilitation branch whereas in the Mayer et al. (2016a) model they have moved it later in the hierarchy, suggesting that they do now consider it to be a later developing skill. Given this, and the above confusion regarding the nature of competence in this area, it was decided not to cover this area in the Emil programme. The final two areas of this branch are not expected to emerge until middle childhood at the earliest and therefore

were also excluded from the curriculum. Consequently, only the first two areas of the emotional facilitation of thinking branch are targeted by the Emil curriculum.

8.2.3.3 *Understanding emotions.*

Again, all sources consulted agreed that young children can achieve reasonable competence in the first two areas of this branch. Appraisal of emotion-eliciting situations and differentiation of moods and emotions were both newly added to the Mayer et al. (2016a) model and therefore no information regarding the authors developmental expectations was available. The research literature suggests that appraisal likely emerges around middle childhood (Pons et al., 2004; Saarni, 2000), whilst the differentiation of moods and emotions does not appear to have been widely studied in children, but researchers report little consensus regarding how such differentiation might be achieved (Beedie et al., 2005). The only mention of mood in the exemplar programmes is in the Emotional Curriculum which expects Year 4 children “to recognise effects of own mood / behaviour on emotions of others and vice versa” (Cornwell & Bundy, 2009, p. 5). Consequently, neither of these areas were included in the Emil Programme.

The understanding of complex and mixed emotions was ascribed by Mayer and Salovey (1997) to childhood, however they also refer to the growing person suggesting they do not necessarily expect this area to emerge in early childhood. This is confirmed by the research literature, which suggests competence in this area typically emerges around middle childhood (Pons et al., 2004; Saarni, 1997; Schultz et al., 2005). Similarly, the programmes reviewed tended to introduce this concept towards the end of the primary years, with the Emotional Curriculum placing it in the Year 5 curriculum (Cornwell & Bundy, 2009) and PATHS formally introducing it around Grade 5 (Greenberg et al., 1995). Therefore, this area was also not included in the Emil curriculum. For the three highest areas of emotional understanding, the developmental expectations found indicated that competence emerged in adulthood (see Figure 37 and Figure 38); accordingly, these were excluded from the curriculum. As a result, the Emil programme focusses only on the first two understanding emotions areas.

8.2.3.4 *Managing emotions.*

The first area of the managing emotions branch concerns being open to all feelings and appreciating the information they contain. Mayer and Salovey (1997) did not specify a developmental timeframe for this, instead describing as more of a pre-requisite for competence in the rest of the branch areas. Research has shown that parental inhibition resulted in lower emotional acceptance amongst very young children (Zeidner et al., 2012), suggesting that this area operates from a young age. Similarly, most programmes introduce this concept early. For example, the Emotional Curriculum lists “ability

to remain open to feelings” at nursery level (Cornwell & Bundy, 2009, p. 4), the First Steps to Emotional Literacy programme begins with feeling state talk, which the authors emphasise must encourage acceptance of a diverse range of emotions (Ripley & Simpson, 2007), and PATHS introduces the idea that it is ok to have all feelings in the fourth lesson (Kusche & Greenberg, 1994a). Hence, the Emil Curriculum will try to teach competence in this area, along with engaging or disengaging from emotions based on their helpfulness, which both Mayer and Salovey (1997) and the research literature expect young children to achieve (Figure 37 and Figure 38).

Mayer and Salovey (1997) associated most of the remaining managing areas with adulthood (Figure 37); whilst the research appears to suggest a more mixed pattern of development, the only remaining area in which it was suggested competence may emerge during early childhood was the management of one’s own emotions (Figure 38). As previously discussed, more careful examination of young children’s emotional management strategies suggests they may be orientated towards disengagement, with more advanced skills such as reappraisal not emerging until later in development (Pons et al., 2004), and thus be better aligned with this area of managing. Accordingly, it was decided to focus the Emil curriculum on the disengagement aspect of emotional management rather than teaching reappraisal techniques. This is in line with the exemplar programmes, with PATHS for example beginning with a readiness and self-control unit which teaches children to detach from negative emotions, whilst changing feelings is considered a part of advanced Emotional Intelligence and is not introduced until Grade 5 (Greenberg et al., 1995).

In summary therefore, the first two management areas are included in the Emil Programme.

8.3 Curriculum Aims of the Programme

Combining the decisions regarding the emotional range and model coverage outlined above, the central aim of the Emil Programme can be summarised as:

To teach the relevant skills required to foster competence in the first two areas from each branch of the Mayer et al. (2016a) AEI model in relation to the emotions, happy, sad, angry and scared.

Table 19 gives specific objectives for the programme in each of these areas. In addition, opportunities to practice competence in areas three and four of the perceiving branch are provided. Practice in the third area is facilitated through inclusion of common weather and colour connotations for happy, sad, angry and scared feelings within the programme materials; providing simple links to the environment and arts. For the fourth area, self-reflection on how they display their happy, sad, angry and scared feelings is encouraged.

Table 19: Emil Programme Objectives for Each of the AEI Model Areas Covered

Mayer et al. (2016a) AEI model ^a		
Branch	Area	Emil Programme Objectives
Perceiving emotion	Identify emotions in oneself	<ul style="list-style-type: none"> • Recognise the valence of the emotions happy, sad, angry and scared • Know common bodily sensations associated with the feelings happy, sad, angry and scared • Know typical thought patterns associated with feeling happy, sad, angry and scared • Be able to identify clues relating to thoughts and bodily sensations in themselves for the emotions happy, sad, angry and scared
Perceiving emotion	Perceive emotions in other people	<ul style="list-style-type: none"> • Identify universal facial features of happy, sad, angry and fearful facial expressions • Identify common body postures associated with happy, sad, angry and fearful expressions
Facilitating thought using emotion	Generate emotions to help judgment and memory	<ul style="list-style-type: none"> • Know that recalling past experience can help with understanding and judgement • Practise using these skills in a safe environment
Facilitating thought using emotion	Generate emotions to enable oneself to relate to another person's experience	<ul style="list-style-type: none"> • Know that imagining yourself in another person's situation can help you understand how they are feeling • Practise doing this within a safe environment to identify if a character is happy, sad, angry or scared
Understanding emotions	Label emotions and identify relations among them	<ul style="list-style-type: none"> • Label the emotions happy, sad, angry and scared • Use a simple strength scale to identify the intensity of happy, sad, angry and scared emotions • Compare similarities and differences between happy, sad, angry and scared
Understanding emotions	Identify antecedents, meanings, and consequences of emotions	<ul style="list-style-type: none"> • Identify common triggers of happy, sad, angry and scared emotions • Identify own triggers for each intensity of happy, sad, angry and scared • Classify emotions as comfortable or uncomfortable • Identify likely information conveyed by happy, sad, scared and angry feelings

Mayer et al. (2016a) AEI model ^a		
Branch	Area	Emil Programme Objectives
		<ul style="list-style-type: none"> Identify actions likely to result from feeling, happy, sad, angry or scared
Managing emotion	Stay open to all feelings and information they convey	<ul style="list-style-type: none"> Recognise clues for happy, sad, angry and scared feelings in self Identify triggers of happy, sad, angry and scared feelings in self Identify likely information conveyed by happy, sad, scared and angry feelings Know that all feelings can be helpful
Managing emotion	Engage with helpful emotions; disengage from unhelpful ones	<ul style="list-style-type: none"> Judge if a happy, sad, angry or scared emotion is helpful in context Be able to decide whether to keep or stop a feeling Know simple disengagement strategies Identify their preferred way to disengage from a happy, sad, scared or angry feeling

^a Only the areas of the model covered by the Emil programme are included

8.4 Selection of Activities

As established in the literature review, EI is largely developed through interactions with caregivers, teachers, and peers (Zeidner et al., 2012). An examination of the exemplar programmes confirmed this with most activities geared towards discussion with a key adult, peers, or both, and encouragement of self-reflection. It was clear, therefore, that the activities in the Emil programme needed to foster these elements. The areas of the Mayer et al. (2016a) model being covered also fit into Zeidner et al. (2003)'s EI as rule-based skills phase; consequently, the programme activities also needed to ensure that the relevant knowledge and skills were taught and rehearsed.

Although discussion and self-reflection were the central teaching methods within the programmes reviewed, there was quite a variety of activities used to stimulate these. For example, most programmes taught perceiving other people's emotions through looking at photos and pictures of people showing a given emotion (PATHS, The Heart Masters, First Steps to Emotional Literacy, ELSA), however some used a story to stimulate discussion around this (Dealing with Feeling, RULER), creative writing (RULER), making masks (The Heart Masters) or an introduction to the feeling by a fictional companion character (DESTY). Throughout the programmes, most activities could be categorised into one of eight types: stories, pictures, role-play, practical (making or sorting things), written (stories or brainstorming), guided reflection, circle time and games. For most areas there was a relatively even spread amongst activity types used. Accordingly, it was decided to use a variety of activities within the programme.

The next steps were to consider each area and determine the best activities to meet the area objectives. Because ELSAs are experienced at developing children’s emotional awareness in one to one situations, it was decided to ask a sample to complete a questionnaire to establish which activity types they found most effective for each of the curriculum areas. A copy of the questionnaire is included in Appendix I . The questionnaire was distributed to all ELSAs in a local authority area via email; unfortunately response rate was low with only 10 questionnaires returned. Nevertheless, these responses were collated and examined.

Figure 39 shows the results of the ratings activity. All activities were considered effective, although several commented they rarely use a written approach. When responses are averaged across all areas, practical activities were the most effective, whilst written activities were considered markedly less effective than the other categories. This appears to re-enforce the recommendation for active learning activities made by programme reviewers (e.g. Payton et al., 2008).

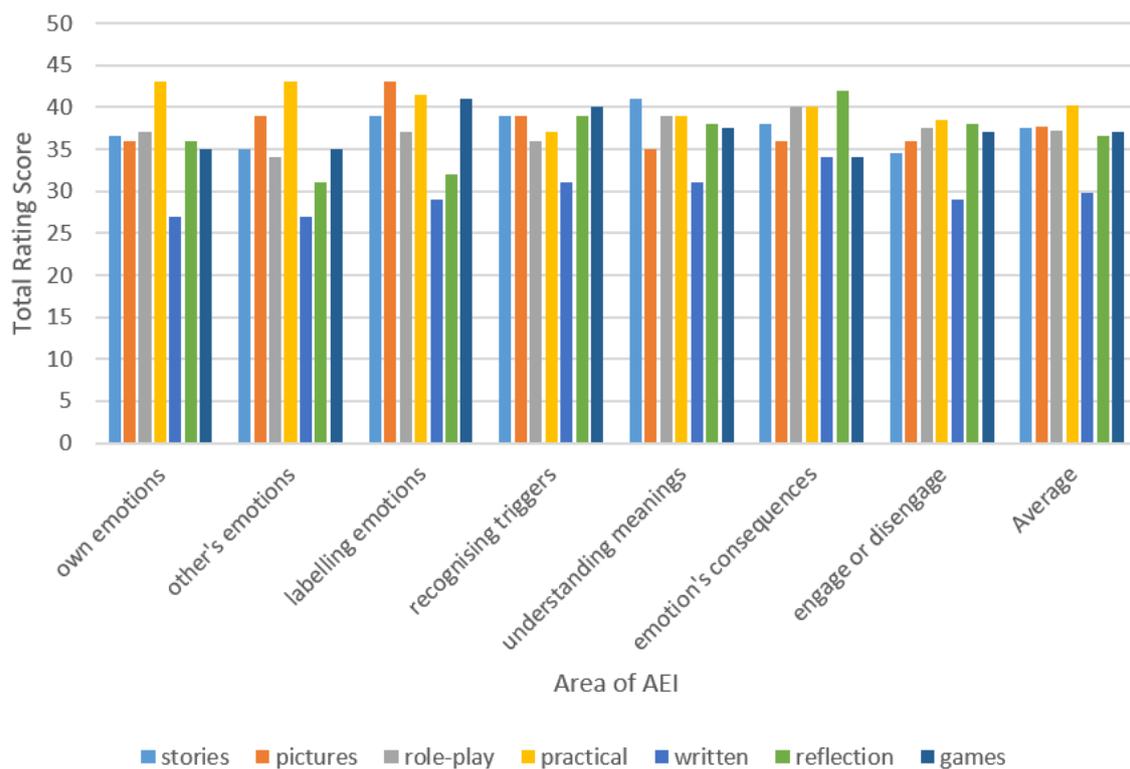


Figure 39: Column chart to show results of ELSA activity survey.

The sections below outline the activities chosen for each area covered by the programme using the combined above findings from the ELSA survey and programme reviews to guide selection.

8.4.1 Identifying emotions in oneself.

Programme objectives for this area are:

- Recognise the valence of the emotions happy, sad, angry and scared;
- Know common bodily sensations associated with the feelings happy, sad, angry and scared;
- Know typical thought patterns associated with feeling happy, sad, angry and scared;
- Be able to identify clues relating to thoughts and bodily sensations in themselves for the emotions happy, sad, angry and scared.

This is perhaps one of the harder areas to teach, since research suggests that recognition of emotions is typically developed through early parental *feeling state talk* – labelling of emotions for a child when they are feeling them (Matthews, Zeidner, et al., 2004). Although First Steps to Emotional Literacy, which focuses on recognition of emotions in self, uses feelings state talk by a nominated key adult in school, this is administered on an opportunity basis with the adult monitoring the child throughout the day and engaging in feelings state talk when emotional opportunities arise. For most schools, this model of working is impractical, and because the Emil programme is designed to be delivered in fixed session slots, such an approach would not be feasible. Some programmes, such as PATHS, use guided self-reflection to encourage the children to experience the emotion in a mild form in order to examine their experiences of it, but there are ethical concerns regarding the deliberate induction of negative feelings in a one to one situation; so it was felt that such methods would be inappropriate for this programme.

Results of the ELSA survey (Figure 39) showed practical activities to be the most popular method of facilitating progress in this area, closely followed by discussion of stories, guided reflection, discussion of pictures, and games. Written activities were markedly least popular. In addition, one ELSA suggested discussion with friends, another the “hot cross bun” cognitive behavioural approach, and another identifying where in the body emotions are felt.

Taking into account the considerations outlined above, three activities were selected to develop recognition of emotions in oneself. In order to introduce the concept and ideas, common internal sensations and thoughts linked to the emotion are introduced through a story. The sensation is then reinforced with a practical activity of selecting a tactile representation and attaching it to the inside of the puppet. Finally, a short reflection activity where participants are asked to compare their experience of the emotions to the story character’s is included to ensure participants relate the concepts to themselves.

8.4.2 Identifying emotions in other people.

The programme objectives for this area are:

- Identify universal facial features of happy, sad, angry and fearful facial expressions;
- Identify common body postures associated with happy, sad, angry and fearful expressions.

Because the programme focusses on the basic, or universal, emotions, these objectives have a well-developed scientific knowledge base to inform them. Although facial expressions are more universally accepted than body postures, it seems important to introduce children to both elements since research has shown we use both to identify emotions (e.g. Mondloch, Horner, & Mian, 2013). Many of the exemplar programmes rehearsed this aspect through discussion of picture cards (e.g. SEAL, PATHS), and this was one of the most highly rated activities by ELSAs, alongside practical activities. Accordingly, this was selected as the teaching method for the Emil Curriculum. It was decided to use photos rather than drawn pictures because these are closer to how the child would see the emotions displayed in real life. Furthermore, children would be asked to select images of the target emotion from a range of images featuring a variety of emotions in order to introduce an active, practical aspect and ensure that they can discriminate amongst them.

8.4.3 Generating emotions to help judgement and memory and to relate to the experiences of another person.

These two facilitating areas have been combined because they require similar skills and problem-solving processes to be successful. Therefore the combined objectives are:

- Know that recalling past experience can help with understanding and judgement;
- Know that imagining yourself in another person's situation can help understand how they are feeling;
- Practise doing this within a safe environment to identify if a character or situation is happy, sad, angry or scared.

These are difficult areas to practically operationalise in terms of activities, because the generation of emotions is a personal process; it may make a child feel uncomfortable if they are directly told to generate their emotions with regard to a situation. Therefore, it was decided to make use of a puppet character to facilitate these objectives. The character is asked to work out how his friend is feeling using a progressive series of clues. Initially, the only clue is the situation the friend is in; giving the session facilitator the opportunity to suggest that the best way the puppet (and therefore the child controlling the puppet) could guess would be to think what he would feel like if he was there, thus facilitating the discussion required to meet the above objectives. The next clue is the

character's thoughts which would enable further discussion of the puppet evaluating how they felt last time they had thoughts like that. In addition, the facilitator can draw on any opportunities which arise when discussing the stories in the first area to highlight how the child uses the processes in this area.

8.4.4 Labelling emotions and recognising relations among them.

Objectives here are:

- Label the emotions happy, sad, angry and scared;
- Use a simple strength scale to identify intensity of happy, sad, angry and scared emotions;
- Compare similarities and differences between happy, sad, angry and scared.

The labelling of emotions has been an aspect of all the activities mentioned thus far; the ELSA survey suggested stories and pictures are amongst the most effective activities for developing this skill. Accordingly, a multiple choice labelling activity was incorporated at the end of the perception story and the child is asked to freely label the emotion depicted in the facilitation scene above.

As mentioned earlier, Mayer and Salovey (1997) give an example of recognising the relations among emotions as "the relation between liking and loving" (p. 11) suggesting they see this in terms of intensity. However, as explicated within the emotional range section, it was felt that it would be developmentally too challenging to expect the target age-range to use specific labels for each emotional intensity. Several of the reviewed programmes (PATHS, ELSA, and SEAL) use the concept of a feelings thermometer to scale intensities of feelings. Thus, it was decided to use a simple 3-point strength scale to introduce the understanding of different intensities of emotions. Furthermore, since children's emotional labelling ability is developed through increasing differentiation of valence-based labels, it was felt important to ensure participants understand how each of the emotion labels used in the programme relate to each other. To facilitate this, a sorting-type activity is included which compares and contrasts the four emotions.

8.4.5 Determining antecedents, meanings and consequences of emotions.

This is a wide-ranging area, therefore there are more objectives to cover:

- Identify common triggers of happy, sad, angry and scared emotions;
- Identify own triggers for each intensity of happy, sad, angry and scared;
- Classify emotions as comfortable or uncomfortable;
- Identify likely information conveyed by happy, sad, scared and angry feelings;
- Identify actions likely to result from feeling, happy, sad, angry or scared.

Triggers for emotions can be quite personal, however research suggests that the type of triggers for basic emotions are relatively universal (Ekman, 1999; Frijda, 2007). Interestingly, the identification of triggers was one of the only skills for which ELSAs did not consider practical activities best. Instead, games were seen as most effective, closely followed by stories, pictures and reflection. The exemplar programmes similarly used a range of pictures, stories and class discussion. Therefore, it was decided to introduce the common triggers for the target emotions, using picture cards in a game format, before encouraging the child to identify their own triggers.

Meanings of the emotions can again vary slightly between people and especially cultures but research suggests consistent themes emerge across cultures for the basic emotions (Lazarus, 2001). Hence, it was decided to ensure the children were aware of these core meanings. Since the ELSA survey suggested stories are most effective for this, clues were placed within the introductory story and followed up through the use of multiple choice option selection to structure discussion.

The exact consequences of emotions are clearly both person and context specific (Frijda, 2007). Nevertheless, likely action tendencies for the basic emotions have been identified (e.g. Roseman, 2001). Such tendencies are often indicated within stories in the exemplar programmes and indeed one of the ELSAs suggested the use of cartoon strips to explore emotion consequences, however, the survey indicated reflection, role-play and practical activities were most effective. Therefore a likely action tendency is featured in the introductory story for each emotion, and puppet role play is included to more fully explore consequences of the emotions because this allows for reflection on context and personal experiences. The use of puppets was decided upon because they reduce the imbalance of an adult: child relationship and allow for depersonalisation, which often means a child can feel more secure in exploring different possibilities (Hampshire Educational Psychology Service, 2010/11).

8.4.6 Staying open to all feelings and their information.

This was quite a hard area to operationalise as much of the process involved in it is implicit and therefore difficult to teach. Most programmes seem to cover this area by asserting that all feelings are o.k. to have (e.g. PATHS, SEAL). Although this is an important message for children, it seemed likely that just delivering this message would not enhance their performance in this area by itself. The nature of the objectives for the other areas means that the child has already been encouraged to explore both comfortable and uncomfortable in relation to themselves which in turn should encourage them to be open to all feelings. In addition, given that Mayer et al. (2016a) seem to emphasise that we need to stay open to feelings to process the information they contain, it was

decided to emphasise that all feelings can be helpful for us (since they tell us important things) in order to further encourage children's openness to them. Therefore, the objectives for this area are:

- Recognise clues for happy, sad, angry and scared feelings in self;
- Identify triggers of happy, sad, angry and scared feelings in self;
- Identify likely information conveyed by happy, sad, scared and angry feelings;
- Know that all feelings can be helpful.

As mentioned above, the first three objectives are already listed for previously covered areas of the model and are covered by the activities developed for those areas. The final objective is covered through discussion following the role-play of the consequences of emotions.

8.4.7 Engaging with helpful emotions and disengaging from unhelpful ones.

This area is broken down into four objectives:

- Judge if a happy, sad, angry or scared emotion is helpful in context;
- Be able to decide whether to keep or stop a feeling;
- Know simple disengagement strategies;
- Identify preferred way to disengage from a happy, sad, scared or angry feeling.

Although research has demonstrated that children quickly learn social rules for when it is inappropriate to display a negative emotion (Scharfe, 2000), at other times deciding whether to engage or disengage from an emotion can be quite a complex process. The reviewed programmes had a variety of ways of teaching to disengage from negative emotions, for example PATHS begins with teaching children to *do turtle* whereby they stop, calm down and then decide on a course of action; ELSA and "Dealing with Feeling" emphasise the *traffic light approach* of stop, plan, go. However, both of these techniques require the child to have already identified that they need to disengage from their feeling to reach the stop point. Therefore, it was decided to try a novel script which children can learn to use when they become aware they are experiencing a feeling. Since the central idea of this area is to discriminate helpful instances of the emotion from unhelpful instances, a simple way for children to understand this is that emotions are helpful to us when they help all people involved to have fun. Accordingly, the script developed centres around the idea of fun. This occurs in two ways: firstly, the stages of the process can be labelled by the mnemonic FUN; secondly, the key judgment is based on whether all people are having fun. Consequently, children are encouraged to think how they are feeling (F), decide if the feeling is useful (U), by identifying if them and everyone around them are having fun, and finally deciding what to do next (N), in terms of keeping or saying "no" to the emotion. Figure 40 illustrates this FUN script process. In addition to

teaching the script, opportunities to practise using it are included through role-play with puppets, because this requires active engagement with the script.

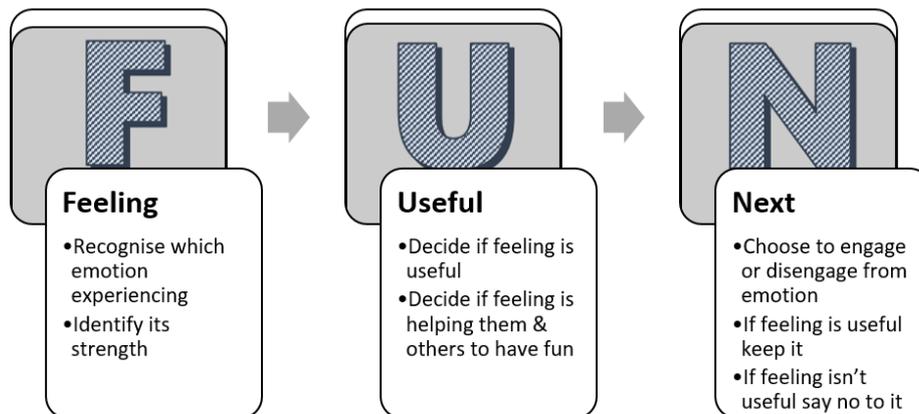


Figure 40: FUN script process for judging whether to engage or disengage from emotions.

8.4.8 Perceiving emotional content in the environment, arts and music, and expressing emotions accurately.

As previously detailed, it was decided to include content in the programme which enabled participants to practise these two areas whilst not explicitly teaching skills in them. Hence, the introductory stories feature relevant environmental associations for each of the target emotions and use colours which are frequently connotated with the featured emotion. Similarly, picture cues for the triggers of emotions will allow for examination of environmental emotional cues.

The accurate expression of emotions is encouraged by asking the child to compare how they express the emotion with how the story character expresses it. Importantly though, although the story character's expressions will be based on the expressions identified by research, the comparison is intended to be non-judgmental, and is not designed to suggest to the child that they should be the same as the character. Instead, this activity is merely intended to encourage the child to reflect and recognise how they typically express the target emotion.

8.4.9 Generalisation.

Many of the exemplar programmes reviewed included a strategy to promote generalisations of skills outside of the learning context. This seems important since EI skills have been shown to be vital in most contexts (Perez-Gonzalez & Qualter, 2018). Therefore, a Learning Log is created as part of the programme, which participants will take away with them at the end to remind them of their learning.

8.4.10 Programme structure.

One of the key decisions with regard to structure, was whether to focus on all emotions simultaneously or whether to cover each independently. Most of the exemplar programmes chose an individual approach, which seems advantageous in that it allows exploration of the given emotion without confusion or interference from information relating to the other emotions. However, part of EI is being able to evaluate amongst the emotions; indeed one of the covered areas refers to understanding the relations between emotions (Branch 3 Area 1). Therefore, the inclusion of both emotion-focused and emotion-comparative sessions within the programme seemed appropriate. Given the amount of content to cover for each emotion, two sessions were dedicated to each of the four emotions covered by the programme. These sessions follow the same format for each emotion to ensure fair coverage. Furthermore, this appears to be good practice since several of the exemplar programmes follow a set session format (e.g. PATHS, Dealing with Feeling, DESTY). Consequently, eight sessions are dedicated to skill development in relation to the four emotions individually.

Because the success of the programme depends on the quality of the adult-child relationship, in that quality dialogue has been identified as the key ingredient for the enhancement of EI (Zeidner et al., 2003), the first session is designated as an introductory “getting to know you” session. This also provides an opportunity to ensure participants understand key vocabulary used in the stories. The remaining three sessions are designated as emotion-comparative sessions. The first of these is placed after the happy and sad focus sessions and targets comparison of those two emotions, whilst simultaneously providing an opportunity for rehearsal and consolidation of knowledge gained in the previous two sessions. The second and third comparative sessions are placed at the end of the programme. The second follows the same format as the first comparative session but includes all four emotions (with a heavier emphasis on angry and scared, since happy and sad have already been compared in the first session). The final comparative session aims to ensure children are competent in all programme objectives by presenting a quiz covering all areas and all emotions taught. Figure 41 gives an overview of the programme structure and detailed session plans are in Appendix K1.

Since several of the above activities utilise a character, either in a story or through role-play with puppets, it was decided to create a central character which should aid programme coherence. This character becomes the child’s companion on an “Emotional Intelligence Journey”. The puppet form of the character is largely controlled by the child, allowing them to explore some quite personal ideas and experiences in de-personalised manner by projecting them onto the puppet. The adult facilitator takes on the role of various other characters to facilitate the role-play activities, and can talk to either the child or the puppet, depending on which the child feels more comfortable with.

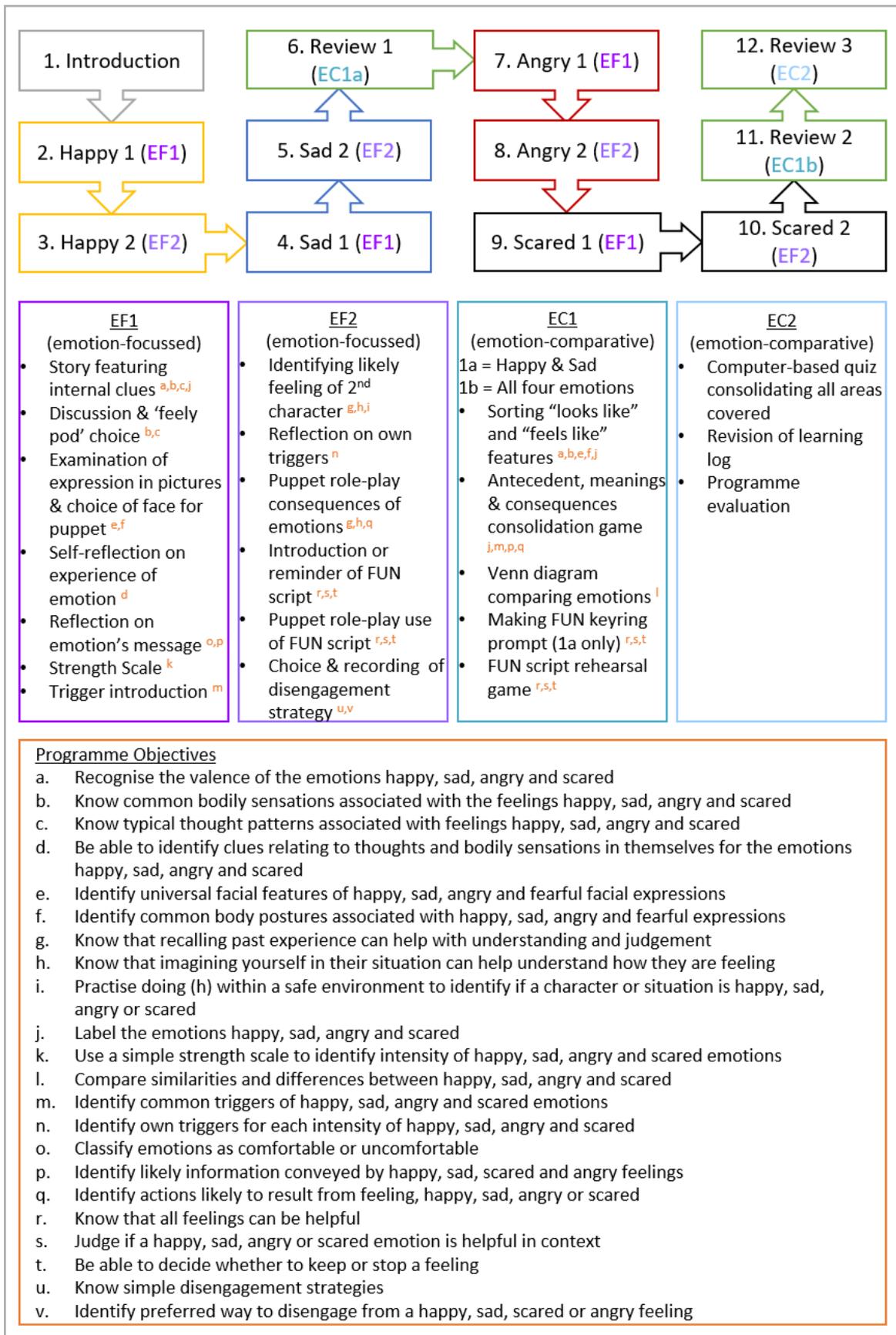


Figure 41: Diagram showing outline structure of the Emil programme.

9 Emil Programme Development Part 3: Resource Preparation

The final stage of developing the Emil programme was to create the necessary resources to deliver the curriculum. As identified in the selection of activities, there are research findings and theories relating to most of the areas covered. Therefore, an initial literature search was carried out to ensure accurate knowledge was included before resources were created.

9.1 Literature Search to Establish Necessary Knowledge

The purpose of this search was to create an accurate knowledge base for the creation of programme resources by establishing generally accepted findings or theories in relation to the four emotions covered (happy, sad, angry, scared) for the following:

- Bodily sensations and internal feelings;
- Typical thought patterns;
- Facial expressions and body language;
- Antecedents or triggers;
- Meanings and definitions;
- Likely consequences and action tendencies;
- Environmental connotations;
- Colour and artistic associations;

Both empirical and theoretical writings were consulted in order to establish consensus in each area as comprehensively as possible. The sections below detail the findings regarding each emotion. Emotional regulation is considered separately at the end because ideas in this area appear to be non-emotion-specific. Although the aim was to use universal principles wherever possible, where necessary priority was given to findings in western cultures as the Emil programme is designed for use in a western country.

9.1.1 Happiness.

In general, authors concur that the experience of happiness is a positive one (Darwin, 1872/2009; Ekman, 2004; Roseman, 2001). For the purposes of this information search, information regarding joy was considered to be referring to happiness. Little information was found regarding specific internal sensations associated with happiness, with it seeming to be generally associated with feeling good (Kövecses, 2003; Widen, 2016). Rimé, Philippot, and Cisamolo (1990) reported relaxed muscles were heavily associated with joy. On the other hand, happiness also seems to be associated with increased energy, for example Roseman (2001) identified the phenomenology of joy as “attainment, vivid, light” (p. 70), and Darwin (1872/2009) noted an increased heart beat can often

accompany joy. Similarly Nummenmaa, Glerean, Hari, and Hietanen (2014) found happiness was the only emotion which resulted in increased activation in all areas of the body. Finally, happiness appears to be associated with a feeling of warmth (Kövecses, 2003; Rimé et al., 1990).

The most common external indicator of happiness is a smile (Ekman & Friesen, 2003; Roseman, 2001). More formally, Ekman and Friesen (2003, p. 112) listed the features of the happiness facial expression as the corners of lips drawn back and up, either parted with teeth showing or closed; a *naso-labial fold* (a wrinkle from the nose to the far edge of the lip corners); raised cheeks; wrinkles below the lower eyelid and at the outer corners of the eyes (crow's feet); and finally, often the lower eyelid is raised but not tense.

In terms of the body language of happiness, Darwin noted that a "person in good spirits" tends to stand tall with their head up, and no drooping features (Darwin, 1872/2009, p. 210), and that intense joy leads to "purposeless movements" (p. 195) such as dancing, clapping, and loud laughter. Similarly, Dael, Mortillaro, and Scherer (2012) found joy was characterised by the arms moving symmetrically up and down repetitively, and pleasure was indicated by the head being tilted up along with the arms moving asymmetrically. Building on previous research, Lopez, Reschke, Knothe, and Walle (2017) identified two postural poses which were reliably identified as joy, along with a third pose which was most frequently associated with joy, but not significantly above chance level. The two most distinct poses both feature arms held out to the side, slightly above waist height and one leg slightly forward and bent, suggestive of movement (Lopez et al., 2017, Supplementary Figure 1).

Roseman (2001) asserted that joy results from an appraisal of an event as certain to occur, and consistent with an appetitive motive, whilst Lazarus (2001) defined the core theme of happiness as "making reasonable progress towards the realization of a goal" (p. 64); similarly, Frijda (2007) noted that joy arises from success. More specifically, Ekman (2004, p. 201) identified reunions with a person to whom we are attached, sexual relations, a wanted child being born, loving relationships with one's family, and romantic relationships as universal themes for an enjoyable emotion. Similarly, Frude (2015) listed the ingredients of happiness as: something to do, something to love and something to look forward to.

With regards to the purpose of happiness, Ekman (2004) asserted that it provides motivation to undertake activities which are good for us, whilst Roseman (2001) identified its motivational goal as sustaining the current state. Therefore, likely actions as result of feeling happy, include moving towards the enjoyable event and taking positive action (Roseman, 2001), although it is also thought

to be expressed through exuberant or purposeless movements such as jumping and dancing (Darwin, 1872/2009; Roseman, 2001; Saarni, 1997).

In terms of artistic and environmental connotations, using weather as a metaphor for emotions seems to be a popular therapeutic approach (e.g. Tessina, 2017), and sunshine is often used as a metaphor for happiness (Steinvall, 2007). Similarly, bright colours such as yellow and orange are most often linked to happiness (Boyatzis & Varghese, 1994; Clarke & Costall, 2008; Steinvall, 2007).

9.1.2 Sadness.

In contrast to happiness, sadness usually presents as an unpleasant or negative experience (Ekman, 2004; Roseman, 2001). Ekman (2004) suggests that sadness is accompanied by the bodily changes of eyelids becoming heavier, cheeks starting to rise, tears forming in the eyes, and the back of the throat becoming sore. Other commonly identified indicators of sadness are a lump in the throat and not wanting to move (Darwin, 1872/2009; Roseman, 2001). In keeping with this, Nummenmaa et al. (2014) found sadness to be associated with increased activation around the eyes, throat and heart, and decreased activation in the arms and legs. Rimé et al. (1990) also found sadness to be slightly associated with feeling cold. The key appraisal or thought behind sadness seems to be missing someone or something (Frijda, 2007; Roseman, 2001).

The most easily identifiable features of the sadness facial expression seem to be the corners of the mouth being down and wrinkles in the centre of the forehead (Darwin, 1872/2009; Ekman & Friesen, 2003). In addition, the inner ends of the eyebrows tend to be raised (Darwin, 1872/2009; Ekman & Friesen, 2003), as does the inner corner of the upper eyelid and the lips may tremble (Ekman & Friesen, 2003). Darwin (1872/2009) additionally notes that the face may appear pale. The bodily expressions of sadness include a hanging head (Coulson, 2004; Darwin, 1872/2009), rounded downwards pointing shoulders (Coulson, 2004), and loose arms downwards in front of the body (Dael et al., 2012). Lopez et al. (2017) identified four postural poses of sadness, three of which were reliably identified. Of these, it was notable that the one pose which featured hands up by the heart area, rather than hanging down, was significantly miscategorised as fear more often than anger.

As previously mentioned, sadness is related to missing something and therefore its most frequent antecedent is a loss (Ekman, 2004; Frijda, 2007; Lazarus, 2001; Roseman, 2001). However, Frijda (2007) emphasises that the loss must be within the individual's personal concern to trigger sadness. This theme is evident in Ekman (2004)'s list, detailing seven different losses which are likely to trigger sadness: child death, a friend or lover's rejection, loss of self-esteem as a result of failing at work, losing the admiration or praise of a superior, loss of good health, losing a bodily part or function as a result of an injury, and a lost treasured object (pp. 84-85). Roseman (2001) identifies

the emotivational goal of sadness as recovery; this is echoed by Ekman (2004) who noted a sadness function “is to allow the person to rebuild his resources and conserve his energy” (p. 90). Another function noted by Ekman is “to enrich one’s experience of what the loss has meant” (p. 90). Sadness also seems to serve the social purpose of gaining support or help from others (Ekman, 2004; Fischer & Manstead, 2016). This is obviously a consequence of sadness alongside the aforementioned inaction and a tendency to cry (Roseman, 2001).

Rain is a commonly used metaphor for sadness, along with gloomy, grey weather (Steinval, 2007). Kövecses (2003) also connects sadness with losing heat. In terms of colour connotations, blue is very much associated with sadness, with the feeling often described as “feeling blue” (Clarke & Costall, 2008; Steinval, 2007). However, the colour black is also frequently associated with sadness (Steinval, 2007).

9.1.3 Anger.

Most people report the experience of anger as negative, although the extent of the negativity can vary (Harmon-Jones & Harmon-Jones, 2016). Of all the emotions, anger appears to have received the most individual attention in children, with the ELSA programme, for example, having a whole area dedicated to anger management (Shotton & Burton, 2008). Additionally, there is a huge variety of anger management programmes for children, with an amazon.co.uk search for “anger management for children” returning over 2,000 results. Consequently, the bodily sensations associated with anger appear to be relatively widely documented. Most authors report sensations of increased heart rate, faster breathing, tense muscles, and feeling hot (e.g. Darwin, 1872/2009; Ekman, 2004; Shotton & Burton, 2008). Ekman (2004) additionally suggested that an angry person often clenches their jaw, whilst Shotton and Burton (2008) reported a churning stomach as a bodily sensation of anger. Nummenmaa et al. (2014) found adults universally report activation in the head, heart and arm areas for anger. The main thought appraisals behind anger appear to relate to injustice (Roseman, 2001) and offense caused by others (Frijda, 2007; Lazarus, 2001; Roseman, 2001).

Ekman and Friesen (2003) asserted anger must be shown in all facial areas for the anger expression to be unambiguous; they list the facial expressions of anger as: lowered and drawn together brows, vertical lines between the brows, tense lower eyelids which may be raised, tense upper eyelids which may be lowered, bulging eyes with a hard stare, and lips either pressed together in a straight line or tense and squarish as if shouting (pp. 95-97). They also identified that nostrils may be dilated but emphasised this is neither essential nor unique to the anger expression. Most other authors appear to concur with this description (Harmon-Jones & Harmon-Jones, 2016), though Harmon-Jones and Harmon-Jones (2016) cautioned that the full anger expression is often not displayed due

to the learned social norms of society to suppress it. In terms of the bodily expression of anger, Darwin (1872/2009) identified that a person in a state of rage stood erect with rigid limbs accompanied by gestures, like raising arms with clenched fists as if to strike someone. He further asserted that a person who experiences less intensive anger may have elbows squared in a rigid manner by their sides, although fist clenching is still common. A forward lean also appears to be common to anger (Coulson, 2004; Dael et al., 2012). Some of these elements are visible in the three poses presented by Lopez et al. (2017), all of which were reliably identified as anger with no significant miscategorisations.

There appears to be a variety of different triggers for anger; the key themes appear to be blocked goals (Ekman, 2004; Harmon-Jones & Harmon-Jones, 2016), threat to self-esteem (Harmon-Jones & Harmon-Jones, 2016; Lazarus, 2001), frustration (Ekman, 2004; Frijda, 2007), perceived injustice (Roseman, 2001) and deliberate harm from another person (Ekman, 2004; Harmon-Jones & Harmon-Jones, 2016; Lazarus, 2001). Harmon-Jones and Harmon-Jones (2016) emphasised that there must be an appraisal of other-blame to specifically elicit anger rather than another negative emotion, and Fischer and Manstead (2016) equally agreed that anger usually implies another person is in the wrong. However, Frijda (2007) disputed this, pointing to research which highlights that other-blame is not always present when anger occurs. A further suggested pre-requisite for anger, is that the individual must perceive that they have a high chance of controlling the situation because anger is an attack emotion with an appetitive motive for control (Harmon-Jones & Harmon-Jones, 2016; Roseman, 2001).

According to Ekman (2004), it is hard to specify a single message that anger conveys, however the most consistent association amongst authors is that anger is instrumental in initiating change (Ekman, 2004; Fischer & Manstead, 2016; Roseman, 2001). Other suggested purposes include the organisation and regulation of psychological, social, and interpersonal processes (Harmon-Jones & Harmon-Jones, 2016), social distancing (Fischer & Manstead, 2016), warning others of trouble (Ekman, 2004), and control (Ekman, 2004; Harmon-Jones & Harmon-Jones, 2016). In terms of the consequences of anger, Ekman (2004) stated “I suspect that the impulse to harm, for virtually everyone, is a central part of the anger response” (p. 115); this view is supported by Roseman (2001) who specified hitting and criticising as anger behaviours and the emotivational goal as “hurt” (p. 71). However, Harmon-Jones and Harmon-Jones (2016) suggested the long-term consequences of anger can be positive, for example resulting in selective attention towards rewards and increased motivation and persistence. Furthermore, collective anger can drive social change (Fischer & Manstead, 2016).

Anger is frequently described as seeing red and therefore heavily associated with the colour red (Fetterman, Robinson, & Meier, 2012). Steinvall (2007) also found green to be frequently associated with anger, however this specifically related to the concept of jealousy and Clarke and Costall (2008) reported conflicting results of green being most associated with calm. The strong association between anger and red is attributed by Steinvall (2007) to a metaphor of anger as heat. Following this, anger is also often associated with fire (Fetterman et al., 2012; Kövecses, 2003). It is also often likened to a storm (Hampshire Educational Psychology Service, 2010/11; Kövecses, 2003). However, Kövecses (2003) asserted “the conceptual metaphor that seems to be the central one for anger is ANGER IS A HOT FLUID IN A CONTAINER” (p. 22); in-keeping with this, a volcano simile is often used to describe the anger experience to young children (e.g. Pudney & Whitehouse, 1996).

9.1.4 Fear.

Fear is considered a negative, although somewhat protective, emotion (LaBar, 2016). Common fear sensations appear to be rapid breathing or panting (Darwin, 1872/2009; Ekman, 2004; LaBar, 2016), a pounding heart (Darwin, 1872/2009; Rimé et al., 1990; Roseman, 2001), sweating or increased skin conductance (Ekman, 2004; LaBar, 2016; Rimé et al., 1990), trembling or shivering (Darwin, 1872/2009; Ekman, 2004), pale skin (Darwin, 1872/2009; LaBar, 2016), and a drop in body temperature (Kövecses, 2003; Rimé et al., 1990). Darwin (1872/2009) additionally suggested the mouth may go dry and hairs on the skin can stand erect on end, whilst Ekman (2004) asserted the hands get colder. Nummenmaa et al. (2014) found people reported increased activation in the heart, head, stomach, and, to a lesser extent, hands to be associated with fear. The phenomenology of fear revolves around an appraisal of danger (Lazarus, 2001; Roseman, 2001).

Most authors agree that the key facial features of the fear expression are raised eyebrows, wide eyes (with white showing above pupil), and an open mouth with lips drawn back (e.g. Darwin, 1872/2009; Ekman & Friesen, 2003; Roseman, 2001). Ekman and Friesen (2003) additionally identified that the eyebrows are drawn together as they are raised and wrinkles appear in the middle of the forehead. Darwin (1872/2009) asserted that a fearful person will stand like a statue or crouch down, whereas Ekman (2004) stated that the person is likely to move backwards, whilst Dael et al. (2012) identified the body leaning backwards as a fear indicator. Darwin further identified that the person’s arms will either be protruded or waved wildly above their head with hands being alternatively clenched and opened. Lopez et al. (2017) identified two reliably recognised fear expressions, both of which feature the body tilted backwards and arms out in front with hands splayed open.

The key trigger for fear is a threat of harm (Ekman, 2004; LaBar, 2016; Lazarus, 2001; Roseman, 2001). Although Lazarus (2001) specified an overwhelming physical danger as the core relational theme of fright, LaBar (2016) emphasised that fear triggers in humans are more often psychological than physical. Authors concur that we can learn to be afraid of anything (e.g. Ekman, 2004; LaBar, 2016), however both Ekman (2004) and LaBar suggested that snakes and spiders are likely to be innate fear stimuli (although not universal). Ekman also suggested a further three unlearned triggers: something approaching quickly which will hit you if you don't duck, a sudden loss of support resulting in a fall, and the threat of physical pain. With regard to the purpose of fear, Roseman (2001) defined its emotivational goal as getting to safety or preventing harm; most other authors agree with this sentiment (e.g. Ekman, 2004; LaBar, 2016). The consequences of fear are generally agreed to involve taking action to avoid the threat such as hiding, or moving away from it (Ekman, 2004; LaBar, 2016; Roseman, 2001).

Artistic connotations of fear are somewhat less obvious than those of sadness or anger; although fear can be easily recognised in artworks such as the famous painting "The Scream" (Mayer & Salovey, 1997), this may be due only to similarities between the painting and the facial expression rather than the additional abstract connotations suggested by Mayer and Salovey (1997). However, Clarke and Costall (2008) found that people described the colour black as sinister and evil which connotes with fear (Kövecses, 2003). Steinvall (2007) additionally found white to be connected with fear. It is also commonly accepted that stories often feature weather events such as thunderstorms to induce a fearful atmosphere.

9.1.5 Disengagement from emotions.

There is a wide range of potential emotion-regulation strategies, many of which are relevant to disengaging from emotions. These strategies have been classified in a variety of ways. For example, Suri and Gross (2016) differentiated between antecedent-focussed and response-focussed strategies, Pons et al. (2004) compared the emergence of physical versus psychological strategies, and Eisenberg and Sulik (2012) distinguished between effortful and reactive emotional control. Of these classifications, only reactive control is not relevant to teaching emotional disengagement since it cannot be consciously controlled (Eisenberg & Sulik, 2012). With regard to the other categorisations, it is hard to define whether any are more easily utilised by children for disengaging from emotions. Antecedent-focussed strategies such as situational selection, or modification, attentional deployment and cognitive change, are utilised before the full emotional response has developed. These may be effective for disengaging from emotions because they avert the emotion before it is fully developed. However, in order to be effective they require the child to be able to

recognise and evaluate their emotions at an early stage. In contrast, response-focused strategies act on the emotional response; whilst these do not require early emotion detection, they will require a high degree of behavioural control in order to inhibit automatic behavioural responses to strong emotions. When comparing cognitive and physical strategies, as previously discussed, the developmental literature suggests that cognitive-based strategies tend to emerge later in development than physical strategies (Pons et al., 2004), indicating that the cognitive strategies are likely more sophisticated. This could indicate that they are likely to be more effective, however the use of physical strategies remains constant across all age brackets (Pons et al., 2004), indicating that their usefulness does not deteriorate.

From these descriptions, it is clear that there are a number of factors affecting the success of a strategy for disengaging from an emotion. Suri and Gross (2016) reported the following influencing factors: intensity of the emotion, the available cognitive resources and the individual's beliefs about the emotion. This indicates choice of disengagement strategy is likely to be both personal and situation-dependent. In support of this, Eisenberg and Sulik (2012) also concluded that strategy choice is heavily influenced by individual differences. Therefore, it appears an individual is likely to require a repertoire of disengagement strategies encompassing each of the categories above.

9.2 Creation of Materials

This section details how the resources for the programme were designed and made. Unless otherwise stated, each activity was trialled on an individual basis with at least one child of the target age-range in order to ensure the activity was accessible and understood as intended.

9.2.1 Central character.

Because much of the programme revolves around a character, this was viewed as one of the most important elements. Three key design elements were identified:

1. The character must be gender-neutral:
 - The programme is intended for both boys and girls and therefore it was felt important to keep the character as gender-neutral as possible to allow each child to engage with it in their own way.
2. The character must not have any strong connotations with a specific emotion:
 - It is important that the character is able to experience all emotions as a child would. Accordingly, it must have no features that strongly link it to a specific emotion (e.g. many puppets have a smiley face which would make it permanently appear happy).
3. The character must have arms and legs:

- This is because arms and legs feature strongly in the experience of some emotions; consequently, the character needs them to be able to demonstrate this.

Additionally, it was felt that the character should not be an animal since EI relates to human emotions and animals do not have the same facial features with which to express their emotions. However, a classic human puppet is hard to keep gender neutral as one typically wants to add to clothes and hair, which can be interpreted in a gendered way. Thus, the best option appeared to be an indiscriminate blob-like shape which can have the necessary features. Because the programme relates to emotions and feelings, which are often represented by a heart symbol, this seemed an appropriate base shaper for the character. Accordingly, the character shape was created using auto-shapes in Microsoft Publisher, with an upside down heart (h = 19.28 cm, w = 12.49 cm) creating the body and legs, an oval (h = 10.37 cm, w = 10.74 cm) overlapping the point of the heart representing the head, and two “Flowchart – Delay” shapes (h = 5.66 cm; w = 6.17 cm) adjoining the sides of the heart to create arms. Figure 42 shows the shape construction of the character.

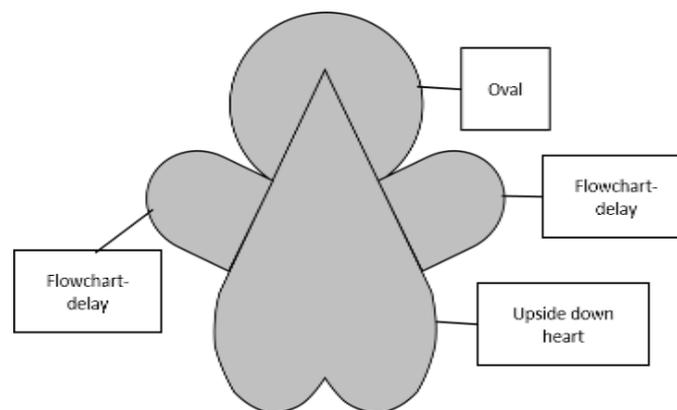


Figure 42: Diagram to illustrate the shape construction of the central character.

The next step was to choose a colour for the character. The two main considerations here were to avoid any colours which are commonly strongly associated with specific emotions and also to avoid any colours which are usually associated with a particular gender (e.g. pink for girls, blue for boys, Frassanito & Pettorini, 2008). A turquoise, or aqua, colour was chosen since this is not considered a gendered colour (Frassanito & Pettorini, 2008), has no strong emotional connotations (Clarke & Costall, 2008), yet is a bright colour so likely to attract attention (Camgöz, Yener, & Güvenç, 2004).

Finally the character was named Emil (pronounced Em-eel). Again, most common names tend to be associated with a particular gender. They also run the risk of being a name that evokes negative connotations or memories for participants. Therefore, the name Emil was created as representation of the underlying Emotional Intelligence concept, which should be free of apriori associations.

Having given the character a shape, colour and name, a puppet and digital version of Emil were created. Additionally, facial expressions were created for it, as outlined below.

9.2.1.1 Faces.

As mentioned above, many puppets typically have a permanently smiling face. Whilst this makes the puppet attractive in appearance, it would be inappropriate for this programme, where the character is intended to feel the whole range of emotions explored. Because facial expressions are a key part of emotions (Ekman, 1999), it was decided to give the character the correct facial expression for each of the emotions. For the digital character, this can be relatively easily achieved through editing. The puppet character was designed to have a changeable face. As well as encouraging accurate expression of emotions, the opportunity to physically change the emotion of the character may help to introduce the concept of changing emotions which is a higher level EI skill area (Mayer et al., 2016a).

Because there is large amount of research evidence supporting them, the happy, sad, angry and fearful expressions described by Ekman and Friesen (2003) were chosen as the facial expressions for Emil. The facial features were drawn specifically for the project by Lyn Williams, using the descriptions and photographs provided by Ekman and Friesen (2003) as a guide. These were scanned to digital images, which were inserted into Microsoft Publisher and cropped square to the edges of the features. They were then arranged inside 7cm circle auto-shapes to create the faces. The features were coloured grayscale and the outer circle was a dark grey colour (All RGB settings for the circle were 158). The eyes were placed at approximately the same height for each face, using a 2.3 cm high rectangle for alignment. The feature images were resized individually to ensure they fitted comfortably inside the outer circle. Figure 43 shows the four final faces for Emil.

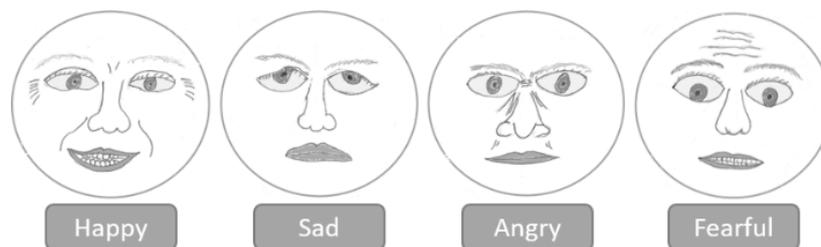


Figure 43: Emil's four faces.

The created images were saved as PNG files for use with the digital version of Emil. The Puppet faces were created by printing the publisher document onto a sheet of Techni-Print® EZP laser heat transfer paper, which was then heat transferred onto 3 mm white acrylic felt, and the faces cut out. Heavy duty stick on Velcro (5 cm x 4.5 cm) was placed on the back of each face and in the middle of the head area on each puppet to allow the faces to be attached and removed from the puppet as

necessary. The edges of the Velcro were superglued down to prevent the Velcro peeling away. Figure 44 shows Emil with his happy face attached, and unattached to show the Velcro fixings.

9.2.1.2 *Puppet Emil.*

Firstly, a template for the puppet was created. After experimenting with some early prototypes the final template was created by printing the original shape template (available in Appendix K2) and enlarging it on the photocopier by 115 %; creating a template sized at 25.8 cm high and 23.1 cm wide. This was used to create the outline shape on two turquoise 30 x 30cm Ikea HÄREN washcloths. The washcloth material was chosen as a result of consultation, regarding a sample variety of materials, with a group of ELSAs. They suggested the washcloth would be most engaging for children due to its varied texture and warmth. A 6 cm long piece of loop Velcro was ironed onto the one of the pieces 12 cm down from the top of the head. This was for attachment of the “feely pods” (see below). Next the two pieces were machined sewn together leaving approximately a 0.75 cm border ensuring that the Velcro was facing outwards. Finally, the puppet was turned inside out so that the sewn edges were inside, and the face Velcro attached (see Figure 44).



Figure 44: Photograph of Emil puppets, with and without a face attached.

9.2.1.3 *Digital Emil.*

The template shape created in Microsoft Publisher was saved as a PNG file. This was then opened in Paint and the inside lines of the arms were removed, using the eraser tool. The whole shape was coloured white, using the fill tool, to match the areas where the arm lines were erased. Then the fill tool was used again to colour the image turquoise. The exact colour settings are listed in Table 20 alongside those used for the other characters (see additional characters section below).

Table 20: Colour Settings for Digital Representations of Characters

Character	Hue	Saturation	Luminosity	Red	Green	Blue
Emil	120	236	106	2	223	223
Efoth	54	229	203	227	253	179
Parent	120	121	89	47	142	142
Eino	120	236	86	1	182	182
Teacher	192	234	41	69	1	86
Friend X	160	0	133	141	141	141
Friend Y	210	93	85	125	55	108
Friend Z	53	221	135	188	239	30

For some stories and pictures, it was necessary to manipulate the positioning of Emil’s arms. This was done using the original template in Microsoft Publisher by adjusting the rotation, 3D settings, orientation and dimensions as required to give the desired effect. The images were again saved in PNG format and edited to remove internal lines in paint if required. Figure 45 shows all of digital Emil’s poses.

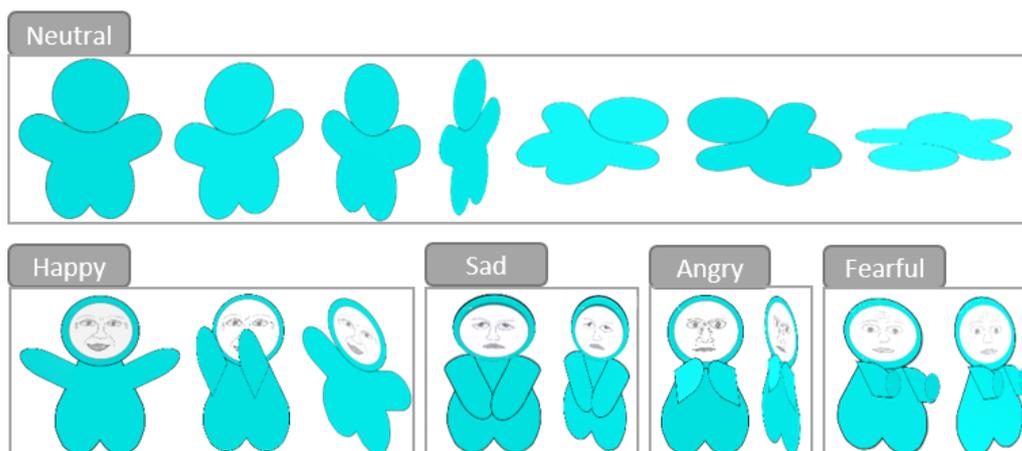


Figure 45: Poses used for the digital Emil in the programme materials.

9.2.2 Feely pods.

When selecting activities, it was decided to include some tactile representations of internal feelings as a practical activity to enhance recognition of emotions in oneself. This consisted of a set of tactile “feely pods” which can be attached to the inside of puppet Emil to represent how the emotion feels inside the body.

The literature search established some ideas regarding bodily sensations generated by emotions, however evidence suggests that many of these changes emerge only as self-reported sensations and are not evidenced as physiological responses (Rimé et al., 1990). Consequently, Rimé et al. (1990)

suggested such sensations are likely to be socially constructed knowledge, or schemata. This presents a slight problem when working with children, because most suggestions regarding bodily sensations have emerged from reports of adults, who will have had a wider social experience than children and may therefore have differentially developed emotional schemata to younger children. A further issue with regard to making tactile representations is that many of the identified sensations in the literature search are not amenable to tactile construction. Therefore, before constructing the feely pods, it was necessary to establish how children of the target age range may describe their internal emotional sensations. One local school had recently investigated this as part of their Personal, Social, Health and Citizenship Education (PSHCE) curriculum and were kind enough to share their findings with the project. Their investigation and findings are briefly described in the next section.

9.2.2.1 Investigation into children's descriptive labels for internal feelings sensations.

The purpose of the investigation was twofold: firstly the school wanted to encourage pupils to reflect upon how they experience emotions internally and secondly they wanted to establish a set of common adjectives for emotional body sensations which the children related with, to use in their PSHCE teaching. Each child in Years 3 and 4 were withdrawn individually, with a teaching assistant, to complete a sorting task where they were asked to post a series of sensations adjectives into one of five boxes labelled *happy*, *sad*, *angry*, *scared*, and *none*, depending on which emotion they associated the adjective with. If they associated the adjective with more than one emotion, spare adjective cards were available to enable multiple selections to be made. If the child did not understand what one of the words meant, they were instructed to place it in the *none* box since they would not use that word to describe their feelings.

Figure 46 illustrates the results showing the emotion associations for each word. Some words were very clearly associated with one specific emotion whilst for others there was more variation. For this project, each emotion was analysed in turn to identify which adjectives were more frequently associated with that emotion than any of the others. Table 21 lists those adjectives identified in order of number of associations (most to least) for each emotion.

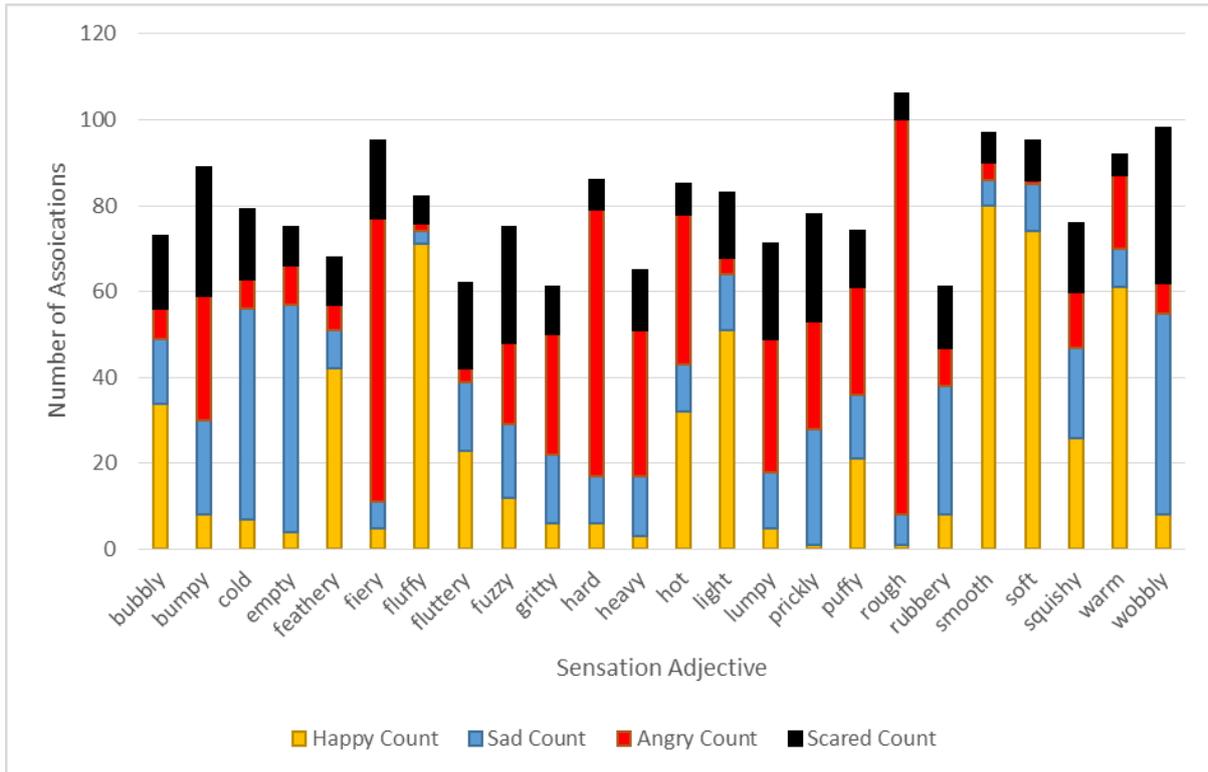


Figure 46: Stacked bar graph showing the results of the sensation adjective sorting investigation.

Table 21: Sensations Adjectives Listed According to Which Emotion they were more Frequently Associated with

Emotion	Happy	Sad	Angry	Scared
Associated	Smooth	Empty	Rough	Bumpy
Sensations	Soft	Cold	Fiery	Fuzzy
	Fluffy	Wobbly	Hard	
	Warm	Rubbery	Hot	
	Light	Prickly	Heavy	
	Feathery		Lumpy	
	Bubbly		Gritty	
	Squishy		Puffy	
	Fluttery			

Note: Adjectives listed in order of most to least associations

9.2.2.2 Determining contents of the feely pods.

Having established the adjectives that a sample of children most associated with internal experiences of each emotion, the next task was to attempt to create tactile representations of each of these associations. Firstly, for each adjective, a list of matching materials was collated. Because there is some overlap between the materials and adjectives, as well as several different materials that could match each adjective, a sample of 15 pods containing different materials was constructed

for pilot testing. The contents, targeted textures, and potential related emotions of these sample pods are shown in Table 22.

Table 22: Details of the Initial Sample of Feely Pods

Pod Identifier	Material(s)	Target Sensations	Potential Emotion(s) ^a
A	Cotton wool	Soft, fluffy, squishy, warm, light	Happy
B	Mini pom-poms	Bubbly, light, warm, bumpy	Happy or scared
C	Spiked beads	Prickly	Sad
D	Jelly slime	Wobbly, rubbery, cold	Sad or happy
E	Clay (unhardened)	Cold, squishy, rubbery	Sad or happy
F	Bubble wrap	Bubbly, light, empty, bumpy	Happy, sad or scared
G	Grit	Gritty, rough, hard, prickly	Angry or sad
H	Glass beads	Lumpy, bumpy, cold, hard	Angry, scared or sad
I	15 mm glitter pom-poms	Fuzzy, bumpy, bubbly	Scared or happy
J	Tinsel	Fuzzy, squishy	Scared or happy
K	15mm craft pom-poms	Bubbly, light, warm, bumpy, squishy	Happy or scared
L	15mm marbles	Hard, bumpy, lumpy, cold, heavy	Angry, scared or sad
M	Blue-Tack	Rubbery, cold, heavy	Sad or angry
N	Scrunched tissue paper	Puffy, light, fuzzy, bumpy	Scared, angry, or happy
O	Dried moss	Puffy, light	Angry or happy

^a Potential emotions derived from identified sensation associations; emotion with most sensation matches is listed first.

Initially, the pods were piloted with a sample of 15 Year 4 children, who were identified by their teacher as being high in EI. The children were asked to feel each pod in turn (order of presentation of the pods was counterbalanced to avoid order effects) and then place the pod with the emotional label they would associate it with. The labels given were happy, sad, angry, scared and none. They were also asked to describe what the pod felt like to them. Results of this initial pilot are shown in Figure 47; it is clear from this that no pod was clearly associated with scared and only one with sad. There were also several unexpected associations when compared with the adjective associations. In particular, Pod C, which was intended to be prickly and therefore associated with sad, was strongly associated with angry, despite several children describing it as prickly. Similarly, the jelly slime pod, which was intended to feel cold and wobbly, was almost universally described as squishy and associated with happy. Consequently, it was clear that some adjustments were required to ensure sad and scared were adequately represented. Finally, some of the materials were shown to be inappropriate during testing. Specifically, the clay (Pod E) went hard losing its target textures, and the bubble wrap (Pod F) was apparently very tempting to pop and therefore lost its original form.

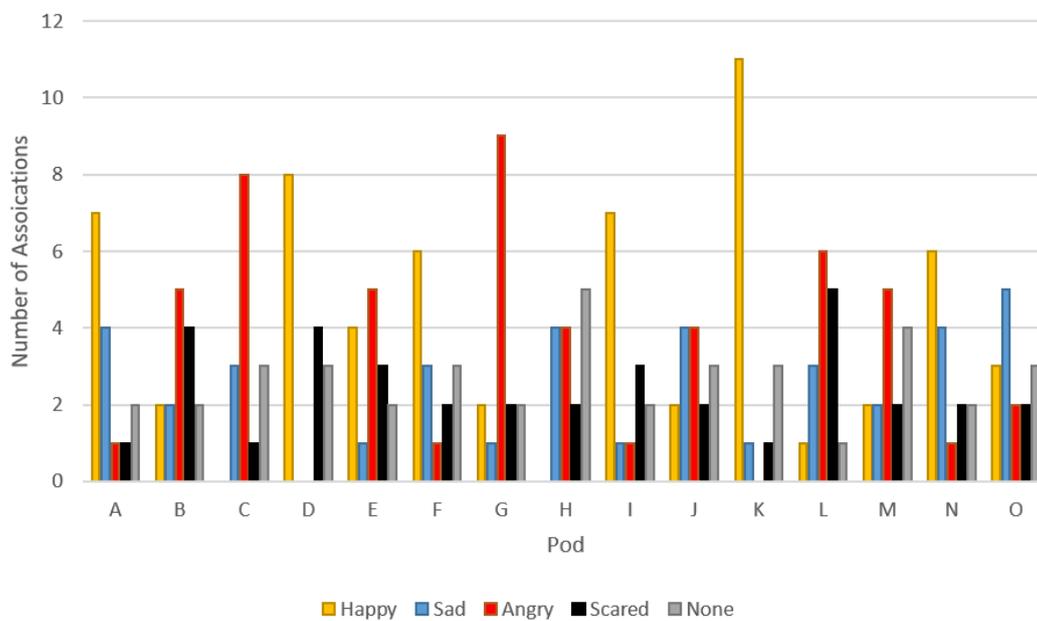


Figure 47: Column chart showing emotion categorisations of sample feely pods by pilot participants.

A further selection of six pods was created to try and more effectively capture the sad and scared associations. Additionally, it was decided to make the original pods M and O cold to more specifically target sad. Table 23 details the additional pods and the targeted textures. These new pods were then tested with the original pilot sample to see if sad and scared associations were now established. As shown in Figure 48, there were now some pods clearly associated with these two emotions.

Table 23 Details of Additional Sample of Feely Pods, Targeting Sad and Scared Sensations

Pod Identifier	Material(s)	Target Sensations	Potential Emotion(s) ^a
P	Marble & pom-pom mix	Bumpy, fuzzy	Scared
Q	Mixture of mini & glitter pom-poms	Fuzzy, bumpy	Scared
R	Small pieces of artificial Christmas wreath	Fuzzy, prickly	Scared or Sad
S	Shredded paper	Fuzzy, empty	Scared or Sad
T	Jelly cubes	Wobbly, rubbery	Sad
U	Liquid PVA glue (cooled) ^b	Wobbly, cold	Sad
V	Moss (cooled) ^b	Cold, rubbery, prickly, fuzzy	Sad or Scared
W	Blue-Tack (cooled) ^b	Cold, rubbery	Sad

^a Potential emotions derived from identified sensation associations; emotion with most sensation matches is listed first.

^b Pods were cooled by being placed under an ice-pack prior to use

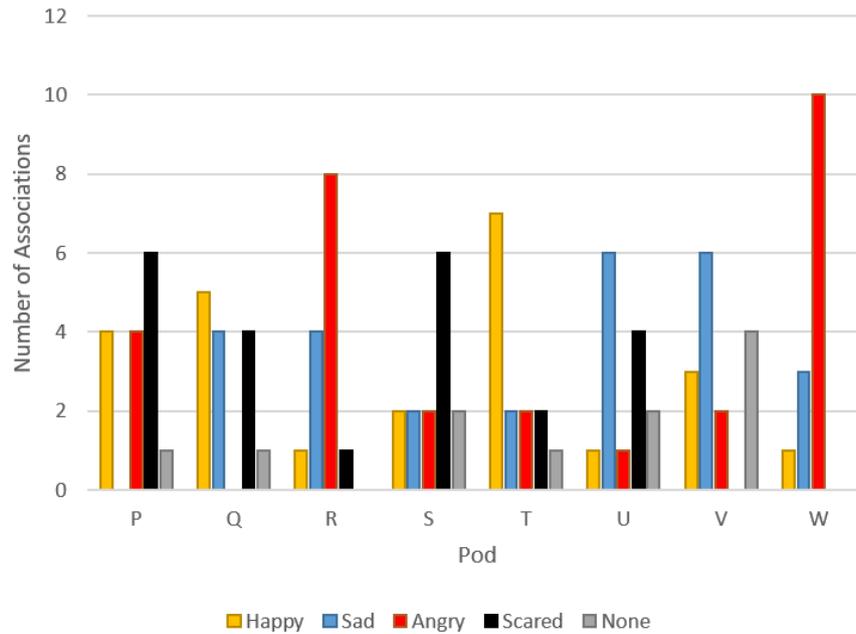


Figure 48: Column chart showing emotion categorisation for additional pods by initial pilot participants.

In order to decide the final selection of pods, the whole available selection of pods was further pilot tested with an additional 16 Year 4 pupils. However, pods E, F, M and O were not tested with this sample because they had either been found to be impractical, or been modified and relabelled. The results across both samples (Figure 49) were used to determine the three best matched pods for each emotion. Although Figure 49 indicates that Pod T was more matched than Pod A for a happy sensation, there were more hesitations when assigning pod T to an emotion than Pod A. Therefore Pod A was selected because it appeared to elicit a more immediate happy categorisation.

These pod designs were included in the Emil Programme. Three pods were included for each emotion, because, as demonstrated by the pilot results, internal sensations of emotions are quite personal and therefore liable to be slightly different for different people; thus a selection of similar, but not identical sensations, was considered more appropriate than implying that there is only one sensation associated with each target emotion. Table 24 details the final feely pod contents for each emotion.

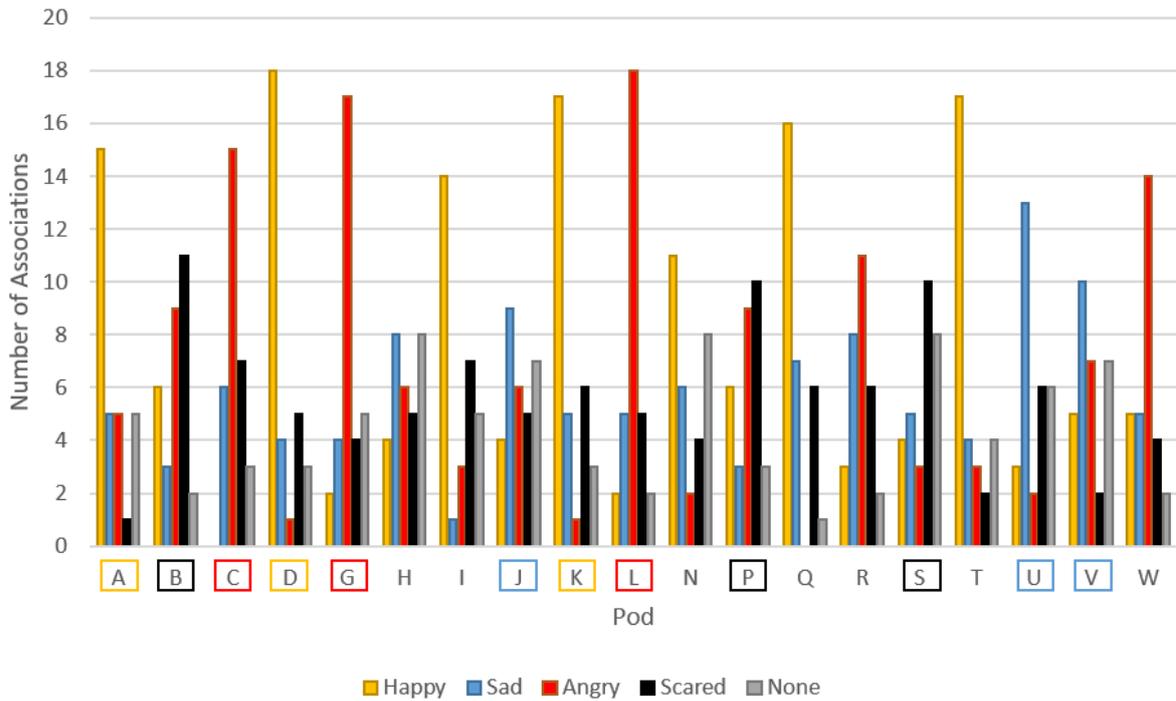


Figure 49: Column graph showing final results of pod emotion categorisations across both pilot samples. Coloured boxes around pod letters indicate final pods selected for use for each emotion

Table 24: Contents of Final Feely Pods Selected for Each Emotion

Pod	Contents
Happy	
1	Jelly slime
2	Craft pom-poms
3	Cotton wool
Sad	
1	Liquid PVA glue (cooled)
2	Dried moss (cooled)
3	Tinsel
Angry	
1	Marbles
2	Grit
3	Spiked beads
Scared	
1	Shredded paper
2	Mini pom-poms
3	Marble & glitter pom-pom mix

9.2.2.3 Construction of the pods.

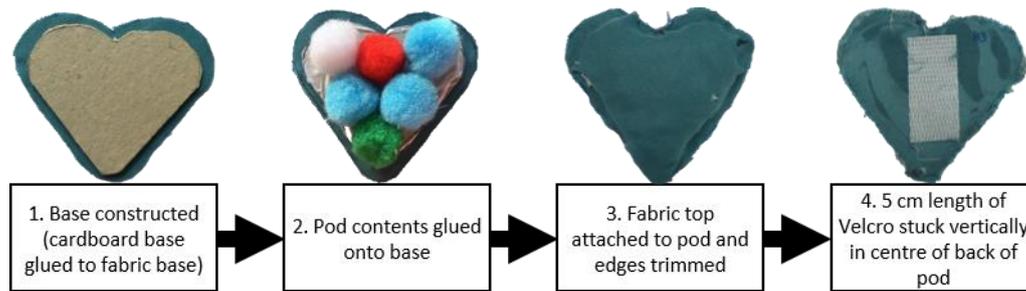


Figure 50: Flowchart of feely pod construction process.

The pods were constructed in heart shape because this is symbolic of feelings which they are intended to represent. They had a cardboard base, which had been sealed with 2 layers of PVA glue to prevent it becoming damp and misshapen by the contents, attached to a material base (Box 1, Figure 50). The contents were attached to the cardboard base using PVA or a glue gun (Box 2, Figure 50), before being covered by a thin material top, which was glue gunned to the material base, and trimmed for neatness (Box 3, Figure 50). Three different sizes of material top were used depending on the depth of the contents. The material used was cut from a teal-coloured microfiber pillowcase purchased from “The Range”. A 5 cm length of hook Velcro was attached vertically in the centre of the back of each pod to enable the pod to attach to the Velcro on the inside of the puppet (Box 4, Figure 50). Table 25 provides details of each element of the pods and template for the bases and tops can be found in Appendix K3.

9.2.3 Learning log.

As described in the selection of activities section, this was primarily intended as a memory aid and tool to encourage generalisation. Accordingly, a page or two was created for each session covering most aspects of the session content. A simple front cover was created and printed onto card and the book was created using a comb binding machine so that new pages could be added each session as required. Pages were added on a session by session basis because this prevents the participant from being tempted to skip ahead and complete future pages. The Log is introduced in the second session (Happy 1) and added to each subsequent session, until the final session where it is revisited together before the child is invited to take it home as a reminder. Table 26 details the pages of the log, their purpose and the session in which they were introduced. A full copy of the Learning Log can be found in Appendix K4. Each emotion was demarcated by using a coloured font associated with that emotion; providing further implicit reinforcement in this area.

Table 25 Construction details for feely pods used in the programme

Pod Identifier	Contents	Image without top	Top Number ^a
H1	One “macaron” of “Jandoon sweet cake jelly slime” sealed into plastic carrier made from two top 1 templates with a bag sealer tool.		3
H2	Six 1.5 cm craft pom-poms arranged in single layer on base shape		2
H3	Two balls of cotton wool, loosened and arranged to fit shape		3
S1	28 ml TTS washable PVA glue sealed into plastic carrier made from two card base templates sealed with bag sealer		2
S2	Dried Gardman fresh sphagnum moss arranged onto base shape at height of approximately 1 cm		3
S3	10 cm of tinsel arranged onto base shape. Trimmed around edges of shape		3
A1	Eight 1.5 cm marbles arranged in single layer on base shape		3
A2	Classica premium aquatic gravel (light river). Three layers stuck to base shape. Each layer stuck using PVA glue and allowed to dry.		2
A3	Thirty-nine 8 mm acrylic spike cone beads arranged in single layer on base shape		1
F1	Shredded paper strips arranged onto base shape to approximately 1.5 cm height. Trimmed around edges		3
F2	Twenty-nine 0.8 mm mini craft pom-poms arranged in single layer across base shape		1
F3	Three 1.5 cm marbles in centre of base with five 1.5 cm glitter craft pom-poms around the outside		3

^aTop number refers to template used to create material cover. All templates are included in Appendix K3.

Table 26: Summary of the Learning Log Pages

Page Title	Purpose	Session(s) used in
Clues for feeling... ^a	Encourage self-reflection on identification of feelings in self.	2,4,7 and 9 ^b
What does feeling ... mean ^a	Stimulate reflection on meaning and purpose of the emotion.	2,4,7 and 9 ^b
My ... Trigger Scale ^a	Record personal triggers for the emotion.	3,5,8 and 10 ^b
Do I want my Emotion?	Introduce and provide a memory aid for the FUN script.	3,5,6,8,10 and 11
Saying 'NO' to my emotions	Record chosen strategies for disengaging from emotions.	3,5,8 and 10 ^b
Comparing emotions	Provide a framework for comparing happy and sad.	5
More comparing emotions	Provide a framework for comparing all four emotions covered.	11

^a Four versions of the page were created. Each one names the specific emotion being covered in the session.

^b Each session focusses on a specific emotion (2 & 3 = happy, 4 & 5 = sad, 7 & 8 = angry, 9 & 10 = scared).

9.2.4 Introductory game.

This was intended both as an ice-breaker and as an opportunity to check participant's understanding of the vocabulary used in the programme. In particular, it was important to check that they understood the internal sensations adjectives used and were aware of their different body areas. Therefore, two types of questions were created. The first asked the reader to find or show something which matched a given adjective (e.g. find something bumpy), and the second challenged them to carry out an action relating to a body part (e.g. pat your head with your left hand). Twelve questions of each type were selected. Table 27 lists the vocabulary targeted by the game - there are 13 body parts listed because the labelling of hands was checked by asking for actions involving other body parts to be performed with hands (see example question above). During piloting, one child interpreted light in terms of a lamp or light bulb rather than weight. In this case, the administrator checked that they also understood the adjective in terms of weight through questioning. A note was added to the introductory session plan detailing the need for such checks if this situation occurred.

The questions were typed (Lucida sans size 36 font), into rectangles sized at 12.55 cm wide by 8.81 cm high, with a three point black border. The body part questions were printed onto 160 gsm lilac card and the adjective questions onto 160 gsm sky blue card. A template for a four part spinner was created with two quadrants matching each colour card and a black arrow; this was printed onto 160 gsm white card. All question cards and the spinner were then laminated and cut out. The spinner was assembled by making holes in the centre of the circle and arrow, then placing the arrow onto a split pin, followed by pony bead (to function as a spacer), then the circle before opening the split pin

to secure it. Figure 51 shows the completed spinner and cards. The templates are included in Appendix K5.

Table 27: Vocabulary Targeted by the Introductory Game

Adjectives	Body Parts
Fuzzy	Leg
Bumpy	Arm
Fiery	Throat
Hard	Feet
Rough	Hands
Cold	Tummy
Wobbly	Head
Fluffy	Chest
Smooth	Eyes
Soft	Nose
Warm	Mouth
Light	Eyebrows
	Cheeks

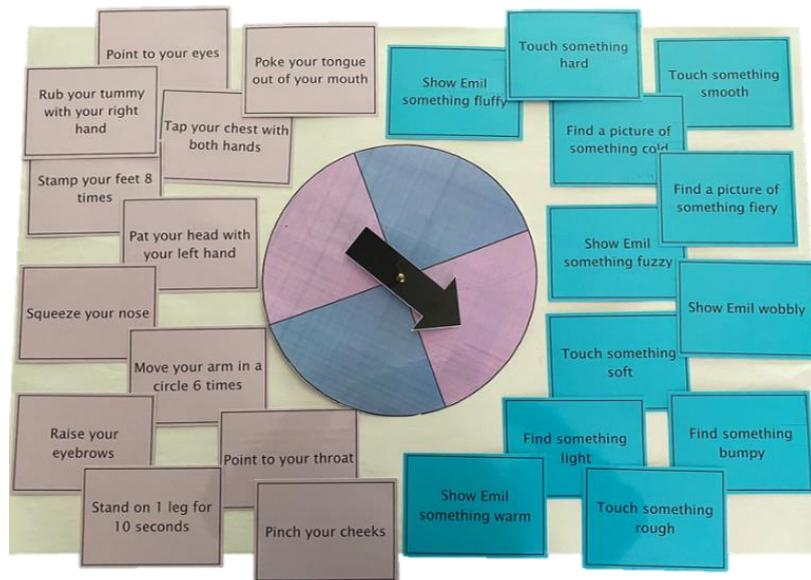


Figure 51: Photo of spinner and challenge cards used in introductory game.

Players took it in turns to spin the spinner and then complete the challenge on a matching coloured card. A variety of objects and pictures were sourced to facilitate the adjective matching. These are listed in Table 28 and shown in Figure 52. Image attributions are given in Appendix K19.

Table 28: List of Objects Used in Introductory Game to Represent Each Sensation

Sensation	Objects to represent it
Warm	woolly hat, sun ^a , hot chocolate ^a
Soft	soft toys, sponge ball, woolly hat
Smooth	stone, ping-pong ball
Wobbly	jelly ^a
Rough	scouring pad, sandpaper, spiky ball
Cold	fridge ^a , ice cream ^a
Fluffy	fluffy toy, fuzzy ball ^b , puppy ^a , kitten ^a
Fuzzy	fuzzy ball ^b , felt ball, soft toys, curly-haired dog ^a
Fiery	fire ^a , volcano ^a , sun ^a
Hard	stone, ping-pong ball, wood
Bumpy	random ball, bumpy ball
Light	spiky ball, soft toy, sponge ball, ping-pong ball

^a the mentioned object is a clipart picture of the object

^b the ball is sold as a “fuzzy ball” but could equally be described as fuzzy or fluffy



Figure 52: Photograph of objects used in introductory game.

9.2.5 Emil’s stories.

These stories were primarily required to facilitate discussion around the identification of emotions in oneself. In addition, they were required to contain clues for likely action tendencies and the perception of emotions in the environment and art. Consequently, a short story was written in reference to each target emotion which included clues relating to each of these areas. For example the happy story was:

Emil woke up and looked out of the window. It was sunny outside. “Oh good, I like sunny days. I think I will go for a walk later.” Emil thought. He felt soft and fluffy inside. Emil got out of bed and went downstairs. His mum had cooked him pancakes for breakfast. “Yummy,

my favourite food.” Emil thought. He noticed that his head felt light and smooth and his heart felt very warm inside his chest.

The stories were created as short videos using Microsoft PowerPoint because this seemed more likely to engage participants than a written story. Audio was created using two text to speech engines: the narrator was “British English – Emma” from fromtexttospeech.com with speed set to medium; Emil was “English (UK) - Harry (Child)” from acapelabox. The speech rate and voice shaping for Emil was varied to fit the stories, full details of the settings used can be found in Appendix K20. All images featured on the slides were either created using the programmes auto-shapes or were downloaded from a royalty free clipart site; image attributions are given in Appendix K19. Artistic emotional connotations were included through matching room décor with the colours found to be associated with the target emotion (see section 9.1) and each story was titled with a weather link to prompt environmental associations.

Each story was reviewed by a group of eight ELSAs to check the emotion could be accurately identified, and they agreed the clues were appropriate. If feedback highlighted ambiguous or mismatched areas, the story was edited and re-presented at a later date to ensure it was then appropriate.

A paper back-up version of each story was also created in case of computer failure. For these, the slides were kept nearly identical (except for animations) and the text placed in a text box at either the top or bottom of the page. Figure 53 shows an example page from a paper story. The slides were printed to a PDF document at one per page and this was printed and bound to create a book of each story. Full versions of the paper stories are contained in Appendix K6.

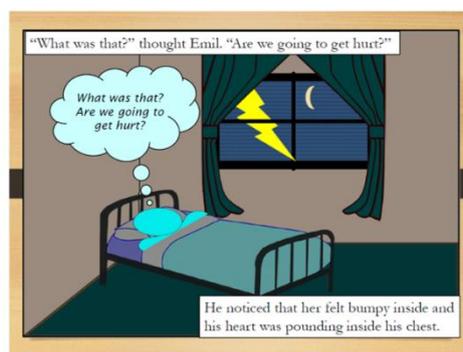


Figure 53: Sample page from paper copy of "Emil's 4th Story".

9.2.6 Emotion expression examples.

As explained in the selection of activities section, it was decided to use photographs to explore emotional expressions. For facial expressions, there already exists a plethora of commercially

available resources for this. Therefore, three publishers: Yellow Door, Emotion Colorcards and PicturemyPicture, were approached via email; who kindly agreed to allow their card sets, “Talk about... How we feel”, “Emotions & Expressions 2” and “Emotions Flashcards”, to be used as part of the project. Across all sets, the five expressions which most closely matched those features identified by Ekman and Friesen (2003) were chosen as target facial expression images for each emotion.

Unfortunately, there are no commercially available picture sets that specifically target emotional body language. However, some pictures from the aforementioned card sets had suitable examples of body poses for the target emotions. These were supplemented with suitable royalty free photos sourced from freeimages.com, pixabay.com, freedigitalphotos.net, stockfreeimages.com and some personal images which the researcher had previously created as part of her ELSA work (which were included with explicit written consent from parents). Four or five images of emotional body language for each emotion were included. Finally, a selection of five or six “non-target” images were selected for each emotion (pictures that showed an emotion which was not the target emotion), to ensure the participants were able to identify accurate expressions of the target emotion. Appendix K7 details the images, and their sources, used for each emotion session.

9.2.7 Feelings strength scale.

A 3-point scale was utilised, because this level of complexity should be accessible for all participants to understand in the context of each specific emotion. Hence, a simple 3-point scale was created using a table in Microsoft Publisher with each point labelled weak (1), medium (2) and strong (3). A simple illustration of Emil with dumbbells was used to illustrate it. Figure 54 shows the final strength scale and Appendix K8 contains the original.

Feelings Strength Scale	
Scale Number	Strength
3	strong 
2	medium 
1	weak 

Figure 54: Three point strength scale used in the programme.

9.2.8 Trigger game.

Using the universal causal themes identified in the literature search, six pictures were created for each target emotion depicting likely antecedents to them. The scenes centred on the Emil character, with some including one or more additional characters as appropriate (see Table 20 for character details). Scenes were created using Microsoft PowerPoint using shading and auto-shapes, with additional features being cliparts, sourced, royalty-free, from clker.com, openclipart.org, and clipart-library.com. Figure 55 demonstrates the pictures, whilst full sized images are in Appendix K9 with accompanying image credits in Appendix K19.



Figure 55: Trigger pictures created for each emotion.

A game format was achieved by choosing two environmental-related icons for each target emotion (happiness – sun and star; sadness – cloud and raindrop; anger – lightning and explosion; fear – storm cloud and dark night) and placing each one on the back of three of the pictures. The icons were also printed 3 times each onto 160 gsm white card, laminated and inserted into pockets on a “Differentiated Instruction Cube” from Carson Dellosa Education to make a large dice (Figure 56). Each player then rolled the dice, picked up a picture with the corresponding icon, deduced what had made Emil feel the target emotion, and judged whether it would be a weak, medium or strong feeling.



Figure 56: Photographs of dice used in the trigger games.

The same trigger pictures were used in the following session to remind the child of possible triggers for the target emotion, before they were asked to identify their own triggers for it. The game format was not repeated however, instead the pictures were just used as a quick recap activity.

9.2.9 Situational judgement PowerPoints.

These were created as stimuli for role-play, to practise generating emotions to help judgments and relate to another person. Since Emil was being asked to make the judgement, one of the friend characters was used for this activity. In order to further encourage openness to all feelings, the same character featured in all four emotional situations. Therefore, the light green friend character was utilised and given the name *Efoth* (again a gender neutral name was considered important so Efoth was created as an acronym of *emotional facilitation of thinking* – the branch which this activity is mostly intended to rehearse).

One PowerPoint with four slides was created for each target emotion. The slides followed a set format as illustrated in Figure 57. Environmental features were created from a combination of colour connotations, weather connotations, and known antecedents. Care was taken to ensure antecedents used were not the same as those used in the trigger games. The computer settings for the Efoth character are given in Table 20. As before, only royalty free clipart, from clker.com and openclipart.org was used. Image attributions are given in Appendix K19 and full copies of the slides are in Appendix K10. Each presentation was also printed onto A4 paper, trimmed and laminated to provide physical back-up copies in case of computer failure.

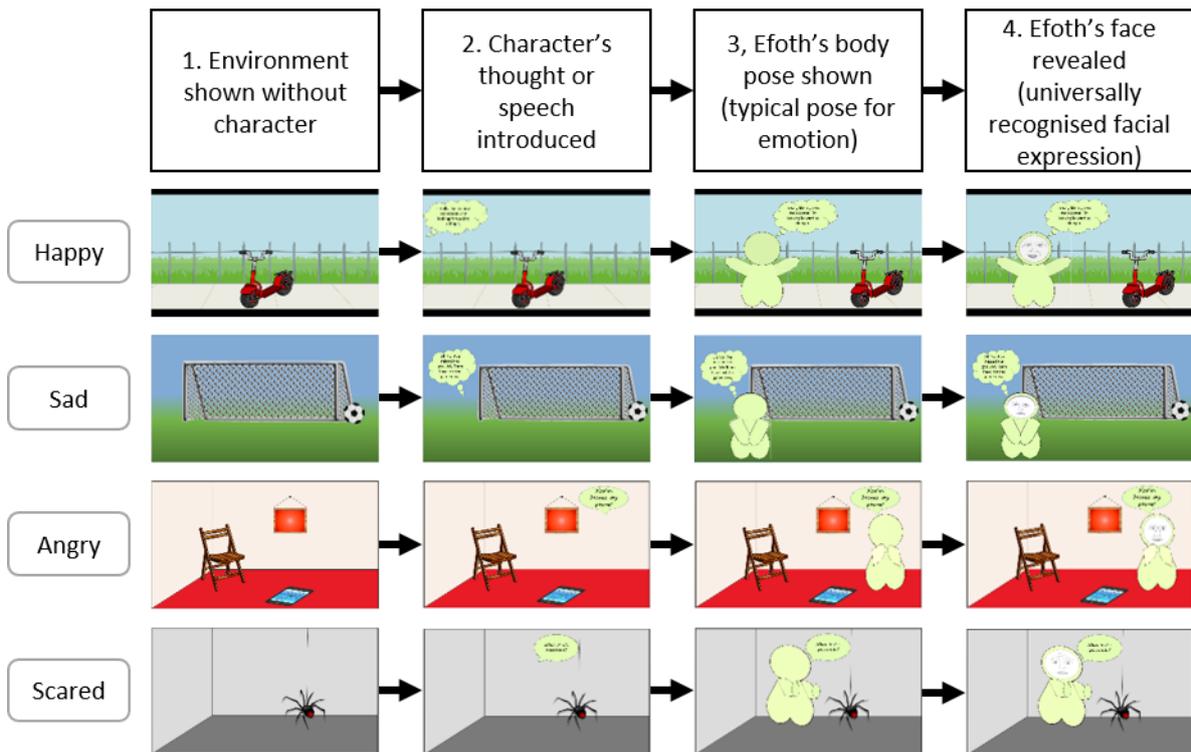


Figure 57: Flowchart showing sequence and images used in situational judgment PowerPoints.

9.2.10 Role-play of consequences of emotions.

To facilitate this, puppet versions of the aforementioned characters were created. To make Emil's friends, the original shape template was enlarged to 120 % on a photocopier and then created using the same process as for the Emil puppet (see section 9.2.1.2), except that the internal feely pod Velcro was not included. The puppet was sized slightly larger than Emil to make it easier to fit on an adult's hand. The parent and teacher puppets were enlarged to 125 % in order to add realism of the adult/child distinction. As with Emil, all puppets were made from washcloths which were sourced from a variety of shops in order to obtain the range of colours required (see Figure 58). All character colours were intended to be emotionally neutral and unrelated to skin colour.

Faces for the additional characters were made in the same way as for the Emil puppet, using the same images. The child faces were sized at 7 cm diameter, the same as Emil, whilst the adult faces were enlarged to a 7.5 cm diameter. As with Emil, heavy duty Velcro was used to attach the faces to the puppets. Figure 58 shows the additional character puppets with a variety of faces attached. The pictures created for the Trigger Game (Figure 55) were used as scenario stimuli for the role plays.



Figure 58: Labelled photograph of additional character puppets.

Piloting of this activity revealed that participants initially found the task of role-playing a continuation of the trigger scenes quite difficult. To help with this, an exemplar video story continuation of one of the trigger situations, for each emotion, was created. This was played to participant first, followed by a brief discussion highlighting whether, or how, Emil's emotion had changed and whether the emotion had enabled all characters to have fun. After this, participants were encouraged to have a go at a different scene using the puppet role play described above; they found this easier having seen the example situation.

The exemplar video stories were created using Microsoft PowerPoint with the selected trigger picture as the initial slide. Speech details for Emil and additional characters are in Appendix K20. A copy of the slides from the stories are in Appendix K11.

9.2.11 Disengagement strategies.

As outlined in the literature search, choice and effectiveness of disengagement strategies is both situation and person dependent (Suri & Gross, 2016); therefore the best approach to this area seems to be having a selection of strategies to choose from. With this in mind, it was decided to introduce the calming down strategies contained within the primary SEAL resources since these are presumably strategies which practitioners have found can be effective for children in the target age range. These strategies are: tell yourself to stop, give your thinking brain time, tell yourself you can handle this, say to yourself be calm....be calm....be calm, walk away, count backwards, tell someone else how you feel, breathe deeply, tense and relax your muscles, take some exercise, go into a deserted place and shout, feel your pulse and picture yourself dealing with the situation calmly and strongly (Appendix J). It is notable that some of these are physical and some cognitive. Although the target age range of the programme means that participants are more likely to find the physical

strategies easier to use (Pons et al., 2004), both were included because cognitive strategies are often more practically appropriate and the children are sufficiently mature to begin learning to use them.

The strategies were made into a set of cards for the programme. Initially, they were designed in Microsoft PowerPoint 2013 with each one created on its own slide. The font used was Berlin Sans FB Demi size 54 point. The strategy was written at the top of the slide and illustrated using the Emil character underneath. Most illustrations were created using just the character and auto-shapes from the programme but for some strategies additional royalty free clipart were added; details of the cliparts used can be found in Appendix K19. The PowerPoint was printed with six slides per page and portrait orientation (Appendix K12) onto ivory coloured 160 gsm card. This was laminated and the cards cut out. Figure 59 shows the finished range of cards.

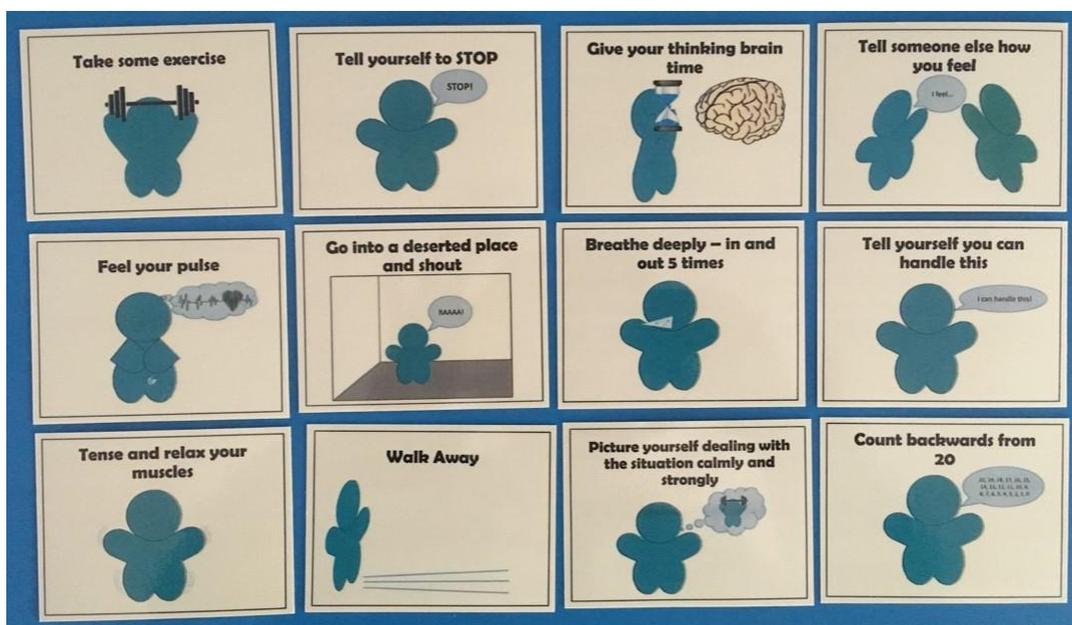


Figure 59: Photograph of disengagement strategy cards.

9.2.12 Feature sorting.

The first of the consolidation activities was created by making a backing board for each emotion and providing a range of features, which the participants could attach to the right backing. The backings were a sheet of A1 poster paper in an appropriate colour for the emotion (happy – light orange, sad – blue, angry – red, scared – black), used in a landscape orientation and divided into two sections. The left hand section was labelled “looks like” whilst the right was labelled “feels like”. The paper with attached titles was covered in sticky-back plastic.

Features for sorting were related to the four ways in which perception had been covered in previous sessions: “Looks like” used facial features and bodily poses whilst “Feels Like” drew on emotional sensations and their location within the body (see Figure 60).

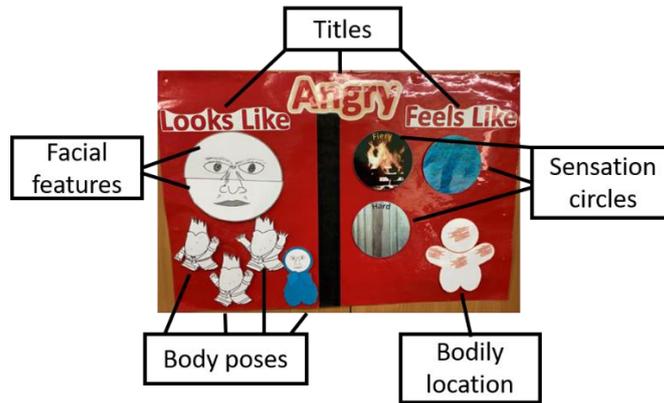


Figure 60: Labelled photograph of the completed angry feature sorting board.

All features were attached to the backings using stick-on Velcro; so the backings had appropriate lengths of hook Velcro in the appropriate locations for each feature (see Figure 61). Figure 61 shows the four backing boards empty and completed. Creation of the features is outlined below. Full copies of the pictures and titles are in Appendix K13.



Figure 61: Photographs of the feature sorting boards, empty and completed.

9.2.12.1 Facial features.

The faces created for the puppets were enlarged to 18 cm diameter and printed onto 160 gsm white card. They were then laminated and cut out. Finally, they were cut in half horizontally to separate the upper and lower facial features, in order to ensure that the participants could perceive the emotion in both areas. An 8.5 cm length of loop stick-on Velcro was attached to the centre of the back each half, for attachment to the backing.

9.2.12.2 Body poses

Lisa Gordon kindly drew characters depicting all poses identified by Lopez et al. (2017) for each of the four emotions, specifically for this activity. Four different characters were used with the same character depicting all poses for a specific emotion, enabling some self-checking. Participants were not told this before starting the activity however, so had to sort several poses correctly for this to

become apparent. The images were scanned and re-sized to fit, then printed onto 160 gsm white card, laminated and cut out. An appropriate length of stick on Velcro was placed vertically in the centre of the back of each character to attach to the backing.

In addition to the above characters, Emil's whole body pose (including his face) for each emotion was enlarged to a height of 14.2 cm and printed, laminated and cut-out as above. An 11.5 cm long strip of Velcro was attached vertically to the back.

9.2.12.3 Sensation circles.

Adjectives for the internal sensation of each emotion, identified through the investigation outlined above, were represented by *sensation circles* for sorting (see Figure 60). The sensation circles were created using a circle auto-shape in Microsoft PowerPoint 2013, sized at 12 cm diameter. A word art of the adjective was placed inside the top of the circle and the fill was then set to a background photo illustrating that adjective (e.g. fluffy was a close-up photo of the fluff on a soft-toy whilst warm was represented by a photo of a sunny day). The photos were either taken specifically for this activity or were sourced from the researcher's personal collection. The circles were printed onto 160 gsm white card, printed, laminated and cut-out. An 8.5 cm long piece of Velcro was attached horizontally to centre of the back of each one.

9.2.12.4 Bodily location of emotion.

For each emotion, coloured scribbles were placed on an Emil outline, in the locations in which research has suggested the emotion is likely sensed. These images were printed at 16.76 cm by 14.88 cm onto 160 gsm white card, laminated and cut-out. A 15 cm strip of Velcro was stuck vertically on the back of each one.

9.2.13 Antecedents, meanings, and consequences consolidation game.

This was designed as board game with question cards. Two versions were created, one for each of the Review 1 and Review 2 sessions. Therefore, the first version related to only happy and sad emotions, whereas the second version covered happy, sad, angry and scared.

The game board was designed as a track with 24 spaces. Each space (except the start and finish) had a trigger (fuse) meaning (brain) or action (jumping stick man) symbol (see Figure 62). Questions were created related to the categories using information covered in the previous sessions; these can be found in Appendix K14. The questions were typed (Comic Sans MS, size 28, font) into rectangles sized at 9 cm high by 13 cm wide with a turquoise border (R = 2, G = 223, B = 223).

The question cards were printed double sided onto 160 gsm ivory card, with the relevant symbol on the reverse side. The game board was enlarged to A3 size and printed onto 160 gsm white card. All

materials were laminated and the cards cut out. A standard dice and range of coloured counters were sourced from stocks. Figure 62 shows the two games with all equipment.



Figure 62: Photographs of the two antecedents, meanings and consequences games.

The game was played as a normal board game by throwing the dice, moving the allocated number of spaces, then taking a question card matching the symbol landed on. The card was answered before the next person took their turn.

9.2.14 FUN keyring.

Before the session, a 12 cm length of rainbow beading cord was tied onto a split ring and secured with tacky glue. F, U, and N, 5 mm cube, alphabet beads were purchased from Crafty Crocodiles. Additionally, a pack of 5 mm funny face beads was purchased from Baker Ross.

The keyring was created during the Review 1 session with the participant. They were invited to choose four funny face beads and take one each of the F, U, and N, letter beads. They threaded the beads onto the keyring in the order smiley, F, smiley, U, smiley, N, smiley. A knot was then tied to secure the beads in place. Figure 63 shows an example completed keyring.



Figure 63: Photograph showing example completed FUN keyring.

9.2.15 FUN game.

To give variety, this was created using a stacking tower style game with accompanying questions. As with the above antecedents, meanings and consequences game, a different version was created for each of the first two review session: the first focussing on just happy and sad, and the other on all four target emotions. Two wooden stacking towers were purchased. For one game, the bricks were painted yellow and blue to represent happy and sad; for the other they were painted, yellow

(happy), blue (sad), red (angry) and black (scared). The paints were mixed with PVA glue to help it adhere to the bricks. Two coats of paint were applied, followed by two glazing coats of pure PVA glue to ensure the bricks were smooth and still easy to remove from the tower. Figure 64 shows the two finished tower games.



Figure 64: Photograph of the two towers for the FUN script rehearsal games, with a selection of question cards.

A variety of scenarios, which were likely to trigger the target emotion, and which could subsequently be either helpful or unhelpful, were created. These were based on knowledge gained through the literature search. The scenarios were typed into 6.5 cm square text boxes in Microsoft Publisher 2013 using comic sans font sized at 16 pt. A 4.5 point border in the corresponding colour for the intended emotion was used. The document (Appendix K15) was printed onto white paper, the squares trimmed and mounted onto matching coloured card, which was then trimmed to give a 0.5 cm border around each square. The completed cards were laminated.

Players played the game by taking it turns removing a brick from the tower, selecting a corresponding card, and working through the situation, using the FUN script to judge whether to engage or disengage from the emotion.

9.2.16 Learning check quiz.

This was presented using Microsoft PowerPoint 2013. The in-built design, “Quotable”, was used for the slides. Questions appeared at the top of the slide in the speech bubble included in the design. All questions were multiple choice and therefore were answered by clicking on a text or picture to answer. Figure 65 shows a variety of question slides used.

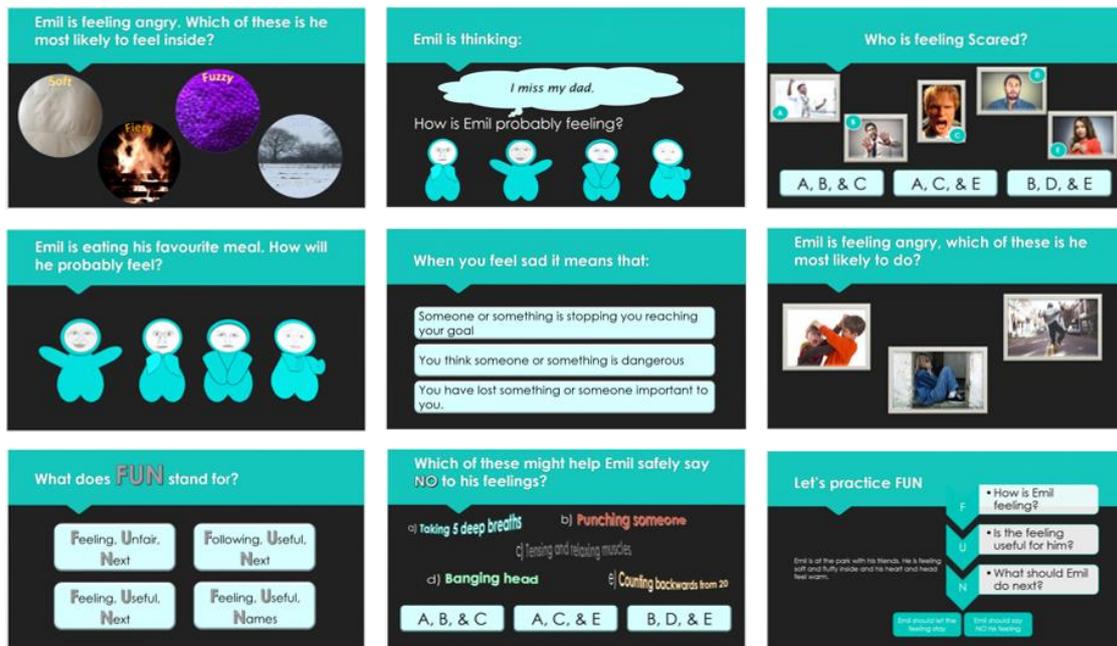


Figure 65: Screenshots of a selection of question slides used in the learning check quiz.

Hyperlinks were used to navigate through the quiz, with the correct answer option being linked to a correct slide and the incorrect options being linked to a try again slide (Figure 66). The try again slide also featured some hints to help the participant recall the correct answer. Both these slides featured buttons which hyperlinked to the next question (correct slide), or back to the current question slide (try again slide).

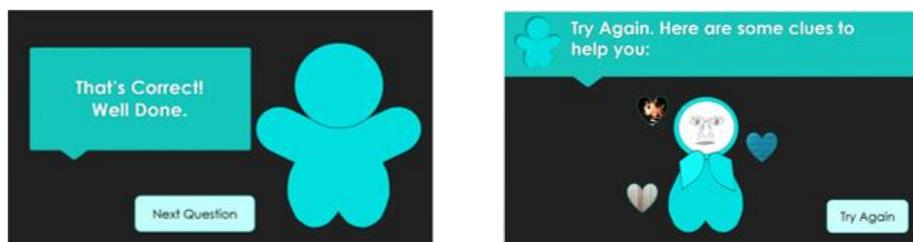


Figure 66: Screenshots of "correct" and example "try again" feedback slides.

All questions were based on content which had been covered by the programme and hints featured materials which had been used in the relevant session as memory cues. A copy of the quiz slides can be found in Appendix K16.

9.2.17 Feedback form.

This featured eight simple questions which were targeted to explore which aspects of the programme had been effective from the child's point of view and identify potential areas for improvement. The questions were:

- Have you enjoyed doing the programme?
- What were your favourite activities?

- What did you enjoy least about the programme?
- How much do you think the programme has helped you with your emotional intelligence skills?
- What did you find most helpful about the programme?
- What did you find least helpful about the programme?
- Would you recommend this programme to a friend?
- Is there anything you would change about the programme?

The first, fourth and seventh questions were presented with a five point answer scale with labels: 1 (*not at all*), 2 (*not very much*), 3 (*a little bit*), 4 (*quite a lot*), and 5 (*very much so*). The questions were typed in Segoe Print font, size 14- or 12-point, and each was preceded by a small icon (image attribution in Appendix K19). A copy of the feedback form is included in Appendix K17.

10 Study 2

Following Study 1's successful demonstration of a link between ability emotional intelligence (AEI) and academic achievement (AA) in the target population, Study 2 aimed to further expand the knowledge base regarding the impact of AEI education on outcomes for pupils. More specifically, the primary purpose of the study was to conduct an empirical evaluation of the effectiveness of the newly developed Emil Programme in supporting the development of EI in Year 3 and 4 pupils with below average AEI. Furthermore, it aimed to establish whether there was an associated impact on AA for these pupils. Finally, the study presented an ideal opportunity to conduct a preliminary validity assessment of the second revision of the EISC. Consequently, the following research questions were addressed:

1. Does a theoretically motivated AEI programme support AEI skill development for below-average AEI pupils in School Years 3 and 4?
2. Do children who participate in the programme also demonstrate greater improvements in maths and literacy than their peers?
3. Is EISCr2 a valid and reliable measure of AEI?

10.1 Methodology

The study was an intervention study with a pretest-intervention-posttest format to address the first two questions. The third question was addressed using the pretest screening data. A matched-school control design was employed for practical and ethical reasons.

10.1.1 Ethical Considerations

The main ethical considerations for this study were ensuring children were not left disadvantaged, securing informed consent from participants, working within the school setting, the researcher-child relationship and confidentiality. Ethical approval was gained from the University of South Wales Faculty of Life Sciences and Education before commencing the study.

The programme being tested is designed to offer support to children with below-average AEI. If a randomised selection of target and control participants from multiple schools was used, it would be difficult to justify why the support was being offered to some pupils and not others. Therefore a matched-school design was used whereby all qualifying pupils in the target school were offered the opportunity to take part in the programme, and it would be possible to offer the programme to the control school at a later date.

As with Study 1, informed consent for participation in the study was sought from both participants and their parents or guardians. Parental/guardian informed consent was again sought via an information letter sent home. For the target school, permission was sought separately for the EISC screener test and programme participation, for the control school consent was sought for participation in both the EISC and follow up assessments together. This was because sending a separate letter for the academic assessments may have caused undue worry (see section 10.1.2.2). Due to the age of the children, child informed consent for the assessments was sought verbally via a carefully worded introduction from the researcher. Care was taken to ensure vocabulary could be understood by participants and it was emphasised that participation was voluntary. Continued assent to continue was sought at the beginning of each subsequent assessment session. Participant informed consent for the programme was sought via a letter written to the child, which they could either read to themselves or have the researcher read it to them, at the beginning of the introductory session. This letter was again carefully worded with vocabulary matched to the target age range. Once the letter had been read, the researcher checked whether the participant understood it and asked them to sign a "reply slip" if they were happy to take part. She also verbally reaffirmed that the child could choose to stop the programme at any time if they wanted to. Because children may find it hard to tell adults if they do not want to continue with an activity in school, the researcher additionally monitored for signs that participants may not wish to take part in the activities during sessions. Although a couple of children did indicate they were not enjoying occasional activities, no-one chose to withdraw from the study, even when the researcher double checked if they wanted to stop.

Conducting research within the school setting improves ecological validity and also has the advantage of providing a familiar environment for the young participants in this study. However, with the familiarity comes certain expectations which may be incongruent with ideal research conditions. Firstly, as outlined above, the school setting may discourage children from expressing their wish to withdraw, since they do not usually get this option for school activities. This was accounted for with careful introduction and monitoring of consent as described above. Secondly, school settings can be noisy and distracting, but equally it would be inappropriate for the researcher, an unfamiliar adult, to be working with participants in a completely secluded setting, particularly during programme sessions which are one to one. Therefore careful consideration was given to the working space within the school, ensuring a quiet room was sourced which was visible to members of school staff. Furthermore seating was arranged within the room to ensure that the participant had uninterrupted access to the exit, ensuring they did not feel trapped with an unfamiliar adult.

The programme is designed to minimise unequal power relationships between adult and child, with the adult role being more as a guide or supporter than a teacher. To this end, the adult joins in with the games and activities with the participant and encourages development through discussion.

These aspects helped to address any potential power relationship issues within the study.

Finally, as the programme focusses on emotional knowledge and skills, students were taught about emotional experiences of a central character with an aim to developing emotional skills. Since the researcher is a trained ELSA who is experienced at engaging in such activities with pupils of the target age, this should not have been distressing for participants, however there was a small risk that such discussions may lead to a disclosure which is a safeguarding concern. No such disclosures occurred but they would have been handled in accordance the schools policies. The limits of disclosure were communicated to parents/guardians as well as the children before the study began.

10.1.2 Participants.

10.1.2.1 Recruitment of schools.

Because there are a large number of potential confounding variables with programme evaluations of this nature, and for the ethical reasons outlined above, it was decided to make this initial evaluation a small scale evaluation focussing on only one target school and matched control school.

Consequently, the target school was recruited first. One of the schools which had participated in Study 1, had expressed an interest in being involved with future research. Following face to face meetings with a relevant member of the senior leadership team in the school, to ensure they understood the purpose and risks of the study (see information sheet in Appendix L , they kindly agreed to become the target school for this study.

Having recruited the target school, geographically close schools were compared with the target school on the percentage of pupils eligible for free school meals, income per pupil, spending per pupil, average reading score, and average maths score. Table 29 shows the anonymised data for each of these variables. There was no single matching school in all areas. Because early family experience is known to be particularly influential in the development of EI, priority was given to the free school meals (FSM) criteria. Therefore, schools were invited to participate as the control school in order of closeness of matching FSM percentage. Schools were approached via an email to the school's admin office and then a follow up meeting with a relevant member of staff, during which they were given a copy of the control school information sheet (Appendix M). School C, which was the closest match on the FSM criteria, declined to participate, however School E agreed and was therefore recruited as the control school.

Table 29: Summary of Data for Variables Compared for Control School Eligibility

School	% pupils eligible for free school meals	Total income per pupil	Total spend per pupil	Average score in reading	Average score in maths
Target	18.6	5210	4922	107	106
A	26.8	5692	5587	99	100
B	8.5	3936	3953	100	104
C	18	5092	4983	101	103
D	7.8	5213	4916	102	103
E	11.8	4583	4700	101	104
F	5.3	4244	4212	100	102

Note: Data obtained from gov.uk website on 08/11/2017

Unfortunately, School E chose to withdraw from the study after the first wave of programme evaluation (see procedure section below), due to a change in staffing circumstances. Consequently, a new control school had to be recruited. As before, schools were approached via email and follow-up meetings where possible. The next two most closely matched schools on the FSM criteria (Schools A and B) declined to participate, but School D agreed. Although there was a moderate difference between School D and the target school for the FSM criteria, School D was the closest match to the target school in terms of income per pupil, spending per pupil, and average reading score, so still represented a good match.

10.1.2.2 Recruitment of participants.

Although the Emil programme is targeted and only aimed at children with below-average AEI, it was necessary to first screen all children in the target age range to identify those who may benefit from additional support. Participant recruitment was therefore a two-stage process. Firstly, all eligible

children were invited to take part in the screening assessments; this would also provide the necessary data for evaluating EISCr2. Secondly, children who obtained qualifying scores on the screening assessment were invited to take part in the programme evaluation.

Parental consent for the screening assessment was obtained via an information letter sent home with opt-out form. The schools were additionally asked to send two accompanying SMS messages to parents: The first on the day the letter was sent home, to let them know it was coming, and the second, the day before the opt-out deadline to remind them of it. Opt-out consent was considered appropriate for this phase because screening assessments are regularly carried out as part of the school curriculum, without explicit parental consent, and therefore the BPS code of Ethics states that consent from a senior member of school staff is sufficient, providing that parents have been informed of the research (British Psychological Society, 2014). The extra SMS messages sent to parents were designed to ensure they were aware of the research project and their right to withdraw, and knew that information had been sent home. The letters sent to the target and control schools differed slightly, in that, the target school letter sought consent only for participation in the EISC (Appendix N), whereas the control school letter sought consent for possible participation in the maths and literacy measures too (Appendix O). This was done for two reasons. Firstly, if a second letter had been sent to just parents of children with qualifying scores to ask them to participate in the control maths and literacy assessments, this may have caused alarm amongst these parents that there was something wrong with their child – this would be inaccurate since the programme merely aims to support development of skills, and is not a treatment programme for a problem. Secondly, the maths and literacy assessments were ones which are regularly used in schools and therefore carry no additional risks to participants; meaning they do not need further permission than that already sought.

For participation in the programme, an information sheet with a consent form to complete and return (Appendix P) was sent to parents in the post. Programme participation was via opt-in consent because it involved the researcher working one to one with the child on a regular and in-depth basis. This is also in-keeping with the ELSA model of support where, although not compulsory, seeking of parental consent is considered best practice (Burton, 2018). Letters were sent in the post to ensure that parents received them directly. Only parents of those children who had obtained a qualifying score on the EISC screening assessment received these letters.

10.1.2.3 Participant details for Emil programme evaluation.

As outlined above, the Emil programme is a targeted support programme for children in School Year 3 or 4 who have below average AEI, as these are the children most in need of additional support in

this area. Accordingly, it was only offered to children who met the inclusion criteria of scoring one or more standard deviations below the mean for their year group on EISCr2. It was also necessary for control participants to meet this criteria in order to establish a matched design. Programme participant numbers were further limited to those whose parents had returned the completed consent form. Consequently, there were 21 participants in total: nine programme participants and 12 control participants. Of the nine programme participants, two were in School Year 4, three in School Year 3 and four commenced the programme in School Year 3 but finished it in School Year 4. Seven were boys and two were girls. The twelve control participants were split evenly between School Years 3 and 4, and across genders with six in each.

10.1.2.4 Participant details for EISCr2 evaluation.

Because the waves of programme evaluation were extended over a long period, evaluation of EISCr2 was based on only the participants who completed the measure within the first year. Therefore, 180 children took part in the evaluation. One hundred and twenty six were in School Year 4 and 54 in School Year 3. There were 89 boys, 90 girls and one child did not provide gender information.

10.2 Data Collection

All testing and programme sessions took place in participant's own schools. This both minimised disruption for participants and increased the ecological validity of the study, since the programme is intended to be delivered within schools.

10.2.1 Measures and tools.

10.2.1.1 Emotional intelligence: EISCr2.

AEI was measured using a revised version of Sullivan (1999)'s Emotional Intelligence Scale for Children. EISCr2 is a refined version of EISCr1, as detailed in Chapter 6. The researcher administered EISCr2 using a PowerPoint presentation on an interactive whiteboard. Participants completed the measure in groups of 10 to 16 pupils and recorded their responses by ticking in a paper response book. Seating was arranged to ensure gaps between participants to discourage copying. Sessions lasted 20 to 30 mins. The researcher collected answer booklets immediately after the session for marking.

10.2.1.2 Reading: York Assessment of Reading for Comprehension (YARC).

YARC (Snowling et al., 2011) is a commercially available assessment of decoding, fluency and text comprehension, published by GL Assessment. Scores are based on participants' reading and comprehension of two short passages. Participants first read a list of words to establish an appropriate starting level; then read a text passage matched to their ability level. Whilst the

participant was reading, the researcher recorded any errors and timed how long it took the participant to read the passage, in order to calculate reading accuracy and fluency scores. After reading, the researcher asked the participant eight comprehension questions. If the participant answered four or fewer comprehension questions correctly, they read the passage from the level below for their second passage. If they answered five or more comprehension questions correctly, they read the passage from the level above for their second passage. The researcher administered the second passage in the same way as the first.

YARC was completed one to one with the researcher in a quiet room in the participant's school and took 10 to 15 mins to complete. The researcher calculated ability and standardised scores for reading accuracy, fluency and comprehension after the session, using the information provided in the manual.

10.2.1.3 Maths: Basic Number Screening Test (BNST).

BNST (Gillham, Hesse, & McCarty, 2012) is a commercially available assessment of number knowledge and calculation skills, published by Hodder Education. The researcher read a series of up to 30 questions to the participant, who completed any calculations required and recorded their answer on a paper answer form. The questions were a mixture of number concept and number operations items (Gillham et al., 2012).

BNST was also completed one to one with the researcher and, in accordance with the instructions in the manual, testing was discontinued when a participant answered no item correct in three successive rows on the test. The BNST assessment took 10 to 20 mins to complete. The researcher totalled the raw score and calculated a standardised score after testing had been completed.

10.2.1.4 AEI programme: the Emil programme.

After completing all three above measures, participants in the target group completed the Emil programme, described in Chapters 8 and 9, one to one with the researcher. The programme is formulated of 12 sessions, each of which lasted 15 to 30 mins depending on the level of discussion elicited by the session. Sessions were audio recorded using the app "Voice Recorder" on an iPad mini. Additionally, a simple session record was completed by the researcher after each session as a memory aid and progress log (see Appendix K18).

10.2.2 Procedure

Because the programme sessions required up to one hour per child per week, it was decided to conduct the study in phases or waves: Firstly, Year 4 pupils were invited to take part in the evaluation; then, once the work with the Year 4 participants had completed, Year 3 pupils were

invited to participate. Due to unforeseen circumstances, and the initial control school being unable to continue with the study, the initial Year 3 cohort did not complete the programme within the academic year and did not have a matched control comparison sample. Therefore, a second cohort of Year 3 participants were recruited and assessed against matched controls in the subsequent academic year. Since inspection of data revealed no clear difference between the second and third cohorts of participants, the second cohort was still included in analysis in order to give a more robust sample size.

The overall procedure in each wave of the study was identical. Firstly, the EISCr2 was administered to all children in the target year group, from which eligible children were identified. Those in the target school were then sent information and consent forms for participation in the programme. Children who returned this form completed pretest YARC and BNST assessments, followed by the 12 Emil programme sessions, and then posttest assessments of EISCr2, YARC and BNST. Qualifying children in the control school were asked to complete the pretest and posttest assessments at approximately the same time as those in the target school, but received no provision, other than that provided by the school's usual curriculum, in the interim period. For the second wave, no control school was available. Figure 67 illustrates the study procedure.

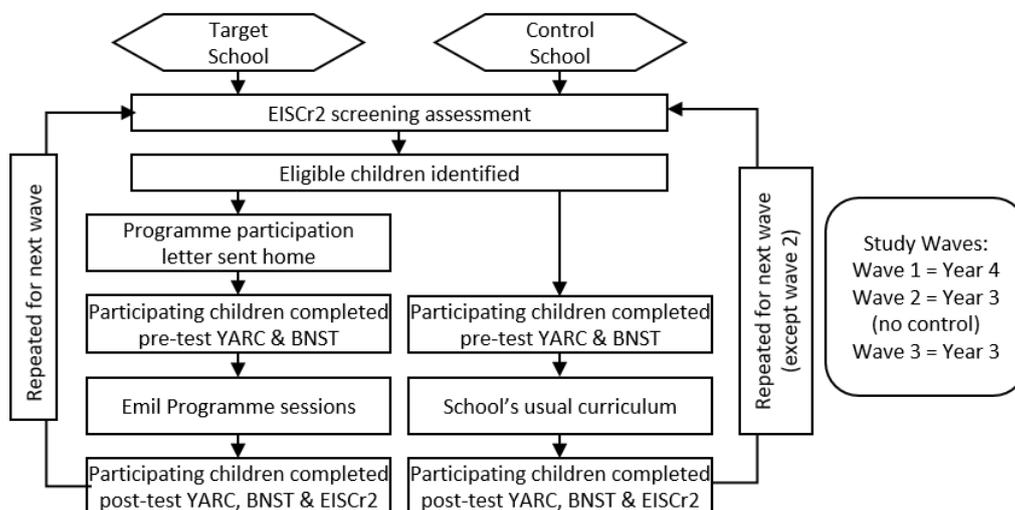


Figure 67: Flowchart illustrating Study 2 procedure.

Each assessment was administered as described in the measures section. Before starting the initial EISCr2 screening, the researcher introduced the study to participants using the wording in Appendix Q . Participant informed consent to take part in the Emil programme was obtained as part of the introductory session (see Appendix R).

Although the programme was theoretically able to be completed in six weeks (12 sessions delivered at two sessions per week), pupil absence and school time pressures and commitments meant that this was not achieved. Therefore, the typical length of each wave of the study was three months.

10.3 Results

10.3.1 Validity of EISCr2.

Because EISCr2 is effectively a shortened version of EISCr1, validity analysis focussed on the aspects of EISCr1 which were sub-optimal, namely the content relevance and reliability of the subtests.

Furthermore, because the participant to item ratio was 6:1 for this study, just above the absolute minimum recommended factor analysis ratio of 5:1 (Osborne, Costello, & Kellow, 2014), it was decided to examine the factorial validity of EISCr2. Therefore, internal consistency was re-assessed alongside an examination of the factor structure of the measure.

10.3.1.1 Internal consistency.

As in study 1, Sullivan (1999)'s internal consistency assessment approach was followed. A categorical principal components analysis (PCA) with forced extraction of one component was performed on each subtest (Table 30). Items with a positive loading of 3.0 or higher were considered to meaningfully contribute to the subtest and retained for reliability calculations. The only subtest for which all items did not meaningfully contribute was managing, where Item 13b had a low loading value. Descriptive statistics for the resulting measure are given in Table 31.

Table 30: Component Loadings from Individual Subtest Categorical Principal Components Analyses

Faces subtest		Stories subtest		Understanding subtest		Managing subtest	
Item	Loading	Item	Loading	Item	Loading	Item	Loading
Q1	.87	Q5	.64	Q10a	.32	Q13a	.53
Q2	.74	Q6	.56	Q10b	.38	Q13b	.19
Q3	.94	Q7	.41	Q10c	.63	Q13c	.50
Q4	.78	Q8	.76	Q11a	.49	Q14a	.66
		Q9	.52	Q11b	.64	Q14b	.47
				Q11c	.33	Q14c	.65
				Q12a	.43	Q15a	.77
				Q12b	.49	Q15b	.70
				Q12c	.56	Q15c	.65
						Q16a	.72
						Q16b	.59
						Q16c	.67

Note. Subtests Analysed individually using CATPCA with forced extraction of 1 component. Component Loadings > .30 are in **boldface**.

Alpha reliability coefficients were computed using items retained from the PCAs (Table 31). Faces, Managing and the whole scale showed good internal consistency whilst Stories and Understanding remained low. In fact for these subtests the alpha for EISCr2 was lower than for EISCr1.

Table 31 Descriptive Statistics and Reliability for EISCr2

Scale	Percentage score			Standard deviation	Alpha reliability coefficient
	Minimum	Maximum	Mean		
Faces	0.00	100.00	95.97	16.33	.85
Stories	20.00	100.00	85.78	19.32	.48
Understanding	11.11	100.00	77.53	19.33	.57
Managing	0.00	100.00	79.77	22.95	.84
Whole	16.67	100.00	82.28	15.41	.84

10.3.1.2 Factor structure.

Initially, a categorical PCA with 30 dimensions was run in SPSS in order to determine the number of factors to retain. Using the eigenvalue one criteria, the data suggested that 10 factors be retained (see Figure 68). However inspection of the scree plot (Figure 68) showed potential elbows at the second, fourth and sixth factors. Since a 10 factor solution makes little theoretical sense, the PCA was re-run with one, two, three, four, and five dimensions, and these solutions explored. To simplify the data structure and aid clarity, a promax rotation was applied to these PCAs. Promax rotation was selected because some correlation between factors was likely, and, according to Costello and Osborne (2005), an oblique rotation should be used in this instance.

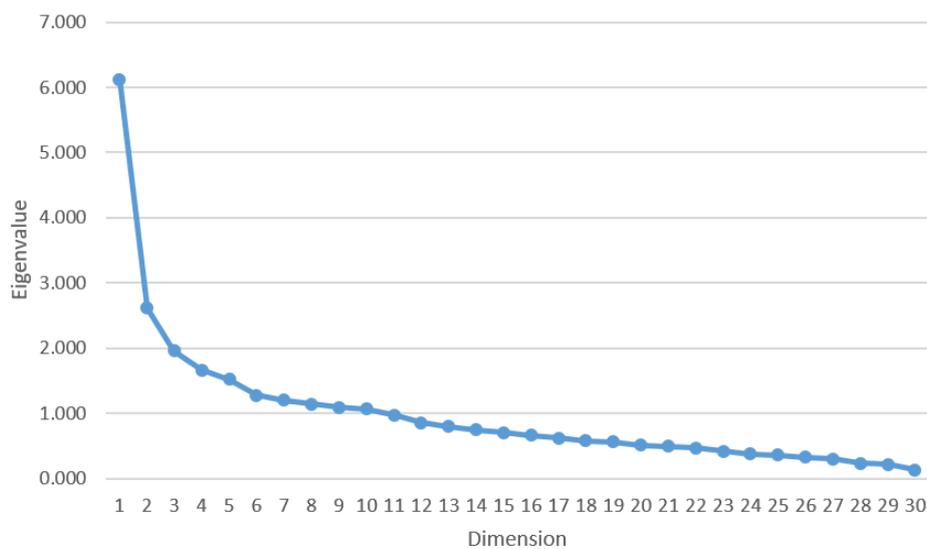


Figure 68: Scree plot for 30 dimension CATPCA performed on EISCr2.

A single factor solution loaded 23 of the 30 items (see Table 32) and explained 20.40 % of variance. Four out of the seven redundant items came from the understanding subtest leaving this branch underrepresented. For the remaining three non-contributing items, one came from the faces subtest, one from the stories subtest, and Question 13b, which did not contribute to the managing subtest PCA, also did not contribute to this model.

The rotated two factor solution accounted for a larger amount of variance (29.12 %), and had five non-contributing items (see Table 32). In addition, there was one cross-loading item with Question 5 being loaded by both factors. Inspection of the component loadings revealed little logical patterning, with the first factor loading the managing subtest items plus some from the understanding and stories subtests, whilst the second factor loaded the faces subtest items plus a couple from the stories and understanding subtests. The two factors were weakly correlated ($r = .26$).

The three-factor rotated solution was the only one which displayed simple structure (Table 32). The total variance accounted for increased to 30.95 %. There were still five non-contributing items, three from the understanding subtest and one from the stories subtest, along with Question 13b from the managing subtest. Inspection of component loadings revealed three labellable factors: the managing subtest was loaded by the first factor (Managing), the faces subtest by the second factor (Faces) and the third factor loaded a mix of items from the stories and understanding subtests (Understanding Stories). The factors showed small correlations with one another in the range $r = .24$ to $r = .38$.

The four-factor rotated solution demonstrated both a further increase in variance accounted for (41.19 %) and a reduction in the number of redundant items to four (Q8 from the stories subtest and Q10a, Q10b and Q11c from the understanding subtest). It did not however, display simple structure with three items from the managing subtest showing crossloadings: Questions 13b, 14a and 15a (Table 32). Furthermore, labelling of factors was problematic, with Factor 1 loading most managing subtest items; Factor 2 loading faces subtest items, but both Factors 3 and 4 loaded a mix of items from the understanding, stories and managing subtests, yet were weakly correlated ($r = .156$).

Finally, the five-factor rotated solution explained the greatest amount of variance (46.17 %) and had two redundant items: Questions 9 and 11c (Table 32). Nevertheless, the solution was hard to interpret with five crossloading items (Q10b, Q12b, Q13b, Q14a and Q15a) and the third and fourth factors both loading a mix of items from across the stories, understanding and managing subtests. The fifth factor loaded mostly items from the stories subtest, whilst the first and second factors continued to load the managing and faces subtest items respectively.

Table 32: Component Loadings for 1,2,3,4, and 5 Factor CATPCAs

Question	Number of Factors in Model														
	1	2		3			4				5				
	F1	F1	F2	F1	F2	F3	F1	F2	F3	F4	F1	F2	F3	F4	F5
Faces															
1	.50	.05	.83	.06	.84	.01	-.02	.85	.03	-.01	-.04	.83	.04	-.01	.09
2	.27	-.13	.72	-.10	.74	-.05	.02	.84	-.37	.04	.03	.83	-.26	.08	-.15
3	.44	-.03	.88	-.01	.89	-.03	.02	.97	-.20	.02	.01	.95	-.15	.04	-.01
4	.54	.16	.72	.19	.76	-.05	.01	.71	.26	-.13	-.03	.68	.24	-.13	.15
Stories															
5	.46	.31	.31	.11	.23	.36	-.01	.19	.33	.26	-.05	.17	.07	.14	.52
6	.25	.23	.05	.11	-.00	.22	-.10	-.11	.51	.07	-.17	-.14	.11	-.12	.77
7	.37	.21	.32	-.09	.18	.53	-.04	.23	.05	.50	-.02	.22	.10	.55	-.08
8	.35	.30	.13	.10	.04	.35	.02	.02	.28	.27	-.04	-.01	-.11	.07	.72
9	.32	.31	.06	.14	-.01	.30	.01	-.07	.37	.19	-.01	-.08	.29	.17	.19
Understanding															
10a	.43	.33	.22	.27	.20	.13	.23	.22	.09	.11	.18	.20	-.14	-.03	.48
10b	.14	-.03	.31	-.20	.23	.30	-.29	.18	.25	.21	-.26	.17	.37	.32	-.22
10c	.26	.15	.22	-.24	.03	.68	-.21	.06	.14	.62	-.19	.05	.05	.60	.15
11a	.34	.33	.05	.04	-.09	.52	.15	-.01	-.05	.53	.17	-.01	-.05	.54	-.02
11b	.43	.40	.08	.03	-.09	.67	.06	-.05	.15	.62	.07	-.06	.01	.56	.23
11c	.27	.27	.01	.12	-.06	.28	.10	-.05	.15	.23	.08	-.06	.03	.18	.22
12a	.38	.36	.06	.27	.03	.17	-.01	-.10	.65	-.01	-.03	-.12	.64	.03	.07
12b	.31	.29	.06	.06	-.05	.41	-.16	-.16	.59	.23	-.15	-.17	.66	.33	-.09
12c	.29	.31	-.01	-.00	-.15	.56	.07	-.10	.04	.54	.11	-.09	.10	.59	-.14
Managing															
13a	.57	.51	.16	.36	.10	.29	.33	.14	.13	.26	.31	.13	.05	.21	.20
13b	.14	.29	-.25	.13	-.32	.28	.33	-.20	-.28	.37	.34	-.19	-.35	.30	.09
13c	.53	.48	.13	.37	.09	.22	.19	.03	.42	.10	.17	.02	.35	.08	.19
14a	.61	.60	.07	.67	.13	-.10	.46	.07	.39	-.19	.45	.06	.54	-.11	-.18
14b	.44	.43	.05	.47	.09	-.06	.21	-.02	.51	-.20	.19	-.03	.57	-.14	-.02
14c	.62	.63	.02	.58	.02	.13	.49	.02	.22	.08	.48	.02	.23	.08	.06
15a	.72	.73	.04	.79	.09	-.06	.58	.05	.39	-.14	.55	.03	.36	-.17	.16
15b	.57	.73	-.24	.74	-.22	.03	.79	-.14	-.06	.07	.78	-.13	-.05	.04	.02
15c	.60	.64	-.03	.62	-.01	.07	.55	.00	.17	.04	.54	-.00	.23	.06	-.05
16a	.64	.68	-.01	.74	.04	-.06	.78	.13	-.13	.00	.78	.14	-.05	-.01	-.05
16b	.44	.61	-.26	.72	-.19	-.16	.78	-.11	-.15	-.09	.77	-.10	-.08	-.10	-.08
16c	.61	.67	-.04	.60	-.05	.15	.70	.07	-.16	.22	.71	.07	-.08	.23	-.10

Note: Component Loadings > .30 are shown in **boldface**.

From the above inspections, it was concluded a three-factor structure was the best fit for EISCr2 because it was the only solution to display simple structure and produce clearly labellable factors: Managing, Perceiving and Understanding Stories.

Because the pattern of subtest item loadings within the three factor solution was not congruent with the structure specified by Sullivan (1999), further investigation of this discrepancy was undertaken. Firstly, a single component categorical PCA was performed using all items from the faces and stories subtests, because, according to Sullivan (1999), these two subtests should combine to measure the “Perceiving Emotion” AEI branch. Secondly, a single component categorical PCA was performed using all items from the understanding and stories subtests, following the above finding of these two subtests combining on a factor. For both combinations, reliability coefficients were calculated using contributing items. Comparisons of these two PCAs revealed that Stories seems to fit better with Understanding than Faces, given that all Stories items, and all except one Understanding items, loaded onto their combined Stories and Understanding PCA; whilst only three of the Stories items loaded onto the shared Faces and Stories PCA (Table 33).

Furthermore, comparison of loading plots (Figure 69) showed Stories and Understanding to be integrated with both subtests having items distributed evenly across loading values. Whereas Faces and Stories show clear a distinction with only Faces items loading strongly.

Contributing items of the Faces and Stories combination demonstrated a higher reliability ($\alpha = .701$) than contributing items of Stories and Understanding combined ($\alpha = .672$). No removal of items would have resulted in an improvement in the combined Stories and Understanding alpha coefficient, whereas for the Faces and Stories combination, removal of two out of the three contributing Stories items leads to an improved alpha (Table 34).

10.3.1.1 The effect of gender on performance.

Because the lack of gender difference in performance found for EISCr1 was somewhat unexpected within the context of existing literature, gender comparisons were repeated for EISCr2. In contrast to Study 1, inspection of box plots revealed several outliers for both boys and girls. Because there was no valid reason to remove these, a Mann-Whitney U test was used instead of the t-test. Visual inspection of distribution shapes revealed similar shaped distributions, however there was no difference in median EISC percentage score for males (86.67 %) and females (86.67 %) $U = 4383$, $z = 1.097$, $p = .272$.

Table 33: Component Loadings for Single Component CATPCAs on Subtest Combinations

Question	Model	
	Faces & Stories	Stories & Understanding
Faces		
Q1	.85	
Q2	.67	
Q3	.87	
Q4	.78	
Stories		
Q5	.45	.55
Q6	.18	.34
Q7	.41	.50
Q8	.32	.50
Q9	.20	.40
Understanding		
Q10a		.40
Q10b		.25
Q10c		.55
Q11a		.45
Q11b		.62
Q11c		.33
Q12a		.38
Q12b		.42
Q12c		.46

Note: Each model refers to a single factor CATPCA for specified combination of subtests. Component loadings > .30 are shown in **boldface**

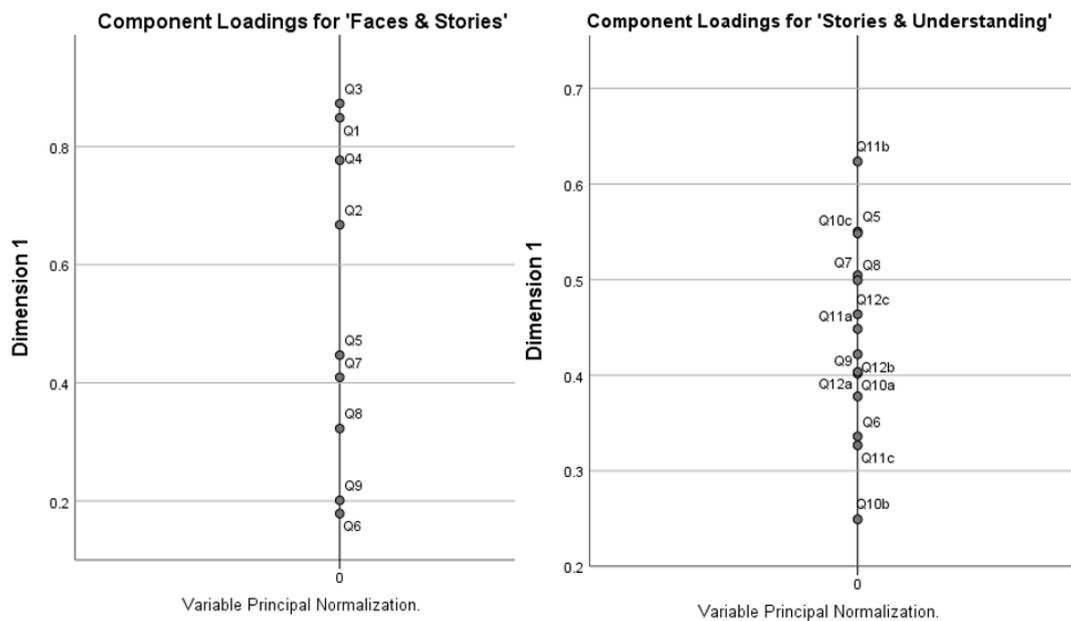


Figure 69: Component loading plots for combined subtests single component CATPCAs.

Table 34 Reliability Statistics for Combined Subscales if Items were Deleted

Item	Faces & Stories		Stories & Understanding	
	Value if item deleted		Value if item deleted	
	M	α	M	α
Faces				
Q1	6.42	.62		
Q2	6.44	.67		
Q3	6.42	.61		
Q4	6.43	.64		
Stories				
Q5	6.37	.69	14.29	.65
Q6	NI	NI	14.29	.66
Q7	6.34	.71	14.26	.65
Q8	NI	NI	14.30	.65
Q9	6.38	.72	14.07	.66
Understanding				
Q10a			14.26	.66
Q10b			NI	NI
Q10c			14.24	.64
Q11a			14.19	.66
Q11b			14.22	.63
Q11c			14.08	.67
Q12a			14.24	.66
Q12b			13.97	.66
Q12c			14.19	.65

Note: M = mean, α = Cronbach's Alpha, NI indicates item not included in reliability analysis due to not contributing to earlier CATPCA

10.3.2 Programme delivery adaptations.

As far as possible, the programme was delivered according to the detailed delivery notes set out in Appendix K1, however one session had to be stopped mid-session due to an interruption and was resumed the following day. Furthermore, on two occasions, the final game had to be omitted due to time constraints. On these occasions, the game was incorporated into the next session. Finally, the situational judgement PowerPoint appeared very unengaging for one participant, who chose to skip through it without making any emotion judgments; consequently, for this participant, this activity was adapted into a game format for the angry and scared sessions. This was achieved using printouts of the slides concealed in numbered envelopes, which could only be opened when they successfully threw a ball into the hoop containing the corresponding number, in the correct order. This enabled the pace to be slowed and encouraged the child to look at the detail in each picture.

The Emil programme is designed to be delivered by school staff as part of the schools usual cycle of support. With this in mind, it was delivered within the target school fitting around timetable constraints and other daily considerations. Therefore, although the programme is designed to be delivered at a rate of up to two sessions per week, this was not consistently achieved. To ensure maximum comparability, for each cohort the control participants were not re-tested until all participants had completed the programme; therefore all control participants had the maximum time span between pre- and post-tests for their respective cohort.

10.3.3 Programme outcomes.

The effectiveness of the Emil programme was assessed through comparing pretest to posttest change in target group scores on EISCr2, YARC and BNST, compared to the control group.

10.3.3.1 Data normality checks.

Initially, all data was assessed for violations of assumptions of normality using visual inspection of histograms, box plots and QQ plots, z-scores for skewness and kurtosis, and Kolmogorov-Smirnov, Shapiro-Wilk and Levene's tests. Appendix S presents the results of these assessments.

Initial and final EISCr2 score were relatively normally distributed and therefore could be subjected to parametric tests of difference. In contrast, the scores for reading accuracy, reading fluency, comprehension and maths were all found to violate one or more assumptions of normality and required non-parametric analysis.

10.3.3.1 Programme outcomes for emotional intelligence.

Figure 70 shows the change in EISCr2 scores for all 21 participants. All participants, except one control participant, showed an improvement in scores between pretest and posttest. Participants in the programme group demonstrated improvements in the range 6 to 21 points (mean = 11.11) whereas participants in the control group showed change in the range -1 to 12 points (mean = 5.75).

To evaluate programme impact, a two-way, mixed ANOVA was conducted with time (pretest or posttest) as the within-subjects factor and group (target or control) as the between-subjects factor. As outlined above, there were no outliers and all data was approximately normally distributed.

There was a statistically significant interaction between group and time for EISCr2 score $F(1, 19) = 7.86, p = .011, \text{partial } \eta^2 = .29$. Although there was no significant difference between groups in scores either pretest ($F(1,19) = 1.84, p = .191$) or posttest ($F(1,19) = 2.75, p = .114$), and both target and control groups showed significant improvement over time ($F(1,8) = 51.41, p < .001 \text{ partial } \omega^2 = 0.74$; $F(1,11) = 23.69, p < .001, \text{partial } \omega^2 = 0.49$ respectively), inspection of means (Table 35)

revealed that the target group started with a lower mean score than the control group but ended with a higher mean score; hence they made more progress (see Figure 71).

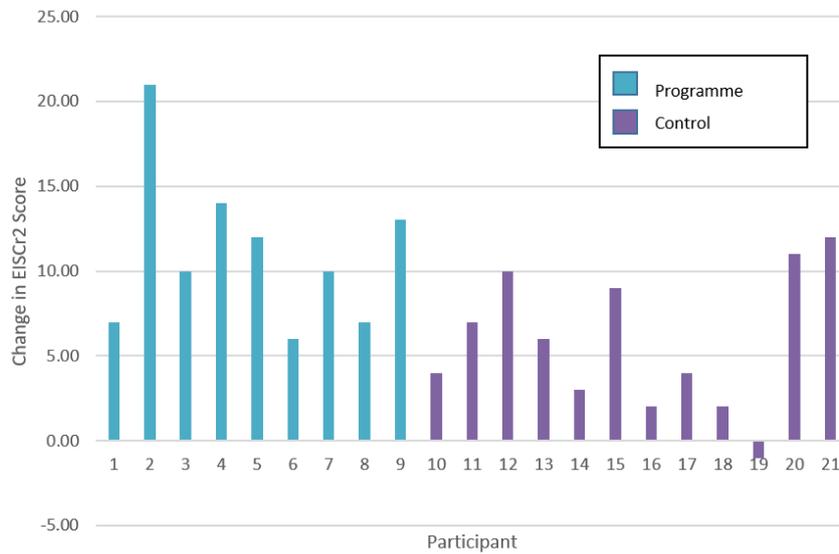


Figure 70: Column chart to show change in EI scores between pretest and posttest.

Table 35: EISCr2 Mean Score Pretest and Posttest

Group	n	Pretest		Posttest	
		M (SD)	95% CI	M (SD)	95% CI
Programme	9	14.00 (5.15)	[10.04, 17.96]	25.11 (3.82)	[22.17, 28.05]
Control	12	16.33 (2.64)	[14.66, 18.01]	22.08 (4.36)	[19.31, 24.85]

Note: SD = standard deviation, CI = confidence interval

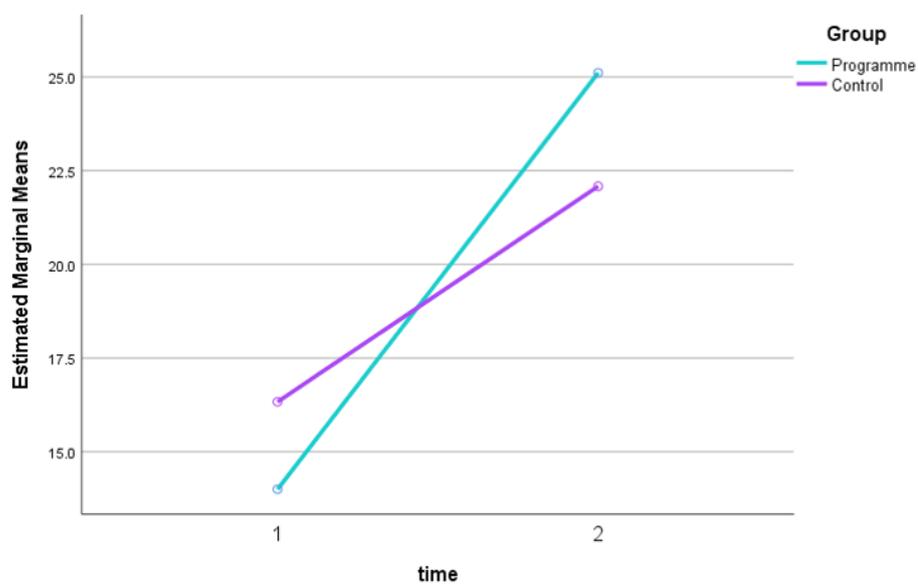


Figure 71: Graph showing change in EISCr2 mean between pretest and posttest.

10.3.3.2 Programme outcomes for academic achievement.

In order to accurately assess the change in scores, analyses were based on participants' raw scores for BNST and ability scores for YARC accuracy, rate and comprehension. Because the distribution of change score was not symmetrical, a series of exact Sign tests, with Bonferroni corrected alpha significance levels of $p = .013$, were carried out to establish which aspects of AA improved significantly over time. Target and control group data were analysed separately.

For maths, of the nine programme participants, eight showed an improved score at posttest whilst one participant's score did not change. There was a statistically significant median increase in BNST score (Mdn = 4) from pretest (Mdn = 12) to posttest (Mdn = 17), $p = .008$. Of the 12 control participants, eight showed a positive improvement whilst four participants' scores decreased at posttest. The control group did not demonstrate a statistically significant median increase in BNST score (Mdn = 2) from pretest (Mdn = 7) to posttest (Mdn = 12.5), $p = .388$.

With regard to reading accuracy, eight programme participants achieved an improved score posttest whilst one showed a decreased score. The programme group's median improvement in reading accuracy (Mdn = 6) from pretest (Mdn = 46) to posttest (Mdn = 50), $p = .039$, was not statistically significant at the Bonferroni corrected level. From the control group, only five participants increased their score at posttest compared to pretest, with the remaining seven demonstrating a decrease in reading accuracy at posttest. There was a nonsignificant median decrease in reading accuracy score (Mdn = -1) from pretest (Mdn = 45.5) to posttest (Mdn = 48) $p = .774$.

In respect of reading rate, seven of the nine programme participants showed an increased reading rate at posttest with the remaining two demonstrating a reduction in reading rate. For the programme group, there was a nonsignificant median increase in reading rate (Mdn = 6) from pretest (Mdn = 56) to posttest (Mdn = 65) $p = .180$. In the control group, 10 participants had an increased reading rate posttest, with one participant demonstrating a decrease in reading rate. There was a statistically significant median increase in reading rate ability score (Mdn = 3.5) despite the median rate ability score being slightly higher pretest (Mdn = 60) than posttest (Mdn = 59.5) $p = .012$.

Finally, seven of the programme participants demonstrated greater comprehension ability posttest with the remaining two showing a decrease in comprehension. The median increase in comprehension ability score (Mdn = 3) from pretest (Mdn = 43) to posttest (Mdn = 44) was not statistically significant, $p = .180$. Seven of the control participants also showed an increase in comprehension ability posttest, with one participant showing no change in score and the remaining four participants showing a decrease. The control group showed a smaller median increase in

comprehension ability score (Mdn = 1.5) from pretest (Mdn = 41) to posttest (Mdn = 43.5), which was also nonsignificant, $p = .549$.

In summary, the programme group showed a statistically significant median increase in Maths score only, with reading accuracy approaching significance. The control group showed a statistically significant median increase in reading rate score only.

10.3.4 Participant feedback.

The responses given by the programme participants, on the feedback form completed at the end of the programme, were collated and examined for themes. Since there were only nine forms, formal data analysis was not appropriate.

With regard to the numerical scaled responses, the feedback was generally positive. Eight out of the nine gave a rating of 5 (*very much so*), for their enjoyment of the programme, with the remaining participant selecting 3 (*a little bit*). All participants felt that it had helped their EI skills with five selecting the top rating (*very much so*), and the others selecting the second to top (*quite a lot*). Finally, seven out of the nine said they would recommend the programme to a friend (either *quite a lot* or *very much so*), whilst the remaining two said they would *not at all* (1) or *not very much* (2). However, the participant who selected *not at all* stated that they did so because they did not want anyone else to do it except themselves. Figure 72 gives the scale responses from the feedback form.

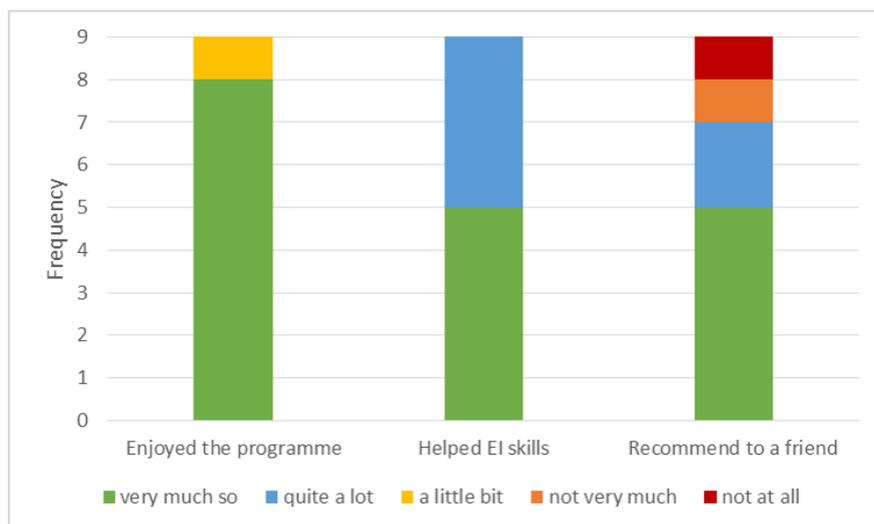


Figure 72: Scale responses given by programme participants on feedback form.

The open questions revealed quite a mixed set of responses (Table 36). With regard to what they enjoyed about the programme, the final quiz appeared to be the overall favourite activity, with four participants selecting it. Because the form was completed in the same session as the quiz, this may, however, have influenced responses. “Nothing” was the most frequent response to what they

enjoyed least about the programme, with five participants responding in this way. Of the remaining four, one identified the FUN script and looking at pictures, one chose drawing faces, one filling in the feedback form, and the final one responded “the part where I found a spider”. Interestingly, the child who identified the FUN script as the least enjoyable part of the programme, also identified the FUN keyring prompt as the most helpful part, because it helped him remember the script. The quiz again was the most popular choice for the most helpful part, with a third of the participants choosing it. Similarly, a third of participants said “nothing” was least helpful, however one identified the quiz, one the comparison pages and one all the bits on the computer; the remaining three did not know or did not respond. Most participants (five) said they would not change anything about the programme, although two identified that they would like more games to play, one wanted to change one of the games and the final one wanted more detail on the puppets.

Overall therefore, the programme seems to have been reasonably successful in engaging participants, and was generally positively rated and evaluated by them.

Table 36: Programme Participants' Responses to Open Feedback Questions

Respondent	Favourite Activity	Least favourite activity	Which activities were most helpful for EI skills?	Which activities were least helpful for EI skills?	Would you change anything about programme?
R1	Falling bricks game	Pictures and 'useful, feeling, next'	The keyring – it helps me see what FUN is	Doing the quiz today	The card game
R2	All of them	Nothing	All of it	Nothing	Use snakes and ladders
R3		nothing	My feelings	nothing	Nothing
R4	The quiz	The part where I found a spider	The quiz	The part where he lost his toy	Add more detail to the body of other characters
R5	The quiz	Drawing the faces	The quiz	Comparing pages	No
R6	The quiz	Nothing	Don't know	Don't know	No
R7	Arts and crafts	Nothing		On the computer	No
R8	All	Nothing	All	Nothing	Have games to play
R9	The quiz	Filling in feedback	The quiz	Nothing	No

10.4 Discussion

10.4.1 Effectiveness of EISC revisions.

The refinements applied to create EISCr2 were intended to improve content relevance, reliability and usability of the measure. Progress in each of these areas is discussed below along with the newly examined factorial validity of EISCr2.

10.4.1.1 *Content relevance.*

As with EISCr1, it should be noted that all judgements of content relevance are bound to the culture in which the measure was developed and evaluated, and cannot be assumed to be applicable if the measure is used within other cultures.

It is encouraging that the removal of the redundant items from EISCr1 appears to have fostered more subtest coherence, with all items contributing to their relevant subtest for Faces, Stories and Understanding, meaning 97 % of EISCr2 items were retained by their PCAs. It is unclear however, why Managing now has a noncontributing item, when all items contributed in EISCr1. The noncontributing question “Should you walk away and play a different game with your other friends?”, was reworded from Sullivan (1999)’s original “Should you go away and play a different game?” because the adult focus group felt the original wording was too ambiguous, as this could be constructive or destructive coping mechanism. Therefore, although the focus group feedback was that the reworded question made it a clearer constructive management strategy, the inherent ambiguity in using this strategy means it does not fit well with the other items which were much clearer constructive or destructive strategies. Further investigation may be required to decide if the question should be retained, replaced or the whole item parcel removed.

In contrast to the individual subtests PCAs, the retained three-factor PCA for the overall factor structure of the measure, had five redundant items, a retention rate of 83 %. Although this still represents an improvement over EISCr1, it suggests that the content relevance of the measure can still be improved. This is especially true given the pattern structure found, whereby Stories and Understanding unexpectedly combined on a factor; suggesting these tasks may not be assessing their underlying branch, as is discussed further in the factorial validity discussion.

10.4.1.2 *Internal consistency.*

EISCr2 demonstrated improved internal consistency compared to both the original measure and EISCr1, having not only good reliability at the whole scale level but also two subtests (Faces and Managing) with good reliability. It is particularly promising that the faces subtest now demonstrates good internal consistency, as this suggests that the changes made to increase the difficulty of this

subtest have been effective in raising its reliability. However, the mean percentage score for Faces was actually slightly higher in EISCr2 (95.97 %) than in EISCr1 (94.70 %), suggesting that the difficulty was not successfully raised. This may though, be an effect of the different population ages since EISCr2 was only utilised with children aged seven to nine and research suggests that most children are able to correctly identify the basic emotion expressions by age seven (Widen, 2016); thus this subtest is likely to be unchallenging for the upper end of the EISC range, posing more challenge for younger participants. In support of this, the mean percentage for EISCr1 Faces amongst Year 3 and 4 participants only, was actually 98.53 %; this suggests that the EISCr2 Faces may indeed have been slightly more challenging. Nevertheless, it is clear that this subtest continues to elicit near ceiling level performance.

In contrast to the promising improvement in reliability for Faces and Managing, the observed reduction in reliability for Stories and Understanding is worrying. There are several possible reasons why these alphas remained low. Firstly, the revisions applied may not have solved the issues identified by Sullivan (1999), that Stories was too easy and Understanding too difficult. However, inspection of mean scores reveals a decrease for EISCr2 Stories and an increase for Understanding compared to Sullivan's, suggesting these issues have at least partially been addressed. Secondly, re-inspection revealed inconsistencies between items in the subtests, which may be preventing the items from forming coherent subscales. In Stories, some stories described the trigger first followed by the character's behaviour, whereas others described the behaviour before the trigger. Questions in Understanding varied in choice of casual connective used. Finally, comparison with their MEIS counterparts reveals notable changes in response format. For Stories, MEIS asks participants to select, from seven options, which emotion was in the story, whereas EISC requires a yes/no response about one given emotion. In Understanding, the MEIS Relativity five-point scale was again simplified to a yes/no response for the EISC. These simplified response formats may have resulted in the subtests not tapping the underlying construct they were intended to measure. If this is true, it may explain why EISCr2's Stories alpha is lower than Sullivan's original, since she used participants' responses to open questions in her analyses (Sullivan, 1999, p. 79). These responses were more akin to the label selections of MEIS than the yes/no responses of EISC closed questions. It is also notable that Stories and Relativity were dropped when Mayer et al. (2003) transformed the MEIS into the MSCEIT, suggesting they did not consider them the best assessments for their respective branches.

10.4.1.3 Factorial validity.

A three-factor structure was found for EISCr2; this is consistent both with findings from adult measure analyses (Mayer et al., 2016a) and with the intended structure of the original EISC (Sullivan,

1999). The small correlations between factors are of a similar magnitude to those obtained for the MEIS (Mayer et al., 1999); thus adding evidence that the EISCr2 structure is consistent with AEI theory, which states that the abilities involved in AEI should be intercorrelated (Mayer et al., 1999). Nonetheless there are concerns which need addressing. It would not be expected from Sullivan (1999) that Stories and Understanding combine on a factor. According to her hierarchy, Stories should combine with Faces to measure “Perceiving emotions”, whilst Understanding should be a stand-alone test. The structure found may be a result of the subtests’ low internal consistency; this is likely given that sample size was very small for factor analysis, however it may also indicate the subtests are not measuring the skills they are intended to assess. As mentioned above, neither of the model subtests from MEIS are included in MSCEIT, suggesting these tasks may not be the most appropriate for measuring their respective skills. In support of this, Maul (2011) asserts that factor analyses of the MEIS consistently found both these tasks failed to load on their respective branches. In the case of Stories, he argues this could be a result of the differing format since all other tasks for the perceiving branch were pictorial. This seems likely to have been an influencing factor for the lack of cohesion between Faces and Stories in the current measure, especially since re-evaluation of the content of Stories revealed it could be interpreted as labelling emotions which falls under the understanding branch of the Mayer et al. (2016a) model. Furthermore, it is notable that both the MSCEIT and MSCEIT:YV only use pictorial tasks to measure perceiving emotions. For the current measure however, given the aforementioned near ceiling performance on Faces, it seems undesirable to measure emotional perception using this task alone, in its current format.

With regard to the understanding branch, the PCA investigations in the current study, seem to suggest that combining the stories subtest with the understanding subtest forms a stronger representation. However, although the combined Stories and Understanding alpha is approaching acceptability, the scale is still not sufficiently reliable (Gignac, 2009). Furthermore, three out of the nine Understanding items did not contribute to the overall factor analysis, suggesting that this subtest does not cohere well with the rest of the measure. This fits with Maul (2011)’s observation that the MEIS relativity task, on which the understanding subtest appears to be based, does not cohere with other MEIS understanding tasks. Therefore, future revisions will need to consider whether this is the best combination of tasks to assess the understanding AEI branch; particularly because Stories was not originally designed to measure understanding.

10.4.1.4 Usability and gender effects.

The key administrative alteration made to EISCr2 was to replace the response books and feely characters, used in EISCr1, with paper and pencil answer booklets, in an attempt to reduce

administration time. The measure took 20 to 30 mins to complete in Study 2, indicating administration has been successfully reduced, and is now close to Denham et al. (2016)'s recommended maximum of 20 mins. Participants also appeared to maintain concentration during completion. It is notable, however, that only the upper end of the measure age range completed EISCr2, and this may have influenced these results. Nevertheless, there appear to have been encouraging improvements in usability for EISCr2.

It is interesting that there was still no difference in score between males and females; particularly as this sample focussed on the upper end of the age range where you would expect differentiation may start to occur, given that gender differences have been found in scores on MSCEIT:YV (Rivers et al., 2012). On the other hand, evaluations of the MSCEIT:YV seem to have utilised only adolescent populations so far, so it is possible that gender differences do not emerge until adolescence.

Overall, EISCr2 represents a useful progression towards an acceptable AEI measure for children. As with EISCr1, the good overall reliability suggests it is a coherent measure of global EI for English school children. Further to this, Faces and Managing demonstrated good internal consistency and emerged as factors in factorial analysis suggesting these scales are coherent and reliable. In contrast, Understanding and Stories demonstrated reduced internal consistency and were only partially explained by a combined factor, suggesting further work is needed on these subtests.

10.4.2 Efficacy of the Emil programme.

10.4.2.1 Enhancement of EI.

Although both groups made significant improvements in EISCr2 score, and there was no significant difference between groups at either pretest or posttest, the significant interaction in the mixed ANOVA illustrated a difference in progress between the two groups. Comparison of pretest and posttest means, confirmed that the programme group made more progress than the control group (see Figure 71), as had been indicated by visual examination of change scores (Figure 70).

Consequently, it can be concluded that participation in the Emil Programme led to significantly greater improvement in AEI as measured by the EISCr2.

The effect size for the simple main effect of time for the programme group (partial $\omega^2 = .74$), is approaching the overall effect size of 0.77 for improvement in SEL skills identified by Payton et al. (2008) for indicated SEL programmes in the USA, suggesting that the Emil Programme is approximately on a par with the programmes included in this review. In contrast the effect size of the simple main effect of time for the control group (partial $\omega^2 = .49$) was much smaller. This again indicates that participation in the Emil programme leads to greater improvement in EI for children

with below-average AEI than school's usual provision alone. Nevertheless, the effect size of the interaction was much smaller (partial $\eta^2 = .29$), suggesting the Emil programme is perhaps not exceptionally powerful at enhancing AEI.

As the Emil programme was devised to fulfil an identified gap in the UK programme selection, there is little context in which to place these findings. Nevertheless, the findings from this initial evaluation contribute empirical support to the evidence from ELSA evaluations and the DESTY pilot that targeted support programmes can enhance pupils Emotional Literacy. Therefore the Emil programme can be added to the list of potential tools for practitioners working in this area, albeit with the caution that further evidence of its effectiveness from larger scale evaluations is required to be fully confident in the use of the programme for enhancing EI.

10.4.2.2 Enhancement of AA

The results regarding progress in AA were somewhat mixed. The only area in which programme participants made significant improvement was maths. Since control participants did not show significant improvement in maths scores, this may indicate that the programme has a positive impact on children's mathematical attainment. This supports the finding of Study 1 that AEI contributes to the mathematical attainment of children in the primary age-range. In contrast, no significant changes were found in the programme group for any of the reading areas examined. This is contradictory to Study 1's findings which not only indicated that AEI contributed to English AA but that it was more predictive of English than maths achievement.

It is also somewhat incongruous with existing literature to find an improvement in maths attainment but not reading, since research suggests that maths and reading attainment are interrelated (e.g. Fuchs et al., 2006; Hart, Petrill, Thompson, & Plomin, 2009; Hecht, Torgesen, Wagner, & Rashotte, 2001). The current finding may be an artefact of the assessments used in that the maths measure, BNST appears specifically designed to operate independently of reading with the authors asserting "the test makes no demands on reading ability, since all instructions are given verbally" (Gillham et al., 2012, p. 7); this may explain the apparent lack of association observed in this study. Furthermore BNST assesses the basic math skills of number concept (place value, series, grouping, conservation) and number operations (processes used in carrying out calculations), but does not include higher level skills, such as solving word problems, or assess fluency (Gillham et al., 2012). Whilst, phonological and decoding skills are required for these basic maths skills (Fuchs et al., 2006; Hart et al., 2009; Hecht et al., 2001), it appears mathematical problem solving involves not only phonological skills but also reading comprehension and language fluency (Fuchs et al., 2006; Hart et al., 2009; Vista, 2013); therefore the BNST may be less related to reading than maths measures

which include problem solving. A final potential explanation related to assessment choice, is that the reading measure, YARC, returns separate scores for each of the three aspects of reading performance (decoding, fluency and comprehension); it is possible that separating out the aspects of reading in this way for some reason diminished progress effects, and that had a composite measure been used, the programme group may have made significant progress in reading. Indeed, it is notable that the programme group did show a nonsignificant average improvement in all reading measures, and their improvement in reading accuracy, which as mentioned above is most closely linked to the skills assessed by BNST, was close to significance. Nevertheless, there is no evidence to suggest that the lack of significance was a measurement effect.

Aside from measure effects, previous research has indicated that the relationship between maths and reading attainment is likely due to shared underlying cognitive factors including working memory (WM), attention, language skills, and non-verbal problem solving (Fuchs et al., 2005; Hart et al., 2009). Although these factors are shared, it is likely they are differentially used within maths and reading. For example, the results of Study 1 suggested that reading performance was predicted by verbal WM, whereas maths was predicted by both verbal and visuospatial WM. Research has further supported the importance of visuospatial skills for maths (Kyttälä & Lehto, 2008; Miller & Bichsel, 2004). Therefore, it is possible that the Emil programme, for some reason, is of particular benefit for visuospatial WM; consequently, more beneficial for maths outcomes. This seems unlikely though, as, if it was the case that increased EI leads to better visuospatial skills, one would expect EI to have contributed more to maths than English in Study 1, where the opposite was found.

WM performance is also disrupted by anxiety (Ashcraft & Kirk, 2001; Eysenck et al., 2005; Hadwin et al., 2005; Ng & Lee, 2015). Indeed there is now an established body of research demonstrating that maths anxiety disrupts WM and reduces performance in maths-specific situations (Ashcraft & Kirk, 2001; Miller & Bichsel, 2004; Passolunghi, 2011). Therefore, it is possible that that the improvements in maths observed in the programme group may be a result of their improved ability to manage anxiety when completing the maths posttest. This explanation, however, assumes that all eight programme participants who improved posttest were suffering from maths anxiety, which seems unlikely.

Finally, the current findings may be explained with regard to skill development. There is some evidence that understanding of mathematical language is a necessary precursor for effective reading (Lerkanen, Rasku-Puttonen, Aunola, & Nurmi, 2005; Purpura, Logan, Hassinger-Das, & Napoli, 2017). Therefore, it is possible that the programme group's improvement in maths but not reading simply demonstrates their mathematical understanding has developed first as a precursor for

reading development. This would, though, be incongruous with the findings of Payton et al. (2008) and Durlak et al. (2011), who reported a significant impact on AA for indicated and universal SEL programmes respectively. Nevertheless, it is notable that these reviews did not control for the inclusion of rehearsal or teaching of academic skills within the programmes, which would confound the impact of EI. For example, the RULER curriculum is specifically taught within English Language lessons and, perhaps unsurprisingly, has been found to have a positive impact on English achievement but not on Maths (Brackett et al., 2012). The Emil programme exclusively targets AEI skills, therefore it may be somewhat premature to expect improvements in AA to be observed at the end of a relatively short time period. Indeed, although Study 1 indicated that EI can directly predict AA in the age range targeted by the Emil Programme, high performance on academic tests must require the test-taker to have the necessary academic knowledge and skills. Thus, it seems likely that increased EI skills are more likely to result in increased AA when the participant has had chance to maximally use their improved skills in the classroom to enhance their learning. Taking this into account, it is unfortunate that the study did not include a follow-up assessment after a time delay, because this would have given more chance for participants increased EI to have maximised classroom learning taking place and may have resulted in higher AA at this delayed time point. It must, however, be emphasised that this is merely a hypothesis, and indeed the one study in the Payton et al. (2008) review which included follow-up analysis for AA noted a reduction in effect to that extent that it became non-significant; hence it is quite likely that a time delay would not result in enhanced AA being evidenced.

In contrast to the programme group, the control group showed a significant improvement in reading rate only. This was unexpected, given that a matched school design was used. Furthermore, since two different schools were used within the control group, the improvement is unlikely to be due to a population effect within the control school, therefore it is unclear what might have driven this improvement. It is notable that reading rate is most strongly linked to maths fluency (Hart et al., 2009), which is not overtly measured by the untimed BNST. Given that the increased reading rate sits alongside a non-significant reduction in reading accuracy, it is also possible that the increased reading rate reflects a learned compensatory strategy amongst the control group at posttest. For example, processing speed is known to affect working memory functioning (Fry & Hale, 2000), therefore the control participants, having a greater understanding of the YARC at posttest, may have chosen to prioritise reading speed in an attempt to maximise information retention for the comprehension questions. This strategy was, however, not necessary as participants were allowed to refer back to the text to answer the comprehension questions. This leaves the possibility that spurious improvements occurred within the control group's reading rate abilities, meaning that it

cannot be ruled out that the programme group's improvement in maths is also a spurious data finding and not linked to the Emil Programme.

It was identified in the literature review that many educators will be more convinced by the potential of EI education if it is shown to have a positive impact on AA (Humphrey et al., 2007). As reviewed above, the evidence for enhancement of AA as a result of the Emil programme was limited in this study. Therefore, it is important that future research focusses on providing clarity with respect to this aspect, in order to fully establish the scope of the programme.

10.4.2.3 Further considerations.

Most targeted SEL programmes currently available, rely on pupils being referred for intervention (Payton et al., 2008); this in turn relies on pupils presenting problem behaviours in order to be identified as requiring support. In contrast, many academic interventions are initiated by pupils obtaining a below average score on a screening assessment (e.g. Catch Up, 2011). This approach means that pupils are less likely to be missed, even if they have developed coping behaviours (e.g. copying) which make them appear competent in day to day classroom lessons. It was decided to select pupils for the Emil programme based on a screening assessment because it seemed plausible that many pupils with low EI could mask their difficulties through learnt coping mechanisms. This stands in contrast to the reviewed exemplar targeted programmes (First Steps to Emotional Literacy, DESTY, ELSA) which all rely on teacher referral. Encouragingly, the positive impact on EI observed as a result of the programme suggests it is efficient for pupils who have been selected via screening. Therefore, the initial evaluation reported here provides preliminary evidence that EI difficulties can be both identified and addressed in a relatively systematic manner.

The feedback from participants indicated that the programme was generally positively rated and evaluated by them. It is notable, however, that the feedback form was completed at the end of the final session with the programme administrator; consequently, despite it being introduced with an emphasis on wanting honest responses in order to make the programme better, it is possible participants inflated some of their ratings in order to please the administrator. Nevertheless, the overriding theme from participant feedback was that the programme was adequate in its current form; though three participants felt that it would benefit from more, or different, games. This was also noted by the programme administrator who felt that, particularly in the second session for each emotion, an additional game (perhaps to recap the triggers) would have made the session more lively and engaging for the participants. Additionally, it appears the introduction of the FUN script may benefit from adaptation to make it more engaging for children.

10.4.3 Limitations.

10.4.3.1 EISCr2 evaluation.

Because Study 2 was primarily aimed at testing the Emil programme, the age range was restricted to seven to nine years old. Consequently, the evaluation data for EISCr2 does not cover the whole age range of the measure. This may have resulted in atypical scoring patterns. As a result, firm conclusions cannot be drawn regarding the validity of the measure, until it has been evaluated across the whole age range.

Similarly, the sample size for factor analysis was barely above the minimum required (Osborne et al., 2014) and drawn from only one geographical area. This may have affected the robustness and generalisability of the results. Furthermore, information regarding group belongings of participants (e.g. SEN status and ethnicity) was not sought, as there was no ethical reason for doing so in the present study. Given the relatively large number of lower extreme outliers found in the gender analysis, this may, however, be an area that needs exploring, because it is possible that, despite every effort being made to ensure accessibility, EISCr2 is harder to access for certain groups of users. This is particularly relevant because EISCr2 continued to use exclusively Caucasian faces and stories based on a western socio-culture, as well as British voices, which may disadvantage participants of non-western ethnicity. The auditory demands of the presentation format also likely unfairly disadvantage pupils with hearing difficulties.

Only reliability and factor structure were evaluated for EISCr2. Hence, many aspects of the measure's validity have not been directly explored; although some predictive and concurrent validity may be inferred from EISCr1, since contributing items were nearly identical for both versions.

10.4.3.2 Emil programme evaluation.

The sample size for the programme evaluation was small. It was necessary to run this initial evaluation using only a small sample due to the targeted natures of the programme, and difficulty of controlling the many extraneous influencing factors if the programme was delivered in more than one school. This means that any findings are preliminary and will require replication on a larger scale before the effectiveness of the programme can confidently be asserted. Similarly, participants were drawn from only one geographical area, therefore the generalisability of the evaluation findings is limited. This is especially relevant because the stories and triggers featured in the programme relate primarily to emotionality within western cultures, and given that it has been shown that different cultures evaluate emotions differently (Denham et al., 2016; Lindquist et al., 2016; Zeidner et al., 2012), it is not at all clear that the programme will be equally effective across all cultural groups, even within a single country.

Secondly, although the target and control schools were as closely matched as could practically be achieved, there is no such thing as two identical schools. With this in mind, researchers have asserted that this sort of study design is sub-optimal because the two groups of participants are not truly matched (e.g. Matthews, Zeidner, et al., 2004). However, due to the targeted nature of the programme, there were unlikely to be sufficient qualifying participants to draw both programme participants and controls from the same school, hence a matched schools design was the most practical option.

An additional administration problem with this study, was that all the research was conducted by the programme developer. Some previous research has suggested that having a programme developer on the research team can lead to more positive results than are found by an independent research team (Humphrey, 2013). However, many of these findings are due to the programme delivery being more “pure”, and the structure being more strictly adhered to, when delivered by programme developers rather than school staff (Parker et al., 2009). In this study, although the programme developer did deliver the programme, she did so within the normal school environment, experiencing the same constraints and frustrations as would a normal member of staff, hence this element is unlikely to have had an effect in this study. Nevertheless, having developed the programme, the researcher undoubtedly knew the curriculum and intent behind the activities better than a naive deliverer would, therefore evidence needs to be obtained that the programme can be effectively delivered by non-involved administrators.

The variability in timespan over which the programme was delivered is not ideal in terms of true empirical comparison. Nevertheless, because the control participants were not re-tested until all of their corresponding cohort had completed the programme, the improvements found cannot simply be due to natural progress within that period of time since control participants had an equally long period of times between testing. Additionally, the fact that a small number of sessions had to be altered or adapted from the original plan makes strict comparisons harder. However, both these factors are artefacts of working in real-world conditions and the fact that the results observed were obtained under such conditions can only add to the ecological validity of the study.

Finally, the measure used to assess participant’s EI was, by necessity, protean in nature; although the evaluations conducted within this project, suggest that it is reasonably reliable at the whole scale level, it is obviously not ideal to rely on newly created measures to assess outcomes of a support programme. Furthermore, there was no normative data available for the measure and this makes it impossible to judge whether the participants had sufficiently improved their EI to be on a par with their peers, or whether further support was still required. In a related vein, it was decided

not to collect information regarding teacher's or parent's perceptions of the programme impact because the programme targets AEI, and ratings of people's perceptions of EI, by definition, measure Trait EI (Petrides et al., 2016). Nevertheless, it may have added credibility to the results, given the protean nature of the outcome measure, if there was data showing that adults around the child had noticed improvements in AEI related behaviours. However, although the EISCr2 is not yet established, it is indisputable that the programme children made more progress between pretest and posttest than the control children, therefore suggesting the programme has a positive impact on the construct assessed by the measure.

11 Conclusions

11.1 Progress Towards an Ability Emotional Intelligence Measure for Primary-Aged Children

When reviewing the literature, it became clear that there was no adequate comprehensive performance ability emotional intelligence (AEI) measure for children aged below 10 years old (Williams et al., 2009). As a result, it was necessary to develop one for this project; thus, the studies described in this project detail first steps towards developing the Emotional Intelligence Scale for Children (Sullivan, 1999) into a successful measure of AEI for primary-aged children, sensitive to their young ages ranging from five to nine. In Study 1, suggestions given by Sullivan (1999) to improve reliability of the original EISC were actioned and content updated to create EISCr1. For Study 2, the measure was further refined, removing redundant items and modifying some Faces questions; resulting in EISCr2.

The literature review also established a set of criteria for a successful AEI measure. Firstly, it should meet the psychometric criteria of reliability, and content, factorial, concurrent, divergent and predictive validity (Gignac, 2009; Matthews, Zeidner, et al., 2004). Secondly, it should be usable by its intended audience, including the contents being accessible to respondents (MacCann et al., 2014) and having reasonable administration demands (Denham et al., 2016; Matthews, Zeidner, et al., 2004). Results from these studies indicated progress has been made towards meeting several of these criteria, namely content validity, internal consistency, construct validity and usability. Nevertheless, there are still several issues that need addressing before the measure can be considered wholly acceptable.

11.1.1 Content validity.

The measure is performance based and relates to the AEI model. The original EISC was developed from the Mayer and Salovey (1997) EI model (Sullivan, 1999), and checks indicated that EISCr2

adequately sampled the updated Mayer et al. (2016a) model. In-keeping with the aims stated by Sullivan (1999), a factor analysis found a three factor solution to best fit EISCr2, however the factors do not load according to her specified hierarchy and further investigations found the stories subtest, which was intended to measure the perceiving branch, is more closely aligned with the understanding subtest. Therefore, revision of content is required to ensure the AEI branches are adequately assessed. This may be possible through content revision of the stories and/or understanding subtest, but may require more wide-ranging revisions or replacement of content.

Before any such content revision is undertaken, it will first be necessary to replicate the current factor structure with larger sample sizes and across the whole age range for the measure, since these two limitations are likely to have had an impact on the accuracy of the factor analysis (Osborne et al., 2014).

11.1.2 Internal consistency.

In an improvement to the original, both revisions demonstrated good overall internal consistency and the faces and managing subtests of EISCr2 additionally showed good internal consistency. Nevertheless, internal consistency of the stories and understanding subtests remained low. This suggests the measure is reliable as a general measure of EI but further revision is required for it to successfully assess specific areas of AEI. Since several researchers have argued that information at the branch level may be more useful than a single overall score (e.g. Fiori & Antonakis, 2011), such revisions will be needed.

11.1.3 Construct validity.

EISCr1 subtest and total scores correlated positively with age; suggesting the measure is developmentally sensitive (Rivers et al., 2012). Additionally, EISCr1 total score correlated moderately positively with cognitive abilities, as expected for AEI (Mayer et al., 1999). These findings suggest EISCr1 is measuring EI as an ability. Although these checks were not conducted on EISCr2, it can be assumed the findings would be repeated, because items which contributed to the calculated scores were nearly identical for both versions. EISCr1 also demonstrated incremental predictive validity for English and maths achievement. These findings can be interpreted as a positive start to establishing concurrent validity.

Expected gender differences were not found for either measure; it is unclear whether this is due to the younger age range of the measure or due to measure error. Furthermore, convergent validity with other EI measures and predictive validity in relation to emotional wellbeing were not assessed; hence further evidence of construct validity will be required to add to the above findings.

11.1.4 Usability.

Sullivan (1999) reported the original EISC took 30 to 45 mins to complete. EISCr1 took slightly longer with completion time being 40 to 60 mins. Both versions were therefore lengthy, especially for use with primary aged children (Denham et al., 2016). EISCr2 is shorter with completion time being 20 to 30 mins, representing a more user-friendly measure. Denham et al. (2016) also emphasise that assessment should minimise teacher effort and administration demands. EISCr1 moved towards this aim by removing qualitative questions, which take longer to mark, and introducing a non-verbal response format, which enabled the measure to be administered to several children at once. EISCr2 furthered this by introducing paper and pencil response books, enabling increased group sizes. Presentation of questions is now via PowerPoint presentation, meaning the measure should be equally usable with groups or individuals, without accidental experimenter bias effects. Nevertheless, although administration time has been reduced, there is still a marking time burden for administrators. This is, however, somewhat unavoidable for any assessment unless a fully automated version is produced, which would then make the measure more costly for educators to buy into.

The use of PowerPoint presentation to administer the measure should also help to ensure the measure's accessibility for participants. This is because the questions are given verbally within the presentation, thus eliminating reading requirements for participants. Although this is not an improvement over Sullivan (1999)'s EISC, where questions were presented verbally by the experimenter, it was an important aspect to maintain in order to avoid any problems with reading ability confounding the results (Brown et al., 2018; MacCann et al., 2014).

11.2 Contribution to the Knowledge Base Regarding Links Between Ability Emotional Intelligence and Academic Achievement

During the literature review, a paucity of research regarding the relationship between AEI and academic achievement (AA) was identified, particularly for primary-school-aged children (Agnoli et al., 2012; Billings et al., 2014; Williams et al., 2009). Consequently, this project aimed to contribute knowledge in this area.

Study 1 provided preliminary evidence that AEI can contribute to the prediction of AA in the age range five to nine. Furthermore, it indicated that it predicts AA independently of cognitive ability, however no measures of general intelligence or personality were included, so it is unknown whether the contribution of AEI to AA remains independently of these. It further appeared that AEI was slightly more predictive of English than maths achievement.

Study 2 further provided tentative evidence that improvement in AEI may lead to improvement in maths achievement. In contrast, no significant improvements were found in English achievement. It should, however, be emphasised that no directional causality analyses were undertaken and therefore the association is merely presumed at present. It is also suggested that improvements in AA as a result of improved AEI, may take longer to emerge than improvements in AEI. Consequently, a longer timeframe than that used in Study 2, may be required to fully appreciate the impact of increased AEI on AA.

Therefore, at present it appears that AEI can contribute to AA for children in the lower primary years (School Years 1 to 4), however it is unclear whether supporting children to improve their AEI will also enable them to demonstrate increased AA.

11.3 Development of a Targeted Ability Emotional Intelligence Support Programme

As stated in the introduction, the primary aim at the outset of this project was to establish whether it is possible, and beneficial, for schools to provide targeted, Wave 2, catch-up style, AEI support. This arose from a review of the current EI-support provision within schools, which typically relies on Wave 1, universal SEL programmes, with some more intensive, reactive Wave 3 support for children presenting with social, emotional and mental health difficulties (Vostanis et al., 2013). Although there is a reasonable evidence base supporting the general success of SEL programmes, there is concern that children whose EI lags behind that of their peers will not be able to access these programmes, or indeed much of the standard classroom curriculum (Matthews, Zeidner, et al., 2004; Mayer & Salovey, 1997). As a result, much of this project was dedicated to developing the Emil Programme, a targeted AEI support programme, which aims to ensure children are proficient in the AEI skills identified to be reasonably securely developed by age seven. In contrast to all other available programmes, the Emil programme is demonstrably grounded exclusively on an AEI model and based on research knowledge.

The initial evaluation of the programme in Study 2 suggested it is effective in developing children's AEI within the target population. However, due to the necessary use of a protean measure, for which age-standardised norms cannot yet be established, it was not possible to judge whether the programme was effective in helping children to catch-up with their peers.

The programme appeared well-received by the target population, who all reported they found it enjoyable and beneficial, although their evaluation was not completed independently of the programme administrator. Nevertheless, during programme administration, a couple of revisions were identified which should help ensure maximal pupil engagement.

11.4 Directions for Future Research

All research undertaken in this project was carried out in order to begin to address some identified gaps in the literature. The studies described therefore represent first steps in their relevant area; consequently, there remain many questions to be addressed, key areas are outlined below.

11.4.1 EISC.

It would be beneficial to test EISCr2 with larger and more culturally diverse samples. In particular, it is important to test it across the whole 5- to 9-year-old age range. Replication of findings from Study 2 will help to establish the measure's worth and clarify further modifications required. If the reliabilities and factor structure found here are replicated, it is likely that alterations will be needed to ensure sufficient coverage of the perceiving and understanding branches. Further examination of EISCr2 validity, especially test-retest reliability, convergent validity, divergent validity and predictive validity, is also necessary.

It is also notable that the measure still relies on the expert scoring criteria. Although this is completely in-keeping with most other AEI measures, and particularly matches the MSCEIT:YV (Rivers et al., 2012), the only other widely available comprehensive youth performance measure, with the increase in emotion-related knowledge base, it would be beneficial to see if the measure is amenable to using more veridical scoring criteria such as appraisal theories of emotion (e.g. Roseman, 2001). This is in line with current directions within the adult AEI measurement movement (Mayer et al., 2016a).

11.4.2 Contribution of EI to Academic Achievement.

Again the findings from Study 1 need to be replicated with a larger and more diverse samples. It would also be desirable if the time-frame for individual data collection can be shortened so that one can be sure that the levels measured are accurate for all areas. This is especially relevant given Study 2 found all participant's EI improved over a relatively short space of time, meaning that if the EI measure was administered a significant amount of time prior to the AA measure, it may well be higher at the time the AA was measured. Similarly, for most participants in Study 1, the AA measures were completed in advance of the EISCr1 and therefore the levels of EI observed are likely to have been higher than they were at AA testing.

The impact of the Emil programme on AA also requires further investigation. In particular, different AA measures need to be used in future to established if the results found in Study 2 are an artefact of the measures used. It would also be helpful to included cognitive ability measures, particularly working memory, to see whether improved EI skills impacts these important learning mechanisms.

Finally, a follow-up posttest assessment will help to highlight whether AA is further enhanced following a period in which participants' EI skills may have impacted their classroom learning.

11.4.3 Emil programme.

The promising preliminary findings regarding the Emil Programme's impact on AEI need to be replicated and expanded. In particular, it remains to be established whether the programme is equally effective across a range of cultures. It would be interesting to include a delayed follow-up test in future evaluations to see whether the improvements in AEI have been maintained as well as evaluating whether any further academic progress has been made, as outlined above. In addition, the programme should ideally be evaluated using a measure for which age-related norms have been established, because this will enable comparison of participant's posttest scores with typical scores for their age.

Despite the programme being generally well received by participants, it may help pupil engagement to introduce some extra games. In particular, the situational judgement PowerPoint may work better if implemented as described in the adaptations section (Chapter 10.3.2) for all participants.

Additionally, the recap of Emil's triggers could be adapted to a game format, or perhaps replaced by a game which encourages the child to more specifically explore their own triggers. Similarly, the introduction of the FUN script by reading the page may be improved by adapting it to involve the child more - perhaps by getting them to reveal each letter before talking about the corresponding stage.

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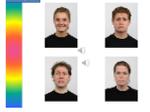
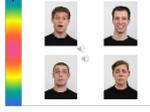
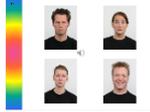
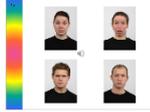
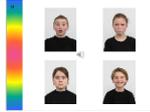
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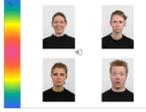
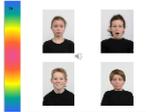
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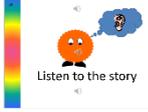
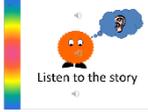
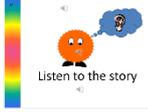
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Appendix A Transcript of EISCr1

Item ^a	Slide	Instructions
Introduction		<p>Hello, have you met the feely gang? Feely Felix is purple. Feely Fiona is green. Feely Fifi is orange. The feely gang would like your help to answer some questions about feelings. You will need to show them the answers to their questions. Do you think you can help them out? (pause for answer) Great! Please turn over for our first challenge.</p>
Faces subtest		
Instructions		<p>How do they feel? Part 1 – Faces. In this part you will see pictures of 4 faces on each page. I will ask you to place Feely Felix on the face that you think matches the target emotion. We will do a practice question first to make sure you understand. Please get Felix ready and turn over to the next page.</p>
Practice		<p>Here is our Practice Question. Can you place Felix on the person who is feeling happy? Now please turn over for the next question.</p>
1a		<p>Can you place Felix on the person who is feeling happy? Now please turn over for the next question.</p>
1b		<p>Can you place Felix on the person who is feeling sad? Now please turn over for the next question.</p>
1c		<p>Can you place Felix on the person who is feeling scared? Now please turn over for the next question.</p>
1d		<p>Can you place Felix on the person who is feeling surprised? Now please turn over for the next question.</p>
1e		<p>Can you place Felix on the person who is feeling angry? Now please turn over for the next question.</p>
1f		<p>Can you place Felix on the person who is feeling happy? Now please turn over for the next question.</p>

1g		<p>Can you place Felix on the person who is feeling sad?</p> <p>Now please turn over for the next question.</p>
1h		<p>Can you place Felix on the person who is feeling scared?</p> <p>Now please turn over for the next question.</p>
1i		<p>Can you place Felix on the person who is feeling surprised?</p> <p>Now please turn over for the next question.</p>
1j		<p>Can you place Felix on the person who is feeling angry?</p> <p>Now please turn over for the next question.</p>
Stories subtest		
Instructions		<p>How do they feel? Part 2 – Stories</p> <p>In this part I will read you some brief stories. At the end of each story I will ask you a question about how you think the person in each story feels.</p> <p>We will do a practice story first to make sure you understand.</p> <p>You will need Feely Fifi to help you answer these questions.</p> <p>Please turn over for our practice story.</p>
Practice story		<p>Here is our practice story. Remember to listen to the story and then I will ask you a question afterwards.</p> <p>This story is about an 8-year-old boy named Jeff. Jeff's mum comes home late from work one evening. Jeff runs downstairs to say hello. In his mother's hands is a large pizza she brought home for dinner. This is his favourite food.</p> <p>O.K. Now please turn over for the question</p>
Practice question		<p>Here is our Practice Question:</p> <p>Do you think that Jeff is happy?</p> <p>You are going to put Fifi in the box that you think has the right answer to the question. So if you think Jeff is happy, Fifi goes in the yes box. If you think Jeff isn't happy, Fifi goes in the no box. If you can't work out or guess whether Jeff is happy, Fifi goes in the don't know box.</p> <p>Now please turn over for the next question.</p>

<p>Story 2a</p>		<p>Listen to the story.</p> <p>This story is about a 4-year-old girl named Beth. Beth has just got into bed. Her mum has finished reading her a story and gone downstairs. Beth is starting to fall asleep. Then she hears a loud crash of thunder and the night light goes out in her room.</p> <p>Now please turn over for the question</p>
<p>Question 2a</p>		<p>Here is your question:</p> <p>Do you think that Beth is happy? Put Fifi in the box you think answers the question.</p> <p>Now please turn over for the next question.</p>
<p>Story 2b</p>		<p>Listen to the story.</p> <p>This story is about a 5-year-old boy named Sam. Sam and his mother walk slowly out the door. Sam is carrying a small box to the backyard. Together Sam and his mother stop at the place where he has chosen to bury his pet turtle that died last night. Sam begins to cry as he says good-bye to his pet.</p> <p>Now please turn over for the question.</p>
<p>Question 2b</p>		<p>Here is your question:</p> <p>Do you think that Sam is sad? Put Fifi in the box you think answers the question.</p> <p>Now please turn over for the next question.</p>
<p>Story 2c</p>		<p>Listen to the story.</p> <p>This story is about a 6-year-old girl named Sandy. School has just finished for the term and Sandy and her friends are going home. As Sandy says goodbye to her best friend, Rita, there are tears in her eyes. She is going to Disneyland for the holiday, so won't see Rita until next term.</p> <p>Now please turn over for the question.</p>
<p>Question 2c</p>		<p>Here is your question.</p> <p>Do you think that Sandy is angry? Put Fifi in the box you think answers the question.</p> <p>Now please turn over for the next question.</p>
<p>Story 2d</p>		<p>Listen to the story.</p> <p>This story is about a 7-year-old girl named Tammy. Tammy wakes up on a bright Saturday morning and quickly smiles, remembering that it is her birthday. When she walks into the kitchen her mother yells out "Happy Birthday" and springs out from behind the door holding a large present for Tammy.</p> <p>Now please turn over for the question.</p>

Question 2d		<p>Here is your question:</p> <p>Do you think that Tammy is happy? Put Fifi in the box you think answers the question.</p> <p>Now please turn over for the next question.</p>
Story 2e		<p>Listen to the story.</p> <p>This story is about a 7-year-old boy named Andy. Andy walks into the classroom, with his prize model car, he has just built. He puts the car on his desk, and gets ready for show and share. Andy walks over to sharpen his pencil. When he gets back to his desk, he finds that someone has broken the wheels off of his car. Andy's face turns red, and he looks around the room.</p> <p>Now please turn over for the question.</p>
Question 2e		<p>Here is your question:</p> <p>Do you think that Andy is angry? Put Fifi in the box you think answers the question.</p> <p>Now please turn over for the next question.</p>
Story 2f		<p>Listen to the story.</p> <p>This story is about a 6-year-old boy named Barry. Barry walks into the kitchen one afternoon, to find his mother and sister baking cookies. Barry smiles, and asks his mother if he can help them.</p> <p>Now please turn over for the question.</p>
Question 2f		<p>Here is your question:</p> <p>Do you think that Barry is sad? Put Fifi in the box you think answers the question.</p> <p>Now please turn over for the next question.</p>
Understanding subtest		
Instructions		<p>How would they feel? Feelings about others.</p> <p>In this part I will read you some brief stories. At the end of each story I will ask you some questions about how you think the person in the story feels.</p> <p>You will need all the feely family to answer these questions.</p> <p>We will do a practice story first to make sure you understand.</p> <p>Please turn over for our practice story.</p>
Practice Story		<p>Here is our practice story. Remember to listen to the story and then I will ask you some questions afterwards.</p>

		<p>This story is about Jen and Pete. Jen is rollerblading one Saturday afternoon. She looks up, and sees her friend Pete sitting down beside his broken skate. Jen tries to stop and help Pete, but accidentally runs over Pete's foot, and she falls.</p> <p>Now turn over, and I am going to ask you some questions about Jen.</p>
Practice Question		<p>There are 3 questions to answer this time. I'm going to ask them 1 at a time, and you are going to put a Feely in the box you think is the right answer, like before.</p> <p>Our first question is: Would Jen feel happy that she hurt Pete? Put Feely Felix in the yes, no, or don't know box, to answer the question.</p> <p>O.K. Now let's have a look at the next question. Would Jen feel sad that Pete's skate was broken? Put Feely Fiona in the yes, no, or don't know box.</p> <p>And our last question about this story. Would Jen feel angry because Pete was sitting down? Now its Feely Fifi's turn to go in the yes, no, or don't know box.</p> <p>Now please turn over for the next question.</p>
Story 3		<p>Listen to the story.</p> <p>This story is about James and his dog called Rusty. One day James is walking along the pavement with Rusty. Rusty isn't on a lead. Suddenly, Rusty chases a cat out into the street. He gets hit by a truck. The driver stops the truck and James rushes over to check on his dog. Rusty is hurt badly and the truck has a dent in the front.</p> <p>Now turn over, and I am going to ask you some questions about James.</p>
Questions 3a, 3b & 3c		<p>Here are the questions:</p> <p>Would James feel happy, because he did not train his dog well enough?</p> <p>Would James feel angry at himself, because his dog got hit?</p> <p>Would James feel sad because his dog got hurt?</p> <p>Now please turn over for the next question.</p>
Story 4		<p>Listen to the story.</p> <p>This story is about Jane and Tracy. A young child, named Jane, is playing on the playground. Tracy, an older child, starts picking on her. Jane starts to cry, and then falls down, as she tries to run away from Tracy. Tracy sees Jane fall, and runs over to get the teacher.</p> <p>Now turn over, and I am going to ask you some questions about Jane.</p>
Questions 4a, 4b & 4c		<p>Here are the questions:</p> <p>Would Jane be angry at Tracy for picking on her?</p> <p>Would Jane be happy that she was being picked on?</p> <p>Would Jane be sad that she fell down?</p> <p>Now please turn over for the next question.</p>

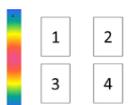
<p>Story 5</p>		<p>Listen to the story.</p> <p>This story is about John and Cathy. John is in an art lesson. He has been working really hard on his picture of an apple, and thinks it looks good. Then Cathy looks at his picture and laughs. She tells John it looks like a pear.</p> <p>Now turn over, and I am going to ask you some questions about John.</p>
<p>Questions 5a, 5b, & 5c</p>		<p>Here are the questions:</p> <p>Would John feel happy with his picture at the start of the story?</p> <p>Would John feel happy with his picture at the end of the story?</p> <p>Would John feel sad that Cathy laughed at his picture?</p> <p>Now please turn over for the next question.</p>
<p>Story 6</p>		<p>Listen to the story.</p> <p>This story is about Tracy and Jane. Tracy sees Jane, a younger child, playing by herself on the playground. She looks silly, so she calls her names. Jane starts to cry and run away, then falls over. Tracy sees her fall, and runs to get the teacher.</p> <p>Now turn over, and I am going to ask you some questions about Tracy</p>
<p>Questions 6a, 6b & 6c</p>		<p>Here are the questions:</p> <p>Would Tracy feel sad because Jane looked silly?</p> <p>Would Tracy feel angry because Jane fell down?</p> <p>Would Tracy feel angry with herself because she went to get the teacher?</p> <p>Now please turn over for the next question.</p>
<p>Managing subtest</p>		
<p>Instructions</p>		<p>What should you do? Managing Feelings.</p> <p>In this part you will help me to tell a story. I will read you a part of the story, and then I will tell you about several things that you might do. When I am finished, I want you to tell me if you think it is something you should do, should not do, or you don't know. You will need all the feely family to help with these questions.</p> <p>We will do a practice story first to make sure you understand.</p> <p>Please turn over for our practice story.</p>
<p>Practice story</p>		<p>Here is our practice story. Remember to listen to the story and then I will ask you some questions afterwards.</p> <p>You are having a birthday party, and Charles starts to pull Denise's hair, and she starts to cry. What should you do?</p> <p>Now turn over, and I am going to ask you about some things you might do.</p>

Practice questions		<p>There are 3 possible actions to decide about. I'm going to ask them 1 at a time, and you are going to put a Feely in the box you think is the right answer, like before.</p> <p>We will start with the top question. Should you join in and pull Denise's hair too? Do you think the answer is yes, no, or don't know? Put Felix in the right box.</p> <p>Now let's have a look at the next question. Should you pull Charles's hair, and then tell Charles to leave the party? Put Fiona in the yes, no, or don't know box.</p> <p>And our last action to decide about. Should you ask Charles to stop pulling Denise's hair? Put Fifi in the yes, no, or don't know box.</p> <p>Now please turn over for the next question</p>
Story 7		<p>Listen to the story</p> <p>You are playing with your friends on the playground, and one of your friends, named Sarah, makes fun of you, and it really hurt your feelings. What should you do?</p> <p>Now turn over, and I am going to ask you about some things you might do.</p>
Questions 7a, 7b & 7c		<p>Here are the questions:</p> <p>Should you calmly tell Sarah that you don't like it when she makes fun of you?</p> <p>Should you walk away and play a different game with your other friends?</p> <p>Should you yell at Sarah and make fun of her right back?</p> <p>Now please turn over for the next question.</p>
Story 8		<p>Listen to the story:</p> <p>You want to listen to some music in your room, but you can't find the new iPod you got for your birthday. You spend a long time searching, and then you see the iPod in your brother Mark's room. You had already asked Mark to stay away from your things. What should you do?</p> <p>Now turn over and I am going to ask you about some things you might do.</p>
Questions 8a, 8b & 8c		<p>Here are the questions:</p> <p>Should you get very angry and yell at Mark for taking your iPod?</p> <p>Should you stomp into Mark's room and grab the iPod back?</p> <p>Should you calmly remind Mark that he can listen to the iPod if he will only ask you first?</p> <p>Now please turn over for the next question.</p>
Story 9		<p>Listen to the story:</p> <p>You are having a day out at a fairground with your friend. You want to go on the biggest roller coaster, but your friend thinks it looks scary. What should you do?</p>

		Now turn over and I am going to ask you about some things you might do.
Questions 9a, 9b & 9c		<p>Here are the questions:</p> <p>Should you get angry, and tell her not to be stupid?</p> <p>Should you calmly tell her it will be ok, and you will look after her?</p> <p>Should you stomp off, and go on it any way without her?</p> <p>Now please turn over for the next question.</p>
Story 10		<p>Listen to the story:</p> <p>You have a different teacher, who is not as strict as your normal teacher. Some of your friends, on the other side of the classroom, are being silly, and trying to get you to join in. You know it is the wrong choice to make, but they are definitely having more fun than you. What should you do?</p> <p>Now turn over and I am going to ask you about some things you might do.</p>
Questions 10a, 10b &10c		<p>Here are the questions:</p> <p>Should you join in with them?</p> <p>Should you ask to move to another seat where you can't be distracted by them?</p> <p>Should you take a deep breath, and try to concentrate on your work, and ignore them?</p>
Ending		That is the end of our challenges. The feely gang would like to thank you for your help.
^a These were not read out		

Appendix B Mark Scheme for EISCr1

Notes for Marking



Positions for faces questions:

For *Stories*, *Understanding*, and *Managing*, “Don’t Know” responses are counted as incorrect

Question	Correct Answer	Marks
Faces		
1a	Position 2	1 for correct answer
1b	Position 1	1 for correct answer
1c	Position 2	1 for correct answer
1d	Position 2	1 for correct answer
1e	Position 3	1 for correct answer
1f	Position 4	1 for correct answer
1g	Position 3	1 for correct answer
1h	Position 4	1 for correct answer
1i	Position 3	1 for correct answer
1j	Position 1	1 for correct answer
Stories		
2a	No	1 for correct answer
2b	Yes	1 for correct answer
2c	No	1 for correct answer
2d	Yes	1 for correct answer
2e	Yes	1 for correct answer
2f	No	1 for correct answer
Understanding		
3a	No	1 for correct answer
3b	Yes	1 for correct answer
3c	Yes	1 for correct answer
4a	Yes	1 for correct answer
4b	No	1 for correct answer
4c	Yes	1 for correct answer
5a	Yes	1 for correct answer
5b	No	1 for correct answer
5c	Yes	1 for correct answer
6a	No	1 for correct answer
6b	No	1 for correct answer
6c	No	1 for correct answer
Managing		
7a	Yes	1 for correct answer
7b	Yes	1 for correct answer
7c	No	1 for correct answer
8a	No	1 for correct answer
8b	No	1 for correct answer
8c	Yes	1 for correct answer
9a	No	1 for correct answer
9b	Yes	1 for correct answer
9c	No	1 for correct answer
10a	No	1 for correct answer
10b	Yes	1 for correct answer
10c	Yes	1 for correct answer

Appendix C Study 1 school recruitment letter and information sheet

catherine.nelson@southwales.ac.uk

July 2014

Headteacher/Chair of Governors Name
Headteacher/Chair of Governors
School Address Line 1
School Address Line 2
School Address Line 3
School Address Line 4
School Postcode

Re: Participation in a PhD Research Project

Dear *Name*,

I am writing to invite your school to take part in a research project I am currently undertaking as part of a PhD project. The project aims to establish the impact of Emotional Intelligence (often referred to as Emotional Literacy) on academic achievement in children. I am looking for children aged 5-8 (school years 1-4) to undertake a series of assessments which will provide the data required to investigate this. Further details about the project are provided on the attached sheet.

As previously mentioned, participants involved in the project will be assessed using a range of measures to establish their level of emotional intelligence, academic performance, and performance on possible mediating factors such as working memory and attention skills. It was necessary to revise and update the emotional intelligence measure for this study, therefore the reliability of this measure will also be assessed within the study. All data will be anonymized after collection and analysed only as part of the whole sample. I would like to visit your school to administer some individual assessments, and will ask the class teachers to administer some assessments to the whole class. Participants will be required to take part in 2 class assessments, lasting approximately 30- 60 minutes (depending on the age of the pupils) each; 2 individual assessments and 1 small group assessment lasting approximately 15 minutes each.

During testing I will need access to a quiet space to work with participants. In addition, if you are able to assign a member of staff to assist with the individual testing, this would be much appreciated and will help to minimise the duration of testing (and any associated minor disruption) at your school.

Having worked in a school for over 10 years, I am used to administering assessments with children and will do my utmost to ensure they are at ease throughout the process. I am currently DBS checked as a Classroom Assistant but am willing to undertake any further checks you deem necessary for working with pupils in your school. I will also work in accordance with your school policies.

I hope you are willing to take in this project. If you have any further questions about the research or its implementation in your school, please refer to the enclosed information sheet or contact me via email at catherine.nelson@southwales.ac.uk. If you would like to speak to someone else about the research you can contact one of my supervisors Dr Janet Pitman (janet.pitman@southwales.ac.uk) or Dr Jane Prince (jane.prince@southwales.ac.uk).

I would appreciate it if you could email me at catherine.nelson@southwales.ac.uk by Date to indicate whether your school is willing to take part in the project or not. If you are willing to take part, I will then arrange a suitable time to come and discuss arrangements with you further.

Many Thanks for your attention; I look forward to hearing from you soon.

Yours Sincerely,

Catherine Nelson

(Part-time PhD Student at University of South Wales)

cc: Name, Chair of Governors/Headteacher



Information for Schools about the Emotional Intelligence and Academic Achievement Research Study

An outline of the research being undertaken

Many theorists (e.g. Maslow, 1970; Goleman 1995) suggest that skills associated with Emotional Intelligence (EI - the ability to recognise, use, understand and manage emotions) are a prerequisite for successful classroom performance and outcomes. However, this relationship has never been thoroughly and rigorously tested (Humphrey et al., 2007), and, as a consequence, the government is beginning to remove its emphasis on the social and emotional aspects of the curriculum (see, for example, Ofsted's 2013 Framework). One of the main barriers to carrying out research regarding the impact of EI in the classroom is the lack of an appropriate EI measure for children (Agnoli et al., 2012). Consequently, this research programme aims to develop a suitable EI measure and use this to undertake a comprehensive analysis to establish the extent and method in which EI impacts students' Academic Achievement (AA).

In order to undertake this analysis, I am looking for participants who are willing to complete a range of assessments which measure EI, AA, and possible mediating factors such as Working Memory and Attention Skills. I have approached several other schools in the area in addition to yours in order to recruit sufficient participants to be confident that findings are generalisable.

What will taking part in the research mean for your school?

Participants in the research will be assessed through a mixture of class, small group and individual assessments. I will ask you to complete the class assessments prior to my visiting the school. These are standard Maths and English assessments and can be incorporated within your usual assessment cycle. If possible, I would like a member of school staff to assist with the administration of the individual tests (I will provide instruction on how to administer them). We would also need a quiet space to work with participants on the individual and small group tests where we will not be disturbed. The length of time I will take at your school depends on how many participants volunteer. Each individual participant will complete 2 individual and 1 small group assessment, each of which will last about 15 minutes. I will do my best to accommodate to any date preferences you may have for my visiting.

What are the possible benefits for the school in taking part in the research?

By agreeing to take part you will be playing an invaluable role in helping to advance the current knowledge regarding the impact of Emotional Intelligence on Academic Achievement (AA). Your school will receive a copy of the report detailing the findings of the study.

What are the possible costs for the school in taking part?

In order to complete the assessments, it will be necessary for the pupils participating to miss some class time. The class teachers will also be asked to take time out of their teaching timetable to administer some group assessments to their whole class. The other assessments will require me to

be provided with a quiet space within the school. I will use my experience as a seasoned teaching assistant and trained ELSA to ensure the tests take place in a relaxed and supportive atmosphere; therefore minimising any worry that you pupils may associate with being assessed.

What happens to the data after the tests have been collected?

Following collection, all data will be anonymized and entered into statistical analyses to establish patterns in results.

Can the school withdraw from the research after we have agreed to take part?

You will be free to withdraw from the study at any point, up to a month after data collection has been completed at your school. If you do decide to withdraw, all data collected up to that point will be securely destroyed and disposed of.

What do I need to do next?

Once you have made your decision on whether to take part or not, please email me at catherine.nelson@southwales.ac.uk to inform us of your decision. If you decide not to take part, you will not be contacted again. If you decide to take part then I will arrange a suitable time to come and talk with you about setting up the study.

Further Questions or Problems?

If you have further questions that have not been answered here then please feel free to contact me. I can be reached via email at catherine.nelson@southwales.ac.uk or phone 07909 333714. If you wish to talk someone else regarding the research you can email my PhD supervisors, Dr Janet Pitman (janet.pitman@southwales.ac.uk) or Dr Jane Prince (jane.prince@southwales.ac.uk).

If you are unhappy about any aspect of the study please contact me or one of my supervisors who will try to resolve the issue. However if you wish to make a formal complaint, you can do so through the University of South Wales Research Governance officer, Jonathan Sinfield (jonathan.sinfield@southwales.ac.uk).

References

- Agnoli, S., Mancini, G., Pozzoli, T., Baldaro, B., Russo, P. M., & Surcinelli, P. (2012). The interaction between emotional intelligence and cognitive ability in predicting scholastic performance in school-aged children. *Personality and Individual Differences*, 53(5), 660-665. doi:10.1016/j.paid.2012.05.020
- Goleman, D. (1996). *Emotional Intelligence: Why it can matter more than IQ*. London: Bloomsbury Publishing Plc.
- Humphrey, N., Curran, A., Morris, E., Farrell, P., & Woods, K. (2007). Emotional Intelligence and Education: A critical review. *Educational Psychology*, 27(2), 235-254. doi:10.1080/01443410601066735
- Office for Standards in Education, Children's Services and Skills. (2013). *The framework for school inspection* (Ofsted reference number 120100). Manchester, U.K.: Author.



School Letterhead

Dear Parent/Guardian

Emotional Intelligence and Academic Achievement Study

Your child may be invited to take part in a research study investigating the relationship between Emotional Intelligence (the skills of recognising, understanding and managing your own and other people's feelings) and Academic Achievement. Please take a few minutes to read through the information below and decide whether you are happy for your child to take part in the project.

The Purpose of the Study and what will happen

The study is the first phase of a PhD project which is investigating the role of emotional intelligence in academic achievement and how outcomes for both can be improved. In particular, this study aims to find out whether children's emotional intelligence affects their academic achievement and whether this is a direct or indirect effect.

Children participating in the project will be asked to complete three short tasks which measure their emotional intelligence, working memory and attention skills. In addition scores achieved on maths and English tests in the classroom will be entered into the data analysis. The measure of emotional intelligence which is being used has been revised and updated for this study; therefore a secondary aim is to assess the reliability of this revised measure.

Why may my child be asked to take part?

Your child's school have kindly agreed to take part in the project. All pupils within the appropriate age band are being asked to think about whether they are willing to take part. Participants will be selected from those who are happy to take part.

Does my child have to take part?

It is up to you whether or not you wish your child to take part. If you DO NOT wish your child to take part, please return the attached slip to school to inform us of this. If you decide to allow your child to take part, he/she will be free to withdraw at any time during the study without giving a reason. Taking part in the study will not adversely affect your child's grades, assessments, or future studies.

What are the possible disadvantages and risks of taking part?

Your child will be asked to complete some additional tasks; however the results of these will not be shared on an individual basis with the school and will not have any influence on your child's grades or progress with the school. I will use my years of experience as a teaching assistant and trained ELSA (emotional literacy support assistant) to make sure that the tasks take place in a relaxed and supportive atmosphere; therefore minimising any worry that your child may associate with doing the tasks. Your child will be able to stop the process at any point if they do not wish to continue.

How will the information my child provides in this study be managed?

All data will be treated in accordance with the Data Protection and Freedom of Information Acts. All information collected about your child will be anonymised. Individual scores will be treated as confidential and will only be available to your child, you (his/her parents) and the researcher. All data will be analysed as an anonymous part of the whole data set only; individual scores will not appear in any research report. You are entitled to request that any data your child has supplied is destroyed, as long as you do so by 31st August 2018. After this date all data will have been entered for analysis. You are welcome to view your child's test reports. If you wish to do so, please make a request in writing to the research team.

What should I do if I want my child to take part?

If you are happy for your child to take part no further action on your part is required. Your child will be automatically included in the study unless you return the slip below asking for them to be withdrawn.

Can my child withdraw once the study is underway?

Your child is free to withdraw at any time during the study and there will be no negative consequences for making such a decision.

What will happen to the results of the research study?

Once the data has been analysed the findings of the study will be written up into a research report, which will be used to inform the next phase of the PhD project. If you would like to see a copy of the report, please let the school know. The school will also receive a copy of the report.

Ethics Guidelines

The study will be conducted in accordance with the ethics guidelines of the British Psychological Society.

Contact for further information and problems

If you would like any further details, please feel free to either enquire at the school or contact the researcher Catherine Nelson direct via catherine.nelson@southwales.ac.uk. Alternatively if you wish to speak to someone else about the project you can contact Catherine's supervisor Dr Janet Pitman via janet.pitman@southwales.ac.uk.

If you are unhappy about any aspect of the study please contact Catherine or Janet who will try to resolve the issue. However if you wish to make a formal complaint, you can do so through the University of South Wales Research Governance officer, Jonathon Sinfield (jonathan.sinfield@southwales.ac.uk).

Thank you for taking the time to read the above information. We hope that you are happy for child to take part in the study.

Yours Sincerely

Catherine Nelson

Head's Name

(PhD Student/ Classroom Assistant) (Head Teacher)



School Letterhead

Emotional Intelligence and Academic Achievement Study

Please detach and return this slip to school if you DO NOT wish your child to take part in the study by *Date*.

I confirm that I have read the above information (version 4.1) and

I DO NOT wish my child to take part in the Emotional Intelligence and Academic Achievement Study.

Child's Name

Parent's Name

Signed

Appendix E Comparison of content areas for progress in English and maths tests

Progress in English Curriculum content	PiE 5	PiE 6	PiE 7	PiE 8
Graphical knowledge				
Recognise and form individual letters	✓			
Upper and lower case letters	✓			
Grapheme/Phoneme correspondence	✓			
Comprehension of whole text				
Basic retelling from story read by teacher	✓	✓		
Narrative – literal & inferential			✓	✓
Non-Narrative – literal & inferential			✓	✓
Reading				
Picture matching		✓		
Sentence completion		✓		
Understanding language in context		✓		
Spelling				
Colour words (high frequency)		✓		
Spelling patterns			✓	✓
Grammar			✓	✓

Note: Information collated from respective test manuals (Kirkup, Reardon, et al., 2006; Kirkup, Triga, et al., 2006; Kispal & Hagues, 1999; Kispal et al., 2007)

Progress in Maths Curriculum content	PiM 5	PiM 6	PiM 7	PiM 8
Number				
The number system and place value	✓	✓	✓	✓
Number relationships	✓	✓	✓	✓
Calculations	✓	✓	✓	✓
Solving numerical problems	✓	✓	✓	✓
Shape, space and measures				
Shape	✓	✓	✓	✓
Symmetry and transformation	✓	✓		✓
Movement		✓	✓	
Position and coordinates	✓	✓		
Measures	✓	✓	✓	✓
Data handling				
Representing and processing data		✓	✓	✓
Interpreting data		✓	✓	✓

Note: Information collated from test manuals (Clausen-May et al., 2004a, 2004b, 2004c, 2004d)

Appendix F Study 1 data collection recording sheets

ASAT Record Sheet

Participant Number:

Date of Test:

Pretests

- 1. Child can count to 15
- 2. Pass Practice Trial 1 (4 beeps)
- 3. Pass Practice Trial 2 (6 beeps)

Main Task

Trial Number	Childs Guess	Correct?
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
	Total Correct	

EISC Answer Recording Sheet

Date of Assessment:

Part 1

Participant Number	1a	1b	1c	1d	1e	1f	1g	1h	1i	1j

Part 2

Participant Number	2a			2b			2c			2d			2e			2f		
	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK

Part 3

Participant Number	3a			3b			3c			4a			4b			4c		
	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK

Participant Number	5a			5b			5c			6a			6b			6c		
	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK

Part 4

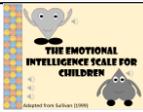
Participant Number	7a			7b			7c			8a			8b			8c		
	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK

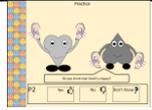
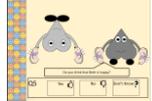
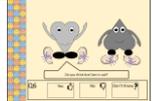
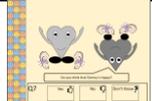
Participant Number	9a			9b			9c			10a			10b			10c		
	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK	Y	N	DK

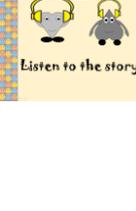
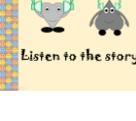
Scores

Participant Number	Part 1 Score	Part 2 Score	Part 3 Score	Part 4 Score	Total Score

Appendix G EISCr2 Transcript and Marking Key

Item ^a	Slide	Instructions
Introduction		<p>🐼 Hello, I'm Fi. 🐼 And I'm Li. Together we are the Feelies</p> <p>🐼 We have been trying to answer some questions all about feelings, but they are very tricky for us. We think the best thing to do is to see what you all think the answers are. Do you think you can help us out by letting us know what you think the answer is?</p> <p>🐼 We want to know what, each, of you thinks, so please don't work with anyone else to answer our questions.</p> <p>🐼 Please open your booklets to the first page.</p>
Response check		<p>🐼 Before we begin, you need to know how to show your answers</p> <p>🐼 It's very easy to show your answers. All you have to do is put a tick in the box by the answer you choose.</p> <p>🐼 Let's try it now. Put a tick in the box below.</p> <p>🐼 Great, now you have mastered that, you are ready to move onto our first challenge.</p>
Faces subtest		
Instructions		<p>🐼 For this challenge we need your help to find a face that shows the feeling we are looking for. You will see 4 faces for each question; you need to tick the face that matches the emotion I say.</p> <p>Let's have a practise first, please turn over for our practise question.</p>
Practice 1		<p>🐼 Here is our practice question</p> <p>Tick the surprised face</p> <p>Great, now we will try 4 more faces questions.</p>
Question 1		<p>🐼 Question 1. Tick the angry face</p> <p>Please turn over for our next questions</p>
Question 2		<p>🐼 Question 2. Tick the happy face.</p>
Question 3		<p>🐼 Question 3. Tick the sad face.</p> <p>Please turn over for our next question</p>
Question 4		<p>🐼 Question 4. Tick the scared face.</p> <p>Well done, now we have Challenge 2. How are they feeling?</p>
Stories subtest		
Instructions		<p>🐼 For this challenge we need your help to work out how the people in our stories are feeling. You will need to listen to some short stories. At the end of each story, I will ask you a question about how the character feels. You will tick the box next to your chosen answer at the bottom of the page.</p> <p>We will start with a practise question again. Please turn to the next page.</p>
P2 Story		<p>🐼 Here is our practice story. Remember to listen to the story and then I will ask you a question afterwards.</p> <p>This story is about an 8-year-old boy named Geoff. Geoff's mum comes home late from work one evening. Geoff runs downstairs to say hello. In his mother's hands is a large pizza she brought home for dinner. This is his favourite food. O.K. Now please turn over for the question.</p>

Question P2		<p>👉 O.K. now here is the practice question.</p> <p>Do you think that Geoff is happy?</p> <p>Tick the box that you think has the right answer to the question. So if you think Geoff is happy, tick the yes box. If you think Geoff isn't happy, tick the no box. If you can't work out or guess whether Geoff is happy, tick the Don't Know box.</p> <p>Well done, now we will do 5 more questions like this.</p>
Q5 Story		<p>👉 Question 5</p> <p>Listen to the story.</p> <p>This story is about a 4-year-old girl named Beth. Beth has just got into bed. Her mum has finished reading her a story and gone downstairs. Beth is starting to fall asleep. Then she hears a loud crash of thunder and the night light goes out in her room.</p>
Question 5		<p>👉 Here is your question:</p> <p>Do you think that Beth is happy?</p> <p>Please turn over for the next questions.</p>
Q6 Story		<p>👉 Question 6</p> <p>Listen to the story.</p> <p>This story is about a 5-year-old boy named Sam. Sam and his mother walk slowly out the door. Sam is carrying a small box to the backyard. Together Sam and his mother stop at the place where he has chosen to bury his pet turtle that died last night. Sam begins to cry as he says good-bye to his pet.</p>
Question 6		<p>👉 Here is your question:</p> <p>Do you think that Sam is sad?</p>
Q7 Story		<p>👉 Question 7</p> <p>Listen to the story.</p> <p>This story is about a 7-year-old girl named Tammy. Tammy wakes up on a bright Saturday morning and quickly smiles, remembering that it is her birthday. When she walks into the kitchen her mother yells out "Happy Birthday" and springs out from behind the door holding a large present for Tammy.</p>
Question 7		<p>👉 Here is your question:</p> <p>Do you think that Tammy is happy?</p> <p>Now please turn over for the next questions.</p>
Q8 Story		<p>👉 Question 8</p> <p>Listen to the story.</p> <p>This story is about a 7-year-old boy named Andy. Andy walks into the classroom, with his prize model car, he has just built. He puts the car on his desk, and gets ready for show and share. Andy walks over to sharpen his pencil. When he gets back to his desk, he finds that someone has broken the wheels off of his car. Andy's face turns red, and he looks around the room.</p>
Question 8		<p>👉 Here is your question:</p> <p>Do you think that Andy is angry?</p>
Q9 Story		<p>👉 Question 9</p> <p>Listen to the story.</p> <p>This story is about a 6-year-old boy named Barry. Barry walks into the kitchen one afternoon, to find his mother and sister baking cookies. Barry smiles, and asks his mother if he can help them.</p>

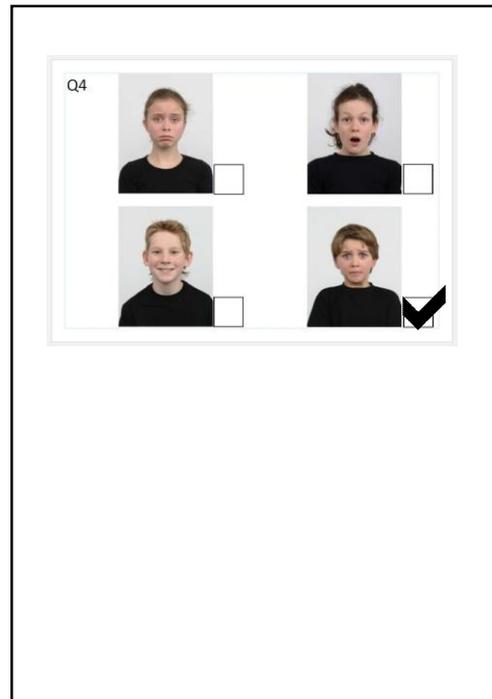
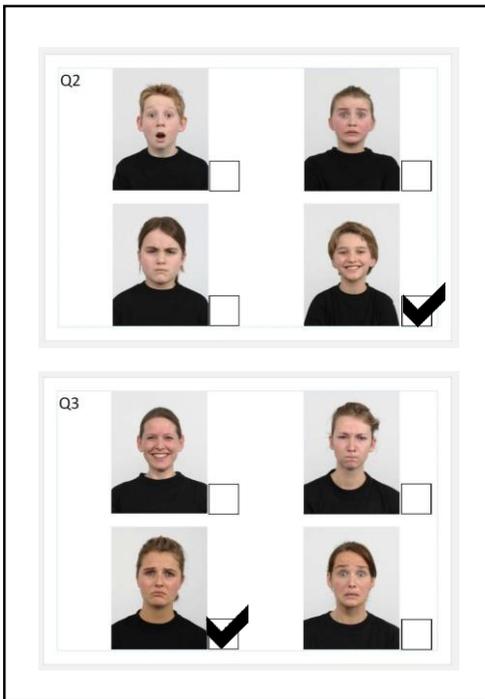
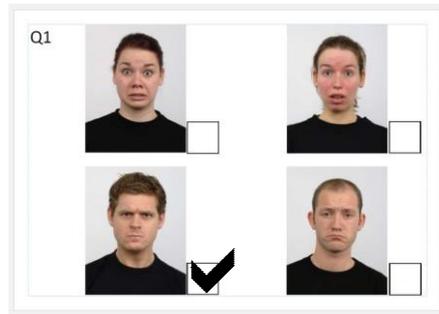
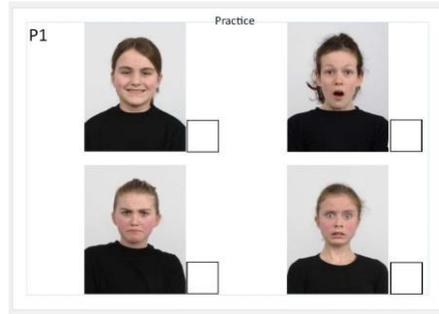
Question 9		<p>Here is your question: Do you think that Barry is sad? Now please turn over for Challenge 3 – How are they feeling and why?</p>
Understanding subtest		
Instructions		<p>For this challenge, we need your help to work out how the people are feeling and why. Like before you will listen to a story; then tick a box to answer questions about the character’s feelings. But this time there are 3 questions to answer after each story. So you will see 3 boxes on each page like this: We will have a practice first. Please turn to the next page.</p>
P3 Story		<p>Here is our practice story. Remember to listen to the story and then we will ask you 3 questions afterwards. This story is about Jen and Pete. Jen is rollerblading one Saturday afternoon. She looks up, and sees her friend Pete sitting down beside his broken skate. Jen tries to stop and help Pete, but accidentally runs over Pete’s foot, and she falls. Now we are going to ask you 3 questions about Jen.</p>
P3 Questions		<p>Our first question is: Would Jen feel happy that she hurt Pete? Tick the top yes, no, or don’t know box, to answer the question. The second question is: Would Jen feel sad that Pete’s skate was broken? Tick the middle yes, no, or don’t know box. And our last question about this story: Would Jen feel angry because Pete was sitting down? Tick the bottom yes, no, or don’t know box. Now we will do 3 more stories like this, please turn over to the next page.</p>
Q10 Story		<p>Question 10. Listen to the story. This story is about James and his dog called Rusty. One day James is walking along the pavement with Rusty. Rusty isn’t on a lead. Suddenly, Rusty chases a cat out into the street. He gets hit by a truck. The driver stops the truck and James rushes over to check on his dog. Rusty is hurt badly and the truck has a dent in the front.</p>
Q10 Questions		<p>Now we going to ask you some questions about James. 10a. Would James feel happy, because he did not train his dog well enough? 10b. Would James feel angry at himself, because his dog got hit? 10c. Would James feel sad because his dog got hurt? Please turn over for the next question.</p>
Q11 Story		<p>Question 11. Listen to the story. This story is about Jane and Tracy. A young child, named Jane, is playing on the playground. Tracy, an older child, starts picking on her. Jane starts to cry, and then falls down, as she tries to run away from Tracy. Tracy sees Jane fall, and runs over to get the teacher.</p>
Q11 Questions		<p>Now we are going to ask you some questions about Jane. Would Jane be angry at Tracy for picking on her? Would Jane be happy that she was being picked on? Would Jane be sad that she fell down? Please turn over for the next question.</p>
Q12 Story		<p>Question 12. Listen to the story. This story is about John and Cathy. John is in an art lesson. He has been working really hard on his picture of an apple, and thinks it looks good. Then Cathy looks at his picture and laughs. She tells John it looks like a pear.</p>

<p>Q12 Questions</p>		<p>👾 Now we are going to ask you some questions about John.</p> <ul style="list-style-type: none"> 👾 Would John feel happy with his picture at the start of the story? 👾 Would John feel happy with his picture at the end of the story? 👾 Would John feel sad that Cathy laughed at his picture? 👾 Please turn over for challenge 4 – What should you do?
<p>Managing subtest</p>		
<p>Instructions</p>		<p>👾 For this challenge we need you to help us finish some stories.</p> <p>👾 We will tell you the start of the story; then we will ask you 3 questions about what should happen next. For each question, you will show your answer by ticking the box next to your choice.</p> <p>👾 We will have a practice first. Please turn to the next page</p>
<p>P4 Story</p>		<p>👾 Here is our practice story. Remember to listen to the story and then we will ask you 3 questions afterwards.</p> <p>You are having a birthday party, and Charles starts to pull Denise's hair, and she starts to cry. What should you do?</p> <p>Now we are going to ask you about 3 things you might do.</p>
<p>P4 Questions</p>		<p>👾 We will start with the top question p4a. Should you join in and pull Denise's hair too? Do you think the answer is yes, no, or don't know. Tick the right box on the top row.</p> <p>👾 Now let's have a look at the middle Question, p4b. Should you pull Charles's hair, and then tell Charles to leave the party? Tick the middle yes, no, or don't know box.</p> <p>👾 And our last action to decide about. Should you ask Charles to stop pulling Denise's hair? Tick the bottom yes, no, or don't know box.</p> <p>👾 Now we will do 4 more stories like this, please turn over for the next story.</p>
<p>Q13 Story</p>		<p>👾 Question 13. Listen to the story.</p> <p>You are playing with your friends on the playground, and one of your friends, named Sarah, makes fun of you, and it really hurt your feelings. What should you do?</p>
<p>Q13 Questions</p>		<p>👾 13a. Should you calmly tell Sarah that you don't like it when she makes fun of you?</p> <p>👾 13b. Should you walk away and play a different game with your other friends?</p> <p>👾 13c. Should you yell at Sarah and make fun of her right back?</p> <p>👾 Please turn over for the next question.</p>
<p>Q14 Story</p>		<p>👾 Question 14. Listen to the story:</p> <p>You want to listen to some music in your room, but you can't find the new iPod you got for your birthday. You spend a long time searching, and then you see the iPod in your brother Mark's room. You had already asked Mark to stay away from your things. What should you do?</p>
<p>Q14 Questions</p>		<p>👾 14a. Should you get very angry and yell at Mark for taking your iPod?</p> <p>👾 14b. Should you stomp into Mark's room and grab the iPod back?</p> <p>👾 14c. Should you calmly remind Mark that he can listen to the iPod if he will only ask you first?</p> <p>👾 Please turn over for the next question.</p>
<p>Q15 Story</p>		<p>👾 Question 15. Listen to the story:</p> <p>You are having a day out at a fairground with your friend. You want to go on the biggest roller coaster, but your friend thinks it looks scary. What should you do?</p>

<p>Q15 Questions</p>		<p>👤 15a. Should you get angry, and tell her not to be stupid?</p> <p>👤 15b. Should you calmly tell her it will be ok, and you will look after her?</p> <p>👤 15c. Should you stomp off, and go on it any way without her?</p> <p>👤 Please turn over for the next question.</p>
<p>Q16 Story</p>		<p>👤 Question 16. Listen to the story:</p> <p>You have a different teacher, who is not as strict as your normal teacher. Some of your friends, on the other side of the classroom, are being silly, and trying to get you to join in. You know it is the wrong choice to make, but they are definitely having more fun than you. What should you do?</p>
<p>Q16 Questions</p>		<p>👤 16a. Should you join in with them?</p> <p>👤 16b. Should you ask to move to another seat where you can't be distracted by them?</p> <p>👤 16c. Should you take a deep breath, and try to concentrate on your work, and ignore them?</p> <p>👤 We've reached the end of our challenges. Thank you for your help.</p>
<p>^a These were not read out</p> <p>👤 Voiced by "Fi" (British English – Emma from www.texttospeech.com)</p> <p>👤 Voiced by "Lee" (British English – Harry from www.texttospeech.com)</p>		

Marking Key for EISCr2

- Correct responses score 1; all other responses score 0.
- Practice questions are not marked. To avoid confusion the correct responses to the practice questions are not shown here.
- Instruction pages are omitted from this marking key.



Practice

Listen to the story

P2

Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't Know <input type="checkbox"/>
------------------------------	-----------------------------	-------------------------------------

Listen to the story

Q6

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know <input type="checkbox"/>
---	-----------------------------	-------------------------------------

Listen to the story

Q5

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Don't Know <input type="checkbox"/>
------------------------------	--	-------------------------------------

Listen to the story

Q7

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know <input type="checkbox"/>
---	-----------------------------	-------------------------------------

Listen to the story

Q8

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know <input type="checkbox"/>
---	-----------------------------	-------------------------------------

Listen to the story

Q9

Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Don't Know <input type="checkbox"/>
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Listen to the story

Q10a

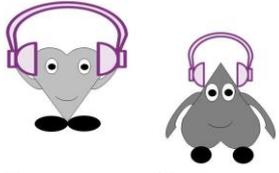
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Don't Know <input type="checkbox"/>
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Q10b

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know <input type="checkbox"/>
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Q10c

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know <input type="checkbox"/>
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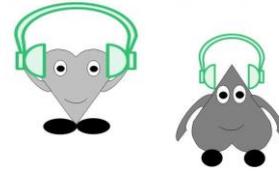


Listen to the story

Q11a Yes No Don't Know ?

Q11b Yes No Don't Know ?

Q11c Yes No Don't Know ?



Listen to the story

Q12a Yes No Don't Know ?

Q12b Yes No Don't Know ?

Q12c Yes No Don't Know ?



Listen to the story

Q13a Yes No Don't Know ?

Q13b Yes No Don't Know ?

Q13c Yes No Don't Know ?



Listen to the story

Q14a Yes No Don't Know ?

Q14b Yes No Don't Know ?

Q14c Yes No Don't Know ?



Q15a	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Don't Know ? <input type="checkbox"/>
Q15b	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know ? <input type="checkbox"/>
Q15c	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Don't Know ? <input type="checkbox"/>



Q16a	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Don't Know ? <input type="checkbox"/>
Q16b	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know ? <input type="checkbox"/>
Q16c	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Don't Know ? <input type="checkbox"/>

Appendix H DESTY promotional leaflet

Enclosed on the following two pages is a scanned copy of the promotional leaflet for the DESTY programme, obtained in 2017.

At Education Desty® we believe all children have the potential to be truly successful in life and we want to help to make that happen. We have created a fun, interactive online Social & Emotional Wellbeing Programme where children can tell their story and learn to understand their feelings, whilst building a social network of people they can trust. This is all with the help of their online Mentor, Desty®, and their real-world mentor who may be a parent, foster carer, educator or healthcare professional. Mentors work individually with students in weekly 25-30 minute sessions lasting approximately 14 weeks.



MODULE 1: About Me

Getting to know the child, building the mentor-child relationship and developing friendship skills.



MODULE 2: My Feelings Tower

Supporting the child to recognise and relate to key emotions and to link thoughts to feelings to improve emotional awareness and emotional literacy skills.



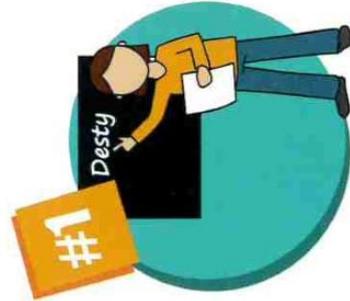
MODULE 3: My Feelings Workshop

Empowering the child to think critically and to implement strategies, including Mindfulness, to deal effectively with their emotions, thereby developing resilience.

DESTY MENTOR ACADEMY

A key part of our programme is the Desty Mentor Training. This training enables the Desty Mentor to support the child, on a one-to-one basis, on their journey through Desty Island.

DESTY MENTOR TRAINING PACKAGE INCLUDES:



Training



Workbook



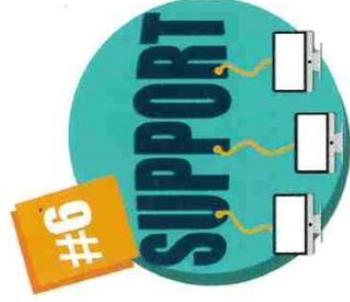
Student Licence
(Licence Bundles Available)



Reporting System



Desty Mentor
Academy Access



Ongoing
Technical Support

Welcome to the Wonderful Island of Desty

Where we can discover the best in you and me!

An Online Learning Programme Developed by Educational Psychologist Stephanie O'Malley

Attachment-based Programme Targeted, Personalised, Preventative

Aimed at Primary School Students aged 7 - 12 years old with additional emotional needs

Curriculum-based (PSHE/PSE/SPHE)

Supports development of key literacy skills



Targetings:

- ✓ Resilience
- ✓ Self-Esteem
- ✓ Critical Thinking
- ✓ Positive Mental Health
- ✓ Self-Awareness
- ✓ Social Awareness
- ✓ Emotional Literacy
- ✓ Relationship Building

Follow us:
f EducationDesty
E @eddesty

I love Desty as it is a well thought out programme that is very child-centred and easy to use. Desty helps children to recognise and understand core emotions in a way that they will understand, enjoy and remember. The added extras such as the mindfulness exercise and printable certificates make the programme even better. All children lucky enough to use this programme will never forget it and will definitely benefit from it.

Desty Mentor, Hampshire, UK

My student is really enjoying the programme. It is amazing how he opens up to Desty. Keep up the great work!

Desty Mentor, Mayo, Ireland

Here's what my friends have to say!

It helped me to be able to think things through when I was stressed.

I liked it in the workshop because you get to share your feelings and when I share my feelings I feel better.

Molly, Aged 11

Johnathon, Aged 9

FOUNDER

Education DESTY® Ltd was founded by Educational Psychologist, Stephanie O'Malley.



For the past 15 years Stephanie has worked in educational and child psychology services in Ireland, the UK and the US. Stephanie's research on the effectiveness of the Desty Programme has formed a core part of her doctoral studies with University College London.



EDUCATION
Desty®

Discovering Exceptional Strengths and Talents in You!



An Emotional Wellbeing Programme for Children in Care

Evidence-Based: 80% Improvement in Social-Emotional Wellbeing

www.EducationDesty.com

tel: 0238 097 0332 (UK)

076 622 3669 (IRL)

email: info@educationdesty.com





ELSA work – What is effective for developing emotional awareness?

Dear Lovely ELSA,

I am currently completing a PhD which is investigating the role of emotional intelligence in academic achievement for primary-aged children. As part of the project I am aiming to develop a short programme which helps children to develop their basic emotional awareness skills. I have identified a range of activity types which may be used to achieve this. As ELSAs are very experienced in assisting children in raising their emotional awareness, I would be grateful if you could answer the questions below to help me identify which activities are effective for the various aspects of emotional awareness. I will not share your individual responses with anyone else or include your personal details in the report.

For the following questions, please rate each activity on a 1-5 scale where 1=not effective and 5=very effective.

N.B. examples of specific approaches may be scaling or CBT-based approaches

1. How effective have you found the following activities for raising children’s recognition of their **own emotions**?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks or sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)
2. How effective have you found the following activities for raising children’s recognition of **other people’s emotions**?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks or sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)
3. To what extent do you think the following activities assist children’s skills of labelling emotions?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks or sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)

4. How effective do you think these activities are for increasing children's recognition of emotional triggers?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks or sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)
5. To what extent do you think these activities can help children understand the meanings of emotions?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks, sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)
6. How effective do you believe these activities are for identifying likely consequences of emotions?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks, sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)
7. How effective have you found these activities for increasing children's knowledge of when to engage with, or disengage from, an emotion?
 - a. Reading & discussing stories
 - b. Discussion of pictures
 - c. Role-play
 - d. Practical activities (e.g. making masks, sorting cards)
 - e. Written activities (e.g. writing a story or brainstorming ideas)
 - f. Guided reflection
 - g. Playing games together (e.g. an emotions board game)
 - h. Specific tool or approach (please name)

Finally...

8. Are there any activities you have done which have been particularly successful at enhancing student's emotional awareness, particularly in the areas listed above (credit will be given as appropriate)?

Many Thanks for your help.

Catherine Nelson (ELSA/ PhD Student)

Appendix J SEAL “Ways to calm down” resource sheet

The sheet on the next page was downloaded from the archived SEAL resources and contains public sector information licensed under the Open Government Licence v3.0.

<https://webarchive.nationalarchives.gov.uk/20110812101121/http://nsonline.org.uk/node/87009>

Ways to calm down

Children in all year groups need to discuss calming-down strategies. They will not be able to use the peaceful problem-solving process (which involves rational thought) until they have overcome their impulses and calmed down. All children have a chance to make posters to put up around the school during Theme 1 at the beginning of each year. Children will offer their own calming-down strategies, so they will be different for each year group.

It is important that children are encouraged to use their favoured calming techniques each time the need arises. All adults in school should know the range of strategies and the school should agree some shared 'cueing' words (such as the rhyme on this page). This cue alerts the child to the need to use a calming down strategy.

Older children might devise their own 'rap' version or similar. The important thing is that common cueing words are used by all adults in the school.

The Cueing Rhyme

Get your body calm
and ready

Get your thinking cap
on steady!

Ideas for calming down

- Tell yourself to STOP!
- Give your thinking brain time
- Tell yourself you can handle this!
- Say to yourself 'be calm ... be calm ... be calm'
- Walk away
- Count backwards from 10, 20, 100
- Tell someone else how you feel
- Breathe deeply – in and out five times
- Tense and relax your muscles
- Take some exercise
- Go into a deserted place and shout
- Feel your pulse
- Picture yourself dealing with the situation calmly and strongly

Appendix K Emil Programme Resources Pack

Due to the volume of resources created, this pack is provided separately. The table below shows the contents of the pack, and page numbers for each of the resources.

Appendix No.	Description	Page
K1	Session plans	PR1
K2	Puppet template	PR33
K3	Feely pod templates	PR34
K4	Learning log	PR35
K5	Introductory game	PR52
K6	Paper Emil stories	PR59
K7	Emotion expression picture pack image record	PR87
K8	Feelings strength scale	PR91
K9	Pictures for trigger games	PR92
K10	Situational judgement PowerPoint slides	PR120
K11	Slides from example trigger continuation stories	PR136
K12	Disengagement strategy cards	PR151
K13	Resources for emotion feature sorting	PR154
K14	Antecedent, meaning & consequences (AMC) games	PR184
K15	FUN games scenario cards	PR212
K16	Slides from final quiz	PR214
K17	Feedback form	PR228
K18	Session record templates	PR229
K19	Record of royalty free images used in the programme	PR241
K20	Details of sounds used in the programme	PR245

Appendix L Study 2: Target School Information Sheet



Emotional Intelligence and Academic Achievement PhD project: EI Programme Evaluation Study. Information Sheet for Target Schools.

What is the purpose of the study?

The study is testing the efficacy of a theoretically derived Emotional Intelligence (EI) programme in raising pupils EI and Academic Achievement (AA). This study is part of a PhD project which is investigating the role of EI in primary-aged children's AA.

Emotional Intelligence refers to the ability to recognise, use, understand and manage emotions and many theorists believe that it is prerequisite for academic success, although there is little research evidence regarding this for primary-aged children. The lack of attention to EI in primary-aged children is partly due to a lack of suitable EI measures for this age group. Consequently, part of the PhD project has involved revising and updating a measure of EI for 5-9 year olds, and a secondary aim of this study is to further analyse the consistency and reliability of this measure.

What does the study involve?

The programme is targeted at children who have below average EI skills for their age. Therefore the first step is to identify pupils who qualify for the programme. In order to do this, all children in the target year group (year 3 and 4) will be asked to complete a measure of EI (a revised version of the Emotional Intelligence Scale for Children). Children who gain qualifying scores on this (1 standard deviation or more below the mean for the year group), will then be invited to take part in the programme. Before commencing the EI programme, participants will be asked to complete measures of their maths and English attainment. These will then be repeated post-programme along with the EI measure to enable examination of pretest to posttest change in the children's EI and AA. The programme comprises of 12 sessions and will take approximately 6 weeks to complete.

At both stages, the school will be asked to gain parental consent for children to participate in the study (letters will be provided). Additionally, please could a member of staff be available to introduce the researcher to the children before they start work with her.

What will be needed from the school?

The researcher will need a room to work in whilst she is at your school. Ideally this room would have tables and chairs and a projector or smart board to enable easy administration of the EI measure. Time would need to be made available for pupils to work with the researcher. For the initial screening assessment, this will be in groups of up to 10 children and will take approximately 30 minutes. For programme participants, they would need an additional 30-40 minutes to complete the maths and English assessments (this would probably be split into 2 sessions) and then would attend 2 programme sessions a week, each lasting approximately 30 minutes. This would then be followed by a repeat of the EI and AA measures.

What are the possible disadvantages and risks of taking part?

In order to work with the researcher children will miss out on small amounts of lesson time, however any preferences you may have regarding days and times to visit, in order to minimise any disruption, will be accommodated. The researcher will use her experience as a seasoned teaching assistant and trained ELSA to ensure the tests take place in a relaxed and supportive atmosphere; therefore minimising any worry that you pupils may associate with being assessed. As a trained and experienced ELSA, the researcher is used to

engaging children in learning experiences regarding emotions in a fun and supportive way; therefore participation in the programme should not be distressing for participants. However, there is small risk that participation in the programme may lead to a disclosure which is a safeguarding concern. Any such disclosures will be handled in accordance with your school's safeguarding policy, which the researcher will familiarise herself with before commencing work at your school. Additionally, as with any support programme, there is a small risk that some pupils may be identified as requiring some additional training, any such cases will be handled with upmost sensitivity and referred to your usual nominated member of staff for such needs.

What are the possible benefits of taking part?

We cannot promise that the EI programme will be successful, however your school's participation will mean that pupils' with low EI will be getting some support from a trained ELSA. If the EI programme is successful then this should mean that these pupils will benefit from improved EI skills and hopefully raised AA. Regardless of the programme's success, by helping to evaluate the programme, your school will have made an invaluable contribution to the knowledge base regarding Emotional Intelligence in primary-aged children and the development of a measure of EI for this age group.

What if there is a problem?

If you have a concern about any aspect of this study, you should contact the researcher, Catherine Nelson (email catherine.nelson@southwales.ac.uk, phone 07909 333714) who will do her best to answer your questions. However if you remain unhappy and wish to complain formally you can do so by contacting Catherine's supervisor Dr Janet Pitman (janet.pitman@southwales.ac.uk).

If you decide that you do not wish to continue to take part once the study is underway, please let Catherine know, and all data collected from your school will be securely destroyed.

Will the school's participation in the study be kept confidential?

All data collected from participants will be anonymised. No names, dates of birth, or school affiliations will be included in the research reports or publications.

What will happen to the results of the study?

Results will be written up and included in the final PhD thesis. You are welcome to have a copy of this, please let Catherine know if you would like one. Additionally the results of the programme evaluation study, and the findings regarding the reliability of the modified measure, may be submitted to research journal(s) for publication.

Further Information & Contact Details

If you have any further questions please feel free to contact the researcher Catherine Nelson (catherine.nelson@southwales.ac.uk) or if you wish to speak to someone else about the research please contact her supervisor Dr Janet Pitman (janet.pitman@southwales.ac.uk). If you wish to make a formal complaint, please contact Dr Janet Pitman or alternatively you can complain to the University of South Wales's research governance officer Jonathon Sinfield (jonathon.sinfield@southwales.ac.uk).

El & AA PhD project: EI programme evaluation. Information sheet for target schools version 4



**Emotional Intelligence and Academic Achievement PhD project: EI Programme
Evaluation Study.
Information Sheet for Control Schools.**

What is the purpose of the study?

The study is testing the efficacy of a theoretically derived Emotional Intelligence (EI) programme in raising pupils EI and Academic Achievement (AA). This study is part of a PhD project which is investigating the role of EI in primary aged children's AA.

Emotional Intelligence refers to the ability to recognise, use, understand and manage emotions and many theorists believe that it is prerequisite for academic success, although there is little research evidence regarding this for primary-aged children. The lack of attention to EI in primary-aged children is partly due to a lack of suitable EI measures for this age group. Consequently, part of the PhD project has involved revising and updating a measure of EI for 5-9 year olds, and a secondary aim of this study is to further analyse the consistency and reliability of this measure.

What does the study involve?

The study is comparing progress made by children participating in the EI programme against a control group. We would like your school to be the control group, which means that we will ask pupils to participate in the assessments but will not offer the EI programme in your school until a later date. The programme being evaluated is targeted at children who have below average EI skills for their age. Therefore the first step is to identify pupils who would qualify for the programme. In order to do this, a measure of EI (a revised version of the Emotional Intelligence Scale for Children) will be administered to all children in the target year group (year 3 and 4). Children who score 1 standard deviation or more below the mean for the year group, will then be selected as control participants and asked to complete measures of their maths and English attainment. The school will be asked to gain parental consent for children to participate in the study (letters will be provided). Additionally, please could a member of staff be available to introduce the researcher to the children before they start work with her.

The researcher will then revisit your school after an interval of 6 weeks to re-test the selected pupils on the measures of EI, Maths and English. This will give us a 'baseline' progress score which we can use to compare the progress made by children who have participated in the EI programme. If the programme is proved successful, we will then be able to offer it to the selected 'controls' at a later date. Although we cannot offer the EI programme until a later date, we recognise that you are likely to already have other emotional support available for your pupils which you may choose to give them now.

What will be needed from the school?

The researcher will need a room to work in whilst she is at your school. Ideally this room would have tables and chairs and a projector or smart board to enable easy administration of the EI measure. Time would need to be made available for pupils to work with the researcher. For the initial screening assessment, this will be in groups of up to 10 children and will take approximately 30 minutes. For control participants, they would need an additional 30-40 minutes to complete the maths and English assessments (this would probably be split into 2 sessions). These would then be repeated for control participants when the researcher revisits.

What are the possible disadvantages and risks of taking part?

In order to work with the researcher children will miss out on small amounts of lesson time, however any preferences you may have regarding days and times to visit, in order to minimise any disruption, will be accommodated. The researcher will use her experience as a seasoned teaching assistant and trained ELSA to ensure the tests take place in a relaxed and supportive atmosphere; therefore minimising any worry that your pupils may associate with being assessed.

What are the possible benefits of taking part?

By providing control participants your school will have played an invaluable role in helping to establish the usefulness of an EI programme. Additionally your pupils will have helped with the development of an EI measure for this age group.

If the programme is found to be successful, we will be able to use it to offer support for pupils with low EI in your school.

What if there is a problem?

If you have a concern about any aspect of this study, you should contact the researcher, Catherine Nelson (email catherine.nelson@southwales.ac.uk, phone 07909 333714) who will do her best to answer your questions. However if you remain unhappy and wish to complain formally you can do so by contacting Catherine's supervisor Dr Janet Pitman (janet.pitman@southwales.ac.uk).

If you decide that you do not wish to continue to take part once the study is underway, please let Catherine know, and all data collected from your school will be securely destroyed.

Will the school's participation in the study be kept confidential?

All data collected from participants will be anonymised. No names, dates of birth, or school affiliations will be included in the research reports or publications.

What will happen to the results of the study?

Results will be written up and included in the final PhD thesis. You are welcome to have a copy of this, please let Catherine know if you would like one. Additionally the results of the programme evaluation, and the findings regarding the reliability of the modified measure, may be submitted to research journal(s) for publication.

Further Information & Contact Details

If you have any further questions please feel free to contact the researcher Catherine Nelson (catherine.nelson@southwales.ac.uk) or if you wish to speak to someone else about the research please contact her supervisor Dr Janet Pitman (janet.pitman@southwales.ac.uk). If you wish to make a formal complaint, please contact Dr Janet Pitman or alternatively you can complain to the University of South Wales's research governance officer Jonathon Sinfield (jonathon.sinfield@southwales.ac.uk).



Date

Dear Parent/Guardian

Improving Emotional Intelligence and Academic Achievement Study

We would like your child to take part in a research study which the school has kindly agreed to take part in. The study aims to find children who may benefit from learning more about Emotional Intelligence (recognising, understanding and managing their emotions) and trial a new programme to provide extra support for these children. Although we would encourage all pupils to take part, it is not compulsory. Therefore please take a few minutes to read through the information below and decide whether you wish your child to take part.

What is the purpose of the study?

The best way to find children who may benefit from some support is to ask all pupils in the year group to take part in an Emotional Intelligence (EI) assessment. We will contact you at a later date if we would like to invite your child to participate in the programme.

Why is my child being asked to take part?

Your child's school have kindly agreed to take part in the project and all pupils in year 3/4 are being asked to take part in the assessment, as the EI programme is for children of this age.

What will happen to my child if they take part?

Your child will be asked to complete an assessment of their EI skill. The assessment will take approximately 30 minutes.

If your child's score on the EISC shows that they may benefit from the programme, we will write to you again to invite your child to take part in the EI programme.

You do not need to make a decision about whether your child will take part in the programme until they get an invitation.

What are the possible risks of taking part?

Your child will miss a small amount of class time to complete the assessment, but the school have planned for this. The researcher will use her years of experience as a teaching assistant and trained ELSA (emotional literacy support assistant) to ensure the assessment takes place in a relaxed and supportive atmosphere, therefore minimising any worry your child may associate with completing the assessment.

What are the possible benefits of taking part?

If your child takes part in the assessment we will be able to tell if they might benefit from some extra support with their EI skills.

How will the information my child provides in this study be managed?

All information which is collected about your child during the assessment will be kept strictly confidential and used for this study only. Your child's name will not be used in any reports of the research. The assessment booklets will be stored in a locked cupboard and destroyed when the PhD project finishes. A computer file of participants' scores will be created using research codes instead of names. This will be stored on a password-protected computer.

Can my child withdraw once the study is underway?

Your child is free to withdraw at any time during the study and there will be no negative consequences for doing so.

What will happen to the results of the research study?

Your child's score will be used to help us decide whether to invite them to take part in a new EI support programme and will not be shared with anyone else. We will also use everybody's scores to check that the EISC is a good measure of children's EI skills; this information will be included in the final PhD report and may be submitted to a journal for publication. No names will be used in any of these reports. If you would like to see a copy of the PhD report, please let the school know.

What should I do if I want my child to take part?

If you are happy for your child to take part you do not need to do anything else.

If you DO NOT want your child to take part, please return the reply slip below by XXXXXX

Contact for further information or problems

If you would like any further details, please feel free to either enquire at the school or contact the researcher Catherine Nelson direct via catherine.nelson@southwales.ac.uk. Alternatively if you wish to speak to someone else about the project you can contact either of Catherine's supervisors: Dr Janet Pitman via janet.pitman@southwales.ac.uk or Dr Jane Prince via jane.prince@southwales.ac.uk. If you wish to make a formal complaint you can do so by contacting Dr Janet Pitman (janet.pitman@southwales.ac.uk) or Dr Jane Prince (jane.prince@southwales.ac.uk). Alternatively you can contact the University of South Wales research governance officer Jonathon Sinfield (jonathon.sinfield@southwales.ac.uk).

Thank you for taking the time to read the above information. We hope that you are happy for your child to take part in the study.

Yours Sincerely



Catherine Nelson

Name

(PhD Student/ Classroom Assistant)

(Headteacher/SENCO)



Emotional Intelligence Assessment

We will assume that you are happy for your child to complete the assessment unless you return this slip.

Please detach and return this slip to school if you DO NOT wish your child to take part in the assessment by XXXXX.

I confirm that I have read the above information and

I DO NOT wish my child to take part in the Emotional Intelligence Assessment.

Child's Name

Parent's Name

Signed

Note to the school: Please ensure this slip is passed on to Catherine Nelson. Thankyou.



Date

Dear Parent/Guardian

Improving Emotional Intelligence and Academic Achievement: EI Programme Evaluation Control Study

We would like your child to take part in a research study which the school has kindly agreed to take part in. The study aims to find children who may benefit from learning more about Emotional Intelligence (recognising, understanding and managing their emotions) and trial a new programme which may provide extra support for these children. Currently we are asking pupils to take part in some assessments. Although we would encourage all pupils to complete the assessments, it is not compulsory. Therefore please take a few minutes to read through the information below and decide whether you wish your child to participate in the assessment.

What is the purpose of the study?

The study is testing whether a new Emotional Intelligence (EI) support programme can help children improve their EI, maths and literacy scores. At the moment we are asking children to complete a measure of their EI to help us identify who might benefit from the programme. We will also ask some children to complete measures and literacy skills. We will then revisit later in the year to repeat the measures with some children.

Why is my child being asked to take part?

Your child's school have kindly agreed to take part in the project and all pupils in year 3/4 are being asked to take part in the EI assessment, as the EI programme is for children of this age.

What will happen to my child if they take part?

Your child will be asked to complete an assessment of their EI skills. The assessment will take approximately 30 minutes. We may also ask your child to complete some measures of their maths and literacy skills. If your child is asked to do these, then the researcher will revisit the school about 6 weeks later and will repeat these measures as well as the EI measure with your child.

If your child gets a score which shows that the EI support programme may help them, we will contact you again in the future to invite them to take part in the programme. However if you are at all worried or would like some support for your child sooner, then please talk to the school.

What are the possible risks of taking part?

Your child will miss a small amount of class time to complete the assessments, but the school have planned for this. The researcher will use her years of experience as a teaching assistant and trained ELSA (emotional literacy support assistant) to ensure the assessment takes place in a relaxed and supportive atmosphere, therefore minimising any worry your child may associate with completing the assessments.

What are the possible benefits of taking part?

If your child takes part in the assessment, we will be able to tell if they might benefit from some extra support with their EI skills in the future.

How will the information my child provides in this study be managed?

All information which is collected about your child will be kept confidential. Your child's scores will only be used for this study and will not be shared with anybody else or used to judge your child's performance at school. No child or school name will appear on reports of the study.

The assessment booklets will be stored in a locked cupboard and destroyed when the PhD project finishes. A computer file of scores will be made which uses research codes instead of names and this will be stored on a password-protected computer.

Can my child withdraw once the study is underway?

Your child is free to withdraw at any time during the study and there will be no negative consequences for doing so.

What will happen to the results of the research study?

The scores from children who complete the maths, reading and further EI assessments will be used to find out whether the new EI support programme is useful for helping children to develop EI, maths and literacy skills. Scores from all children who complete the EISC will be used to help judge if the EISC is a good measure of children's EI. All this information will be written up and included in the final PhD report and may be submitted to a journal for publication. No names will be used on any written work.

What should I do if I want my child to take part?

If you are happy for your child to take part you do not need to do anything else.

If you DO NOT want your child to take part please return the reply slip below by XXXXXX

Contact for further information or problems

If you would like any further details, please feel free to either enquire at the school or contact the researcher Catherine Nelson direct via catherine.nelson@southwales.ac.uk. Alternatively if you wish to speak to someone else about the project you can contact either of Catherine's supervisors: Dr Janet Pitman via janet.pitman@southwales.ac.uk or Dr Jane Prince via jane.prince@southwales.ac.uk. If you wish to make a formal complaint you can do so by contacting Dr Janet Pitman (janet.pitman@southwales.ac.uk) or Dr Jane Prince (jane.prince@southwales.ac.uk). Alternatively you can contact the University of South Wales research governance officer Jonathon Sinfield (jonathon.sinfield@southwales.ac.uk).

Thank you for taking the time to read the above information. We hope that you are happy for your child to take part in the study.

Yours Sincerely

Catherine Nelson

Name

(PhD Student/ Classroom Assistant)

(Headteacher/SENCO)



Emotional Intelligence Programme Control Assessments

We will assume that you are happy for your child to complete the assessment unless you return this slip.

Please detach and return this slip to school if you DO NOT wish your child to take part in the above assessments by XXXXX.

I confirm that I have read the above information and (please initial all that apply) I DO NOT wish my child to take part

- in the Emotional Intelligence Assessment.
- I DO NOT wish my child to complete the Maths and English measures.

Child's Name

Parent's Name

Signed

Note to the school: Please ensure this slip is passed on to Catherine Nelson. Thankyou.



Date

Dear Parent/Guardian

Improving Emotional Intelligence and Academic Achievement Study – EI Programme Evaluation

We would like to invite your child to take part in an evaluation of a new emotional intelligence programme. The programme aims to support children to learn more about recognising, understanding and managing their feelings.

Please read the information below which explains why the research is being done and what it will involve for you and your child. Once you have read the information please return the attached slip if you are happy for your child to take part in the programme.

What is the Purpose of the programme evaluation?

We are testing a new support programme, which teaches skills for recognising, using, understanding and managing feelings, to see if it can help children to develop their Emotional Intelligence (skills in identifying, using, understanding and managing feelings) and Academic Achievement (literacy and maths scores).

The programme evaluation is part of a PhD project which is investigating the relationship between Emotional Intelligence (EI) and Academic Achievement at primary school.

Why is my child being asked to take part?

You may remember that all pupils in your child's year group were asked to complete an assessment of their EI skills. Your child's score suggests that they may benefit from some support in this area and we believe that this programme will help them (although we cannot promise that it will be successful).

Please note that your child being invited to take part in the programme does not mean that they have an EI 'problem'. We would just like to offer them a little extra support in the same way that schools often offer pupils extra support with their maths and literacy skills. However, if you are at all worried by this invitation, then please talk to the school about it.

What will my child do if they take part?

Your child will attend two, 30 minute, 1:1 sessions each week for six weeks. The sessions involve a variety of practical activities, such as video/picture discussions, board games, and puppet role-play.

Before starting the programme, your child will be asked to complete a maths and reading assessment; after completing the programme they will be asked to complete the EI, maths and reading assessments again. These are needed to provide data to help test the success of the programme and will not be used to judge your child's performance at school.

What are the possible risks of taking part?

The programme involves exploring feelings and emotional experiences; therefore it is possible that the experience may generate some emotional memories for them. However, the programme is designed to approach all emotions in a positive manner and as the person delivering the programme is an active, trained Emotional Literacy Support Assistant, she is experienced in providing a safe and supportive atmosphere for children to explore their feelings. Your child will be able to withdraw from the programme at any point if they decide they do not wish to continue. There is a small risk that your child may require further support after the programme has finished. In the unlikely event that this occurs, we will work with the school to ensure that appropriate support is provided.

Taking part in the programme means that your child will miss out on a few minutes of class time each week. However this will be arranged with their class teacher to make sure that their learning is not affected.

What are the possible benefits of taking part?

Although we cannot promise that the programme will be successful, completing the programme could offer some additional help in recognising, using and managing feelings.

How will the information my child provides in this study be managed?

The information collected as part of the programme evaluation will be used for testing the programme's success only. All personal information that your child gives us as part of the programme evaluation will be kept confidential. In the unlikely event that the researcher has a concern which affects confidentiality, she will handle it in accordance with the school's policies. Your child's name will not be used on any information which is kept about the programme and it will not appear in any reports written about the programme. Sessions will be audio-recorded and transcribed (without names) so that we can make sure the programme is run correctly. The audio recording will be destroyed as soon as it has been transcribed. All other records will be securely stored until after the PhD project is completed. You can request that any data your child has supplied is destroyed, as long as you do so by xxxxx. After this date all data will have been entered for analysis

Can my child withdraw once the programme has started?

Your child can withdraw at any time during the study without any negative consequences for doing this. If your child decides to withdraw, all data which they have provided will be securely destroyed.

What will happen to the results of the programme evaluation?

The results will be included in the final PhD report. The school will receive a copy of the report. If you would like to see a copy of the report, please let the school know. The results may also be submitted to a journal for publication. Individual participants will not be identifiable from any reports of results.

What should I do if I want my child to take part?

If you are happy for your child to take part, please return the attached consent form to school by XXXXX

Contact for further information or problems

If you would like any further details, please feel free to either enquire at the school or contact the researcher Catherine Nelson direct via catherine.nelson@southwales.ac.uk. Alternatively, if you wish to speak to someone else about the project you can contact either of Catherine's supervisors: Dr Janet Pitman via janet.pitman@southwales.ac.uk or Dr Jane Prince via jane.prince@southwales.ac.uk.

If you are unhappy or worried about the study please contact Catherine who will try to resolve the issue. However if you wish to make a formal complaint you can do so by contacting Dr Janet Pitman (janet.pitman@southwales.ac.uk) or Dr Jane Prince (jane.prince@southwales.ac.uk). If still unsatisfied, you can contact the University of South Wales research governance officer Jonathon Sinfield (jonathon.sinfield@southwales.ac.uk).

Thank you for taking the time to read the above information. We hope that you are happy for your child to take part in the programme evaluation.

Yours Sincerely,

Catherine Nelson

Name

(PhD Student/ELSA)

(Headteacher/SENCO)



Emotional Intelligence Programme Evaluation Study Consent Form

Title of Project: Emotional Intelligence and Academic Achievement

Name of Researcher: Catherine Nelson

Name of supervisors: Dr Jane Prince & Dr Janet Pitman

Please initial all boxes

I confirm that I have read and understand the information letter version number 9.3, dated XX/XX/XX for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my child's participation is voluntary and that I/they are free to withdraw at any time without giving any reason, without any consequence to myself or them.

I agree to my child's anonymised data being used in study specific reports and subsequent articles that will appear in academic journals.

I agree for my child to take part in the above study.

Name of Parent

Date

Signature

Name of Child: _____

Appendix Q Study 2: Wording used to obtain children's verbal consent for EISC Screening

Target School:

I would like you to help with some homework that I have to do for my university course. I need to find out what you know about recognising, using, understanding and managing feelings; these skills are called Emotional Intelligence. To find this out, I would like you to have a go at answering some questions that the computer is going to ask you. I am asking everybody in year X to do this. I will not share your score with your teacher or anyone else in school but I will use it to help me decide if I might be able to do some more work with you to help you with your Emotional Intelligence skills. I will also use everybody's scores to help me find out if the activity we are doing is good for measuring people's Emotional Intelligence skills. You do not have to take part in this activity and if you decide you don't want to carry on when we are doing it, that's fine, please just put up your hand and let me know. I will not be cross with you. Are you happy to have a go at the activity?

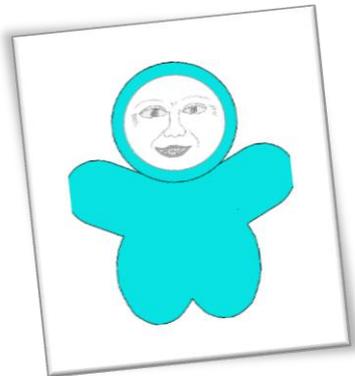
Control School:

I would like you to help with some homework that I have to do for my university course. I need to find out what you know about recognising, using, understanding and managing feelings; these skills are called Emotional Intelligence. To find this out, I would like you to have a go at answering some questions that the computer is going to ask you. I am asking everybody in year X to do this. I will not share your score with your teacher or anyone else in school but I will use everybody's scores to help me find out if the activity we are doing is good for measuring people's Emotional Intelligence skills. I may also come back another time and ask you to do some maths and reading challenges with me. You do not have to take part in this activity and if you decide you don't want to carry on when we are doing it, that's fine, please just put up your hand and let me know. I will not be cross with you. Are you happy to have a go at the activity?

Appendix R Study 2: Child informed consent for programme participation

The letter shown on the next pages was read to the child at the start of the introductory session.

They were asked to sign the reply slip to give their consent to participate in the programme.



Date

Dear....

Hello I'm Emil and I would like to invite you to come on a journey with me and my friend Catherine so we can grow our Emotional Intelligence skills together. Emotional Intelligence sounds posh but it just means knowing all about feelings. It is up to you whether you want to come on the journey with me so let me tell you a bit more about what we will be doing to help you decide. Please read all the information with Catherine before you decide whether you would like to work with us or not.

Our journey will last 6 weeks. We will spend 2 sessions together each week; each session will last about 30 minutes. You will miss some class time to come on our journey, but your teacher is happy with that. We will do lots of different activities and games to help us learn more about our feelings. My friend Catherine has been specially trained to help us learn about feelings and she will help us with all of the activities we do. We can't promise that you will like all the activities and sometimes you might find them a little bit tricky or uncomfortable. But Catherine will do her best to make sure this doesn't happen and we enjoy our journey.

When we go on our journey we will be helping Catherine to do her homework for her university course. She needs to know if the activities we do, help us to grow our Emotional Intelligence skills and possibly even get better at Maths and Literacy. Unfortunately she can't promise that this will happen though. She will use your scores on special tasks for maths, literacy and emotional

intelligence for her homework. She will also be recording our sessions together to help her, but she will not be playing the recordings to anybody else. Catherine will not use your name in her homework and she will not share what we do with anybody else. The only time that Catherine might need to share with someone else in school is if you tell us something that makes her worried about your safety. If this happens, she will tell you that she needs to share with someone else and who she will talk to.

We hope that you will have lots of fun on our journey and will be happy to come with us all the way to the end. But if you find that you are not enjoying the journey anymore and do not want to finish it that is o.k., please just tell us. If you have any questions or are worried about something on our journey then Catherine would love you to talk to her so that she can help you. However if you don't want to talk to Catherine about your problem, then please tell either your teacher, TA, or your parents.

If you are ready to come on an Emotional Intelligence journey with me, then please fill in the reply slip attached and we can get started!

From

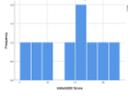
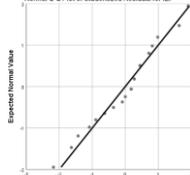
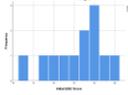
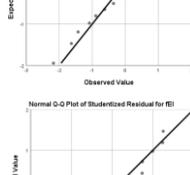
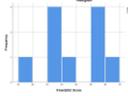
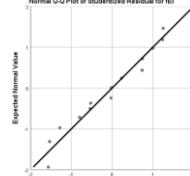
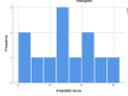
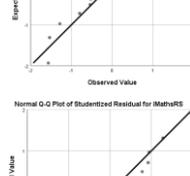
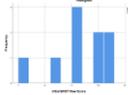
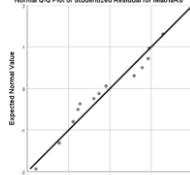
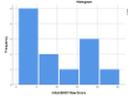
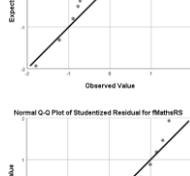
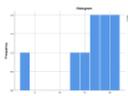
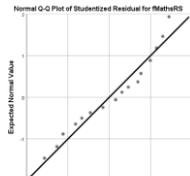
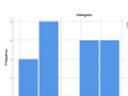
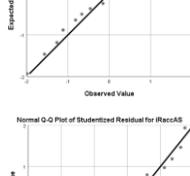
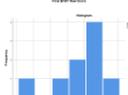
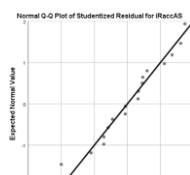
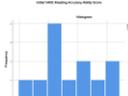
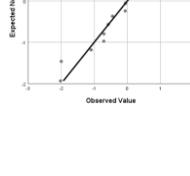
Emil

.....
To Emil,

I have read your letter and I would like to accept your invitation and come on an Emotional Intelligence Journey with you.

From

Appendix S Results of normality tests for all variables in emil programme evaluation

Variable	Group ^a	N (df)	Histogram	Kolmogorov-Smirnov		Shapiro-Wilk		Box Plots		QQ Plots (from studentized residuals)		Levene's (mean)		Skewness (z-score)	Kurtosis (z-score)
				Stat	Sig	Stat	Sig	Box-Plot	Residuals	stat	sig				
Initial EISC	P	9		.17	.200	.95	.708		none	None		3.82	.065	-0.34	-0.70
	C	12		.18	.200	.95	.597		none	None					
Final EISC	P	9		.19	.200	.93	.454		none	None		0.00	.978	-0.30	-0.99
	C	12		.16	.200	.95	.632		none	None					
Initial maths	P	9		.19	.200	.90	.266		#17	None		3.66	.071	-1.37	0.56
	C	12		.24	.066	.85	.042* ^b		none	None					
Final maths	P	9		.24	.148	.81	.028* ^b		#17 ^c	None		7.66	.012** ^b	-2.58	2.90 ^b
	C	12		.22	.107	.84	.029* ^b		none	None					
Initial reading accuracy	P	9		.25	.103	.88	.145		#17 ^c	None		1.12	.303	-2.02	1.92
	C	12		.15	.200	.95	.626		none	None					

Variable	Group ^a	N (df)	Histogram	Kolmogorov-Smirnov		Shapiro-Wilk		Box Plots		QQ Plots (from studentized residuals)		Levene's (mean)		Skewness (z-score)	Kurtosis (z-score)
				Stat	Sig	Stat	Sig	Outliers Box-Plot	Residuals	stat	sig				
Final reading accuracy	P	9		.23	.171	.91	.302		None	None		4.47	.048* ^b	-0.19	-0.90
	C	12		.18	.200	.93	.427		none	None				0.03	-1.07
Initial reading rate	P	9		.21	.200	.83	.054* ^a		None	None		0.40	.536	-2.47	2.64 ^b
	C	12		.21	.157	.85	.039* ^a		#11	None				-2.41	2.00
Final reading rate	P	9		.27	.064	.86	.092		#21	None		0.01	.922	-1.59	0.34
	C	12		.24	.059	.89	.121		#11	None				-1.91	1.07
Initial reading comp	P	9		.20	.200	.90	.230		None	None		2.19	.155	-0.88	-0.83
	C	12		.18	.200	.89	.124		none	None				-1.03	-0.66
Final reading comp	P	9		.18	.200	.97	.918		#21	None		1.77	.199	-0.66	0.09
	C	12		.17	.200	.95	.606		none	none				0.36	-0.84

^a P denotes Programme Group, C denotes Control Group. ^b Clearly violates assumption of normality. ^c Extreme outlier

* p < .05. ** p < .01