Children's Understanding of Mixed Emotions

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Declaration

I declare that the work reported in this thesis is my own, except where acknowledgment has been given, and that this work has not been submitted for a higher degree at any other institution.

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Kristie Lee Thorneywork
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Abstract

Understanding mixed emotions is important for various aspects of functioning and evidence suggests that mixed emotion understanding improves with development. Research has suggested that this understanding might proceed differently in anxious children, however there has been little research conducted in this area to date. An initial exploration investigating mixed emotion understanding was conducted with children aged between 7 and 12 years that were experiencing anxiety concerns. This provided initial evidence for the appropriateness of a story-based psychoeducation technique for enhancing mixed emotions in anxious children: it was found to be highly engaging and was considered by children to be helpful and enjoyable. Mixed emotion understanding is a task that can pose a challenge for all children, particularly when the emotions occur in children's family relationships. This thesis therefore also investigated the development of mixed emotion understanding in typically developing children aged between 6 and 12 years in the context of mother-child relationships. Results showed that younger children demonstrated less understanding than older children, that different combinations of emotions were understood equally well by children, and that children of all ages could provide diverse reasons for how mixed emotions can occur. However, only a minority of children reported mixed emotion experience in their own lives. Girls demonstrated greater mixed emotion understanding than boys, but only on more stringent tests of mixed emotion understanding. Most children felt that mixed emotions would be "mixed up" and disliked, and children reported a variety of coping methods for managing any discomfort associated with mixed emotions.
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Abbreviations

SDQ = Strengths and Difficulties Questionnaire
SCAS-P = Spence Children's Anxiety Scale – Parent Version
RCMAS-2 = Revised Children's Manifest Anxiety Scale – Second Edition
MLECQ = Major Life Events and Changes Questionnaire
WISC-IV = Wechsler Intelligence Scale for Children – Fourth Edition
Chapter 1: An Introduction and Overview of the Research

As adults, many of us can identify times when our emotions could be described as “conflicted” or when we felt “two ways” about something. The term mixed emotions is used to refer to any two emotions that occur at the same time. Many experiences bring mixed emotions, for example, beginning a new school or job can be experienced as both scary and exciting. Understanding that emotions can be mixed is an essential part of various aspects of our functioning. For example, Brown and Dunn (1996) argue it is necessary for a mature understanding of ourselves and our relationships with others, such as the ability to understand that we can experience anger towards those whom we love. Steele, Steele, Croft, and Fonagy (1999) argue that mixed emotion understanding is essential to resolve the daily challenges of social and emotional life.

Not surprisingly, difficulties understanding that emotions can be mixed have been shown to be associated with clinical concerns. Difficulties integrating mixed emotions have been found in adults with serious clinical concerns such as Borderline Personality Disorder (Levine, Marziali, & Hood, 1997). Correlations have also been found between mixed emotion understanding difficulties and both concurrent and future aggression in young children (Denham et al., 2002). Difficulties understanding mixed emotions can also be a barrier to full engagement in therapeutic and legal settings (Kestenbaum & Gelman, 1995; Harter, 1977). For these reasons, it is important to clinically address the ability to understand mixed emotions.
Mixed emotion understanding is important for children in a number of situations, such as being able to manage the feelings caused by a disappointing present or going away on a school camp. In addition, children frequently find themselves in therapeutic and legal settings which require that they understand that emotions can be mixed. Given the importance of mixed emotion understanding for children, it is not surprising that their ability to recognise mixed emotions has received attention from researchers over recent decades. This research has focused on the development of children’s ability to recognise mixed emotions and the factors that influence recognition. It has shown that children are generally unable to recognise that a person can simultaneously feel two same-valence emotions, such as scared and angry, towards a single target until they are 5 to 7 years of age (Harter & Buddin, 1987). It has also shown that children are unable to recognise that a person can simultaneously feel two opposite-valence emotions, such as happy and sad, towards a single target until they are 11 to 12 years of age (Harter & Buddin, 1987).

However, there are inconsistencies in the literature regarding aspects of mixed emotion understanding such as whether children understand their own emotions before the emotions of others (Harter & Buddin, 1987; Larsen, To, & Fireman, 2007) and whether the intensity of reported mixed emotions develops with age (Meerum Terwogt, Koops, Oosterhoff, & Oolthof, 1986; Wintre & Vallance, 1994). Further, some of the factors likely to affect mixed emotion understanding remain relatively unexplored. The first of these is the target of the emotion. Most previous research has focused on children’s recognition of emotions towards objects and events, such as how children
would feel if a clown asked them for help (Meerum Terwogt, 1990), how they would feel if a puppy wrecked their toy (Donaldson & Westerman, 1986), or general questions about the possibility of mixed emotions with no specific target (Harter & Buddin, 1987; Southam-Gerow & Kendall, 2000). Many emotions are directed at people and, for young children, family members are likely to be a frequent target. Children’s understanding of mixed emotions in family relationships becomes particularly important when they and their families are involved in therapeutic and legal settings, yet this has been rarely examined. To the best of the author’s knowledge, there is only one study in older children (Whitesell & Harter, 1989) that has specifically investigated mixed emotions in the context of family relationships.

A second factor that has received little attention is children’s understanding of specific combinations of emotions. For example, the focus of research has been on children’s ability to explain how unspecified combinations of positive and negative emotions could occur, by choosing a photograph representing a positive emotion and a photograph representing a negative emotion and explaining how someone could have these feelings at the same time (Harter & Buddin, 1987), or to recognise a limited number of combinations of selected emotions such as happy and sad, and loving and angry (Donaldson & Westerman, 1986; Peng, Johnson, Pollock, Glasspool, & Hams, 1992; Reissland, 1985). However, it might be important to compare different combinations of specific positive and negative emotions such as happy, loving, angry, sad, and scared, because the development of mixed emotion understanding might proceed differently for different emotion
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combinations. Knowing this might enhance assessments and interventions in both therapeutic and legal settings.

Although mixed emotion understanding has been investigated in typically developing children, there has been limited research with children with clinical concerns. For example, a review of the literature revealed very few studies that investigated the development of this understanding in children experiencing heightened levels of anxiety (Melfsen, Osterlow, & Florin, 2000; Southam-Gerow & Kendall, 2000). It appears that there might be a two-way relationship between children's ability to understand mixed emotions when experiencing anxiety. Previous research has shown that most children reported that the experience of mixed emotions would elicit discomfort (Whitesell & Harter, 1989), and high levels of discomfort might lead to anxiety. However, anxiety might also interfere with the child's capacity to process their experiences of mixed emotions, as research into cognitive biases has suggested a strong link between anxiety and cognition (Ehrenreich & Gross, 2002; Mobini & Grant, 2007). Investigating mixed emotion understanding in children experiencing anxiety is particularly important because the general population prevalence of anxiety is high, making it likely that anxiety will be a presenting issue for both child and family therapy. Further, there is a high likelihood that children involved in therapeutic and legal assessments which require them to understand mixed emotions will have increased levels of anxiety. It is therefore important to understand how mixed emotion understanding is related to discomfort. It would also be beneficial to understand how children cope with any psychological discomfort associated with mixed emotions, however this has not yet been investigated.
This investigation had several goals. Firstly, to explore mixed emotion understanding in children aged between 7 and 12 years experiencing anxiety concerns and to investigate the appropriateness of a story-based psychoeducation module aimed at improving awareness of mixed emotions for children experiencing difficulties with anxiety. Secondly, to conduct a comprehensive investigation of mixed emotions in typically developing children aged between 6 and 12 years in the family context. The mother-child relationship was selected as mothers are the primary caregivers in most families. Thirdly, to examine the development of children's understanding of a range of combinations of emotions likely to occur in daily life. Finally, to explore discomfort and coping attached to the experience of mixed emotions.

The thesis will be structured in the following manner. In Chapter 2, a review of the literature outlining the relevant theories and empirical studies related to mixed emotion understanding will be presented. This will be followed in Chapters 3 and 4 by an outline of two separate yet related studies. The first study, which will explore mixed emotion understanding in anxious children, will be presented in Chapter 3. The second study, which extends what is known from the literature to provide further information about children's understanding of mixed emotions in mother-child relationships in typically developing children, will be presented in Chapter 4. Finally, in Chapter 5, a review of the studies and their conclusions will be presented.
Chapter 2: A Review of the Key Concepts and Findings in Children's Understanding of Mixed Emotions

Mixed Emotions in Family Relationships

Harter describes a case (1977, p. 418) where although “there was a great deal of latent hostility that an 8-year old felt towards his father, the boy insisted that he felt nothing but love and admiration for his father. How could he possibly harbor any ill feelings towards his own father?” Parent-child relationships are frequently characterised by mixed emotions, with “love-hate” relationships not uncommon. As Harter (1977) explains this “often poses problems for the young child who is aware, at some level, of his/her tremendous emotional dependency on the parents. Here one often encounters the conviction that ‘all of me loves my parents’ and that there cannot, or should not, be a part that does not love them completely, a part that might be angry, or hurt, or disappointed over some parental behavior.” (p. 418).

Children's emotions towards their parents can change dramatically with events (Harter, 1977). For example, when a child is being punished, he or she might be aware of only feelings of anger towards the parent despite also feeling love towards the parent. In other words, a child can have difficulty recognising the feelings of love and anger simultaneously in response to a negative event. Harter (1977) uses the term affective conservation to describe situations like this one, where particular events might temporarily change the balance of emotions a child is experiencing.
Understanding how well children understand the mixed emotions likely to occur in parent-child relationships is necessary for several reasons. It can be important in legal contexts. For example, Aldridge and Wood (1997) noted that developmental difficulties in understanding emotions have important implications for interviewing children in the legal setting. They explained that questions such as “Do you like daddy?” are problematic because children cannot fully express simultaneous liking and disliking of a single person and so will often give a singular response, which is unlikely to reflect the range of the child’s feelings regarding the relationship. The researchers noted that in all instances where this question had been asked of children who had made allegations of sexual abuse against their father, the children have all said “yes” in response. It is highly likely that the relationships within families involved in legal contexts will be characterised by mixed emotions, particularly in cases of sexual abuse, as research has demonstrated that sexual abuse is linked with a range of emotions, both positive and negative (Long & Jackson, 1993).

It has been suggested that “love-hate” relationships, or those involving other opposite-valence mixed emotions, are particularly frequent in complex legal cases following divorce (Etchegoyen & Adams, 1998). When children are assessed in these contexts, they might seem able to describe their parent-child relationships and their wishes about their living arrangements. However, younger children in particular might find it difficult to recognise any mixed emotions they have about their family members, making it difficult for them to provide responses that accurately describe their feelings. Legal assessments consider the Best Interests of the Child criteria (Family Law Act,
Section 60CC, 1975) when making decisions regarding where children reside and how often they spend time with their parents. These criteria cover various factors that could impact the child's life, however there are two particular criteria for which an awareness of children's understanding of mixed emotions is relevant. One criterion requires the court to consider any views expressed by the child and any factors that might affect the weight given to these views, such as the maturity level or level of understanding of the child (Family Law Act, Section 60CC, 1975). As noted above, younger children might be unable to understand the coexistence of feeling love and anger towards one or both of their parents, which is likely to affect the accuracy of the expression of their wishes. A second criterion requires the court to consider the nature of the child's relationship with each parent and with other people (Family Law Act, Section 60CC, 1975). One factor that might be used to determine the nature of these relationships is the child's description of the relationships. In order to more accurately make judgements based on these criteria, it is important to understand how children of different ages understand the existence of mixed emotions.

Despite the need for greater knowledge of children's abilities to understand mixed emotions in their family relationships, it appears that they have only been investigated once with reference to family relationships (Whitesell & Harter, 1989), and then only in the rather narrow age range of 9- to 12-year old children. Most previous investigations have studied emotions towards objects or events, even though "emotion is a more salient feature of social interaction compared to most encounters with objects – including the emotions that precede social interaction and the changes in emotions that
arise from interactive activity" (Thompson, 2006, p. 27) and children might have more difficulties identifying mixed emotions towards a person than towards an object or event (Harter & Whitesell, 1989).

This thesis examines mixed emotions in the context of family relationships. Firstly, in this chapter, children's general emotional competence will be outlined, followed by an examination of relevant theories for understanding mixed emotions. The developmental aspects of mixed emotion understanding and previous research on discomfort and coping related to mixed emotion experience will then be reviewed. Finally, this chapter will identify current gaps in our understanding of mixed emotion recognition in children.

**Emotional Competence**

Emotional development is a complex process, beginning from birth and continuing throughout life (Saarni, Campos, Camras, & Witherington, 2006). In recent years, research on emotions has focused on understanding how emotions develop between infancy and adolescence, which functions they fulfil, and how they are related to behaviour (Saarni et al., 2006). The study of the development of emotional competence is just one aspect of this large area of research. Emotional competence is multifaceted, and includes the ability to recognise one's own and others' emotions, and to both regulate and express one's emotions.

Recognising mixed emotions is one aspect of the higher level process of emotion recognition. Children are generally considered to be aware of basic emotions, such as happy and sad, by 2 to 3 years of age (Saarni et al., 2006). The development of children's emotion understanding is thought to involve a
gradual process. However, the age at which children generally become aware that it is possible to experience more than one basic emotion simultaneously is unclear. Before an analysis of the factors which affect children’s ability to recognise mixed emotions, different theories on mixed emotion understanding in adults will be briefly outlined and evaluated.

**Theories of Mixed Emotions**

Words describing the experience of mixed emotions have been incorporated into everyday language, suggesting that mixed emotions are widely understood by the general population. They have been investigated for many decades and their existence has been accepted by many, but not all, researchers in this area.

On the basis of a representative set of studies of self-reported mood, Watson and Tellegen (1985) proposed one of the earliest models investigating the existence of mixed emotions. These researchers proposed a two-factor structure of emotions organised along two primary dimensions of Positive Affect and Negative Affect (see Figure 1). Positive Affect includes emotions such as elation and excitement whereas Negative Affect includes emotions such as distress and fear. Highly positive and highly negative emotions lie at opposite ends of a dimension of bipolar valences (Larsen & McGraw, 2011). This implies that it is not possible to experience two emotions, such as extremely happy and extremely sad, at the same time.
Similarly, Russell and Carroll (1999) proposed that emotions can be grouped into a number of pairs that are polar opposites (see Figure 2). For example, the model defines happiness and sadness as opposite poles of the same dimension of emotion rather than as two separate emotions, and because happiness and sadness are opposites, they are mutually exclusive and therefore cannot co-occur.
While both Watson and Tellegen (1985) and Russell and Carroll (1999) argue that emotions at two opposing poles of the same emotional dimension cannot co-exist, they leave open the possibility that other opposite-valence mixed emotions, such as happiness and anger, and happiness and fear, can occur simultaneously as they are not considered to be opposites.

While Watson and Tellegen (1985) and Russell and Carroll (1999) focused on the bipolarity of affect, Cacioppo and Berntson (1994) argued that positive and negative affect are at least partially separable and not reciprocal and that the simultaneous co-occurrence of two opposite-valence emotions was therefore possible (Cacioppo & Berntson, 1994). According to Norris, Gollan, Berntson, and Cacioppo (2010), being able to simultaneously experience emotions of different valences is likely to have had evolutionary advantages. "For example, animals must come to water sources to drink even though this exposes them to predators. The ability to simultaneously hold two opposing motivations, to approach the water and avoid being eaten, is clearly
adaptive and requires nuanced and flexible evaluative processes." (2010, p. 424).

Recent research has provided empirical support for the simultaneous experience of two emotions, however there has been a focus on more nuanced factors regarding this coexistence. For example, it has been demonstrated that the experience of mixed emotions really involves the simultaneous experience of two emotions rather than being due to an individual vacillating between positive and negative emotions (Larsen & McGraw, 2011; Larsen, McGraw, Mellers, & Cacioppo, 2004), that mixed emotions are not solely reported based on participants' beliefs about the researcher's expectations about their existence, or their own previous beliefs about their existence, and that mixed emotions can be elicited without asking about the specific emotions involved (Larsen & McGraw, 2011). Research has also suggested that opposite-valence mixed emotions are more difficult to recall than basic emotions, particularly with regard to the intensity of the emotions experienced (Aaker, Drolet, & Griffin, 2008). In addition, psychophysiological research on youths aged between 8 and 17 years who had been diagnosed with asthma, has demonstrated that watching a film clip that evokes mixed happy and sad reactions has a physiological response that is distinct from watching a film clip that evokes either happiness or sadness alone (Miller & Wood, 1997).

Previous research has also investigated the circumstances in which mixed emotions occur. It has been demonstrated that individuals are more likely to experience happiness and sadness simultaneously in an emotionally complex situation rather than a neutral situation (Larsen, McGraw, &
Cacioppo, 2001). The intensity of an emotion has been shown to be affected by the co-existence of the other emotion (Schimmack & Colcombe, 1999). Brehm and Miron (2006) found that the intensity of an alternative emotion dictates whether or not it replaces the original emotion, and that mixed emotions must be of low intensity levels to occur. Finally, although agreeing that two emotions can exist simultaneously, Carrera and Oceja (2007) argued that the occurrence of simultaneous rather than sequential mixed emotions is overestimated due to the predominant use of rating scales which prevent differentiation of temporal precedence.

Despite the ongoing controversy, several studies have provided support for the existence of mixed emotions and theoretical explanations for how they could exist have been proposed. Existing literature with adults has identified several factors that affect whether mixed emotions can be experienced. These include the valence of the emotions, the intensity of the emotions, the type of situation eliciting the emotion, and the specific emotions involved. These factors offer a set of indices that can be used to examine mixed emotion understanding and suggest how it should best be measured.

**Development of Mixed Emotion Understanding**

The focus of research on the development of mixed emotion understanding in children has been primarily on the course of development of the ability to understand various forms of mixed emotions. Several factors that might influence development have also been investigated. These include factors that have been explored in adults, such as the valence and intensity of the emotions involved. Existing literature with children has also identified a number of additional aspects of mixed emotion understanding. Theory used to
explain the development of mixed emotion understanding in children, the course of this development, the effect of the target of mixed emotion understanding, and the relationship between development and the intensity of mixed emotions can each be considered.

The key theoretical model that has been used to explain the development of mixed emotions in the early studies was developed by Piaget (1968). Piaget described sequential developmental stages, each characterised by a specific way of thinking about the world (Piaget, 1968). Although Piaget's theory was developed most fully in the domain of cognition rather than emotion, the cognitive limitations characteristic of a particular stage are considered to affect children's understanding of emotion. Of particular relevance to mixed emotion understanding in children is the shift between the stage of pre-operational thought, which lasts from about ages 2 to 7 years, and concrete operational thought, which lasts from around 7 years to 11-12 years of age. One feature of pre-operational thought that is considered to be particularly relevant is centration, where the child can only attend to one feature of a particular object or event at any one time, rather than being able to acknowledge multiple dimensions (Piaget, 1968). Piaget's theory has been taken to suggest that children are unable to recognise that multiple simultaneous emotions can exist until between 7 and 12 years of age, although it has been argued that this difficulty with emotions might persist longer due to physical constructs being more concrete (Harter, 1977).

Influenced by Piaget's theory, Harter and Buddin (1987) conducted one of the original research studies to document when children acquire the skill to recognise mixed emotions. Children were asked to select two pictures
representing feelings, to name these feelings, and to describe one thing that would make them feel those two feelings at the same time. They were asked to do this for same-valence emotions, both towards the same target and a different target, and for opposite-valence emotions, both towards the same target and a different target.

Using this methodology, these researchers were able to identify five levels in the development of mixed emotion recognition. These levels were distinguished by valence on the one hand and target on the other. In Level Zero, occurring between the ages 4 and 5 years, children were unable to identify mixed emotions of any kind. In Level One, which occurs between the ages 5 and 7 years, children could report same-valence mixed emotions but only about the same target [e.g., “I was upset and mad when my brother messed up my stuff” (p. 389)]. In Level Two, which occurs between the ages 7 and 9 years, children could also understand same-valence mixed emotions about different targets [(e.g., “I’d be happy I got a motorcycle and glad I got a race car” (p. 389)]. In Level Three, which occurs between the ages 9 and 11 years, children could additionally report mixed emotions involving one positive and one negative emotion for different targets [e.g. “I was glad I was seeing Star Wars but unhappy that I was missing the ball game” (p. 389)]. Finally, in Level Four, which occurs at around ages 11 to 12 years, children could also report different-valence mixed emotions about the same target [e.g., “I was happy I got a bike for Christmas but sad because it was only a 3-speed because I wanted a 10-speed” (p. 389)]. Harter and Buddin explained this developmental course as occurring in line with Piaget’s theory, specifically the shift from pre-operational to concrete operational thinking. Other research
using various techniques has generally provided support for the
developmental course that Harter and Buddin outlined (Aldridge & Wood,
1997; Arsenio & Kramer, 1992; Donaldson & Westerman, 1986; Reissland,

Previous research has shown that early emotion understanding at 3
years of age is linked to understanding opposite-valence mixed emotions at 6
years of age (Brown & Dunn, 1996; Dunn, 1995). It has also been suggested
that all typically developing children will eventually arrive at an understanding
of mixed emotions (Steele et al., 1999).

In addition to general developmental trends in mixed emotion
understanding for children, research has shown that 4- and 5- year old
children, who are unable to recognise mixed emotions, have partial
identification of mixed emotions (Kestenbaum & Gelman, 1995). These
researchers presented children with modified photographs and cartoon
images to represent mixed happy, sad, and mad emotions. They also
presented children with a series of eight stories involving two events designed
to elicit emotions. Four of the stories were designed to elicit mixed emotions.
In the labels that children used to describe the pictures, both age groups
referred to more than one emotion but only 5-year olds were able to identify
their existence in stories involving mixed emotions towards different targets.
Therefore, this research suggested that 4-year olds might recognise mixed
emotions when presented with them, but might not be able to identify when
these would occur in stories. This research also demonstrated that the
difficulties that young children have in recognising mixed emotions are not
due to difficulties perceiving emotions, as even 4-year old children are able to recognize mixed emotions on faces.

Research into children's understanding of their own and others' experience of mixed emotions has also been conducted. Harter and Buddin (1987) suggested that children's understanding of their own emotions occurs earlier than their understanding of the emotions of a parent, by approximately 2-3 years. However, in the study by Larsen and colleagues (2007), children were more likely to report understanding that a fictional character had experienced mixed emotions than to report their own experience of mixed emotions. The inconsistencies between these findings might be affected by differences in methodology. Although a direct comparison of these methodologies was not possible as a description of the methodology for Harter and Buddin's findings could not be found, Larsen and colleagues suggest that one reason for this inconsistency could be that they always asked the children about their own emotions prior to asking about the emotions of the fictional character. Further research regarding whether children's identification of their own emotions precedes the identification of others' mixed emotions would be useful for clarifying these seemingly contradictory findings.

In addition to a gradual increase in the understanding of mixed emotions, research has also found age differences in the description of the intensity of mixed emotions. Meerum Terwogt and colleagues (1986) found that 6-year olds described emotions as being less intense if multiple emotions are identified. In addition, they found that younger children indicated that one emotion dominated the other, whereas 10-year olds identified mixed emotions
as being of equal intensity. However, more recent research has reported a different developmental trajectory. Using an interview method in which researchers described scenarios involving mixed emotions to the children, Wintre and Vallance (1994) demonstrated that 4-year old children could imagine experiencing more than one emotion of the same valence only at maximum intensity [e.g. when asked “How would you feel if someone special brought their new baby for you to see” responding with “very very happy and very very loving.” (p. 512)]. By 6 years of age, children could imagine experiencing multiple emotions of the same valence of varying intensity [e.g. when asked “How would you feel if you lost control of your bike and almost crashed?” responding with “a little angry, sort of sad, and very very scared.” (p. 512)]. By around 8 years of age children could imagine experiencing opposite valence multiple emotions of varying intensity [(e.g. when asked “How would you feel if you were at home all alone?” responding with “very very scared, sort of angry, and a little happy.” (p. 512)]. Further research is therefore required to clarify developmental changes in the intensity of mixed emotions that are experienced.

Research investigating the effect of gender on mixed emotions has largely found that girls have a greater understanding of mixed emotions than boys. Wintre and Vallance (1994) found that girls aged 8 years reported more mixed emotions than boys on a measure of understanding opposite-valence mixed emotions. Similarly, in their study of children aged 6 years, Brown and Dunn (1996) found that girls outperformed boys on a mixed emotion understanding task. However, there have been some inconsistent findings. In their research on mixed emotion understanding, Donaldson and Westerman
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(1986) found no significant differences between boys and girls. Similarly, Steele and colleagues (1999) found that gender does not influence mixed emotion understanding in 6-year old children (Steele et al., 1999). Aldridge and Wood (1997) found that girls initially outperformed boys in identifying mixed emotions, however both genders performed equally from 10 years of age. Larsen and colleagues (2007) found that older girls were more likely than younger girls to experience mixed emotions, however boys aged between 11 and 12 years were no more likely than boys aged between 8 and 9 years to experience mixed emotions. However, these researchers acknowledged that the gender differences in this study were most likely due to using a stimulus that was of more interest to girls. Further research addressing this methodological limitation found that girls demonstrated greater mixed emotion experience than boys, however both boys and girls demonstrated similar levels of mixed emotion understanding (Zajdel et al., 2013).

To summarise, children generally do not develop the ability to fully understand opposite valence mixed emotions until they are approximately 11 to 12 years of age (Donaldson & Westerman, 1986; Harter & Buddin, 1987; Reissland, 1985). Children generally understand that they themselves can experience mixed emotions before understanding that someone else can experience these (Harter & Buddin, 1987), however agreement on this has not been reached (Larsen et al., 2007). In addition, developmental differences in the intensity of mixed emotions experienced have been recognised (Meerum Terwogt et al., 1986; Wintre & Vallance, 1994), although the evidence is inconsistent. Girls have generally been found to outperform boys on measures of mixed emotion understanding (Brown & Dunn, 1996; Wintre &
Vallance, 1994), however inconsistencies in the relationship between gender and mixed emotion understanding have been found (Aldridge & Wood, 1997; Larsen et al., 2007; Steele et al., 1999; Zajdel et al., 2013).

**Mixed Emotion Recognition, Discomfort, and Coping**

According to the evaluative space model (Cacioppo & Berntson, 1994), experiencing mixed emotions is expected to be unpleasant (Larsen et al., 2001). Research with 9- to 12-year old children is consistent with this, finding that simultaneously experiencing happiness and sadness in situations involving a peer led to a feeling of conflict in 58% of children, while the same combination of emotions in situations involving a parent resulted in a feeling of conflict in 27% of children. Similarly, co-occurring anger and happiness in peer and parent situations led to a feeling of conflict in 52% and 49% of children respectively (Whitesell & Harter, 1989).

These findings suggest that although mixed emotions are not universally experienced as aversive, they are uncomfortable for some children. Coping is defined as how individuals manage their emotions, cognition, behaviour, and autonomic arousal in order to alter or decrease stress (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001) and children’s coping strategies have been studied extensively (Ayers, Sandier, West, & Roosa, 1996; Bernzweig, Eisenberg, & Fabes, 1993; de Boo & Wicherts, 2009; Herman & McHale, 1993; Radovanovic, 1993; Valentine, Buchanan, & Knibb, 2010). However, it is unclear how children cope with mixed emotions.
Questions Arising from the Mixed Emotion Understanding Literature

Previous research has extended our knowledge of the development of mixed emotion understanding and given rise to a number of as yet unanswered questions. Firstly, while we know that children gradually get better at identifying mixed emotions in response to objects and events, we do not know whether they develop the skill to identify mixed emotions for family relationships in the same way. Although one study investigated aspects of mixed emotion understanding in family relationships in older children (Whitesell & Harter, 1989), other previous research has used stories involving objects or events. For example, research using scenarios has asked how children would feel about general objects or events, such as a school outing that is affected by rain or partially recovering an item that had been lost (Rieffe, Meerum Terwogt, & Kotronopoulo, 2007; Peng et al., 1992). Similarly, interview-based methods have primarily included general questions without specifying the nature of the target of the mixed emotions (Harter & Buddin, 1987; Southam-Gerow & Kendall, 2000).

Secondly, previous research has asked children to either identify a combination of any positive and any negative emotion (Harter & Buddin, 1987), or has looked at a select few combinations of emotions (Donaldson & Westerman, 1986; Peng et al., 1992; Reissland, 1985). In addition, previous theoretical models suggest that different combinations of emotions are not equally likely to occur, with the bipolar opposites such as happy and sad apparently least likely to co-occur (Russell & Carroll, 1999; Watson & Tellegen, 1985). It is important to systematically compare different combinations of specific positive and negative emotions, such as happy,
loving, angry, sad, and scared, to ascertain whether the development of mixed emotion understanding occurs in the same way for opposite valence mixed emotions, something that has not yet been explored. Finally, the association between mixed emotion understanding and discomfort has also received minimal attention in the literature (Whitesell & Harter, 1989) and children’s coping abilities when faced with experiences involving mixed emotions remain unclear.

The Current Project

The current project aimed to extend upon existing literature in several ways. Firstly, the research explored mixed emotion understanding in children experiencing anxiety concerns and investigated the appropriateness of using a story-based psychoeducation module aimed at improving awareness of mixed emotions with these children. Secondly, it examined the development of specific combinations of mixed emotions in the context of an important family relationship, the mother-child relationship, in typically developing children and explored the relationship between the child’s gender and this development. The mother-child relationship was selected as a focus as mothers are the primary caregivers in most families. It also investigated the following different aspects of mixed emotion understanding identified in previous research: children’s understanding of whether it is possible to experience a mixed emotion, their ability to provide a plausible reason for a mixed emotion experience, their understanding of their own mixed emotions compared with the mixed emotions of a parent, how they experience mixed emotions, the intensity of the mixed emotions experienced, their own beliefs regarding whether they have experienced mixed emotions, and their ability to
provide a plausible reason for this experience. In addition, the research investigated the association between discomfort, coping, and mixed emotions in mother-child relationships. These questions were investigated by focusing on the most difficult aspect of mixed emotion understanding, understanding mixed emotions of opposite valence towards the same target.

This research adds to the existing knowledge about emotional development in children by providing better insight into children’s understanding of mixed emotions when experiencing anxiety concerns, as well as a better understanding of mixed emotions in the context of mother-child relationships. It could enable psychologists working with children in family therapy, assessing children in legal settings, or working with children with anxiety concerns in general psychological practice, to be more informed about children’s emotional capacities and to potentially develop better techniques for use in these areas.
Chapter 3: An Exploration into the Understanding of Mixed Emotions in Children Experiencing Anxiety

**Mixed emotion understanding and anxiety.** There is a strong rationale for gaining greater insight into the relationship between children's anxiety and their ability to understand mixed emotions given that heightened anxiety is common in contexts where mixed emotion understanding is expected of children. For example, the ability to understand that emotions can be mixed is important for individual child and family therapy. Since anxiety in children is highly prevalent (American Psychological Association, 2000), there is a strong likelihood that anxiety will be a presenting issue for children in these contexts. In addition, anxiety is common in a range of non-clinical settings – such as legal, educational, and social contexts – where mixed emotions can emerge. Rafaeli, Rogers, and Revelle (2007) have also suggested that those who have more difficulties understanding mixed emotions are considered to have less effective responses to particular situations and to experience more emotional concerns. For these reasons, it is particularly important to understand mixed emotion experience in children with anxiety concerns.

Although there has been limited empirical research into the relationship between children's ability to understand mixed emotions and their experience of anxiety, this relationship appears to be complex, and might be of a bidirectional nature. It is possible that difficulties understanding that emotions can be mixed might lead to anxiety, as previous research has found that the majority of children reported that the experience of mixed emotions would
elicit discomfort (Whitesell & Harter, 1989). On the other hand, it is possible that anxiety might interfere with the child’s capacity to process emotional experience. Specifically, research into cognitive biases in adults suggests a strong link between anxiety and cognition. Cognitive biases involve a particular pattern of thoughts in response to stimuli (Beck, 1991). There are various cognitive biases evident in adults experiencing anxiety, such as reduced attention to information related to safety, which distorts the interpretation of particular events (Mobini & Grant, 2007). Cognitive biases can be explained by attentional control theory (Derekshan & Eysenck, 2009; Eysenck, Derakshan, Santos, & Calvo, 2007), which differentiates between two attentional systems, the stimulus-driven attentional system and the goal-directed attentional system. The theory posits that worry interferes with central executive functioning, such as the ability to flexibly switch attention between tasks. This interference is due to anxiety increasing the influence of the stimulus-driven attentional system while simultaneously decreasing the influence of the goal-directed attentional system, resulting in the impairment of specific central executive functions and reduced attentional control. Cognitive biases have also been demonstrated in anxious children (Ehrenreich & Gross, 2002). For example, Kendall and Chansky (1991) have suggested that anxious children experience an inability to simultaneously integrate positive and negative thoughts. It is possible that this difficulty in integrating positive and negative aspects in children experiencing anxiety concerns also extends to a difficulty in integrating mixed emotions involving emotions of positive and negative valences. This difficulty could lead to children feeling confused when faced with mixed emotions, potentially heightening their anxiety further.
The limited research into mixed emotion understanding in children experiencing anxiety concerns suggests that it proceeds differently in children with concerns such as anxiety compared to typically developing children. Kendall and Chansky (1991) demonstrated that anxious children aged between 9 and 14 years, both with, or without formal diagnoses, were able to report either positive or negative thoughts but not both at the same time. In contrast, research conducted with typically developing children of this age focusing on simultaneous emotions has found that they are able to report emotions that have opposite valences (e.g., Harter & Buddin, 1987).

Southam-Gerow and Kendall (2000) investigated the relationship between mixed emotion understanding and anxiety levels in youths aged between 7 and 14 years with Generalised Anxiety Disorder, Social Phobia, and Separation Anxiety Disorder using a general question about the hypothetical existence of two emotions, including the combinations of sad and mad, happy and sad, calm and nervous, and love and angry (e.g. “Can you feel sad and mad at the same time?”). These researchers found no significant group difference in mixed emotion understanding, however there was a trend towards lower levels of understanding in the anxiety disordered group than in a non-disordered group of similar ages, as indicated by a lower number of overall responses indicating mixed emotion understanding, established using a coding manual. Lack of significance might have been associated with the small size of the sample (n = 17).

Previous research has demonstrated that socially anxious children are less likely to demonstrate mixed emotions through their facial expressions (Melfsen et al., 2000). When socially anxious and socially non-anxious
children (mean age = 10 years) were asked to demonstrate a range of facial expressions, socially anxious children less often showed facial expressions that included simultaneously positive and negative elements, which involves more skill, and which are likely to be more easily interpreted by others.

Mixed emotion understanding has also been investigated in children exposed to terrorism-induced trauma (Scrimin, Moscardino, Capello, Altoe, & Axia, 2009), which is likely to be comorbid with other emotional concerns such as anxiety. Children (mean age = 11 years) were asked to label facial expressions portraying mixed emotions and identify the facial expression that represented the emotion that a fictional character would feel in response to several vignettes. Mixed emotions presented included happiness and fearfulness, happiness and sadness, happiness and anger, anger and fearfulness, anger and sadness, and sadness and fearfulness. The results indicated that children with exposure to the trauma experienced more difficulties correctly identifying facial expressions involving mixed emotions than children without such trauma exposure in that they were more likely to incorrectly label faces presenting mixed emotions as anger.

Meerum Terwogt (1990) more generally investigated differences between typically developing children and children with behavioural and emotional concerns, focusing on the emotions happy, angry, afraid, and sad. He found that while children in both groups were able to identify mixed emotions, when children experiencing concerns identified the co-occurrence of multiple negative emotions, they were more likely to state that all possible negative emotions, rather than a selection of these emotions, were experienced. This phenomenon did not occur for combinations of positive and
negative emotions. Children experiencing behavioural and emotional concerns also reported emotions as more intense than children without these concerns. However, the implications of these findings for the association between anxiety and the quality of mixed emotion understanding are difficult to interpret due to the limitations of the study. Firstly, children with behavioural and emotional concerns were several months older on average than those in the typical group so their ability to understand mixed emotions could have benefited from their extra maturation. Secondly, children were not formally diagnosed, and the disordered group was quite heterogeneous in nature. Nevertheless, these findings raise the possibility that, in addition to the difficulty in simultaneously identifying positive and negative emotions found in previous research, anxious children might experience problems differentiating between different negative emotions experienced simultaneously. Overall, due to the limited evidence in this area, the role that anxiety plays in children’s ability to recognise mixed emotions remains unclear.

**Working therapeutically with mixed emotion understanding difficulties.** The issue of difficulties in mixed emotion understanding in children is one that has long been recognised as being important to clinically address (Harter, 1977). However, there is limited research on improving mixed emotion understanding through psychotherapeutic intervention. A notable exception is Peng and colleagues (1992) who conducted a training session involving drawing typically developing children’s attention to different aspects of a situation aimed at eliciting mixed happy and sad emotions. Their research showed that children aged between 6 and 7 years who were initially unable to recognise mixed emotions were better at recognising them after a
training session, while children aged between 4 and 5 years were not. Peng and colleagues argued that older children were able to benefit from the training because their mixed emotion recognition difficulties were caused by difficulties with Piaget's concept of centration, the tendency to focus on a particular aspect of a situation while neglecting others. As such, these children attended to the most recent or salient aspect of an event, despite having the capacities to integrate the two emotions. They argued that in children aged between 6 and 7 years, decentration can be trained so that mixed emotion understanding can be improved. Younger children, however, were not thought to possess the basic capacity to integrate two emotions and therefore received less benefit from the training. The results of the training were consistent with Piaget's proposed sequence.

Clinicians who have explored ways to enhance children's mixed emotion understanding have used a range of different techniques. For example, Harter (1977) describes a case study of working therapeutically with a 6-year old girl with poor school performance who had difficulty with experiencing herself as both happy and sad. She also experienced difficulties recognising her simultaneous feelings of love and hostility towards her step-father. Harter used play-based techniques, particularly those involving dramatic role-play focused on situations that the child was experiencing difficulties with, as well as drawings that demonstrated the possibility of feeling two emotions regarding a particular situation, to enhance the child's understanding of different mixed emotions. In addition, she described how colleagues have used drawing techniques with boys aged between 9 and 11 years in a group setting to enhance mixed emotion understanding.
Mattise (1997) has also worked therapeutically to enhance mixed emotion understanding in children. She used a pair of identical puppets to facilitate discussions with children for events likely to elicit mixed emotions such as beginning school and parent separation. Children were asked to report the emotions that they had felt in response to these issues, directing positive emotions at one puppet and directing negative emotions at the other. Mattise instructed the children in how they can direct their mixed emotions at their hands rather than the puppets to allow for generalisation of this skill beyond the therapeutic setting. Mattise also then initiated a more general discussion of mixed emotions and how these can be managed.

Kaduson (1997) created a storytelling game where stories are told by both the therapist and child, and poker chips are placed on words describing feelings associated with the story. Through this activity, Kaduson demonstrated the possibility of experiencing two feelings at the same time.

The above examples demonstrate that clinicians have considered mixed emotion understanding difficulties to be worthy of clinical attention and intervention, and there have been a range of approaches used to address these difficulties. While clinical recommendations are a useful starting point, there is, as yet, minimal knowledge regarding which of these strategies are effective in assisting children’s capacity to understand mixed emotions.

**Storytelling techniques.** Of the interventions described above, storytelling is considered to have one of the greatest potentials for enhancing mixed emotion understanding in children experiencing anxiety concerns. However, there is limited research into the use of storytelling interventions for this purpose. There are many reasons why storytelling techniques could be
useful in therapeutic settings for helping children that are experiencing difficulties with understanding mixed emotions. They are considered to be a developmentally sensitive mode of delivery that is particularly suitable to children (Friedberg, 1994; Friedberg & Wilt, 2010), can assist with motivation and increasing engagement and rapport (Blenkiron, 2005; Cook, Taylor, & Silverman, 2004; Friedberg, 1994), and can make therapy more fun (Friedberg & Wilt, 2010). Stories can also allow children to express negative feelings, thoughts, and behaviours more easily (Piacentini & Bergman, 2001), view their problems more objectively (Friedberg & Wilt, 2010), and attend to and remember an intervention more effectively (Cook et al., 2004). Stories can also be used for modelling (Friedberg, 1994), can normalise presenting concerns (Cook et al., 2004), and can be tailored to the concerns and interests of the child. In addition, administering story-based techniques does not require highly specialised training (Divinyi, 1995), therefore allowing it to be integrated into other therapeutic contexts with reasonable ease.

Storytelling can be combined with other activities to enhance the intervention experience further, such as games (Kaduson, 1997), puppets (Boultinghouse, 1997; Jacobs, 1997), art (Boultinghouse, 1997; Hadley, 1997), and computers (Brewer, 1997). It can also be used in a group context (Jacobs, 1997; Sinclair, 1997).

The integration of storytelling techniques into various therapies with differing theoretical perspectives has been explored. The current focus will be on storytelling within a cognitive behavioural therapeutic context as both group and individual delivery of this treatment are recommended and considered effective for working with children with anxiety disorders (James,
Soler, & Weatherall, 2005) particularly when provided in a way that is sensitive to developmental needs (Piacentini & Bergman, 2001). The integration of play-based strategies including therapeutic stories into cognitive behavioural therapy is recommended for increasing developmental sensitivity (Shelby & Berk, 2009). In addition to the general benefits previously discussed, there are several specific advantages to using storytelling techniques within a cognitive therapy framework for children. Stories can enliven various aspects of cognitive behavioural therapy (Friedberg & Wilt, 2010), can promote cognitive organisation of presenting concerns, can increase openness towards new ideas, are memorable to clients, are an efficient form of communication that enhances rapport, and can allow identification of aspects of presenting problems in a way that is clear, precise, reduces stigma, and has implications for corrective action (Bergner, 2007).

Blenkiron (2005) states that stories and metaphors within a cognitive behavioural context can make therapy more easily understood. They can be used to allow clients new insight and perspective to consider their concerns, to make abstract ideas more concrete, to assess suitability for cognitive behavioural therapy, to provide some distance for the discussion of sensitive topics, to increase the impact of a message, to teach skills, or to encourage specific outcomes, such as learning facts. In addition, the cognitive therapy model is flexible enough to be able to incorporate such a technique to enrich therapy without compromising the therapy itself (Friedberg, 1994).

Storytelling techniques can be used at various stages of cognitive behavioural therapy. Stories can be used to explore children's thoughts, to identify cognitive distortions, to provide case conceptualisations, or to
challenge unhelpful assumptions (Friedberg, 1994), that is, to assist with cognitive restructuring (Cook et al., 2004). They can also be used to convey new ideas (Divinyi, 1995) and assist with relapse prevention (Frey, 2009). There are many books and stories that can be used in a cognitive behavioural context (see Friedberg & Wilt, 2010 for a comprehensive list) at various stages during psychotherapy.

Although storytelling can be used at various stages of cognitive behavioural therapy, using therapeutic stories to assist with psychoeducation is of particular interest because psychoeducation is considered to be one of the key components of therapeutic work for children with anxiety (Gosch, Flannery-Schroeder, Mauro, & Compton, 2006). Learning emotion recognition has been considered to be a critically important part of psychoeducation in cognitive behavioural therapy for children, as this is required in order for children to be able to learn to manage their emotions (Gosch et al., 2006). In addition, facilitating the development of language children use to describe their emotions is considered an important area for intervention (Knell, 2009). Psychoeducation needs to be provided in a way that is relevant to the child and developmentally appropriate by avoiding jargon and by breaking complex ideas into simpler parts (Piacentini & Bergman, 2001). Storytelling is considered to be an appropriate format for this part of therapy which meets these needs (Piacentini & Bergman, 2001; Shelby & Berk, 2009).

Storytelling has been used in therapeutic contexts with children who are experiencing various presenting concerns. These include specific phobia, depression, grief, behavioural non-compliance, daytime enuresis, ADHD symptoms (Cook et al., 2004), trauma (Gil & Jalazo, 2009), preparing for
surgery (O'Connor, 1997), experiencing parental substance abuse, (Cwiakala & Mordock, 1996), bereavement (Masterman & Reams, 1988), self-esteem concerns, bullying (Frey, 2009), abuse (Cochran, 1997; Frey, 2009), and anger and frustration (Feindler, 2009). Storytelling has been used effectively with children experiencing parental substance abuse (Cwiakala & Mordock, 1996), ADHD (Hansen, Meissler, & Ovens, 2000), anger management (Cook et al., 2004), non-compliance (Painter, Cook, & Silverman, 1999), specific phobia and parental separation (Knell & Dasari, 2009), although there is limited empirical evidence in these areas. Storytelling has also been found to be effective for reducing problematic symptoms (Cook et al., 2004; Hansen et al., 2000; Painter et al., 1999), increasing recall (Cook et al., 2004), adaptive functioning (Painter et al., 1999), and child enjoyment (Cook et al., 2004; Cwiakala & Mordock, 1996). In addition, storytelling has not been associated with any unintended harm or side-effects (Cook et al., 2004). Not only has storytelling been shown to be helpful for children, there are also advantages for parents. Storytelling has been related to parent enjoyment and satisfaction (Cook et al., 2004; Cwiakala & Mordock, 1996; Painter et al., 1999), reduced parent stress, and parent treatment adherence (Painter et al., 1999).

When using storytelling techniques, there are several recommendations for consideration. Stories should be consistent with the content, structure, and process of other therapeutic techniques, so as to avoid interrupting other session material (Friedberg, 1994). Storytelling should also occur in the middle of the session to allow for rapport to be established, for sufficient background information to be discussed prior to the story, and for sufficient processing and any homework tasks following the story (Friedberg,
Friedberg and Wilt (2010) note the importance of being collaborative in enlisting the child’s approval before beginning storytelling. The story itself should contain several characteristics to enhance its effectiveness. The story should be appropriate to the child’s attention level (Cwiakala & Mordock, 1996; Friedberg, 1994) and level of development, such as the child’s vocabulary skills (Cwiakala & Mordock, 1996; Friedberg & Wilt, 2010). It should also match the individual’s circumstances and culture (Friedberg & Wilt, 2010), and should involve materials that are interesting to the child (Cwiakala & Mordock, 1996). In addition, the story character should be similar to the child to allow for normalising of the child’s presenting concerns and to encourage children’s identification with the main character so as to facilitate modelling (Cook et al., 2004).

When using the storytelling technique, clinicians should use concrete terms, repeat therapeutic messages frequently, and correct any misinterpretations or misconceptions to aid understanding (Cwiakala & Mordock, 1996). In addition, discussions should be kept light, even if the content is considered to be serious (Masterman & Reams, 1988). With regard to training and skill level required, Friedberg and Wilt (2010) state that it is important to be proficient in traditional cognitive behavioural procedures before using stories in this manner. It has been emphasised that it is important for clinicians to allow themselves the opportunity to be creative, to engage genuine interest in the story, to enjoy the storytelling process, and to engage their willingness to facilitate therapeutic improvements (Divinyi, 1995).

Therapeutic engagement. Therapeutic engagement is considered to be a key benefit of storytelling techniques (Blenkiron, 2005; Cook et al., 2004;
Friedberg, 1994). Children's level of engagement in therapeutic work can be demonstrated in several ways. These include their initiating discussion, disclosing information about themselves, demonstrating enthusiasm, and demonstrating understanding, by elaborating upon therapist comments (Chu & Kendall, 2004). Similarly, children being withdrawn or non-responsive to the therapist, or children refusing to participate in therapy activities, are indicators of poor engagement. Clinicians need to establish children's engagement in therapeutic work, as children are unlikely to refer themselves for treatment, meaning that their engagement in therapy is less likely to be intrinsic.

Engagement in therapy is important as it both assists children to learn throughout the therapy and discourages their leaving therapy prior to its completion (Campbell, 2007). Of particular importance, child involvement in therapy has been linked to enhanced treatment outcomes for children experiencing anxiety concerns (Chu & Kendall, 2004). More specifically, in a study of children aged between 8 and 14 years, children with higher levels of therapeutic involvement showed lower levels of impairment and were less likely to meet criteria for diagnosis of a primary anxiety disorder following a cognitive behavioural therapy based treatment.

The current study. Overall, previous research has suggested that it is important for clinicians to be aware of children's ability to understand mixed emotions, however there has been limited research conducted in this area. Research conducted with children experiencing emotional and behavioural concerns has identified some differences in these children's mixed emotion understanding when compared with typically developing children. Clinicians and researchers have also explored strategies for improving children's ability
to understand emotions. Storytelling techniques have been identified as a promising strategy for enhancing children's understanding of mixed emotions. Engagement, an important component of therapeutic work with children, is considered to be one of the key benefits of storytelling techniques.

Based on this previous research, there were two key aims of the current study. Firstly, the study sought to conduct a preliminary investigation of mixed emotion understanding in children experiencing anxiety concerns given the dearth of research in this area conducted to date. This exploration was undertaken both before and after children had participated in a psychoeducation module aimed at improving awareness of mixed emotions, and entailed exploring children's understanding of mixed emotions in themselves and others, the reasons why they believed mixed emotions were possible or not, the discomfort they feel in response to these emotions, and the strategies that they describe for managing these emotions. The second aim of the study was to provide an initial exploration of the appropriateness of a story-based psychoeducation module aimed at improving awareness of mixed emotions. More specifically, the study sought to investigate indicators of children's level of engagement with the psychoeducation module and to explore children's perceptions of how memorable, enjoyable, and helpful they found the module to be. These aims were investigated by conducting a story-based psychoeducation module for enhancing mixed emotions in children experiencing anxiety concerns who were involved in the Cool Kids Anxiety Program (School Version) (Rapee et al., 2006), a cognitive behavioural group anxiety program within a school setting.
Overall, this research was designed to be exploratory in nature, however several expectations were identified based on previous research. It was expected that children would demonstrate a good understanding of basic emotions (Saarni et al., 2006), and experience more difficulty understanding mixed emotions than basic emotions (Aaker et al., 2008). Similarly, it was also expected that younger children would experience more difficulty reporting that mixed emotions were possible and providing plausible reasons for their existence than older children, based on previous research (Aldridge & Wood, 1997; Arsenio & Kramer, 1992; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Larsen et al., 2007; Reissland, 1985; Zajdel et al., 2013). It was also expected that the majority of children would experience discomfort associated with mixed emotions, consistent with previous research (Whitesell & Harter, 1989). Specific expectations regarding children's reasons for their beliefs that mixed emotions were possible or not, or the strategies that children describe for managing mixed emotions, were not proposed due to the limited previous research in these areas. These areas of the study therefore remained exploratory. It was also expected that children would find the psychoeducation module to be memorable, helpful, and enjoyable. No expectations were formed regarding the discussion portion of the psychoeducation module, or children's mixed emotion understanding following the psychoeducation module, and these aspects of the study remained exploratory.
Method

Measures. Parents completed a demographic questionnaire to provide demographic information and information on family background such as age, gender, number of siblings, and languages spoken at home (see Appendix A).

Measures of anxiety and emotional concerns were used to identify suitable participants for the study. These were the SDQ (see Appendices B and C) and the Spence Children’s Anxiety Scale – Parent Version (SCAS-P, see Appendix D), both chosen for their strong psychometric properties (Goodman & Scott, 1999; Hawes & Dadds, 2004; Mathai, Anderson, & Bourne, 2002; Mellor, 2005; Nauta et al., 2004). These measures were used to provide greater confidence when making decisions regarding whether a child should participate in the group program. Questionnaires have been described as being useful for identifying children at risk of anxiety difficulties from within a school population (McLoone, Hudson, & Rapee, 2006).

An additional measure of anxiety, the RCMAS-2, was used to supplement parent’s reports of children’s anxiety and emotional concerns by allowing children to complete a self-report measure of their anxiety. This self-report measure was also chosen due to its strong psychometric properties (Reynolds & Richmond, 2009).

SDQ. The SDQ is a screening measure of children’s feelings, interpersonal relationships, and behaviours that is widely used in both clinical and research settings (Vostanis, 2006). It consists of 25 items which form the five subscales of emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviours. The SDQ provides a Total Difficulties score based on the
emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems subscales. Sample items include “many worries or often seems worried” and “often unhappy, depressed or tearful”. The parent-report version of the SDQ was employed in the current study. The SDQ has been shown to have adequate reliability and validity (Goodman & Scott, 1999; Hawes & Dadds, Mathai, et al., 2002; 2004; Mellor, 2005) and Australian norms for the SDQ have been established (Mellor, 2005). Benefits of the SDQ include a dual focus on strengths and difficulties, wide inclusion of areas, brevity, ease of administration (Mathai et al., 2002), and coverage of subjective distress and impairment (Mellor, 2005).

**SCAS-P.** The SCAS-P is a parent-completed questionnaire consisting of 44 items (Nauta et al., 2004). Parents completed a rating scale from 0 (Never) to 3 (Always) on a range of items. Sample items include “my child worries about things” and “my child suddenly starts to tremble or shake when there is no reason for this”. Items can be scored to generate the six subscales of Panic Attack and Agoraphobia, Separation Anxiety Disorder, Social Phobia, Physical Injury Fears, Obsessive Compulsive Disorder, and Generalised Anxiety Disorder. These subscales can also be summed to generate a total score. The SCAS-P is considered to have adequate reliability, divergent validity, and convergent validity, and has been considered useful for both research and clinical purposes (Nauta et al., 2004).

**RCMAS-2.** The RCMAS-2 (Reynolds & Richmond, 2009) was administered to children to assess the level of anxiety they were currently experiencing. The RCMAS-2 is a widely used self-report measure of anxiety for children aged 6-19 which takes 10-15 minutes to administer. Sample items
include “often I feel sick in my stomach” and “I often worry about something bad happening to me”. Children are asked to respond “Yes” or “No”. It is composed of 49 items which generate three anxiety subscales, Physiological Anxiety, Worry, and Social Anxiety, which can be summed to generate the Total Anxiety score ($\alpha = .92$). In addition, the test items include the two validity scales, Defensiveness and the Inconsistent Responding Index. The predecessor of the RCMAS-2, the RCMAS has been shown to have adequate reliability and validity (Perrin & Last, 1992; Reynolds & Richmond, 1978). The second edition of the RCMAS, the RCMAS-2 (Reynolds & Richmond, 2009), has demonstrated a significant relationship with its predecessor and Reynolds and Richmond (2009) advise that research on the RCMAS can be generalised to the RCMAS-2.

**Participants.** Participants were recruited through a public primary school in the Australian Capital Territory. Children aged between 6 and 12 years were selected for inclusion in the research as children less than 6 years of age were not considered to have the language and developmental capacities to participate in the study, and children aged over 12 years were not considered likely to add significant value to the research as previous research has suggested that children are able to recognise opposite-valence mixed emotions by 11-12 years of age (Harter & Buddin, 1987).

The school principal was invited to facilitate the study via written correspondence (see Appendix E). To identify children to participate in the study, information packs about the program were sent home to all parents of the school involved. This contained an information sheet (see Appendix F) to invite parents to nominate their child if experiencing anxiety concerns by
returning a consent form (see Appendix G). An article regarding the study was also placed in the school newsletter. Those who did respond were sent screening measures which included a demographic questionnaire, the SCAS-P, and the SDQ. Parents of 16 children aged 6 to 12 returned consent forms and were sent screening measures. Fifteen parents returned completed screening measures.

Children receiving a T-score of 60 or higher on either the total or a subscale score of the SCAS-P, or a score in the “abnormal” range for emotional symptoms on the SDQ, were invited to participate. All parents were advised whether or not their child would be eligible to participate in the program, and those who were not eligible were offered appropriate referrals. The RCMAS-2 was also administered to children as an additional measure of their anxiety, however no child was excluded from the study on the basis of this measure.

This selection procedure identified nine children aged between 7 and 12 years (boys = 2) which resulted in two groups of children participating in the study, formed on the basis of the children’s ages. Group One had four members between 7 and 8 years of age: A (male, aged 7), B (female, aged 8), and C (female, aged 8). D (female, aged 8) was part of this group, however she was absent on the day of the mixed emotion psychoeducation module. The module was subsequently conducted with D on an individual basis. Group Two had five members between 10 and 12 years of age: AA (female, aged 10), BB (female, aged 10), CC (female, aged 11), and EE (male, aged 10). DD (female, aged 12) was part of this group, however she was also absent on the day of the mixed emotion psychoeducation module.
As with D, this module was subsequently conducted with DD on an individual basis. EE withdrew from the program after completing two sessions. No post-program data was provided by the parents of participant D. No child was taking any current medication and all children spoke English only.

The participants' anxiety and emotional concerns were as follows:

*Characteristics of the participants - SDQ.* Most, but not all, participants were reported by parents to be experiencing borderline or abnormal levels on the measures of total difficulties and emotional symptoms. For an overview of SDQ scores prior to beginning the program and at the completion of the program, see Table 1.
Table 1

Elevated Pre- and Post-Program SDQ, SCAS-P, and RCMAS-2 Scores for Individual Participants

<table>
<thead>
<tr>
<th></th>
<th>A</th>
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<th>C</th>
<th>D</th>
<th>AA</th>
<th>BB</th>
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<td><strong>Strengths and Difficulties Questionnaire (SDQ)</strong></td>
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<tr>
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<td>Abnormal</td>
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<td>Abnormal</td>
<td>Borderline</td>
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<tr>
<td>Emotional Symptoms (Post)</td>
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<td>Borderline</td>
<td>Abnormal</td>
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<td>Total (Pre)</td>
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<td>Total (Post)</td>
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<td>Elevated</td>
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<tr>
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<tr>
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<td>Elevated</td>
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<td><strong>Revised Children’s Manifest Anxiety Scale – Second Edition (RCMAS-2)</strong></td>
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<td>Defensiveness (Pre)</td>
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<td>Extremely</td>
<td>Problematic</td>
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<tr>
<td>Defensiveness (Post)</td>
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<td>Moderately</td>
<td>Extremely</td>
<td>Problematic</td>
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<td>Inconsistent Responding (Pre)</td>
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<td>Inconsistent Responding (Post)</td>
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<td>N/A</td>
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</table>
Characteristics of the participants - SCAS-P. Most, but not all, participants were reported by parents to be experiencing elevated levels of anxiety on the measure of total anxiety and on several subscales. Elevated levels of anxiety were determined by scores that were 1 or more SDs higher than the norm for similarly aged children. For an overview of SCAS-P scores at the beginning and end of the program, see Table 1.

Characteristics of the participants - RCMAS-2. On the initial administration of the total anxiety scale, only three children reported problematic levels of anxiety. On the final administration of the total anxiety scale, only one child reported problematic levels of anxiety. The validity scales of the RCMAS-2 were considered. On the initial administration of the Defensiveness scale, two scores were considered problematic. On the final administration, one was considered problematic. This indicated a potential threat to the validity of protocols for one participant on both measures and for another participant on the first administration only. No validity issues were identified by the Inconsistent Responding scale for any child on either administration of the RCMAS-2. For an overview of RCMAS-2 scores at the beginning and end of the program, see Table 1.

Materials. Materials used in the current study consisted of the Cool Kids Anxiety Program (School Version) (Rapee et al., 2006) which provided the context for the exploratory study, structured interviews conducted with each child, and a parent feedback measure.

Cool Kids Anxiety Program. The Cool Kids Anxiety Program (School Version) (Rapee et al., 2006) was the context for the current exploration. The Cool Kids Anxiety Program, of which there are several versions, was
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designed for use with small groups of children identified to have anxiety concerns (McLoone et al., 2006). It is based on cognitive behavioural therapy principles, and has been shown to effectively reduce anxiety and treat anxiety disorders in children (Barrett, 1998; Rapee, 2000). The school version of the program has been shown to be effective in reducing anxiety in economically disadvantaged populations (Mifsud & Rapee, 2005).

The program involves 10 hourly sessions held weekly during school hours, and consists of modules focused on psychoeducation, cognitive restructuring, child management strategies, graded exposure, social skills, teasing, and assertiveness (McLoone et al., 2006). Parent-clinician meetings are also held at the start and midpoint of the program to promote parental involvement, to explain to parents how they can facilitate their child's learning process, to motivate home practice, and to open communication between the clinician and the parents.

**Structured interview.** Two interviews were conducted with children. The first was the Emotion Understanding Interview, which assessed the quality of children's understanding of basic and mixed emotions. It involved the following questions:

*Can you tell me a time when you felt happy?*

*Can you tell me a time when you felt sad?*

*Can you tell me a time when you felt loving?*

*Can you tell me a time when you felt scared?*

*Can you tell me a time when you felt angry?*

*Have you ever felt happy and sad at the same time?*
Is it possible to feel happy and sad at the same time?
(if yes) How is it possible?
(if an example is not spontaneously given, or the explanation is unclear) Can you tell me an example where someone could feel happy and sad at the same time?
(If no) How come it is not possible?

Have you ever felt happy and scared at the same time?
Is it possible to feel happy and scared at the same time?
(if yes) How is it possible?
(if an example is not spontaneously given, or the explanation is unclear) Can you tell me an example where someone could feel happy and scared at the same time?
(If no) How come it is not possible?

Have you ever felt happy and angry at the same time?
Is it possible to feel happy and angry at the same time?
(if yes) How is it possible?
(if an example is not spontaneously given, or the explanation is unclear) Can you tell me an example where someone could feel happy and angry at the same time?
(If no) How come it is not possible?

Have you ever felt loving and sad at the same time?
Is it possible to feel loving and sad at the same time?
Have you ever felt loving and scared at the same time?
Is it possible to feel loving and scared at the same time?
(if yes) How is it possible?
(if an example is not spontaneously given, or the explanation is unclear) Can you tell me an example where someone could feel loving and scared at the same time?
(If no) How come it is not possible?

Have you ever felt loving and angry at the same time?
Is it possible to feel loving and angry at the same time?
(if yes) How is it possible?
(if an example is not spontaneously given, or the explanation is unclear) Can you tell me an example where someone could feel loving and angry at the same time?
(If no) How come it is not possible?

The second interview was a Feedback Interview which consisted of both general and specific feedback components. The general component of this interview was included to gain a general overview of children's perceptions about the program as a whole. It asked the following questions:
In general, did you like the Cool Kids Program or not really like it?

What did you like about the Cool Kids Program?

What didn’t you like so much about the Cool Kids Program?

Which part of the Cool Kids Program did you find the most helpful?

Which part of the Cool Kids Program did you find not so helpful?

Can you think of any way that the program could have been made better?

Do you have any questions about the program?

What would you say to other children thinking about doing this program?

Do you have any other comments?

The specific component of the Feedback Interview was included to gain feedback about how much children enjoyed the emotion understanding modules and how helpful they thought these modules had been. Although the emotion understanding components were the focus, questions were asked about all sections of the program to reduce any bias associated with asking children solely about specific components. A check on children’s memory for each component was included with children being shown the relevant sections as they were being discussed. This component of the Feedback Interview included the following questions for each component of the program:

Do you remember the bit of the program where (brief description of section)?

Did you like that bit or not really like that bit?

(if positive response) Why did you like it?

(if negative response) Why did you not really like it?

Did you find that bit helpful or not really helpful?

(if positive response) How did you find it helpful?

(if negative response) Why do you think it might not have been so helpful?
Any other thoughts about the (title of section) part?

**Parent Feedback Questionnaire.** Parents were also provided with an open-ended feedback form designed to enable them to provide their own thoughts and comments regarding the program (see Appendix H). The questionnaire states “Thank you for participating in the Cool Kids Child Anxiety Program. If you have any comments or suggestions regarding the program, please write these in the space below.” It includes space for parents to write their child’s name and any comments or suggestions that they may have regarding the program.

**Procedure.** The study was approved by both the Australian National University Human Research Ethics Committee and the ACT Government Department of Education and Training. Written consent was obtained from the principal of the invited school and from parents after they were provided with an information sheet. Verbal consent was also obtained from each child for participation in each component of the study.

Confidentiality was enhanced by storing physical data in a locked filing cabinet and storing electronic files on password protected computers. Participant privacy was also enhanced by interviewing children and parents alone and providing parents with envelopes marked confidential for the return of questionnaires and consent forms. The research presented was de-identified to promote confidentiality. As the study involved a small group of participants and therefore an increased risk of identification, anonymity was further enhanced by removing information from the thesis that was not considered relevant to the findings or conclusions.
Before beginning the program, the children were interviewed by the researcher in order to better understand their anxieties and concerns. All interviews and interventions were conducted in the child's school for the convenience of the children and their families. During the interview, the children first completed the RCMAS-2. Secondly, they were asked to complete the Emotion Understanding interview. Children were then asked generally about their anxieties and fears in order to understand each child's particular difficulties with anxiety. Next, they were provided with information about what their participation in the program would involve and were invited to participate. Following the interview with the child, parents were invited to attend an optional interview with the researcher, which could be conducted over the phone or in person at their child's school. Six parents completed face-to-face interviews, one completed a phone interview, and two parents did not complete an interview.

Children participated in 10 sessions of the Cool Kids Anxiety Program. These were conducted by the researcher at the children's school according to procedures outlined in the Cool Kids Child & Adolescent Anxiety Program Therapist Manual (School Version) (Rapee et al., 2006). Children were grouped on the basis of age to enable the researcher to better tailor the program to the developmental levels of the children. All children received a copy of the Cool Kids Child Program Children's Workbook (Lyneham, Abbott, Wignall, & Rapee, 2003) which contained activities related to the program content and which children brought with them to the sessions. Each parent received a copy of the Parent's Workbook (Lyneham, Abbott, Wignall, & Rapee, 2003) which was designed to provide parents with information about
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the program and its activities. Children who were unable to attend one of the
group sessions attended an individual session with the researcher to cover
any missed material.

An additional storytelling mixed emotion psychoeducation module
aimed at enhancing children’s mixed emotion understanding was incorporated
into the first session of the program. The module required between
approximately 5 and 10 minutes to be completed, and no part of the first
session of the program was removed to accommodate this additional module.
The procedure for the module was the same for both group and individual
sessions to enhance consistency. The module used the story book Double-
Dip Feelings: Stories to Help Children Understand Emotions (Second Edition)
which was written by Barbara Cain (2010) and illustrated by Anne Patterson.
The researcher first read the story aloud to children as a group, or individually
to children who were unable to attend the group sessions. Before beginning
the module, a rationale for the module was provided to children by using the
following explanation: “We know that there are lots of different feelings and
that people have feelings at different times. Sometimes people have two at
the very same time. I would like to read a story about having two different
feelings at the same time”. Throughout the story, the researcher reflected
back children’s responses to the story to facilitate these responses. The
module was conducted directly after a section of the program designed to
provide psychoeducation to children about basic emotions and was
considered to be part of the psychoeducation phase of therapy. This story,
and the discussion of the story with the children which followed, was added to
enhance children’s understanding of emotions by exploring more complex emotions such as the experience of having two emotions simultaneously.

The story followed four child characters – Kevin, Amy, Katie, and Daniel – experiencing mixed emotions across a variety of situations. These situations were accompanied by illustrations to further explain these experiences. Emotion words, and words emphasising the experiencing of two emotions simultaneously such as “both” and “and”, were also written in capitals which emphasised their importance and aided clarity. The story also encouraged interaction as it posed six questions throughout for children to consider. These questions tied closely to the content of the individual situations, and time was taken for the children to discuss the answers to these questions as a group. The questions included in the story were:

Did you ever have two different feelings at the very same time?
Did you ever feel both silly and mad at the very same time?
Did you ever feel both happy and sad at the very same time?
Did you ever feel both brave and afraid at the very same time?
Did you ever feel both mean and friendly at the very same time?
Did you ever feel both embarrassed and excited at the very same time?

Importantly, the situations focused on the simultaneous experience of different emotions of opposite valence, rather than the experience of single emotions or simultaneous emotions of a similar valence. The story was selected because an understanding of these combinations had been shown in previous literature to be a greater developmental challenge for children (Harter & Buddin, 1987). Specifically the book looked at the combinations of feelings of happy and sad, playful and mad, proud and scared, joyful and sad,
silly and mad, brave and afraid, mean and friendly, thrilled and worried, hated and loved, glad and sorry, embarrassed and excited, envious and glad, and friendly and mad. The reasons for the characters experiencing these mixed emotions were varied and involved situations involving parents, siblings, peers, and pets as well as situations such as the first day of school, the birth of a sibling, moving home, and being sick.

This module followed several important guidelines for using storybook techniques in therapy. The story was consistent with the other therapeutic techniques in terms of content and structure and so did not interrupt the natural flow of the session. It was also conducted in the middle of the session so that rapport and background information could be established and time was left for children to process the story (Friedberg, 1994). Children were told that they would be read a story and all children were able to choose whether they would like to participate in the story to assist with this being a collaborative technique (Friedberg & Wilt, 2010).

The story was considered appropriate to the children’s attention level, as the children were able to maintain adequate levels of attention throughout the duration of the module (Cwiakala & Mordock, 1996; Friedberg, 1994). Although it was considered to match the children’s level of development, in its group format, the story was not tailored to individuals’ circumstances (Cwiakala & Mordock, 1996; Friedberg & Wilt, 2010). However, children of various cultural backgrounds were used throughout the story and the characters and story were considered to be of interest to the children (Cwiakala & Mordock, 1996). By having various story characters, this allowed for a greater chance that each child could identify with one of the characters,
to assist with normalising the experience of mixed emotions (Cook et al., 2004).

The book used concrete terms and repeated therapeutic messages frequently (Cwiakala & Mordock, 1996). Extra information was also provided by the researcher where necessary to aid understanding and to correct any misunderstandings. The discussion following the delivery of the book was kept light and natural (Masterman & Reams, 1988). The researcher was sufficiently trained in cognitive behavioural procedures before delivering the module (Friedberg & Wilt, 2010). Consistent with recommendations made by Thienemann and Hamilton (2007), the researcher attended a workshop run by an experienced clinician involved in the program, chose options from the program manual that were most applicable to the clients and the context, and discussed the sessions with an experienced clinician throughout the program. In addition, treatment outcomes were measured and feedback was sought from both children and their families.

The discussion portion of the module directly followed the researcher reading the story to the children and consisted of the researcher asking the children the following four questions:

*Has anyone/Have you ever felt two feelings at the same time?*

*What was it like?*

*Did you like it or not like it?*

*How were you able to handle having two feelings at the same time?*

The researcher allowed time for discussion between each question. When the module was provided in an individual context, this discussion was between the researcher and the child, however when the module was
provided in a group context, interaction between all group members was encouraged and facilitated by the researcher. In both settings, reflections were used throughout the discussion when considered to be clinically appropriate to validate children's experiences and encourage discussion. In addition, reassurance was provided that negative responses were also acceptable.

After the program had been completed, children were interviewed again. Children were first given the Feedback Interview. Next, they completed the RCMAS-2 and the Emotion Understanding Interview. Parents were sent a series of follow-up questionnaires, which included the SCAS-P, the SDQ, and an open-ended feedback questionnaire.

All individual and group sessions with the children were recorded using a digital audio recording device (Sony Stereo IC Recorder – ICD-UX71F).

Results

Transcribing and coding. All of the information from the additional module, the Emotion Understanding Interviews, and the Feedback Interview was transcribed verbatim. Each transcribed interview was then individually entered into a database in order to compile the child response data in a manner that could then be investigated by question, rather than by case, to ensure greater accuracy and consistency in analysis.

Mixed emotion understanding.

Basic emotion understanding. Children were asked to describe a time when they felt each of five basic emotions to determine whether basic emotional understanding was in place. Consistent with expectations, most children were able to provide an example of each emotion. The mean number
of basic emotions understood was 4.63 (SD = 0.74) in the first interview and 4.38 (SD = 0.92) in the final interview. In the initial interview, all children were able to provide an example of feeling happy, loving, and scared, one child (B) was unable to provide an example of feeling sad, and two children (A and B) were unable to provide an example of feeling angry. In the final interview, all children were able to provide an example of feeling happy and loving, two children (A and AA) were unable to provide an example of feeling sad, one child (B) was unable to provide an example of feeling scared, and two children (B and AA) were unable to provide an example of feeling angry. Between interviews, seven children overall (A, B, C, D, BB, CC, and DD) demonstrated no change in the number of basic emotions reported and one child demonstrated a decrease (AA). For an examination of each child's change in scores, see Table 2.
### Table 2

Changes in Children’s Understanding of Basic Emotions between Interviews

<table>
<thead>
<tr>
<th>Participant</th>
<th>Gender</th>
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* The "+" identifies children who were able to provide an example of the emotion for each measure, whereas the "-" identifies children who were unable to provide an example of the emotion for each measure.
Children's reports of their own experience of mixed emotions before and after the psychoeducation module. Consistent with expectations, children had more difficulty recalling mixed emotions than basic emotions. Out of a total of six possible combinations, the mean number of mixed emotion experiences reported in the initial interview was 2.88 (SD = 1.96) and in the final interview was 2.88 (SD = 2.03). At the initial interview, the maximum number of children that reported that they had experienced a mixed emotion for any one of the combinations of emotions was five. At the second interview, the maximum number of children that reported that they had experienced a mixed emotion for any of the combinations of emotions was six. Children appeared to have particular difficulty with the combinations of happy and angry, and loving and angry, at both interviews. Overall, there was little change in children's reports of their own mixed emotions between interviews, with four children (C, BB, CC, and DD) showing no change in their total reported mixed emotion experiences. There was an increase in the total numbers of reported mixed emotion experience for two children (B and D) and a reduction in this for two children (A and AA). A summary of the changes in children’s reports of their own mixed emotions between interviews is presented in Table 3.
Table 3

Changes in Children’s Own Experiences of Mixed Emotions between Interviews

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Gender</th>
<th>Happy-Angry</th>
<th>Happy-Sad</th>
<th>Happy-Scared</th>
<th>Loving-Angry</th>
<th>Loving-Sad</th>
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* The “+” identifies children who were able to report an experience of the mixed emotion for each measure, whereas the “-” identifies children who were unable to report an experience of the mixed emotion for each measure.
Mixed emotion understanding before and after the psychoeducation module. Children were more likely to report that mixed emotions were possible and to be able to provide a reason for this, than they were to report that they had experienced mixed emotions themselves. Out of a total of six possible combinations, the mean number of mixed emotions believed to be possible in the initial interview was 4.50 (SD = 1.93) and in the final interview was 5.00 (SD = 1.41). The mean number of mixed emotions for which children were able to provide a plausible reason in the initial interview was 4.00 (SD = 2.33) and in the final interview was 3.88 (SD = 1.73). At both interviews, at least five children reported that the mixed emotion was possible for any one of the combinations of emotions. Children's beliefs regarding the possible existence of particular emotion combinations are presented in Table 4. Similarly, more children were able to provide a plausible reason for a mixed emotion experience than they were to believe that they had experienced the mixed emotion themselves. Children's ability to provide a plausible reason for each particular emotion combination is presented in Table 5. Overall, there was little change in children's understanding of mixed emotions between interviews.

Looking at individual children, it appears that two children in particular experienced a notable difference in their reports of mixed emotion understanding across the two interviews. Both of these children were 8 years of age and thus in the younger age group. B reported that one mixed emotion was possible in the initial interview, however reported that all mixed emotions were possible in the final interview. B was also able to provide plausible reasons for five of these mixed emotions in the final interview whereas in the
initial interview she was unable to provide plausible reasons for any mixed emotions. While a small change when considered in isolation, B also experienced a change from not being able to report any mixed emotion experiences to being able to report two of her own mixed emotion experiences. Although not as dramatic a change, D also reported that two mixed emotions were possible in the initial interview, however reported that four mixed emotions were possible in the final interview. There was a corresponding increase in D's ability to provide plausible reasons for the mixed emotions from two to four mixed emotions. Similarly, although a small change when considered in isolation, D was able to recall three experiences of mixed emotions in the final interview, whereas she was able to identify two of these experiences in the first interview. The other two children in the younger age group demonstrated less consistent patterns of responding.

Considering the older age group, three children (AA, BB, and DD) reported believing that all six mixed emotions were possible at both the initial and final interviews. CC reported that there were five mixed emotions possible at the initial interview, however felt that only three were possible at the final interview. In the initial interview, all children in the older group were able to provide reasons for the mixed emotions that they thought possible. In the final interview, however, only the oldest child (DD) was able to provide reasons for all of the mixed emotions that she thought possible. All other children were less able to provide plausible reasons for the mixed emotions in varying degrees. This corresponded with little change in older children's reports of their own mixed emotions.
Table 4:

Changes in Children's Beliefs about the Possibility of Mixed Emotions between Interviews

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Gender</th>
<th>Mixed Emotions – Possible</th>
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<tr>
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</table>

* The "+" identifies children who reported that the mixed emotion was possible for each measure, whereas the "-" identifies children who reported that the mixed emotion was not possible for each measure.
Table 5.
Changes in Children’s Ability to Provide Plausible Reasons for Mixed Emotions between Interviews

<table>
<thead>
<tr>
<th>Participant</th>
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<th>Mixed Emotions – Reason</th>
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<td>5 7</td>
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* The "+" identifies children who were able to provide a plausible reason for the mixed emotion for each measure, whereas the "+" identifies children who were unable to provide a plausible reason for the mixed emotion for each measure.
Reasons children provided for beliefs that emotion combinations were not possible. Across the interviews conducted both prior to and following the psychoeducation module, children provided several reasons for their beliefs that some emotion combinations were not possible. These included those that indicated that children believed that the emotions were mutually exclusive, such as that when you experience one emotion you cannot experience the other, or that the emotions were opposites. For example, D stated that she couldn’t feel both happy and angry “because if you’re angry then you can’t get happy and if you’re happy then you can’t get angry so it’s not possible” and CC stated that it is impossible to feel both happy and scared “because if you’re happy then you’re usually not scared cause, it’s usually, happy is usually the opposite of scared”. In addition, CC provided reasons that indicated that the mixed emotions were not possible due to the cognitive demands of negative emotions, such as that it is difficult to think of a positive emotion when experiencing a negative emotion and that focusing inwardly when experiencing negative emotions makes it difficult to simultaneously experience a positive emotion. For example CC stated that it was not possible to feel simultaneously loving and angry “cause if you’re angry you usually don’t love anybody at the time you don’t think about the happy thoughts”. She also stated that it was impossible to feel both loving and sad “cause most people when they’re sad they are all about themselves these days so they can’t be loving to anybody cause they’re only thinking about themselves”. In addition, several children were unable to articulate reasons for their belief that it is impossible to experience mixed emotions (A, B, C, and D).
Experiences of mixed emotions that children reported during the psychoeducation module. During the discussion component of the psychoeducation module, children were asked whether they had experienced two feelings at the same time.

For those who completed the module individually, D reported that she had experienced two feelings at the same time, scared and happy. DD reported that she had felt happy and sad when a sibling was in hospital because she was happy and hopeful that her sibling was going to get better and sad because she was in hospital.

As a whole, Group One reported that they had experienced two feelings at the same time and the researcher enquired further about a time when they had each had this experience. C noted that she felt loving and angry when her sibling annoyed her as her sibling had told her that she didn’t love her but C knew that inside she really did. C also reported feeling excited and nervous and, upon questioning, explained that this was when she made a poster that she had to read in front of the class as she was excited that it was finished but was nervous about reading it in front of the class. B stated that she had felt nervous and happy at a talent quest. A noted that he had experienced two emotions simultaneously but could not think of a particular example of this experience.

Group Two all indicated that they had experienced mixed emotions and all children described an experience of the death of a grandparent when asked to describe a time when they had experienced mixed emotions. EE reported that he had felt mixed emotions when his grandmother had died, and that just before this happened she had made him a present. He stated that he
was sad that she had died but happy that she was going to “live over again”. CC and BB both noted a similar experience when their grandparent died in that they were very upset at the loss but happy that their grandparent would not be in pain anymore. AA reported feeling the same as CC and BB with the death of a grandparent but noted that she felt loving as well. At this point EE started nodding, and the researcher enquired whether EE felt loving as well.

When children were asked what it was like to have two feelings at the same time during the discussion component of the psychoeducation module, D described the mixed emotion experience of scared and happy as really embarrassing. She described the situation of going to a new school and feeling happy, scared, and embarrassed. DD reported that if it were two negative emotions like worried and sad then it was a bit hard, but if it was a positive and a negative emotion like happy and sad, then the presence of some happiness was positive as this means that there is not complete worry or sadness. The researcher queried whether feeling two negative emotions was worse than one emotion and whether a negative and a positive emotion was better than one emotion and DD confirmed this.

When Group One was asked, A and B both reported that they could not remember what it was like. C explained that it doesn’t feel very good to be angry and sad but that it feels pretty good when you’re happy and excited. The researcher specifically asked about how it felt when there was a positive and negative feeling at the same time, such as loving and angry, as C had previously described an example with these two feelings. C’s response shows how difficult it was for children in the younger group to describe their experiences of mixed emotions. She stated “Umm, well, feeling angry it’s not
that good cause really it, it's not them who was annoying you when you get angry at them, it's just you annoying them cause they don't want you to get angry, they just didn’t mean to do whatever they needed to”. The researcher queried whether it was the angry part of the feeling she didn’t like, and she clarified that this was the case.

When Group Two were asked, CC explained that it felt weird. BB reported that it was kind of hard because she didn’t really know which one to follow. EE reported that he felt embarrassed because he didn’t know what to do. AA agreed with other statements made.

Children's reported discomfort associated with mixed emotion experience. During the discussion, children were asked specifically whether they liked having two different feelings at the same time. Consistent with expectations, most children reported experiencing at least some discomfort associated with experiencing mixed emotions. Overall, three children reported liking mixed emotion experience (C, AA, and EE), two children disliked mixed emotion experience (D and CC), and four reported both liking and disliking mixed emotion experience (A, B, BB, and DD).

D and DD both responded that they did not like this experience. After further exploration, DD explained that having one feeling meant that you only concentrated on that feeling. However she noted that if you have two feelings like sad and worried that at least it isn’t one feeling, and if there are two feelings like happy and sad, then you are glad for the happy feeling as well as feeling sad. The researcher clarified that when there were feelings of different valence, then she liked having those feelings due to the positive feeling being
present, and with two negative feelings it is better than one feeling because there are two things to think about. DD confirmed that this was correct.

When Group One was asked this question, A reported that he would both like and dislike it. B then responded with maybe, and A clarified that it depends on what type of mixed emotion it is. B then noted that her response was the same as A's response, that she would both like and dislike it. C reported that she liked it. She had difficulties articulating her answer when asked why she liked it, however she explained that excitement is such a good feeling and that anger doesn't really register. When the researcher queried whether it was because some feelings, such as the good ones, take over more, she confirmed that this was the case.

When Group Two was asked this question, AA reported that she sort of liked it because although there is something bad, there is also still the presence of happiness. EE agreed with AA and explained this in the context of his experience of his grandmother dying. The researcher reflected that he liked having both, and that the presence of a good feeling helped, and EE agreed with this. However, BB reported that it was in between because she didn't know which one to follow and this left her confused. CC reported not liking it because of the length of her grandmother's illness and the limited time she was able to spend with her before the presence of this illness. She described her continued sadness and difficulties in relation to this.

**Children's reported coping strategies for managing mixed emotions.** During the discussion component of the psychoeducation module, children were asked how they were able to manage having two different feelings at the same time. Overall, children in the younger age group were
less able to articulate an answer to this question, as A, B, and D all reported that they were unsure. DD explained that she just wanted to be happy rather than feeling happy and sad so tried to think of fun things to eliminate the sad feelings. In Group One, C reported withdrawing from her sibling by going into her room, trying to calm down, and then going back out. Upon further exploration, she stated that she calmed down by reading a book, drawing, or watching a DVD. She also clarified that when she went out she apologised to her sibling to resolve the situation. In Group Two, BB reported forgetting about it and trying to either read a book or to watch something that would take her mind off it. EE nodded in response to this, and upon further exploration, EE also noted that he tried forgetting about it and pretended that it never happened. CC then explained that she went to someone like the researcher, presumably a counsellor or mental health professional, and did some drawing on issues relating to her grandmother. AA reported feeling the same as BB.

**Appropriateness of the mixed emotion psychoeducation module.**

Across all of the modules, a mean of 7.19 (SD = 1.38) children remembered the modules, a mean of 6.50 (SD = 1.03) children liked the modules, and a mean of 6.31 (1.30) children found the modules helpful. For the basic emotion understanding module, 8 children remembered the module, 7 children liked the module, and 5 children found it helpful. For the mixed emotion understanding module, 5 children remembered the module, 6 children liked the module, and 5 children found it helpful.

**Children’s memory of the modules.** All children reported remembering the module regarding understanding basic emotions. When asked whether they remembered the module focused on understanding mixed
emotions, five children remembered (B, C, BB, CC, and DD), one did not remember (D), and two reported partial recollection (A and AA). This was partially inconsistent with expectations, as it was not expected that a significant minority of the children would experience difficulties remembering the module.

Children's perceptions regarding how enjoyable they found the modules. Children were asked whether they liked or did not really like the program, to which all children reported that they liked it. When asked what they liked and disliked about the program, the mixed emotion psychoeducation module was not identified.

When children were asked whether they liked or not really liked the understanding basic emotions module, seven children (A, B, C, D, AA, BB, and DD) liked it and one (CC) did not really like it. When asked why they liked it, two children commented on the humorous nature of the pictures (A and B), one liked it because it helped them (C), one liked it because you could give emotions a rating (D), one liked it because it was fun (AA), and two children liked that they learned something (BB and DD), with one child liking it because they learnt different emotions and how people felt (BB) and the other liking it because it taught them different feelings people can have (DD). One child did not really like it because she felt she knew about feelings due to a parent's profession (CC).

Consistent with expectations, most children reported liking the understanding mixed emotions module. When asked whether they liked or did not really like the understanding mixed emotions module, six children responded positively (A, B, C, AA, CC, and DD) and two responded
negatively (D and BB). Children were then asked why they liked or not really liked it. Two children were unsure why they liked it (A and C), three liked it because they learnt about feelings (B, AA, and DD), and one liked the format of the section (CC). More specifically, one liked it because it informed that people can have two different feelings at the same time (B), noting an example of this, one liked it because she got to understand what other people feel (AA), one liked it because she got to listen to a book (CC), and another liked it because she got to learn that a lot of people have two feelings at once and noted an example of this (DD). One did not like it because she claimed that she was not present (D) and the other was unsure why she didn’t like it (BB).

Children’s perceptions regarding how helpful they found the modules. Children were also asked which part of the program they found most and least helpful. In neither case was the mixed emotion psychoeducation module identified. They were also asked whether there was any way that the program could have been made better, and any suggestions that were provided did not involve the mixed emotion module.

When asked what they would say to other children considering the program, seven of the eight children indicated that they would recommend the program to others. The remaining child (A) was unsure of his answer to this question. Children were also invited to provide additional comments. Of the two children that provided comments, neither mentioned the mixed emotion psychoeducation module.

Six children found the understanding basic emotions module helpful (A, B, C, AA, BB, and DD), five because they learnt about feelings (A, B, AA, BB,
and DD). The sixth child was unsure (C). One child found it not really helpful (D) but could not give the reason. One child felt that it would be helpful for others but not herself (CC) because she already knew about basic emotions and found the module easy, however she felt it would be helpful for others who knew less about different feelings. When asked whether there were any other thoughts for this section, two commented on the benefits of this section (D and DD), namely that it is good for teaching about feelings (D) and that it was fun to learn about (DD).

Consistent with expectations, most children reported finding the understanding mixed emotions module helpful. Five children found the understanding mixed emotions module helpful (A, B, AA, CC, and DD). Four found learning about feelings helpful (B, AA, CC, and DD) with one child (DD) additionally reporting that it helped her to deal with her feelings as well. One child specifically felt that it was because she previously didn’t know that you could have two different feelings at once as she thought it was called something different (CC) and one felt it was because she used to wonder why one minute she felt happy and then one minute she felt sad, and that it helped her to deal with this by doing all the activities in the book and also knowing that other people have two feelings as well (DD). The other child could not remember how he found it helpful (A). Two children found it not really helpful (C and BB) however were unsure why, and one child was not asked due to her inability to remember this section (D). When asked whether children had any other thoughts on the module, only one child (DD) had additional thoughts, and noted that reading the book was fun.
Children’s engagement with the mixed emotion psychoeducation module. Engagement in therapeutic work can be demonstrated by children initiating discussion, disclosing information about themselves, demonstrating enthusiasm, and demonstrating understanding, by elaborating upon therapist comments (Chu & Kendall, 2004). Engagement also includes the absence of children being withdrawn or non-responsive to the therapist, or children refusing to participate in therapy activities.

Consistent with expectations, children engaged well with the mixed emotion psychoeducation module. While, all children seemed pleased by the idea of listening to a story, Group One responded particularly positively to this idea. All children appeared to engage well with the story. This was evidenced by children laughing, making spontaneous comments, responding to questions, and asking questions for clarification. In response to the questions asked throughout the story, all children spontaneously interacted and shared their own experiences, an experience similar to previous descriptions when using story-based techniques (Cwiakala & Mordock, 1996).

Importantly, none of the children appeared withdrawn or failed to respond throughout the module. No child refused to participate in either the story itself or the discussion that followed the story.

Children laughed at several points throughout the story, indicating their engagement. This occurred amongst members of Group One, after discussing an example of Katie having chicken pox and hating the itchy spots but loving being cosy with her dog in bed and after discussing an example of a character on his first day at school. This also occurred prior to children being asked whether they had felt both brave and afraid at the same time.
Children responded verbally and non-verbally to all questions posed throughout the story. They were able to indicate whether or not they had experienced a particular emotion combination which demonstrated that they had reflected on the issue following them listening to a story involving mixed emotions. Responses ranged from single words to, in one case, a more elaborate example of a time where the question applied to one of the children's lives.

Spontaneous comments were also demonstrated throughout the module. For instance, after discussing an example of a character on his first day of school, D recalled an example similar to this when she first came to school. The researcher allowed the child space to tell this story and emphasised that they would also be discussing experiences after the story had finished.

Engagement was also demonstrated by a child asking questions throughout the story. An example of this is that during the story involving one of the character’s first day at school, C did not understand this example. As a result, time was taken by the researcher to explain how this could occur. C indicated understanding by elaborating further on potential reasons for the mixed feelings in this example.

Discussion

The two main aims of the present study were to conduct a preliminary investigation of mixed emotion understanding in children experiencing anxiety concerns (including their understanding of mixed emotions; their reasons for their beliefs regarding mixed emotions; their discomfort associated with mixed emotions; and the strategies they describe for managing these emotions) and
to investigate the appropriateness of a story-based psychoeducation module aimed at improving children's awareness of mixed emotions (including indicators of children's level of engagement in the module and their perceptions of how memorable, enjoyable, and helpful they found the module to be). Participants were children experiencing anxiety concerns. A story-based psychoeducation module for enhancing mixed emotions was used that formed part of the Cool Kids Anxiety Program (School Version) (Rapee et al., 2006), a cognitive behavioural group anxiety program conducted in a school setting.

**Mixed emotion understanding.**

**Basic emotion understanding.** Consistent with expectations based on previous research (Saarni et al., 2006), all children demonstrated a good level of basic emotion understanding. Although there was little change in children's responses across the two interviews, some unexpectedly demonstrated less understanding of some basic emotions in the final interview compared with the initial interview. One explanation for this is that the final emotion understanding interview was conducted following the feedback interview and the completion of the RCMAS-2 towards the end of the school year. It is therefore likely that children were experiencing fatigue and were therefore less able and motivated to think of examples of feeling various basic emotions.

*Children's reports of their own experience of mixed emotions before and after the psychoeducation module.* Children appeared to have more difficulty reporting their experiences of mixed than basic emotions, consistent with expectations and previous research (Aaker et al., 2008).
Anxious children apparently find recalling their own experiences of mixed emotions more difficult than recalling their own experiences of basic emotions. Children appeared to have particular difficulty with the combinations of happy and angry, and loving and angry, at both interviews. This is inconsistent with Harter and Buddin’s (1987) research that has identified that the combination happy and scared is reported far less often than the combinations happy and angry, or happy and sad. This finding is also inconsistent with theoretical models proposed by Russell and Carroll (1999) and Watson and Tellegen (1985), which suggest that if mixed emotions were to occur, that happiness and sadness would be the least likely combination of emotions to occur due to these emotions being opposite poles of a single dimension. However, it is difficult to reach any general conclusions from these inconsistencies due to the small sample size.

There was little change in the overall amount of children reporting their own experiences of specific mixed emotions after completing the storytelling psychoeducation module on mixed emotions. Although change is difficult to assess in the current context, due to the highly exploratory nature of the current study, small sample size, and the absence of a control group, this preliminary outcome suggests that participation in a story-based mixed emotion psychoeducation module is unlikely to be associated with changes in children’s ability to report their own mixed emotions.

*Mixed emotion understanding before and after the psychoeducation module.* Consistent with expectations, children were more likely to report that mixed emotions were possible than to provide a reason for this, and they were even less likely to report that they had experienced mixed
emotions themselves. Also consistent with expectations and previous research, younger children appeared to experience more difficulties with mixed emotions than older children (e.g. Harter & Buddin, 1987).

Overall, there was little change in children's understanding of mixed emotions between interviews. As with children's reports of their own experiences of mixed emotions, this preliminary outcome would initially suggest that participation in a story-based mixed emotion psychoeducation module is unlikely to lead to noteworthy changes in children's mixed emotion understanding. However, as described above, change is difficult to assess in the current study due to its highly exploratory nature, small sample size, and the absence of a control group.

It appears that the module is less likely to lead to change in older children. Children in the older age group demonstrated a strong understanding of mixed emotions prior to the psychoeducation module, with all believing that at least five mixed emotions were possible, and most believing that all of the emotion combinations were possible. As such, there was likely a ceiling effect that could have precluded the possibility of inducing further improvements. The most notable change for the older children was that three of these four children were less able to provide plausible reasons for mixed emotion understanding during the final interview. Given their strong initial mixed emotion understanding, the most likely explanation for this was that children were experiencing fatigue.

It appears more likely that the module was associated with change for younger children, as two of the four children in the younger age group did demonstrate some change in their understanding of mixed emotions. There
are several alternative explanations for this change. One explanation is maturation, as three months passed between the interviews. Another explanation is that the children felt more comfortable with the researcher at the final interview compared with the initial interview, however this does not explain the greater change in some children's mixed emotion understanding compared with their reports of their own mixed emotion experience. A third possible explanation is that participation in the initial interview itself prompted children to reflect on mixed emotions, which improved their ability to respond during the final interview. Fourth, although it is difficult to determine the reason and extent of any change due to the exploratory nature of the current study, it remains possible that the mixed emotion psychoeducation module contributed to a change in mixed emotion understanding. If this is the case, it appears that younger children receive more benefit from the intervention than older children.

*Reasons children provided for beliefs that emotion combinations were not possible.* Several children, all in the younger age group, were unable to articulate reasons for their beliefs that emotion combinations were not possible. Explanations for the impossibility of mixed emotions could be categorised into two groups: those indicating that emotions are mutually exclusive and can therefore not be mixed; and those indicating that they cannot be possible due to the cognitive difficulties of this experience. As children's explanations for believing that mixed emotions are not possible have not been previously explored in the literature to the best of the author's knowledge, the current research provides some further insight into how children understand the limits of mixing emotions.
Experiences of mixed emotions that children reported during the psychoeducation module. Children provided various examples of mixed emotion experience, ranging from everyday situations, such as a fight with a sibling, to major life events, such as the death of a grandparent. Although children's examples were not constrained by any criteria, the majority of children provided examples that involved family relationships. This provides further support that family relationships are an important source of mixed emotions for children, as has previously been identified in the literature (e.g. Harter, 1977).

Various descriptions were provided for the experience of mixed emotions. Although one child noted a positive aspect of mixed emotion experience, most children reported difficult experiences, describing these experiences as embarrassing, confusing, weird, difficult, and negative. It is of particular interest that three children over both age groups noted that mixed emotions were embarrassing. Embarrassment is an emotion that is characteristic of social anxiety. For those that experience Social Anxiety Disorder (APA, 2000), individuals worry that they will embarrass themselves in particular situations and these situations thus lead to anxiety and fear of these situations. If mixed emotion experiences are considered by children to be potentially embarrassing, then situations involving mixed emotions are also likely to be considered as anxiety-provoking in children with anxiety concerns.

Children's reported discomfort associated with mixed emotion experience. Consistent with expectations and previous research (Whitesell & Harter, 1989), most but not all children reported experiencing at least some discomfort associated with mixed emotion experience. Two children disliked
Children's understanding of mixed emotions, however, three children reported liking mixed emotion experience, and four reported both liking and disliking mixed emotion experience.

Children provided considered explanations for the presence or absence of discomfort. Explanations included that some combinations of emotions were less liked, that the event associated with the mixed emotions was too negative, or that the combination of emotions was confusing, as children found it difficult to know which emotion to follow. Interestingly, the most common reason that children provided for liking mixed emotions, at least in part, was that the additional presence of a positive emotion when experiencing a negative emotion made it a more positive experience. For example, feeling happy and worried is better than just feeling worried as one is also able to simultaneously experience some happiness. Another reason provided was that positive emotions are more intense than negative emotions and can therefore make the experience a positive one overall.

These explanations could prove helpful for addressing the discomfort associated with mixed emotions in a clinical setting. They highlight that mixed emotions can be confusing for children, indicating that further psychoeducation to aid understanding might be important. The findings also suggest that encouraging children to examine the positive aspect of a mixed emotion (provided the event is not of a highly aversive nature) could assist in at least partially relieving any discomfort.

Children's reported coping strategies for managing mixed emotions. Children provided a range of coping strategies for managing the discomfort associated with mixed emotions. Coping categories identified in
the current study were thinking in a positive manner, engaging in a pleasant activity, solving the problem, avoidance of thoughts, and talking with someone. The coping strategies reported were all considered amenable to being strengthened through clinical intervention, as has been identified in previous research (de Boo & Wicherts, 2007).

**Appropriateness of the mixed emotion psychoeducation module.**

**Children's memory of the modules.** An unexpected finding of the current research was that out of eight children, two children had only partial recollection of the mixed emotion psychoeducation module and one child did not remember the section at all. One explanation for some children being unable to remember this section is that feedback from the children was obtained at the end of the program whereas the mixed emotion psychoeducation module was conducted during the first session of the program. There was therefore a long duration between the module and its evaluation. However, more children were able to remember other sections from this initial session. An alternative explanation is that there were several factors relating to the module that reduced the salience of the intervention, making it more difficult for children to remember. For example, the mixed emotion psychoeducation module was not contained in the original workbooks provided to children, and there were no homework tasks related to mixed emotion understanding. Similarly, as the intervention itself was only between 5 and 10 minutes in duration, it is possible that the length of the module was insufficient to support the intervention.

There are several ways that the mixed emotion psychoeducation module could be improved. One way that the module might be improved is by
integrating the mixed emotion psychoeducation module with the original workbooks and providing homework tasks regarding mixed emotion understanding. Another possible improvement is to lengthen the intervention to include a more intensive discussion of mixed emotions as well as aspects that focus on skill development. The inclusion of further modules focusing on mixed emotions throughout the program, either by repeating the original module or by including a variation of the module later in the program, is another way that the module may be enhanced. These improvements might help to improve children's memory of the module as well as its effectiveness.

*Children's perceptions regarding how enjoyable and helpful they found the modules.* As expected, most children reported that they liked the mixed emotion psychoeducation module. The two children who did not like the module could not articulate clear reasons for this. Both of these children had difficulties remembering the section, suggesting that the reports of not liking the module were a result of these memory difficulties rather than dissatisfaction with the module itself. Overall, these results suggest that, in general, the mixed emotion psychoeducation module was positively received by the children.

Consistent with expectations, most children also found the mixed emotion psychoeducation module to be helpful. In particular, one child who found the section on basic emotion understanding too easy and already had an adequate understanding of this found the section on mixed emotion understanding helpful. She noted that the possibility of experiencing two emotions simultaneously was not something that she was previously aware of. The three children who did not find this helpful could not describe clear
reasons for this. Again, two of these children reported difficulties remembering the module, which might have contributed to their perceptions of the helpfulness of the module. The other child reported remembering this section, and it was considered that this child had a genuine difficulty remembering the reason that she found the section unhelpful. This conclusion was strengthened as she was able to provide reasons for why she found other sections unhelpful, suggesting that her inability to provide a reason did not indicate reluctance to provide more specific feedback.

In sum, the mixed emotion psychoeducation module was considered to be both enjoyable and helpful by most of the children. In those cases where children did not find it enjoyable or helpful, no clear feedback regarding the reasons for these negative perceptions was able to be articulated. Of the children who provided negative perceptions, most children had at least some difficulty remembering this section, a factor that could have contributed to either the perceptions themselves, or their ability to describe reasons for these perceptions.

*Children's engagement with the mixed emotion psychoeducation module.* Overall, the story-based mixed emotion psychoeducation module seemed to elicit a high level of engagement from the children, consistent with expectations. Importantly, this occurred in children of all ages and in both the group and individual administrations of the module. This was demonstrated by children laughing, interacting spontaneously, responding to questions, and asking questions for clarification. It was also demonstrated by an absence of children appearing withdrawn, non-responsive, or failing to participate throughout the module. These factors have been identified in previous
literature as being indicative of a child’s level of engagement (Chu & Kendall, 2004).

The high engagement level demonstrated was consistent with previous literature that has described therapeutic engagement as an important benefit of story-based techniques (Blenkiron, 2005; Cook et al., 2004; Friedberg, 1994). Children’s spontaneous interactions and sharing of their own experiences were also similar to previous descriptions of story-based techniques (Cwiakala & Mordock, 1996).

Important benefits of children’s engagement in therapy have been identified as including helping children to learn throughout therapeutic work, reducing rates of premature drop-out (Campbell, 2007), and enhancing treatment outcomes (Chu & Kendall, 2004). The high level of engagement demonstrated throughout this module suggests that the story-based psychoeducation module is an appropriate format for an intervention aimed at enhancing children’s understanding of mixed emotions.

**Advantages and limitations of the module.** There were several key advantages of using this story-based psychoeducation module to enhance mixed emotion understanding. The module was considered to be a developmentally sensitive form of teaching and discussing mixed emotion recognition. The developmental sensitivity of story-based techniques has previously been recognised (Friedberg, 1994; Friedberg & Wilt, 2010) and was demonstrated in the current study through discussions with children which showed good understanding of the material. In the one instance where misunderstanding did occur, there was scope within the module to clarify this, after which understanding was then demonstrated. It is considered a strength
that the module was flexible enough to allow for misunderstandings to be addressed.

Importantly, the module as a whole was also very brief, lasting between approximately 5 and 10 minutes. This enabled it to fit within the existing structure of the session without adding too much time to the overall session or compromising the coverage of other important material. This is a noteworthy advantage, considering the advantages demonstrated and the depth of discussion that was generated.

From a clinician's perspective, the story-based psychoeducation module was not difficult to adapt to existing clinical skills and training in cognitive behavioural therapy. This experience is in line with previous recommendations that administering story-based techniques does not require highly specialised training and is easily integrated into therapeutic contexts (Divinyi, 1995), such as cognitive behavioural therapy, where there is existing proficiency in traditional procedures (Friedberg & Wilt, 2010). That story-based techniques do not require specific training is an important advantage as busy clinicians might overlook these techniques due to a lack of specific training, despite already possessing the necessary skills to deliver these.

The psychoeducation module was also advantageous because it allowed for a deeper discussion of children's emotions than would likely have occurred by focusing on single emotions alone. This is particularly important considering the brevity of the module. Children described a range of circumstances in which they had experienced mixed emotions, many of which involved strong emotions. In addition, children were able to discuss their experience of these emotions. A discussion of this depth can have a
normalising effect for children. In addition, it contains important information that can guide later clinical care.

Overall, the story-based psychoeducation module was considered an appropriate module to assist children to understand mixed emotions. However, there were some limitations. One potential drawback is that as the module was designed for a group context, the story was not targeted towards individual children. This targeting has previously been recommended to assist with normalising the child's concerns and addressing specific difficulties (Cook et al., 2004; Friedberg & Wilt, 2010). Although it was not tailored specifically, it is nevertheless likely that the story provided some assistance with normalising due to the use of various story situations and main characters with different characteristics. This was demonstrated by children spontaneously identifying with the characters and their situations throughout the story, both when the intervention was conducted in the group setting and when it was conducted individually with children.

**Current study strengths, limitations, and future directions**. There were several strengths of the current study. Mixed emotion understanding in children experiencing anxiety concerns was explored as there has been limited research on mixed emotion understanding in children experiencing difficulties with anxiety. This is important as previous literature has identified that mixed emotion understanding might proceed differently for children experiencing clinical concerns (Kendall & Chansky, 1991; Meerum Terwogt, 1990; Melfsen et al, 2000; Scrimin et al., 2009; Southam-Gerow and Kendall, 2000), possibly due to cognitive biases (Ehrenreich & Gross, 2002; Kendall & Chansky, 1991; Mobini & Grant, 2007) that can be explained by attentional
control theory (Derekshan & Eysenck, 2009; Eysenck et al., 2007). This is particularly important due to the high prevalence of anxiety among children (APA, 2000).

In addition, the current study involved a comprehensive discussion regarding mixed emotions for children experiencing elevated anxiety. This allowed children to discuss in depth various components of mixed emotions in a natural way so as to provide quality information regarding children's beliefs about different aspects of mixed emotions.

Furthermore, the current study used existing research to design and implement a psychoeducation module aimed at improving mixed emotion understanding, which previous researchers have identified as an issue that is important to address clinically (Harter, 1977; Kaduson, 1997; Mattise, 1997; Peng et al., 1992). Further research using this module would assist in providing this technique with a sounder empirical basis for working with children experiencing anxiety concerns.

A key limitation of the current study was the level of anxiety concerns of the children included. Children were not required to be formally diagnosed with an anxiety disorder in order to be included in the study, and although all children demonstrated a higher level of anxiety than children considered to have non-problematic levels of anxiety on at least one measure, these anxiety levels were likely to be lower overall than children with a diagnosed anxiety disorder. It would therefore be important to examine the mixed emotion psychoeducation module in an intervention for children experiencing a clinically diagnosed anxiety disorder in order to gain a more complete picture.
CHILDREN'S UNDERSTANDING OF MIXED EMOTIONS

Another important limitation of the current study was the environment in which children were tested. Although children were selected for inclusion in the study based on their experience of anxiety concerns, the mixed emotion psychoeducation module was conducted, and children's mixed emotion understanding was examined, in the environment of a therapeutic setting. Children had previously met and established rapport with the researcher involved, and the mixed emotion psychoeducation module was conducted in the familiar environment of the child's school. Testing in this safe and familiar environment limits understanding of how children might perform in environments of high stress. As children's ability to understand mixed emotions could be required in legal assessments or clinical assessments and interventions where anxiety is likely to be higher, future research would benefit from examining children's mixed emotion understanding and their response to a mixed emotion psychoeducation module in a setting where children are exhibiting higher levels of anxiety.

The present study was designed to provide a preliminary investigation of the appropriateness of a story-based module to assist mixed emotion understanding in children and thus lacked the methodological features characteristic of more advanced research, including a control group (e.g., a group which does not receive this module as part of the CBT intervention) and a large sample size to conduct statistical analyses. Given the promising findings regarding the module's appropriateness, research is now needed to investigate the effectiveness of this approach for helping children understand
mixed emotions. Similarly, the absence of a control group of non-anxious children and the small sample size means that conclusions regarding the experience of mixed emotions in anxious children stemming from this study are tentative and need to be replicated in research with a larger sample size and with the use of a non-clinical control group.

Conclusions. Overall, the current study provided an initial exploration of mixed emotion understanding in children experiencing anxiety concerns. The current study also provided preliminary support for the use of a mixed emotion psychoeducation module with children experiencing anxiety concerns.

Although there was little change in children’s mixed emotion understanding overall, two of the four younger children demonstrated improved understanding of mixed emotions. While these findings cannot be unambiguously attributed to the story-based mixed emotion psychoeducation module (given the exploratory nature of the current study, the small sample size, and the absence of a control group), they suggest that such an approach in younger children is worthy of further investigation. It is important to consider the likelihood that a ceiling effect could have prevented further improvements in older children’s mixed emotion understanding. Overall, the psychoeducation module was considered to be appropriate for use with children experiencing anxiety concerns as it was considered to involve a high level of engagement, to be enjoyable, and to be helpful by most of the children, although strategies for enhancing children’s retention of this material appear warranted.
Children experiencing anxiety concerns demonstrated a good level of basic emotion understanding and had progressively more difficulties with understanding that it is possible for emotions to be mixed, providing reasons for these mixed emotions, and finally identifying their own experiences of mixed emotions. Consistent with previous research (Whitesell & Harter, 1989), most children reported experiencing at least some discomfort associated with mixed emotion experience and provided a range of coping strategies. Children in the current study reported difficulty with mixed emotions entailing anger, contrary to previous research (Harter & Buddin, 1987) and predictions from theoretical models (Russell & Carroll, 1999; Watson & Tellegen, 1985). In addition, children described mixed emotions using mostly negative terms. Reasons children provided for believing that emotion combinations were not possible included beliefs that emotions were mutually exclusive and can therefore not be mixed, and that mixed emotions are impossible due to the cognitive difficulties of this experience. Reasons that children provided for mixed emotion experience included examples of both everyday situations and major life events and predominantly involved situations involving family relationships, highlighting that these can be an important source of mixed emotions for children.

Although this information might help to inform interventions designed to assist anxious children in understanding mixed emotions, further information on how typically developing children understand mixed emotions in family relationships is important in order to explore more direct comparisons between typically developing children and children experiencing anxiety concerns. Mixed emotion understanding in typically developing children in the
context of an important family relationship, the mother-child relationship, will be investigated in the following chapter.
Chapter 4: An Investigation of Children’s Understanding of Mixed Emotions, Associated Discomfort, and Coping Strategies

To better understand mixed emotion understanding in children experiencing anxiety concerns, it is important to understand how typically developing children understand mixed emotions. It is particularly important to understand how typically developing children understand mixed emotions in the context of family relationships due to the importance of these relationships not only in daily life, but also in clinical and legal settings. The mother-child relationship was specifically investigated as mothers are the primary caregivers in most families.

Previous research has found that typically developing children do not demonstrate the ability to recognise opposite valence mixed emotions until they reach 11 to 12 years of age (Aldridge & Wood, 1997; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Reissland, 1985). Despite considerable research into mixed emotion understanding in typically developing children, a number of questions remain, as outlined in Chapter 2. These form the basis for the following research questions:

1. *How does children’s understanding of mixed emotions in mother-child relationships develop during childhood?*

   Studies with adults suggest that understanding of mixed emotions is multi-faceted. Studies with children suggest different ways in which this understanding changes during childhood. Several different aspects of understanding were therefore investigated in the current study. These include whether children thought it was possible to experience mixed emotions;
whether children were able to provide a plausible reason for experiencing mixed emotions; whether the emotions experienced differed systematically in intensity; whether children perceived mixed emotions as "separate" or "mixed up"; and whether children reported experiencing mixed emotions and were able to provide plausible examples from their own experience to support this. These aspects were explored within the context of mother-child relationships.

Based on previous research (Aldridge & Wood, 1997; Arsenio & Kramer, 1992; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Larsen et al., 2007; Reissland, 1985; Zajdel et al., 2013), it was expected that younger children would be less likely to think that mixed emotions were possible and less able to provide plausible reasons for their existence than older children. Intensity was also expected to change with age, however given the inconsistencies in the literature (Meerum Terwogt et al., 1986; Wintre & Vallance, 1994), the nature of this change was difficult to predict. It was also expected that younger children would be more likely to describe the emotions as "separate" whereas older children would be more likely to describe them as "mixed up". Descriptions of emotions as "mixed up" are considered to reflect a more sophisticated understanding, as they indicate that children can recognise that the emotions interact and influence each other (Donaldson & Westerman, 1986). Finally, it was expected that younger children would be less likely to report their own experience of mixed emotions or be able to provide plausible reasons for these experiences than older children.

2. Does children's understanding of mixed emotions differ between specific combinations of positive and negative emotions?
Past research on mixed emotion understanding has not consistently differentiated between specific emotions, focusing on either identifying a combination of any positive and any negative emotion (Harter & Buddin, 1987) or select combinations of emotions (Donaldson & Westerman, 1986; Peng et al., 1992; Reissland, 1985). The current study therefore systematically investigated understanding of combinations of specific positive and negative emotions. All possible opposite-valence combinations of five of the basic emotions (happy, sad, scared, angry, and loving) identified by Shaver, Schwartz, Kirson, and O’Connor (1987) were used as all of these are considered to have a definite positive or negative valence. Surprise was omitted because its valence is considered to be ambiguous (Wintre & Vallance, 1994).

Previous research has indicated that mixed happy and sad emotions are most common, followed closely by mixed happy and angry emotions, with mixed happy and scared emotions being far less common (Harter & Buddin, 1987). While theoretical models such as those posited by Watson and Tellegen (1985) and Russell and Carroll (1999) suggest that mixed happy and sad emotions are less likely to occur than combinations that are not polar opposites, such as happy and scared, more recent theoretical explanations challenge this (Cacioppo & Berntson, 1994). It was therefore expected that children’s awareness that it is possible to experience mixed emotions and their ability to provide a plausible reason for this would differ across specific emotion combinations. More specifically, it was expected that children would be more likely to demonstrate understanding for the combination happy and sad than the combinations happy and angry, and happy and scared. Although
the previous research did not investigate the emotion of loving, it was considered that as loving is also a positive emotion, that this would follow a similar trend to happy.

3. Does children's understanding of mixed emotions in family relationships differ with the child's gender?

Developmental trajectories in many areas differ between boys and girls. In particular, it has been shown that their understanding of emotions can differ, with girls generally showing greater emotion understanding than boys of the same age (Brody, 1985; Gross & Ballif, 1991). Although the majority of research into the relationship between gender and mixed emotion understanding has favoured girls, inconsistencies have been demonstrated. Both Wintre and Vallance (1994), and Brown and Dunn (1996), found that girls outperformed boys on measures of mixed emotion understanding. Aldridge and Wood (1997) found that both genders performed equally after 10 years of age, while Donaldson & Westerman (1986) and Steele and colleagues (1999) found that the child's gender does not influence mixed emotion understanding. Larsen and colleagues (2007) found that older girls were more likely than younger girls to experience mixed emotions, however boys aged between 11 and 12 years were no more likely than boys aged between 8 and 9 years to experience mixed emotions. However, further research conducted to address a methodological constraint in this study found that while both boys and girls demonstrated similar levels of mixed emotion understanding, girls demonstrated greater mixed emotion experience than boys (Zajdel et al., 2013). The current study will seek further clarification on
the relationship between gender and mixed emotion understanding by comparing girls' and boys' responses across a number of indicators of mixed emotion understanding in mother-child relationships at different ages.

Given that the gender differences in emotion understanding that are demonstrated in the literature favour girls, it was tentatively expected that boys would have less understanding of the possible existence of mixed emotions and less ability to provide plausible reasons for this existence than girls of the same age. Similarly, it was expected that boys would be more likely to describe the emotions as "separate" rather than "mixed up" compared with girls of the same age. Finally, it was expected that boys would be less likely to report their own experience of mixed emotions, and be less able to provide plausible reasons for these experiences than girls of the same age. There was no basis in the literature for forming expectations for differences in intensity between boys and girls.

4. *Do children understand their own mixed emotions prior to understanding the mixed emotions of a parent?*

Research comparing children's understanding of their own emotions and the emotions of another has had seemingly inconsistent results (Harter & Buddin, 1987; Larsen et al., 2007). Due to the limited previous research in this area, and the inability to access sufficient methodological details for some of this literature, it is difficult to form expectations and this aspect of the study was exploratory. However, given previous research into children's understanding of basic emotions in themselves and their mothers (Dunn & Hughes, 1998), it was hypothesised that children's understanding of their own
mixed emotions would precede their understanding of the mixed emotions of
their mother.

5. *Do children experience discomfort with mixed emotion experience, and if
so, how do they manage this discomfort?*

Larsen and colleagues (2001) have suggested, based on theory
(Cacioppo & Berntson, 1994), that experiencing mixed emotions can be
expected to be unpleasant. The only study that has investigated discomfort
associated with mixed emotions has found that most but not all children
experience such discomfort (Whitesell & Harter, 1989). It was therefore
expected that most but not all children would associate the experience of
mixed emotions with discomfort. As the influence of age and gender on
discomfort has not yet been explored, this aspect of the research was
exploratory. Given the lack of research regarding how children cope with
mixed emotions, creating an inventory of coping strategies that children use to
manage mixed emotions was an additional exploratory goal to gauge the
nature and range of coping strategies considered, information that is
important both scientifically and clinically.

**Method**

*Participants.* Ninety-seven children (48 boys) aged between 6 and 12
years were recruited from primary schools in the Australian Capital Territory.
There were equal numbers of boys and girls in each age group except the 12-
year old age group (six boys), where the seventh boy could not be recruited
within the time frame for completing the study despite repeated recruitment
attempts. Children aged between 6 and 12 years were selected for inclusion in the research as children less than 6 years of age were not considered to have the language and developmental capacities to participate in the study, and children aged over 12 years were not considered likely to add significant value to the research as previous research has suggested that children are able to recognise opposite-valence mixed emotions by 11-12 years of age (Harter & Buddin, 1987).

The study was approved by the Australian National University Human Research Ethics Committee and the ACT Government Department of Education and Training. Next, parents provided their consent after being provided with an information sheet. Finally, verbal consent was obtained from each child for both participation and recording prior to participating in the study.

School principals were invited via written correspondence to facilitate the study (see Appendix I). Articles describing the study were placed in school newsletters at the request of particular schools. Parents were sent an information pack containing an information sheet (see Appendix J), consent form (see Appendix K), and parent questionnaires. Parents returned the questionnaires and consent form to the researcher prior to children participating in the study.

Confidentiality was protected by storing physical data in a locked filing cabinet and storing electronic files on password protected computers. Participant privacy was enhanced by interviewing the children alone and providing parents with envelopes marked confidential for the return of
questionnaires and consent forms. The data obtained from this study was also
de-identified when presented in this thesis to protect confidentiality.

For the participants in the current study, 86 (89%) parent
questionnaires were completed by mothers, eight (8%) by fathers, and two
(2%) by mothers and fathers jointly. One parent (1%) did not include this
information. Most primary caregivers were mothers (58%), or mothers and
fathers jointly (39%), with only 1% of fathers being nominated as the sole
primary caregiver. Two (2%) parents failed to nominate the primary caregiver.
Step-parents were not treated separately in these descriptions.

Materials. Materials included parent-report measures and child
measures. Parent-report measures included a demographic questionnaire
(see Appendix L), Major Life Events and Changes Questionnaire (MLECQ)
(see Appendix M), and the Strengths and Difficulties Questionnaire (SDQ)
(see Appendices B and C). Child measures included the Vocabulary scale
from the Wechsler Intelligence Scale for Children – Fourth Edition (WISC-IV)
and a structured interview.

The sample was divided into seven age groups for the purpose of
analysis. A number of measures were therefore included to check whether
age and gender groups differed systematically on particular characteristics
which could have influenced the development of their understanding of mixed
emotions. These included the MLECQ, the SDQ, and the Vocabulary scale
from the WISC-IV.

Parent-report measures. Demographic information and information on
family background, such as age, gender, and languages spoken at home, was
obtained through a demographic questionnaire.
The MLECQ was used to assess the major life events or changes that children might have experienced. The MLECQ is based on the list of major negative life events originally developed by Heubeck and O’Sullivan (1998). It consists of 13 items and involved the parents stating whether each event had ever happened to their child. If it had, parents then used a 4-point scale to indicate how much they felt it had bothered their child. A total score was generated by summing the number of events that parents reported had happened and bothered their child at least a little. Major life events included such events as being a victim of crime or having their parents either divorce or separate.

The SDQ was administered along with the additional impact supplement to investigate children’s feelings, interpersonal relationships, and behaviours. A full description of this measure is included in Chapter 3.

**Child measures.** The Wechsler Intelligence Scale for Children – Fourth Edition (WISC-IV) is a widely used general intelligence test (Baron, 2005) for which Australian norms are available (Wechsler, 2003). The psychometric properties of the WISC-IV have been demonstrated (Kaufman, Flanagan, Alfonso, & Mascolo, 2006; Williams, Weiss, & Rolfhus, 2003). Specifically, the WISC-IV has also been shown to have good floors, ceilings and item gradients (Kaufman et al., 2006). The Vocabulary Scale of the WISC-IV was included as previous research has demonstrated a relationship between language competence and mixed emotion understanding (Beck, Kumschick, Eid, & Klann-Delius, 2012). It was also used to establish children’s ability to meet the demands on verbal comprehension made by the interview. This subscale tests measures language development (Kaufman et
al., 2006) and is strongly correlated with the full-scale IQ and gives some indication of the child's general intelligence levels. The Vocabulary subscale has strong internal consistency and adequate test-retest reliability (Williams et al., 2003).

To investigate mixed emotion understanding, a structured interview was conducted with each child. Structured interviews with specific questions about particular combinations of emotions and pre-established probes were deemed appropriate for the present study as they allowed the interviewer to derive specific conclusions about children's understanding of specific combinations of emotions and to clarify their responses. The interview included key indicators of mixed emotion understanding including whether children thought it was possible to experience mixed emotions, whether children were able to provide a plausible reason for this, children's perceptions of mixed emotions as "separate" or "mixed up", and the intensity of the emotions involved. It focused on a specific set of emotions of opposite valence rather than just on one or two combinations. This included all three negative basic emotions clustered around both basic positive emotions. The emotions were also investigated from different perspectives in the context of the specific relationship between a mother and child. This included children's beliefs about the emotions of a fictional child and their fictional mother (referred to as target) as well as their own experiences. The interview questions were pilot-tested on several children to ensure adequate understanding of the task, and to identify any potential methodological concerns.
As understanding of basic emotions is a precondition for understanding combinations of basic emotions, children's understanding of the content and valence of the five basic emotions to be investigated was first established. To determine whether basic emotion understanding was in place, children were asked to describe a time when they felt each of five basic emotions (happy, sad, scared, angry, and loving). Children were also asked whether they considered each emotion to be a "good" or a "bad" emotion to determine whether children's perceptions of valence were consistent with expectations.

Next, children's general understanding of mixed emotions was investigated using three open questions about their own experiences of mixed emotions.

*Can you tell me a time when you felt two good feelings at the same time?*

*Can you tell me a time when you felt two bad feelings at the same time?*

*Can you tell me a time when you felt a good and a bad feeling at the same time?*

Questions designed to investigate key indicators of mixed emotion understanding identified above were then asked. The questions involved a fictional character named “Jack” for boys, and named “Jane” for girls. Two series of similar questions were asked in order to be able to explore and compare children's understanding of their own and others' emotions. Six different mixed emotion combinations were presented: happy and angry, happy and sad, happy and scared, loving and angry, loving and sad, and loving and scared.

In the first series of questions, children were asked about specific combinations of the fictional character’s feelings towards the character’s
CHILDREN'S UNDERSTANDING OF MIXED EMOTIONS

mother. It was reasoned that children would identify with the fictional character and that their responses would therefore be indicative of their understanding of their own mixed emotions. An example of the set of questions used for this first series of questions is as follows:

I know a girl named Jane and she told me some things about her feelings and I was wondering what you thought about them. Jane told me that one day, she felt both happy and angry towards her mum at the very same time.

A. Do you think it is possible for Jane to feel happy and angry towards her mum at the exact same time?

B. (Asked if child answers yes to Part A) What would be a reason that Jane could feel happy and angry towards her mum at the same time?

C. (Asked if reason provided at Part B) Would Jane feel a little bit happy, quite happy, or very happy?

D. (Asked if reason provided at Part B) Would Jane feel a little bit angry, quite angry, or very angry?

E. (Asked if reason provided at Part B) Would Jane's feelings stay separate or would they be mixed up?

F. (Asked if reason provided at Part B) Did Jane like feeling happy and angry towards her mum at the same time?

G. (Asked if child answers no to Part F) What could Jane think or do to make herself feel better about feeling happy and angry at the same time?

H. (Asked if child answers yes to Part A) Have you ever felt happy and angry towards your mum at the same time?

I. (Asked if child answers yes to Part H) What was the reason that you felt happy and angry towards your mum at the same time?

The second series of questions involved the child being asked about the same specific emotion combinations but this time in the context of the fictional mother's feelings towards her child. It was reasoned that children would not identify with the fictional mother and that their responses would
therefore be indicative of their understanding of the mixed emotions of
another person. An example of the set of questions used for this second
series of questions is as follows:

*Jane also told me that one time, her mum felt both happy and angry
towards her at the very same time.*

A. Do you think it is possible for Jane’s mum to feel happy and angry towards
Jane at the exact same time?

B. (Asked if child answers yes to Part A) What would be a reason that Jane’s
mum could feel happy and angry towards Jane at the same time?

C. (Asked if reason provided at Part B) Would Jane’s mum feel a little bit
happy, quite happy, or very happy?

D. (Asked if reason provided at Part B) Would Jane’s mum feel a little bit
angry, quite angry, or very angry?

E. (Asked if reason provided at Part B) Would Jane’s mum’s feelings stay
separate or would they be mixed up?

F. (Asked if reason provided at Part B) Did Jane like her mum feeling happy
and angry towards her at the same time?

G. (Asked if child answers no to Part F) What could Jane think or do to make
herself feel better about her mum feeling happy and angry towards her at the
same time?

H. (Asked if child answers yes to Part A) Has your mum ever felt happy and
angry towards you at the same time?

I. (Asked if child answers yes to Part H) What was the reason that your mum
felt happy and angry towards you at the same time?

The pilot testing showed several types of unclear answers. Probes to
clarify the following types of unclear answers were determined before the
interviews in order to achieve a higher degree of consistency between
interviews. Parallel versions of probes 1-3 were developed for the child’s
understanding of the fictional mother’s emotions.
1. If a child lists sequential emotions: So Jack/Jane would feel (emotion) then (emotion) because of (situation/person). What would be a reason that Jack/Jane could feel (emotion) and (emotion) towards his/her mum at the exact same time?

2. If a child lists emotions about different targets: So in this case, Jack/Jane would feel (emotion) about (situation/person) and (emotion) about (situation/person). What could be a reason that Jack/Jane could feel (emotion) and (emotion) both about his/her mum?

3. If a child cannot think of an answer: Can you make up a story where Jack/Jane would feel (emotion) and (emotion) towards his/her mum at the same time?

4. If a child still cannot think of an answer: It can sometimes be hard to think of a reason quickly. Is this one a bit hard to think of at the moment? Would you like to come back to this one later?

5. If it is unclear how a child’s answer to “G” would help the child feel better: How do you think this might make Jack/Jane feel better?

Procedure. Children were interviewed at school by the researcher. The session was recorded using a digital audio recording device (Sony Stereo IC Recorder - ICD-UX71F). Children completed the Vocabulary subtest from the WISC-IV followed by the interview. After the interview was completed, children were provided with an explanation of the purpose of the study in an age appropriate manner, thanked for participating, and given the opportunity to ask questions about the study. The interviews were then transcribed verbatim. Sessions lasted between 24 and 81 minutes. Total parent involvement in the study required approximately 15 minutes.

Scoring. All of the information from the interviews was transcribed, entered, and coded using the same procedures as for the interview data in Chapter 3.

Children were considered to understand the basic emotions happy, sad, loving, scared, and angry when they were able to provide a plausible
example of a time when they had felt these emotions themselves. Plausibility was assessed on the basis of whether the situation described could elicit the target emotion. Each child was given a score of 1 for each basic emotion for which they were able to provide a plausible example.

Children were considered to understand general mixed emotions when they were able to provide a plausible example of themselves simultaneously feeling two positive emotions, an example of them feeling two negative emotions at the same time, and an example where they felt both a positive and negative emotion simultaneously. The plausibility of each example was assessed as described above. Each child was given a score of 1 for each emotion combination for which they were able to provide a plausible example.

Understanding of the different combinations of mixed emotions was assessed in several steps. First, each child was given a score of 1 for each combination of emotions that they thought possible (Question A). Those children who felt that the mixed emotion was possible were asked to provide a reason (Question B) and were given a score of 1 for each combination of emotions for which they were able to provide a plausible reason. The plausibility of each example was assessed on the basis of whether the reason described was aimed at the appropriate target, occurred simultaneously rather than sequentially, and involved the emotions described in the question. Probes developed prior to the interview were used for clarification where necessary.

Reasons the children provided were additionally coded qualitatively to broaden understanding of the situations that children describe as eliciting mixed emotions. This was carried out according to procedures for generating
grounded theory (Strauss & Corbin, 1990). Open coding, which involves categorising the responses given and providing them with meaningful labels known as concepts (Strauss & Corbin, 1990) was first conducted inductively. The concepts so identified were then organised into categories, or higher-order classifications of concepts (Strauss & Corbin, 1990). Concepts with repeated presentations in the data were also redefined as categories.

Intensity of the mixed emotions reported (Questions C and D) was scored in four separate ways. Positive and negative emotion intensity was scored from 1 to 3 based on the mean positive and negative intensity reported respectively across all emotion combinations. Total emotion intensity was the sum of these mean scores and could range from 2 to 6. Emotion intensity balance was the balance of the mean positive and negative scores. Negative emotion intensity scores were recoded as negative numbers and then summed with the positive emotion intensity scores.

Responses for separability of the mixed emotions (Question E) were coded as separate, mixed up, both separate and mixed up, or unsure. Binary codes were then created with the response mixed up in one category, and all other responses in another.

Responses for discomfort (Question F) were coded as liked, not liked, both liked/not liked, neither liked/disliked, or unsure. Binary codes distinguishing between responses expressing some discomfort (not liked or both liked/not liked) and responses not indicating discomfort (liked, neither liked/disliked, or unsure) were then created.

Children’s coping strategies (Question G) were coded qualitatively using the same procedures described for the reason codes, with an additional
deductive evaluation against relevant research to ensure that the coding system was reflective of the range of responses expected (Rice & Ezzy, 1999; Strauss & Corbin, 1990).

Children's own reported experiences of emotions (Question H) were scored as experienced, not experienced, or unsure. Binary codes were then created with responses indicating an experience in one category, and those not indicating an experience (not experienced/unsure) in the other. Children's ability to provide a plausible reason for each mixed emotion experience (Question I) reported was determined in the same manner as the reasons provided for the fictional characters' mixed emotion experiences. Each child was given a score of 1 for each combination of emotions for which they were able to provide a plausible example.

For a summary of child measures and variables, and their scoring systems, in order of administration, see Table 6.
Table 6

Summary of Child Measures and Variables and Their Scoring Systems in Order of Administration

<table>
<thead>
<tr>
<th>Measure</th>
<th>Scoring System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Emotion Understanding</td>
<td>Ability to provide an example of themselves feeling basic emotions. A score of 1 was given for each emotion for which children were able to provide a plausible example.</td>
</tr>
<tr>
<td>General Mixed Emotion</td>
<td>Ability to provide an example of themselves simultaneously feeling two positive emotions, two negative emotions and both a positive and negative emotion. A score of 1 was given for each mixed emotion for which children were able to provide a plausible example.</td>
</tr>
<tr>
<td>Mixed Emotion Possibility</td>
<td>Ability to report that each emotion combination was possible. A score of 1 was given for each mixed emotion that children thought was possible.</td>
</tr>
<tr>
<td>Mixed Emotion Reason</td>
<td>Ability to provide a reason for each emotion combination thought to be possible. A score of 1 was given for each mixed emotion for which children were able to provide a plausible reason. Qualitative coding was also conducted.</td>
</tr>
<tr>
<td>Emotion Intensity</td>
<td>Emotion intensity was scored in four separate ways. Positive and negative emotion intensity was scored from 1 to 3 based on the mean positive and negative intensity reported respectively across all mixed emotions. Total emotion intensity was the sum of these scores and could range from 2 to 6. Emotion intensity balance was the balance of the mean positive and negative scores. Negative emotion scores were recoded as negative numbers and then summed with the positive emotion scores.</td>
</tr>
<tr>
<td>Separability</td>
<td>Responses were coded as separate, mixed up, both separate and mixed up, or unsure. Binary codes were created with mixed up in one category, and separate, both separate and mixed up, and unsure in the other.</td>
</tr>
<tr>
<td>Discomfort</td>
<td>Responses were coded as liked, not liked, both liked/not liked, neither liked/disliked, or unsure. Binary codes involving responses expressing some discomfort (not liked or both liked/not liked) and responses not indicating discomfort (liked, neither liked/disliked or unsure) were created.</td>
</tr>
<tr>
<td>Coping</td>
<td>Open qualitative coding was conducted.</td>
</tr>
<tr>
<td>Own Experience</td>
<td>Responses were coded as experienced, not experienced or unsure. Binary codes were created with experienced in one category, and not experienced/unsure in the other.</td>
</tr>
<tr>
<td>Own Reason</td>
<td>Ability to provide a reason for each mixed emotion experience reported. A score of one was given for each combination of emotions for which children were able to provide a plausible example.</td>
</tr>
</tbody>
</table>
Reliability. As all questions required open responses, inter-rater reliability was assessed for the coding of all responses. A second coder trained by the researcher and not otherwise involved in the research coded one randomly selected case for each gender from each age group (14% of the total data). Consistency was achieved for 97% of codes, and all inconsistencies were resolved by discussion until complete agreement was reached.

The second coder also coded responses for the reasons that children provided for the fictional characters’ mixed emotion experiences, and their strategies for coping with these. These variables were coded using qualitative analyses alone due to their greater complexity and richer descriptions. Two different emotion combination response sets were randomly selected to be coded, with one of these response sets involving the fictional child’s emotions towards the mother, and the other involving the fictional mother’s emotions towards the child. These combinations were coded for each child. This coded portion constituted 17% of the total data for each variable. Consistency was achieved for 92% of the concept codes and higher-order category codes derived from the reasons that children provided. Consistency was achieved for 98% of concept codes and 100% of category codes derived from the coping strategies that children reported. All inconsistencies were resolved by discussion until complete agreement was reached.

Analysis. Binary logistic regression analyses were used to investigate the dependent variables basic emotion understanding (present/not present), general mixed emotion understanding (present/not present), and the indicators of children’s understanding of mixed emotions. These indicators
were the possibility of mixed emotion experience (possible/not possible; Question A), children's ability to provide a plausible reason for mixed emotion experience (able/unable; Question B), their perceptions of the separability of mixed emotions (mixed up/some separability or unsure; Question E), their perceptions of discomfort associated with mixed emotions (some discomfort/no discomfort; Question F), their beliefs about their own experience of mixed emotions (experienced/not experienced or unsure; Question H) and their ability to provide a plausible reason for this experience (able/unable; Question I). For each analysis, the standard errors were rescaled using the square of the Pearson Chi-Square Goodness of Fit analysis of the null model to improve statistical power by accounting for the influence of dispersion and the length of the measure on score variance (Smithson, Davies, & Aimola Davies, 2011). Non-significant interactions were dropped from the final model in each analysis.

For children's understanding of basic emotions, the independent variables age, gender, and target emotion, as well as all two-way interactions were used as predictors. For general mixed emotion understanding, separate analyses were conducted for each combination (two positive emotions, two negative emotions, and a positive and a negative emotion), using the independent variables age and gender, and the interaction between age and gender, as predictors.

For the indicators of children's understanding of mixed emotions, the independent variables age, gender, target, and emotion combination, as well as all two-way interactions involving age and gender, were used as predictors.
These interactions were included as it was considered that development might proceed differently in boys and girls.

To investigate emotion intensity (Questions C and D), two-way between-groups analyses of variance were conducted between the different measures of emotion intensity as the dependent variable (emotion intensity balance scores, emotion intensity total scores, positive emotion intensity scores, and negative emotion intensity scores), and the independent variables age, and gender, as well as their interaction.

Results

Data screening. Data was screened using techniques outlined in Tabachnick and Fidell (2007). Statistical assumptions were met for the analyses used. Missing data existed for some interview questions due to administrative error. For an overview of the numbers of responses provided by children on each variable, see Table 7.

Table 7

Number of Responses Provided for Each Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>N Not Tested due to Administrative Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plausible</td>
<td>1164</td>
<td>0</td>
</tr>
<tr>
<td>Reason</td>
<td>655</td>
<td>0</td>
</tr>
<tr>
<td>Intensity</td>
<td>452</td>
<td>1</td>
</tr>
<tr>
<td>Separability</td>
<td>448</td>
<td>5</td>
</tr>
<tr>
<td>Discomfort</td>
<td>452</td>
<td>1</td>
</tr>
<tr>
<td>Own Experience</td>
<td>642</td>
<td>13</td>
</tr>
<tr>
<td>Own Reason</td>
<td>224</td>
<td>14</td>
</tr>
</tbody>
</table>
Potential sources of individual differences. No differences were found between age and gender groups on background variables that could influence children's understanding of mixed emotions including language spoken by the children, children's experience of major life events and changes, and measures of children's vocabulary and of their feelings, interpersonal relationships, and behaviours.

Language information. At home, 88 children (90.7\%) spoke English only and nine (9.3\%) spoke a language other than English. There were no significantly uneven distributions of children speaking a language other than English over the age or gender groups (p > .05), indicating no evidence for this factor potentially confounding the results of the study.

MLECQ. According to parent reports on the MLECQ, eight children (8\%) had experienced no negative major life events, 14 children (14\%) had experienced one event, 18 (19\%) had experienced two events, 22 (23\%) had experienced three events, 14 (14\%) had experienced four events, and 20 (21\%) had experienced five or more events. No significant differences were found in the total number of major life events between age or gender groups (p > .05), meaning that there was no evidence for this factor potentially confounding the results of the study.

WISC-IV – Vocabulary. The mean scaled score was 11.6 (SD = 2.9), range: 5-19, suggesting that on average children had the necessary verbal skills to comprehend the interview. There were no differences in scores between age or gender groups (p > .05), indicating no evidence for this factor potentially confounding the study's results.
**SDQ.** The mean score for total difficulties was 9.6 (SD = 5.44, range = 23). The internal consistency of the scale for the current sample was adequate (α = 0.77). The proportions of children classified as below the abnormal range (87%) and within the abnormal range (13%), were generally equivalent to previously reported Australian norms (Hawes & Dadds, 2004; Mellor, 2005). There were no significant differences between age or gender groups for those within the abnormal range (p > .05), suggesting that there was no evidence for inter-group differences in problems with behaviour, emotions, or relationships potentially confounding the results of the study.

**Basic emotion understanding.** Children of all ages and of both genders demonstrated a good understanding of the five basic emotions. Percentages of children able to provide a plausible reason for each emotion ranged from 78% for loving to 99% for happy. A binary logistic regression analysis showed that the predictors age and gender as a set reliably distinguished between children who demonstrated understanding of the basic emotions and children who did not, $\chi^2 (2) = 14.75, p < .00$. High correlations existed between the likelihood of reporting the different emotions, therefore emotion type was dropped from the final model. Nagelkerke's $R^2$ indicated that 6% of the variability was explained by the model. Girls were significantly more likely than boys to provide a plausible example of a basic emotion ($p = .01$), with Exp(B) values indicating that they were 2.94 (95% CI 1.51-5.74) times more likely to provide plausible examples. Basic emotion understanding did not significantly improve with age.

Most children (>80%) considered “positive” emotions to be good and “negative” emotions to be bad, with a small proportion of children describing
valences opposite to this. However, as can be seen in Table 8, a proportion of children described the emotions as both “good” and “bad”, with approximately 10% of children describing the emotions sad, scared, and angry as both “good” and “bad”. An inspection of the data suggested that this was not systematically associated with age or gender.

<table>
<thead>
<tr>
<th>Description</th>
<th>Good</th>
<th>Bad</th>
<th>Both</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happy</td>
<td>98%</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Sad</td>
<td>1%</td>
<td>90%</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>Loving</td>
<td>89%</td>
<td>2%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>Scared</td>
<td>4%</td>
<td>81%</td>
<td>13%</td>
<td>1%</td>
</tr>
<tr>
<td>Angry</td>
<td>1%</td>
<td>90%</td>
<td>8%</td>
<td>1%</td>
</tr>
</tbody>
</table>

General mixed emotion understanding. Overall, 33% of children were able to provide a plausible example of experiencing two positive emotions at the same time. Children’s ability to provide a plausible example of this experience increased with age, with 6-year olds being least able to report this experience (7%), and 11-year olds being most able to report this experience (64%). At all ages, girls were more able to do this than boys. A binary logistic regression analysis with children’s simultaneous experience of two positive emotions as the dependent variable showed that the predictors age and gender as a set reliably distinguished between children who reported experiencing two simultaneous positive emotions and children who did not, $\chi^2 (2) = 27.28, p < .00$. Nagelkerke’s $R^2$ indicated that 34% of the variability was
explained by the set of variables in the model. Both age ($p = .01$) and gender ($p = .00$) made a significant contribution to prediction. Exp(B) values indicated that with each year increase in age, children were 1.44 (95% CI 1.11-1.87) times more likely to have reported simultaneously experiencing two positive emotions. Similarly, girls were 9.47 (95% CI 3.17-28.28) times more likely to report this experience than boys.

Overall, 37% of children were able to provide a plausible example of experiencing two negative emotions at the same time. Children's ability to provide a plausible example of this experience increased with age, with 6-year olds being least able to report this experience (0%), and 11-year olds being most able to report this experience (64%). At most ages, girls were more able to do this than boys, however 9-year old boys were more able to do this than 9-year old girls. In both the 6-year old and 12-year old age groups, there were no gender differences. A binary logistic regression analysis with children's simultaneous experience of two negative emotions as the dependent variable showed that the predictors age and gender as a set reliably distinguished between children who reported experiencing two simultaneous negative emotions and children who did not, $\chi^2 (2) = 20.92, p < .00$. Nagelkerke's $R^2$ indicated that 27% of the variability was explained by the set of variables in the model. Both age ($p = .00$) and gender ($p = .04$) made a significant contribution to prediction. Exp(B) values indicated that with each year's increase in age, children were 1.63 (95% CI 1.26-2.10) times more likely to have reported experiencing two negative emotions. Similarly, girls were 2.75 (95% CI 1.07-7.03) times more likely to report this experience than boys.
Overall, 58% of children were able to provide a plausible example of experiencing a positive and a negative emotion at the same time. Age differences apparent in previous combinations of emotions were not evident for this combination of emotions. At most ages, girls were more able than boys to provide a plausible reason for the experience of a simultaneously occurring positive and negative emotion, however boys from both the 6-year old and 11-year old age groups were more able to do this than girls of the same ages. A binary logistic regression analysis with children’s simultaneous experience of a positive and a negative emotion as the dependent variable showed that the predictors age and gender as a set did not reliably distinguish between children who reported simultaneously experiencing a positive and a negative emotion and children who did not ($p > .05$).

**Understanding of specific combinations of emotions.** The mean frequencies with which children reported that mixed emotions were possible across all emotion combinations by age, gender, and target are presented in Table 9. For a specific comparison of children’s understanding of the possibility of different combinations of emotions existing by age, see Table 10. For an examination of girls and boys separately, see Appendix N.

As can be seen from Tables 9 and 10, children’s reports that mixed emotions were possible increased with age. Six-year olds reported that a mean of 3.43 ($SD = 3.50$) of the twelve mixed emotions were possible. These beliefs ranged from 43% of children’s responses for the combination of loving and sad emotions, to 79% of children’s responses for the combination of loving and angry emotions. Children from the 11-year old age group reported that mixed emotions were possible across the most combinations of emotions.
Eleven-year olds reported that a mean of 10.00 (SD = 2.04) combinations of emotions were possible. These beliefs ranged from 75% of children’s responses for the combinations of both loving and angry emotions, and loving and scared emotions, to 96% of children’s responses for the combination of happy and sad emotions. With regard to gender, boys believed that more mixed emotion experiences were possible than girls. Boys believed that a mean of 6.79 (SD = 3.58) mixed emotions were possible, whereas girls believed that a mean of 6.71 (SD = 3.97) mixed emotions were possible. Some combinations of emotions were thought to be possible more frequently than others. This ranged from 47% of responses indicating that the mixed loving and scared emotions were possible, to 65% of indicating that mixed happy and sad emotions were possible. Children reported that a mean of 3.51 (SD = 1.83) mixed emotions were possible for the fictional child across the six emotion combinations, whereas they reported that this was possible for a mean of 3.25 (SD = 2.13) mixed emotions for the mother. For a visual representation of the comparison of children’s reports on the possible existence of mixed emotions by age and gender, see Figure 3.

A binary logistic regression analysis with children’s reports of whether specific combinations of emotions were possible as the dependent variable showed that the predictors age, gender, target, and emotion combination as a set reliably distinguished between children who believed that mixed emotions were possible and children who did not, $\chi^2 (8) = 91.01, p < .00$. Nagelkerke’s $R^2$ indicated that 10% of the variability was explained by the set of variables in the model. Consistent with hypotheses, age made a significant contribution to prediction ($p = .00$). Exp(B) values indicated that for each year’s increase in
age, children were 1.29 (95% CI 1.21-1.37) times more likely to believe that the specific combinations of emotions specified were possible. Unexpectedly, gender, target, and emotion combination were not significant predictors.
Table 9

Comparison of Mean Mixed Emotion Understanding Scores by Age, Gender, and Target

<table>
<thead>
<tr>
<th>Boys Possible</th>
<th>Boys Reason</th>
<th>Girls Possible</th>
<th>Girls Reason</th>
<th>Total Possible</th>
<th>Total Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Child Towards Mum:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 6</td>
<td>2.57 (1.99)</td>
<td>1.00 (1.29)</td>
<td>1.43 (1.40)</td>
<td>0.57 (0.79)</td>
<td>2.00 (1.75)</td>
</tr>
<tr>
<td>Age 7</td>
<td>3.57 (2.37)</td>
<td>1.14 (1.22)</td>
<td>3.14 (1.77)</td>
<td>2.86 (2.12)</td>
<td>3.36 (2.02)</td>
</tr>
<tr>
<td>Age 8</td>
<td>3.14 (1.68)</td>
<td>2.57 (1.62)</td>
<td>3.20 (2.43)</td>
<td>2.86 (2.73)</td>
<td>3.21 (2.01)</td>
</tr>
<tr>
<td>Age 9</td>
<td>3.86 (1.35)</td>
<td>2.00 (1.63)</td>
<td>2.57 (0.98)</td>
<td>2.14 (1.35)</td>
<td>3.21 (1.31)</td>
</tr>
<tr>
<td>Age 10</td>
<td>3.57 (1.99)</td>
<td>2.57 (1.99)</td>
<td>4.29 (1.70)</td>
<td>3.43 (1.99)</td>
<td>3.93 (1.82)</td>
</tr>
<tr>
<td>Age 11</td>
<td>5.00 (1.00)</td>
<td>3.71 (1.50)</td>
<td>5.14 (1.22)</td>
<td>3.57 (1.27)</td>
<td>5.07 (1.07)</td>
</tr>
<tr>
<td>Age 12</td>
<td>3.67 (1.63)</td>
<td>2.17 (0.98)</td>
<td>3.86 (1.35)</td>
<td>3.57 (1.51)</td>
<td>3.77 (1.42)</td>
</tr>
</tbody>
</table>

Mum Towards Child:

| Age 6 | 1.86 (2.12) | 0.71 (1.25) | 1.00 (1.92) | 0.29 (0.76) | 1.43 (1.99) | 0.50 (1.02) |
| Age 7 | 3.29 (2.06) | 0.57 (0.79) | 3.29 (2.43) | 3.29 (2.43) | 3.29 (2.16) | 1.93 (2.24) |
| Age 8 | 2.86 (2.12) | 2.00 (2.00) | 3.43 (2.57) | 2.86 (3.02) | 3.14 (2.28) | 2.43 (2.50) |
| Age 9 | 3.14 (1.57) | 1.29 (1.25) | 2.43 (1.81) | 1.43 (2.15) | 2.79 (1.67) | 1.36 (1.69) |
| Age 10 | 3.29 (2.29) | 2.43 (2.51) | 4.00 (2.31) | 3.29 (2.14) | 3.64 (2.24) | 2.88 (2.28) |
| Age 11 | 4.43 (1.81) | 2.86 (2.48) | 5.43 (0.79) | 4.57 (1.40) | 4.93 (1.44) | 3.71 (2.13) |
| Age 12 | 3.33 (1.75) | 2.17 (1.47) | 3.71 (1.80) | 3.43 (1.72) | 3.54 (1.71) | 2.85 (1.68) |
## Table 10

Comparison of Children's Understanding of the Possibility of Different Combinations of Emotions Existing by Age

<table>
<thead>
<tr>
<th></th>
<th>Happy And Angry Possible</th>
<th>Happy And Sad Possible</th>
<th>Happy And Scared Possible</th>
<th>Loving And Angry Possible</th>
<th>Loving And Sad Possible</th>
<th>Loving And Scared Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Towards Mum:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 6</td>
<td>5 (36%)</td>
<td>5 (36%)</td>
<td>5 (36%)</td>
<td>6 (43%)</td>
<td>4 (31%)</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>7 (50%)</td>
<td>9 (64%)</td>
<td>8 (57%)</td>
<td>7 (50%)</td>
<td>7 (50%)</td>
<td>9 (64%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>8 (57%)</td>
<td>13 (93%)</td>
<td>5 (36%)</td>
<td>7 (50%)</td>
<td>7 (50%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>10 (71%)</td>
<td>10 (71%)</td>
<td>8 (57%)</td>
<td>4 (31%)</td>
<td>8 (57%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 10</td>
<td>10 (71%)</td>
<td>12 (86%)</td>
<td>9 (64%)</td>
<td>6 (43%)</td>
<td>11 (79%)</td>
<td>7 (50%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>12 (86%)</td>
<td>14 (100%)</td>
<td>11 (79%)</td>
<td>11 (79%)</td>
<td>13 (93%)</td>
<td>10 (71%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>10 (77%)</td>
<td>7 (54%)</td>
<td>8 (62%)</td>
<td>9 (69%)</td>
<td>9 (69%)</td>
<td>6 (46%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>62 (64%)</td>
<td>70 (72%)</td>
<td>54 (56%)</td>
<td>50 (52%)</td>
<td>59 (61%)</td>
<td>45 (46%)</td>
</tr>
<tr>
<td><strong>Mum Towards Child:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 6</td>
<td>4 (31%)</td>
<td>3 (21%)</td>
<td>2 (14%)</td>
<td>5 (36%)</td>
<td>2 (14%)</td>
<td>4 (31%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>9 (64%)</td>
<td>10 (71%)</td>
<td>8 (57%)</td>
<td>6 (43%)</td>
<td>8 (57%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>8 (57%)</td>
<td>9 (64%)</td>
<td>5 (36%)</td>
<td>6 (43%)</td>
<td>8 (57%)</td>
<td>8 (57%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>9 (64%)</td>
<td>6 (43%)</td>
<td>8 (57%)</td>
<td>4 (31%)</td>
<td>7 (50%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 10</td>
<td>10 (71%)</td>
<td>10 (71%)</td>
<td>8 (57%)</td>
<td>6 (43%)</td>
<td>9 (64%)</td>
<td>8 (57%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>11 (79%)</td>
<td>13 (93%)</td>
<td>11 (79%)</td>
<td>10 (71%)</td>
<td>13 (93%)</td>
<td>11 (73%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>7 (54%)</td>
<td>6 (46%)</td>
<td>8 (62%)</td>
<td>9 (69%)</td>
<td>10 (77%)</td>
<td>6 (46%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>58 (60%)</td>
<td>57 (59%)</td>
<td>50 (52%)</td>
<td>46 (47%)</td>
<td>57 (59%)</td>
<td>47 (48%)</td>
</tr>
</tbody>
</table>
The mean frequencies with which children were able to provide plausible reasons across all emotion combinations by age, gender, and target are presented in Table 9. For a comparison of children’s ability to provide plausible reasons for different combinations of emotions by age, see Table 11. For an examination of girls and boys separately, see Appendix N.

Children’s ability to provide a plausible reason for a mixed emotion experience increased with age. Six-year olds were able to provide a plausible reason for a mean of 1.29 (SD = 1.98) of the twelve mixed emotions. Children’s ability to do this ranged from 4% of children’s responses for the combination of loving and sad emotions, to 21% of children’s responses for the combination of loving and angry emotions. Children who were able to provide a plausible reason for mixed emotion experience across the most
emotion combinations were found in the 11-year old age group. Eleven-year olds were able to provide a plausible reason for a mean of 7.36 (SD = 3.03) mixed emotions. Their ability to do this ranged from 39% of children’s responses for the combination of loving and scared emotions, to 82% of children’s responses for the combination of loving and sad emotions. With regard to gender, girls were able to provide more plausible reasons for mixed emotion experience than boys. Girls were able to provide a plausible reason for a mean of 5.45 (SD = 4.11) mixed emotions, whereas boys were able to do this for a mean of 3.87 (SD = 3.36) mixed emotions. Children were able to provide a plausible reason for some combinations of emotions more frequently than others. This ranged from 30% of responses providing a plausible reason for mixed loving and scared emotions, to 46% of responses providing a plausible reason for both mixed happy and angry, and mixed happy and sad, emotions. Children were able to provide a plausible reason for a mean of 2.44 (SD = 1.82) mixed emotions for the fictional child across the six emotion combinations, whereas they were able to do this for a mean of 2.23 (SD = 2.17) mixed emotions for the mother. For a visual representation of the comparison of children’s ability to provide plausible reasons for mixed emotions by age and gender, see Figure 4.

A binary logistic regression analysis with children’s ability to provide a plausible reason for mixed emotion experience as the dependent variable showed that the predictors age, gender, target, and emotion combination as a set reliably distinguished between children who provided a plausible reason for the combinations of emotions and children who did not ($\chi^2 (8) = 69.54, p < .00$). Nagelkerke’s $R^2$ indicated that 14% of the variability was explained by
the set of variables in the model. Consistent with hypotheses, age ($p = .03$) and gender ($p = .00$) made a significant contribution to prediction. Exp(B) values indicated that for each year’s increase in age, children were 1.23 (95% CI 1.12-1.35) times more likely to be able to provide a plausible reason for a mixed emotion. Similarly, girls were 3.22 (95% CI 2.25-4.62) times more likely to be able to provide a plausible reason for a mixed emotion than boys. Unexpectedly, target and emotion combination were not significant predictors.
Table 11

Comparison of Children's Ability to Provide Plausible Reasons for Different Combinations of Emotions by Age

<table>
<thead>
<tr>
<th>Reason</th>
<th>Happy And Angry</th>
<th>Happy And Sad</th>
<th>Happy And Scared</th>
<th>Loving And Angry</th>
<th>Loving And Sad</th>
<th>Loving And Scared</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Towards Mum:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 6</td>
<td>2 (14%)</td>
<td>2 (14%)</td>
<td>1 (7%)</td>
<td>5 (36%)</td>
<td>1 (7%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>3 (21%)</td>
<td>6 (43%)</td>
<td>5 (36%)</td>
<td>5 (36%)</td>
<td>4 (31%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>6 (43%)</td>
<td>12 (86%)</td>
<td>5 (36%)</td>
<td>5 (36%)</td>
<td>6 (43%)</td>
<td>4 (31%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>8 (57%)</td>
<td>7 (50%)</td>
<td>6 (43%)</td>
<td>2 (14%)</td>
<td>4 (32%)</td>
<td>2 (14%)</td>
</tr>
<tr>
<td>Age 10</td>
<td>9 (64%)</td>
<td>10 (71%)</td>
<td>6 (43%)</td>
<td>6 (43%)</td>
<td>6 (43%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>10 (71%)</td>
<td>11 (70%)</td>
<td>6 (43%)</td>
<td>8 (57%)</td>
<td>11 (79%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>10 (77%)</td>
<td>3 (23%)</td>
<td>4 (31%)</td>
<td>8 (62%)</td>
<td>7 (54%)</td>
<td>6 (46%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>48 (49%)</td>
<td>51 (53%)</td>
<td>33 (34%)</td>
<td>39 (40%)</td>
<td>39 (40%)</td>
<td>27 (28%)</td>
</tr>
<tr>
<td><strong>Mum Towards Child:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 6</td>
<td>2 (14%)</td>
<td>1 (7%)</td>
<td>1 (7%)</td>
<td>1 (7%)</td>
<td>0 (0%)</td>
<td>2 (14%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>4 (31%)</td>
<td>8 (57%)</td>
<td>4 (31%)</td>
<td>3 (21%)</td>
<td>5 (36%)</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>6 (43%)</td>
<td>7 (50%)</td>
<td>5 (36%)</td>
<td>4 (31%)</td>
<td>6 (43%)</td>
<td>6 (43%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>5 (36%)</td>
<td>4 (31%)</td>
<td>4 (31%)</td>
<td>2 (14%)</td>
<td>2 (14%)</td>
<td>2 (14%)</td>
</tr>
<tr>
<td>Age 10</td>
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<td>7 (50%)</td>
<td>7 (50%)</td>
<td>4 (31%)</td>
<td>6 (43%)</td>
<td>7 (50%)</td>
</tr>
<tr>
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<td>9 (64%)</td>
<td>8 (57%)</td>
<td>8 (57%)</td>
<td>12 (68%)</td>
<td>6 (43%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>7 (54%)</td>
<td>3 (23%)</td>
<td>7 (54%)</td>
<td>7 (54%)</td>
<td>8 (62%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>42 (43%)</td>
<td>39 (40%)</td>
<td>36 (37%)</td>
<td>29 (30%)</td>
<td>39 (40%)</td>
<td>31 (32%)</td>
</tr>
</tbody>
</table>
Qualitative analysis of reasons provided. In total, 655 reasons why Jack/Jane could feel mixed emotions towards his/her mother were provided. From these, 162 concepts were identified which generated 44 categories (see Appendix O). The most frequently reported coded reasons were a present or special event that was not perfect (e.g. the child giving the mother a stolen present), the child doing something disagreeable that was qualified by something positive (e.g. the child did something that the mother did not like but with good intentions), and the mother doing something disagreeable that was qualified by something positive (e.g. the mother did something that the child did not like but that was fair), respectively. For the most common coded responses reported by children for each mixed emotion, see Table 12. For all coded responses reported by children for each mixed emotion, see Appendix P.
### Table 12

**Most Commonly Reported Reasons Provided by Children for Different Combinations of Emotions**

<table>
<thead>
<tr>
<th>Event</th>
<th>Child:</th>
<th>Child:</th>
<th>Child:</th>
<th>Child:</th>
<th>Mum:</th>
<th>Mum:</th>
<th>Mum:</th>
<th>Mum:</th>
<th>Mum:</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Happy</td>
<td>Happy</td>
<td>Happy</td>
<td>Loving</td>
<td>Loving</td>
<td>Loving</td>
<td>Loving</td>
<td>Loving</td>
<td>Loving</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Angry</td>
<td>Sad</td>
<td>Scared</td>
<td>Angry</td>
<td>Sad</td>
<td>Scared</td>
<td>Angry</td>
<td>Sad</td>
<td>Scared</td>
<td></td>
</tr>
<tr>
<td>Imperfect Present Or Special</td>
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<td>1</td>
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<td>2</td>
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</tr>
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<td>0</td>
<td>13</td>
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</tr>
<tr>
<td>Child Did Good Thing And</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Bad Thing</td>
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<td>1</td>
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<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
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<td>4</td>
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</tr>
<tr>
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<td>0</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Present</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Emotion intensity. Inconsistent with hypotheses, intensity was not found to change with age. A two-way between-groups analysis of variance showed that neither age nor gender contributed significantly to the emotion intensity balance scores, i.e. the tendency to report emotions of one valence as more intense than the other ($p > .05$). For the overall mean balance scores and standard deviations by age and gender, see Table 13.

Table 13
Overall Mean Balance Scores for Children's Description of Emotion Intensity

<table>
<thead>
<tr>
<th>Age</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>0.31 (SD = 1.04)</td>
<td>-0.58 (SD = 1.01)</td>
</tr>
<tr>
<td>7</td>
<td>-0.07 (SD = 0.72)</td>
<td>0.63 (SD = 0.45)</td>
</tr>
<tr>
<td>8</td>
<td>-0.29 (SD = 0.51)</td>
<td>0.24 (SD = 0.28)</td>
</tr>
<tr>
<td>9</td>
<td>-0.26 (SD = 0.61)</td>
<td>-0.42 (SD = 0.44)</td>
</tr>
<tr>
<td>10</td>
<td>-0.16 (SD = 0.50)</td>
<td>0.33 (SD = 0.48)</td>
</tr>
<tr>
<td>11</td>
<td>0.04 (SD = 0.70)</td>
<td>0.05 (SD = 0.59)</td>
</tr>
<tr>
<td>12</td>
<td>0.37 (SD = 0.51)</td>
<td>-0.35 (SD = 0.79)</td>
</tr>
</tbody>
</table>

A two-way between-groups analysis of variance showed that neither age nor gender contributed significantly to the emotion intensity total scores, i.e. the total intensity reported regardless of valence ($p > .05$). A two-way between-groups analysis of variance showed that neither age nor gender contributed significantly to the intensity of positive emotions reported or to the intensity of negative emotions reported ($p > .05$).

Separability of mixed emotions. In most of the examples of mixed emotions that children provided, the emotions were considered to be mixed up (62%).
However, a substantial minority of the emotions were considered to be separate (38%). A small minority of the emotions were considered to be both separate and mixed up (0.5%), and for 0.2% of responses, children were unsure about the separability of the emotions. The frequency with which children perceived each of the mixed emotion combinations to be mixed up, separate, both separate and mixed up, or reported being uncertain of this, are presented in Figure 5. Inconsistent with hypotheses, a binary logistic regression analysis with children's beliefs about whether the emotions were experienced as separate or mixed up as the dependent variable showed that the predictors age, gender, target, and emotion combination as a set did not reliably distinguish between children who believed that mixed emotions were mixed up and children who did not ($p > .05$).

![Figure 5. Children's Perceptions of Separability for Different Combinations of Mixed Emotions](image-url)
Discomfort associated with mixed emotions and coping responses. For children’s reported experience of discomfort associated with each combination of mixed emotions, see Table 14. Consistent with hypotheses, in most of the examples of mixed emotions that children provided, they reported thinking that the experience of the emotion combination would be disliked (60%). However, for a minority of examples, children reported that this would be liked (27%). For a smaller number of examples, children reported that this experience would be both liked and disliked (9%), would be neither liked nor disliked (0.4%), or were unsure whether this would be liked or disliked (3%). A binary logistic regression analysis with children’s discomfort associated with mixed emotion experience as the dependent variable showed that the predictors age, gender, target, and emotion combination as a set did not reliably distinguish between children who predicted some discomfort with mixed emotion experience and children who did not (p > .05).
Table 14

Children’s Perception of Discomfort Associated with Different Combinations of Emotions

<table>
<thead>
<tr>
<th>Children Who Thought This Experience Would Be:</th>
<th>Liked</th>
<th>Disliked</th>
<th>Both Liked And Disliked</th>
<th>Neither Liked Or Disliked</th>
<th>Unsure</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child: Happy - Happy - Loving - Angry - Sad</td>
<td>6</td>
<td>27</td>
<td>10</td>
<td>1</td>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>Child: Happy - Happy - Scared - Scared - Sad</td>
<td>15</td>
<td>18</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>51</td>
</tr>
<tr>
<td>Child: Happy - Loving - Angry - Sad - Scared</td>
<td>11</td>
<td>28</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>Child: Loving - Loving - Angry - Sad - Scared</td>
<td>8</td>
<td>19</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>Child: Loving - Loving - Scared - Scared - Sad</td>
<td>17</td>
<td>19</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>Child: Loving - Loving - Angry - Sad - Scared</td>
<td>5</td>
<td>29</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>Child: Loving - Loving - Scared - Scared - Sad</td>
<td>9</td>
<td>22</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Child: Loving - Loving - Angry - Sad - Scared</td>
<td>13</td>
<td>24</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Child: Loving - Loving - Scared - Scared - Sad</td>
<td>9</td>
<td>15</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Mum: Happy - Happy - Loving - Angry - Sad</td>
<td>7</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Mum: Happy - Happy - Scared - Scared - Sad</td>
<td>15</td>
<td>21</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Mum: Happy - Loving - Angry - Sad - Scared</td>
<td>8</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Mum: Loving - Loving - Angry - Sad - Scared</td>
<td>15</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Mum: Loving - Loving - Scared - Scared - Sad</td>
<td>8</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Mum: Loving - Loving - Angry - Sad - Scared</td>
<td>15</td>
<td>21</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>272</td>
<td>42</td>
<td>2</td>
<td>13</td>
<td>452</td>
</tr>
</tbody>
</table>

* The baseline (n) is the number of children who thought experiencing each combination of emotions to be possible and were able to provide a plausible reason for this. The percentages represent the proportion of these children who thought the experience would be uncomfortable.
In total, children described 406 strategies for managing the discomfort elicited by mixed emotion experiences. From these, 66 concepts were identified which generated 21 categories (see Appendix Q). It is important to note that children were able to nominate more than one coping strategy. Overall, the most frequently described coping strategies were solving the problem, thinking in a positive manner, and engaging in a pleasant activity. The most common strategies reported are listed in Table 15. For all strategies reported, see Appendix R.
Table 15

Most Commonly Reported Description of Coping Strategies Provided by Children for Different Combinations of Emotions

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve Problem</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>16</td>
<td>2</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>9</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>Think In A Positive Manner</td>
<td>14</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>78</td>
<td></td>
</tr>
<tr>
<td>Pleasant Activity</td>
<td>7</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Talk With Someone</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>32</td>
<td></td>
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<tr>
<td>Be Nice Or Helpful To Family</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>30</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Apologise</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
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<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Hug Someone Or Something</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
<td></td>
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<tr>
<td>Avoidance Of Thoughts</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Be Alone</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Physical Relaxation</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Eat Or Drink</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Emotional Expression</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Acceptance Of No Change</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Do Nothing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Own experiences of mixed emotions.** All children who felt that an emotion combination was possible were asked about their own experiences of mixed emotions. In only 35% of these cases did children report a mixed emotion experience and in only 25% of cases were children able to provide a plausible reason for this experience.

For the number of children who reported an experience for each emotion combination by age, see Table 16. Data for girls and boys separately are provided in Appendix S. A binary logistic regression analysis with children's own experience of mixed emotions as the dependent variable showed that the predictors age, gender, target, and emotion combination as a set reliably distinguished between children who reported mixed emotion experience and children who did not ($\chi^2 (8) = 43.16, p < .00$). Nagelkerke's $R^2$ indicated that 9% of the variability was explained by the set of variables in the model. As hypothesised, gender ($p = .02$) made a significant contribution to prediction, with Exp(B) values indicating that girls were 1.80 (95% CI 1.28-2.53) times more likely to report experiencing a mixed emotion. Also consistent with hypotheses, the comparisons between happy and scared and loving and angry ($p = .04$) and between loving and angry and loving and scared ($p = .049$) also made a significant contribution to prediction. Children were 2.57 (95% CI 1.39-4.75) times more likely to report a mixed emotion for loving and angry than happy and scared and 2.63 (95% CI 1.38-5.01) times more likely to report a mixed emotion for loving and angry than loving and scared. The comparison between happy and angry and happy and scared ($p = .064$) and between happy and angry and loving and scared ($p = .071$)
approached significance. Unexpectedly, age, target, and other emotion combinations were not significant predictors.

For the number of children who were able to provide a plausible reason for their experience of each emotion combination by age, see Table 17. Data for girls and boys separately are provided in Appendix S. A binary logistic regression analysis with children's ability to provide reasons for their own experience of mixed emotions as the dependent variable showed that the predictors age, gender, target, and emotion combination as a set reliably distinguished between children who were able to provide a plausible reason for mixed emotion experience and children who were not ($\chi^2 (8) = 27.13, p < .00$). Nagelkerke's $R^2$ indicated that 16% of the variability was explained by the set of variables in the model. As hypothesised, gender ($p = .01$) made a significant contribution to prediction, with $\text{Exp}(B)$ values indicating that girls were 2.88 (95% CI 1.55-5.37) times more likely to provide a plausible reason for mixed emotion experience than boys. Also consistent with hypotheses, the comparison between the combination of happy and angry and loving and sad ($p = .07$) approached significance. Unexpectedly, age, target, and all other emotion combinations were not significant predictors.
### Table 16
Number of Children Reporting Experience of Different Combinations of Emotions by Age

<table>
<thead>
<tr>
<th>Child Towards Mum:</th>
<th>Happy And Angry Experience</th>
<th>Happy And Sad Experience</th>
<th>Happy And Scared Experience</th>
<th>Loving And Angry Experience</th>
<th>Loving And Sad Experience</th>
<th>Loving And Scared Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 6</td>
<td>1 (20%)</td>
<td>0 (0%)</td>
<td>1 (20%)</td>
<td>1 (17%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>3 (43%)</td>
<td>5 (56%)</td>
<td>0 (0%)</td>
<td>1 (14%)</td>
<td>3 (43%)</td>
<td>3 (33%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>3 (38%)</td>
<td>3 (23%)</td>
<td>1 (20%)</td>
<td>4 (57%)</td>
<td>3 (43%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>1 (10%)</td>
<td>2 (20%)</td>
<td>1 (13%)</td>
<td>0 (0%)</td>
<td>1 (17%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td>Age 10</td>
<td>4 (40%)</td>
<td>4 (33%)</td>
<td>3 (33%)</td>
<td>4 (67%)</td>
<td>6 (60%)</td>
<td>2 (33%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>6 (50%)</td>
<td>4 (26%)</td>
<td>4 (40%)</td>
<td>4 (36%)</td>
<td>6 (46%)</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>4 (40%)</td>
<td>1 (14%)</td>
<td>1 (13%)</td>
<td>7 (78%)</td>
<td>3 (33%)</td>
<td>1 (17%)</td>
</tr>
<tr>
<td>Total</td>
<td>22 (35%)</td>
<td>19 (27%)</td>
<td>11 (20%)</td>
<td>21 (42%)</td>
<td>22 (37%)</td>
<td>10 (22%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mum Towards Child:</th>
<th>Happy And Angry Experience</th>
<th>Happy And Sad Experience</th>
<th>Happy And Scared Experience</th>
<th>Loving And Angry Experience</th>
<th>Loving And Sad Experience</th>
<th>Loving And Scared Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 6</td>
<td>2 (50%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>4 (44%)</td>
<td>6 (60%)</td>
<td>2 (25%)</td>
<td>2 (33%)</td>
<td>4 (50%)</td>
<td>1 (20%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>5 (63%)</td>
<td>2 (22%)</td>
<td>2 (40%)</td>
<td>5 (83%)</td>
<td>5 (63%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>3 (33%)</td>
<td>0 (0%)</td>
<td>1 (14%)</td>
<td>1 (33%)</td>
<td>1 (20%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td>Age 10</td>
<td>6 (60%)</td>
<td>5 (50%)</td>
<td>4 (50%)</td>
<td>3 (50%)</td>
<td>3 (38%)</td>
<td>3 (43%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>7 (64%)</td>
<td>3 (23%)</td>
<td>3 (27%)</td>
<td>5 (50%)</td>
<td>4 (31%)</td>
<td>2 (18%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>2 (26%)</td>
<td>2 (33%)</td>
<td>3 (38%)</td>
<td>6 (67%)</td>
<td>7 (70%)</td>
<td>3 (60%)</td>
</tr>
<tr>
<td>Total</td>
<td>29 (57%)</td>
<td>18 (32%)</td>
<td>15 (30%)</td>
<td>22 (48%)</td>
<td>24 (42%)</td>
<td>12 (26%)</td>
</tr>
</tbody>
</table>

* Percentages of children who were asked about their own emotion experience and who reported experiencing this for each combination of emotions are included in this table. Children not asked this question due to administrative error or due to not stating that the combination of emotion was possible are not included in these percentages.
Table 17

Number of Children Reporting Plausible Reasons for the Experience of Different Combinations of Emotions by Age

<table>
<thead>
<tr>
<th></th>
<th>Happy And Angry Experience</th>
<th>Happy And Sad Experience</th>
<th>Happy And Scared Experience</th>
<th>Loving And Angry Experience</th>
<th>Loving And Sad Experience</th>
<th>Loving And Scared Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Towards Mum:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 6</td>
<td>1 (20%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>3 (43%)</td>
<td>4 (44%)</td>
<td>0 (0%)</td>
<td>1 (14%)</td>
<td>2 (29%)</td>
<td>3 (33%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>3 (38%)</td>
<td>2 (15%)</td>
<td>1 (20%)</td>
<td>2 (29%)</td>
<td>3 (43%)</td>
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<td>11 (22%)</td>
<td>15 (33%)</td>
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* Percentages of children who were asked about their own emotion experience and who reported experiencing this, and provided a reason for this experience, for each combination of emotions are included in this table. Children not asked this question due to administrative error or due to not stating that the combination of emotion was possible are not included in these percentages.
Discussion

The development of understanding of opposite-valence mixed emotions in typically developing children aged between 6 and 12 years was investigated using a range of indices of understanding derived from previous research. While there was a clear improvement of understanding with age, not all indices of the quality of mixed emotion understanding changed with development as expected. Reasons provided for mixed emotion experience were diverse and reflected both everyday situations and major events involving family relationships. Differences between the combinations of emotion were found on only one indicator of understanding, children's reports of their own experiences of mixed emotions. Similarly, gender differences were found on some but not all of these indices. There were no differences between children's understanding of a fictional child's mixed emotions compared with those of the fictional child's mother on any measure. Finally, most but not all children thought mixed emotion experiences would elicit discomfort, and could name a variety of strategies for managing this discomfort. The findings were generally consistent with research that demonstrated that emotions can be mixed (Brehm & Miron, 2006; Carrera & Oceja, 2007; Goldstein & Strube, 1994; Larsen & McGraw, 2011; Larsen et al., 2001; Schimmack & Colcombe, 1999) and provided evidence that is consistent with theories which posit their co-existence (Cacciopo & Berntson, 1994) and against theories which argue that some emotion combinations cannot co-exist (Russell & Carroll, 1999; Watson & Tellegen, 1985). The findings also build on previous research (Harter, 1977; Whitesell & Harter, 1989) that has investigated mixed emotion understanding in family relationships. These findings and their implications for theory and practice will be discussed below.
Relationship between mixed emotion understanding and age.

Understanding of the basic emotions was present even in the youngest children, consistent with expectations based on previous research (Saarni et al., 2006). However, as expected, the more difficult task of understanding mixed emotions was found to improve with age. The number of children who thought that it was possible to experience specific combinations of mixed emotions increased with age. Further, the number of children able to provide a plausible reason for experiencing mixed emotions, a more stringent test of understanding, also increased with age. These findings are consistent with previous research in indicating improvement of mixed emotion understanding with age (Aldridge & Wood, 1997; Arsenio & Kramer, 1992; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Reissland, 1985; Zajdel et al., 2013).

Importantly, the type of mixed emotion used in the current study, opposite-valence mixed emotions towards the same target, has been considered to be the most difficult type of mixed emotion and has not been thought to emerge until 11-12 years of age. In this study however, only 5% of children claimed that none of the combinations of mixed emotions investigated were possible, and only 17% of children were unable to give a plausible reason for any combination of emotion. However, only 16% of children claimed that all combinations of emotions were possible and only 6% of children were able to give plausible reasons for all combinations of emotions. These results demonstrate that while most children demonstrated understanding of at least one mixed emotion, only a minority demonstrated this understanding for all combinations of emotions. These findings are not consistent with previous research that demonstrates that children are unable to recognise mixed emotions involving different valence emotions about the same
target until around 11-12 years of age (Aldridge & Wood, 1997; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Reissland, 1985). The finding that all ages of children studied could demonstrate at least some mixed emotion understanding, and that even children old enough to be expected to demonstrate mixed emotion understanding did not have a complete understanding of this, suggests that understanding opposite-valence mixed emotions involves a longer developmental trajectory and begins earlier than previous research has suggested.

These findings support early explanations which called on Piaget’s argument (Harter & Buddin, 1987) that only with the transition to the concrete operational stages at around 7 years of age, did children develop the ability to focus on different features of a single object (Piaget, 1968), as 6-year olds in the current study were demonstrably lower in mixed emotion understanding than older children. However, even children in the oldest age ranges did not demonstrate understanding of all combinations of emotions. As it has been argued that the ability to focus attention simultaneously on two features of a single object might be more difficult for emotion concepts than physical constructs (Harter, 1977), understanding of mixed emotions might continue to develop well past the end of the concrete operational stage. Alternatively, it is possible that children’s ability to report particular combinations of emotions reflects their own experiences with these specific emotions and this can be expected to increase with age. However, one argument against this is that only a small minority of children who thought mixed emotions were possible could report their own experiences of mixed emotions.

Previous research has indicated a developmental trend in the intensity of mixed emotions, however results have been inconsistent with regard to the intensity of the emotions involved, and whether one emotion dominates over the other
In the current study, the development of the intensity of the positive and negative aspects of the mixed emotions reported, the balance between these intensities, and the total intensity of the mixed emotion regardless of valence were investigated. There was no developmental trend on any of these measures. Inconsistent with previous research in adults (Brehm & Miron, 2006), children were able to report emotions of weak and strong intensity, and were able to report mixed emotions both where they were of equal intensity and where one emotion dominated the other emotion. It is therefore possible that individual differences in the intensity with which children experience emotions are more likely than age to influence the intensity of the mixed emotions reported. These differences are unlikely to change systematically with age.

Unexpectedly, children's understanding that emotions experienced at the same time are not separate, but can interact, did not change with age (Donaldson & Westerman, 1986). This suggests that the children who were able to provide plausible reasons for the existence of mixed emotions had a sophisticated understanding that emotions are able to influence each other. Interestingly children described even some of the basic emotions as both "good" and "bad". Between 1% and 13% of children described these emotions as both "good" and "bad" with happy being least considered as both "good" and "bad" and scared being most considered as both "good" and "bad". Some children thus demonstrated an understanding that basic emotions are not unitary in valence. As the data suggested that this was not systematically associated with age or gender, and a significant minority reported that mixed emotions would be separate, this might be due to individual differences in emotional awareness.
Interestingly, only a small proportion of children who believed in the possibility of experiencing mixed emotions reported experiencing these emotions themselves. Less than half of all children in all age groups who reported that it was possible for the fictional character or their mother to experience a specific combinations of emotions, reported that they themselves or their mother had experienced that particular mixed emotion. Children’s ability to report their own mixed emotion experiences did not improve with age. A number of interpretations for these results seem possible. Firstly, as these questions came at the end of each set of questions, it might be possible that children had lost interest in the particular emotion combination. However, this seems unlikely as no systematic observable differences in children’s engagement in the questions were observed across the interviews, and children’s denial of having had this experience was frequently quite strong. Secondly, it is possible that this question placed an additional cognitive demand on the children, as they were required to recall their own experiences of these emotions rather than imagine the emotions of a fictional character. Recalling mixed emotional experiences has previously been identified as a difficult task (Aaker et al., 2008). This explanation suggests that although children’s recognition that mixed emotions can occur improves with age, their ability to recognise this experience in their own lives does not necessarily improve. A third explanation is that children can recognise that mixed emotions exist even when they haven’t experienced them. Previous research has tentatively suggested that children can understand mixed emotions prior to experiencing mixed emotions themselves (Larsen et al., 2007; Zajdel et al., 2013) and the current research provides further evidence for these findings. A final possibility is that children find it less confronting to describe an emotional experience in the context of a hypothetical situation rather than their own experience. Previous
research has considered hypothetical scenarios to be a less threatening way of exploring sensitive issues with children and young people (Barter & Renold, 2010). As it was likely that children identified with the fictional character, it is possible that the interview format might be a valuable method for examining children's mixed emotions by allowing them to talk about their own emotions indirectly. It seemed that children felt more comfortable discussing their understanding of mixed emotions indirectly than disclosing their experiences in their own relationships. Although rapport was established with each child in the interview, it is highly likely that children would find it easier to discuss a hypothetical situation than their own private experiences with a researcher who was previously unknown to them.

**Qualitative investigation of the reasons provided for the possible existence of mixed emotions.** Children were able to provide a large number of reasons for why the specific combinations of emotions were possible. The most frequently reported reasons were a present or special event that was not perfect in some way, the child doing something disagreeable that was qualified by something positive, and the mother doing something disagreeable that was qualified by something positive. These are categories that involve a wide range of situations demonstrating the variety of responses provided by the children. This range of reasons provided is important, as these included family situations involving both everyday events, as well as events that could be considered as a major occurrence in a child's life. Everyday situations included those such as temporary separation of the mother and child, angry interactions between the mother and child, and the child being given a present or being taken to a special event that was not perfect in some way. Major occurrences in the child's life included death, parental unemployment, divorce or parental re-partnering, or adoption. Overall, this investigation
demonstrated that children recognise mixed emotions in both everyday family situations and situations generally considered to be major events. This shows that children can identify examples involving mixed emotions not only for those situations that are likely to elicit intense emotions and where people are likely to ask them about how they are feeling, but also for more everyday events.

**Relationship between understanding and combination of emotions.**

Unexpectedly, differences between combinations of emotions were found on only one of the indicators of understanding, children's reports of their own mixed emotion experience. On this measure, children reported more mixed emotions for loving and angry than either happy and scared or loving and scared. In addition, there was a trend for more reporting of happy and angry compared with either happy or loving with scared. Children also tended to be more able to provide a plausible reason for their own emotion experiences for happy and angry emotions compared with loving and sad. No differences were found for children's beliefs about the possible existence of mixed emotions, their ability to provide a plausible reason for these emotions, or their beliefs about whether the emotions would be "separate" or "mixed up".

The findings that these children remember experiencing a positive emotion in combination with anger more frequently than a positive emotion in combination with fear in their mother-child relationships suggest that although there are no differences between the different combinations of mixed emotions when children are asked about hypothetical situations, there are differences when they are asked about their personal experience of mixed emotions. Given that there were remarkably few children who felt that mixed emotions were possible who also reported that they had experienced them themselves, one explanation for this is that children might be able
to understand that all combinations of emotions are equally possible, be able to
provide plausible reasons for these equally, and feel that all emotion combinations
are equally “mixed up”, however they might be more reluctant to disclose their own
experiences of some combinations in particular. The lower frequency of their reports
of experiences involving a positive emotion in combination with fear, compared with
their reports of experiences involving a positive emotion in combination with anger
suggest that children might find it especially difficult to report feeling fear towards
their mother, or having their mother feel fearful or worried about them, in conjunction
with a positive emotion. This relative infrequency of reporting mixed happy and
scared emotions is consistent with previous research that has indicated that the
combination happy and scared is reported far less often than the combinations
happy and angry or happy and sad (Harter & Buddin, 1987). These findings also
provided further evidence against models proposed by Russell and Carroll (1999)
and Watson and Tellegen (1985), as these researchers posited that if mixed
emotions were possible, happiness and sadness as opposite poles of a single
dimension would be the least likely combination of emotions to occur.

Relationship between mixed emotion understanding and gender. Gender
differences were found on some but not all indices of mixed emotion understanding.
Gender was not associated with the frequency with which children reported mixed
emotions to be possible, the intensity of the mixed emotions reported, or whether the
emotions were considered to be “separate” or “mixed up”. However, girls were more
likely to be able to provide a plausible reason for the existence of the mixed
emotions, report their own experiences of mixed emotions, and provide a plausible
reason for these mixed emotion experiences than boys.
As asking children to provide a plausible reason for why a particular mixed emotion combination could be experienced is a more stringent test of understanding, it is plausible that this is more sensitive to differences between boys and girls than children's beliefs about the possible existence of a particular mixed emotion combination. Similarly, asking children to report their own experiences of mixed emotions, and to provide a plausible reason for these experiences, can be considered to be an even more difficult task. This suggests that gender differences in children's understanding of mixed emotions do exist, but that they only appear on more difficult measures of understanding. That no differences were found in children's perceptions of the emotions as "mixed up" suggests that the children who provided a reason for the existence of mixed emotions had a sophisticated understanding of mixed emotions, and that this further level of sophistication did not differ between boys and girls. The absence of gender differences for children's reported intensity of particular mixed emotions suggests that individual differences in the intensity with which children experience emotions are more likely than gender to influence the intensity of the mixed emotions reported.

These findings are consistent with previous research that has suggested that when gender differences in emotion understanding are present, girls generally demonstrate greater emotion understanding than boys of the same age (Brody, 1985; Gross & Ballif, 1991). It has provided further clarification on previous inconsistencies in the literature on gender differences in children's understanding of mixed emotions (Aldridge & Wood, 1997; Brown & Dunn, 1996; Donaldson & Westerman, 1986; Larsen et al., 2007; Steele et al., 1999; Wintre & Vallance, 1994) as by investigating gender differences on a range of indicators of mixed emotion understanding, it has demonstrated that these gender differences emerge on only
the more stringent tests of this understanding. This is largely consistent with recent research by Zajdel and colleagues (2013) which found no differences for children’s understanding of mixed emotions in a fictional character, but demonstrated gender differences for children’s experience of mixed emotions.

**Understanding of children’s mixed emotions compared with understanding of parents’ mixed emotions.** Unexpectedly, children’s understanding of the emotions of a fictional child did not differ to their understanding of the mixed emotions of the fictional mother on any of the indices of understanding. The target of the mixed emotion was not associated with children’s beliefs about the existence of mixed emotions, their ability to provide a plausible reason for these, their perceptions of the emotions as “mixed up” or “separate”, or their perceptions of discomfort associated with the mixed emotion experience. Similarly, there were no differences between the children’s reported experience of their own mixed emotions, and their reports of their mother’s mixed emotions, or their ability to provide a plausible reason for these experiences.

This latter finding in particular is inconsistent with previous research that has suggested that children’s understanding of their own emotions precedes understanding of the emotions of a parent, both with regard to understanding basic emotions (Dunn & Hughes, 1998) and mixed emotions (Harter & Buddin, 1987). However, the methodology used by Harter and Buddin was unclear, making the difference in findings difficult to interpret. The findings seem inconsistent with previous research that suggests that the identification of the mixed emotions of another person precedes children’s own mixed emotion experience (Larsen et al., 2007). Larsen and colleagues investigated children’s understanding of the mixed emotions of a fictional character in a video clip compared with their own emotion
experience, thus looking at understanding versus experience. The current study, however, investigated the difference between children’s understanding of mixed emotions in two hypothetical situations with which children were thought to identify, and the difference between children’s reported experience of their own mixed emotions and their reported experience of their own mother’s mixed emotions. The differences in the target of the children’s mixed emotions, and the way that the mixed emotions were elicited, make it likely that differences in methodology are responsible for the seemingly inconsistent findings.

Assuming that children did identify with the fictional child as expected, the absence of differences across the wide range of aspects of mixed emotion understanding measured in the current study, provides consistent support that any differences between children’s mixed emotion understanding for their own experiences and the experiences of a parent are likely to be small.

**Relationship between mixed emotion understanding, discomfort, and coping.** The majority of children reported that the experience of mixed emotions would elicit discomfort, however a substantial minority reported that that this would be a pleasant experience. These findings support previous research demonstrating that for most children, mixed emotions result in discomfort, but that this experience is not universal (Whitesell & Harter, 1989). No differences in levels of discomfort were found between age or gender groups. Factors such as individual differences in emotion experience or the intensity in which emotions are felt might therefore influence discomfort more strongly.

Unlike previous research which demonstrated a greater difference in the level of discomfort between happy and angry, and happy and sad emotions (Whitesell & Harter, 1989), the current study found only a small difference between these
CHILDREN'S UNDERSTANDING OF MIXED EMOTIONS

combinations of emotions. One explanation for this difference is that Whitesell and Harter (1989) investigated children's own experiences of mixed emotion understanding whereas the current study explored children's responses to cases involving fictional characters. It might be that for children's own experiences of mixed emotions, happy and angry emotions are more likely to elicit discomfort than happy and sad emotions, however when children imagine experiencing mixed emotions, their perceptions of the associated discomfort are less differentiated. In addition, Whitesell and Harter investigated children's discomfort with mixed emotions in their relationships with their parents more generally, with the gender of the parent unspecified, whereas the current research focused specifically on mother-child relationships. It might be that children experience different levels of discomfort in their relationships with their fathers and mothers, for different combinations of emotions. It is therefore likely that these methodological differences are responsible for the inconsistent findings.

Interestingly, while most children who were able to provide a plausible reason for one or more mixed emotions stated that they would not like this experience (between 49% and 72%), a substantial minority stated that they would like this experience (between 13% and 44%). Clinically this was an important finding, as it highlighted the importance of clinicians being aware that while most children find mixed emotions uncomfortable, not all do, and that it would be premature to conclude that a child experiencing mixed emotions is necessarily experiencing distress.

Of equal importance to clinicians, those children who thought that a mixed emotion combination would elicit discomfort were able to identify a large range of coping strategies for managing this discomfort. The most frequently described
coping methods were solving the problem, thinking in a positive manner, and engaging in a pleasant activity, all strategies that can be enhanced through therapeutic work. This is promising for intervention as previous research has suggested that coping strategies can be strengthened through clinical intervention (de Boo & Wicherts, 2007).

The categories of coping strategies derived from the current study were compared with classifications used in previous research. Although many classifications for coping strategies have been developed (Bernzweig et al., 1993; de Boo & Wicherts, 2009; Radovanovic, 1993; Valentine et al., 2010), the system by Ayers and colleagues (1996) was used, as these researchers developed a clear set of classifications based on theory and empirical research which allowed for direct comparison. The current study identified 21 categories of coping, whereas Ayers and colleagues identified 10. The greater number of categories used in the current study was thought to more adequately capture the range of strategies children used. For example, under the classification by Ayers and colleagues, apologising and attempting to solve the problem would both be classified under direct problem solving. However, it was thought that this did not distinguish adequately between attempts to manage the discomfort by apologising and attempts to solve the particular problematic situation itself. In addition, there were some response categories that did not fit well within the classification by Ayers and colleagues, such as being nice or helpful to a family member or spending time with the mother. These strategies seem to be focused on improving the mother-child relationship without being directly related to the situation that elicited the mixed emotions. It is possible that these classifications might be specific to managing the difficult emotions involved in mother-child relationships.
Comparisons between typically developing children and anxious children. Through a comparison of the two studies presented in the thesis, the preliminary exploration of children experiencing anxiety concerns suggests that mixed emotion understanding develops similarly in both anxious and typically developing children. In both studies, children demonstrated a strong understanding of basic emotions and had progressively more difficulties with understanding that it is possible for emotions to be mixed, providing reasons for these mixed emotions, and finally identifying their own experiences of mixed emotions.

The second study demonstrated that typically developing children experienced more difficulty with the emotion combinations of loving and scared, and happy and scared. This is different to the children experiencing anxiety concerns in the first study, as these children reported more difficulty with the combinations of happy and angry, and loving and angry. This preliminary investigation suggests that this might be a difference specific to the population of children experiencing anxiety concerns. One possibility is that the greater experience of anxiety in anxious children in some ways facilitates the experience of mixed emotions, at least those that include fear, relative to non-anxious children.

Of those children who were able to describe coping strategies for managing mixed emotions in the first study, the strategies provided were consistent with the most common coping strategies identified in the second study. Four of the five coping strategies identified in the first study, were the most common strategies reported in the second study (solving the problem, thinking in a positive manner, engaging in a pleasant activity, and talking with someone, respectively). The only notable difference between the studies was that although children in the current study noted that talking to different people helped them feel better, one child in the
first study specifically spoke about talking with a mental health professional, something that was not mentioned in the second study. This is likely to be reflective of this particular child’s experience of managing a difficult situation by speaking with a mental health professional in the past.

**Current study strengths, limitations, and future directions.** The design of the study involved several strengths. Notably, it investigated several indicators of mixed emotion understanding identified in previous research in a systematic way in the important area of mother-child relationships. In addition, it explored the clinically relevant areas of children’s discomfort associated with mixed emotions and coping strategies for managing these. To the best of the author’s knowledge, this was the first study to investigate specific combinations of mixed emotions using this methodology. The methodology was strengthened by using an interview format that allowed specific questions to be asked about each opposite-valence combination of the five basic emotions of happy, loving, sad, scared, and angry.

Another benefit of the interview format used in the current study was that it asked about children’s understanding of mixed emotions in the context of fictional characters. This methodology was selected to allow children to report on their experiences in a way that was less confronting. This was supported in the current study as remarkably few children who felt that mixed emotions were possible reported that they themselves had experienced a mixed emotion in their mother-child relationships. This appeared to be particularly important for investigating children’s understanding of combinations of emotions that might be more difficult for children to acknowledge having experienced, such as simultaneously feeling scared with a positive emotion.
The use of an interview with a structured format that included a set of repeated questions for each of the mixed emotions under investigation generated a number of data points for each child. As each of these sets of questions covered several aspects of mixed emotions in detail, the interview was considered to have sufficient data points over a wide range of areas to support the conclusions of the research. Consistency was maximised by having all interviews conducted by a single researcher whose classification systems were checked by a trained second coder. In addition, audio recording of all sessions reduced the need to rely on memory.

Measures were taken to ensure children had adequate understanding of the questions during the interview, such as by allowing them to ask questions throughout the interview and using specific probes developed prior to the interview to clarify potential misunderstandings. One of the advantages of these probes was ensuring that children provided examples of simultaneous mixed emotions rather than sequential mixed emotions. This is important as it has previously been identified that rating scales do not allow for the differentiation between simultaneous and sequential mixed emotions, resulting in an overestimation of reports of simultaneous mixed emotions (Carrera & Oceja, 2007).

An additional strength of the study was that it focused on mother-child relationships. Mother-child relationships were chosen as the mother is most often the primary caregiver for the child, and it was confirmed in the study that most mothers were either the child’s sole or joint primary caregiver. Focusing on a specific relationship relevant to clinical and legal settings allowed for specific conclusions to be drawn about this key relationship. However, this strength is also a limitation in its ability to inform clinical work. As the whole family constellation is important in some clinical and legal contexts, it would have been informative to include measures
relevant to other important family members. Therefore, although mother-child relationships were prioritised in the interests of efficiency, research investigating other types of family relationships such as fathers, siblings, step-parents, and grandparents, would be an important consideration for future research. This would assist in helping to identify any differences found in children's recognition of their own mixed emotions towards other family members and in their ability to recognise the mixed emotions of other family members towards themselves. Similarly, it would have also been useful to include measures relevant to relationships that do not involve the family, such as peers. This would be another important direction for future research, as this would allow for comparisons to be made between children's understanding of mixed emotions in family relationships and other relationships.

Although the current study was able to provide a broader knowledge of children's understanding of specific mixed emotions in mother-child relationships, a larger sample size would have been useful to further investigate particular aspects of mixed emotion understanding. Overall, the sample size was sufficiently large, given the intensive nature of the methodology. However, the systematic design of the interview structure required that only children who considered that a particular mixed emotion was possible, and were able to provide a plausible reason for this, were asked all of the follow-up questions. Although this allowed more in-depth questioning of children's understanding of mixed emotions while allowing for a more natural interview experience with the children, this resulted in smaller numbers of children in the analyses involving particular variables such as whether children considered the emotions to be "separate" or "mixed up", the intensity of the mixed emotions, whether the mixed emotion would elicit discomfort, how children could cope with any discomfort, whether children had themselves experienced mixed emotions, and
whether they were able to provide plausible reasons for these experiences. This might have weakened the power of the study to demonstrate associations involving these variables.

An additional limitation of the current study was that it only included children aged 6-12 years. Children within this age range were selected for inclusion in the research as children less than 6 years may not have had the language and developmental capacities to participate in the study, and previous research had suggested that children are able to recognise opposite-valence mixed emotions by age 11-12 years (Harter & Buddin, 1987). However, the findings from the research indicated that the development of mixed emotion understanding might be longer than this timeframe. Further research investigating the various indices of mixed emotion understanding in children younger than 6 years of age, and older than 12 years of age, would provide further information to clarify the development of mixed emotions.

Finally, although the current study was able to provide qualitative information regarding the reasons that children can provide for why mixed emotions are possible, an area that it did not investigate was the reasons for children’s beliefs that it was not possible to experience mixed emotions. This would be an important area for future research.

**Conclusions.** Overall, the current study allowed for a more comprehensive, holistic understanding of children’s understanding of mixed emotions through an examination of various indicators of understanding in mother-child relationships. Not only did this provide information on mixed emotion understanding in typically developing children across a range of measures, it provided a strong basis for a preliminary investigation comparing typically developing children with children experiencing anxiety concerns.
Chapter 5: Conclusions - The Value of Assessing Mixed Emotion Understanding in Children

The main goal of the thesis was to explore understanding of mixed emotions in anxious and typically developing children in the context of family relationships. This involved an exploration of different aspects of children's understanding of mixed emotions in typically developing children, including their understanding of different combinations of their own emotions and the emotions of a parent. Mixed emotion understanding was operationalised in several ways, including children's recognition that it was possible to experience mixed emotions, their reports of the intensity of mixed emotions, and their ability to provide a plausible reason for mixed emotion experience; a factor that offered extra insight into children's understanding. The current research also investigated different aspects of children's experiences of mixed emotions, including their experiences of different combinations of their own mixed emotions and the mixed emotions of their mother. Factors such as age and gender that have been previously identified as influencing mixed emotion understanding and experience were also investigated. Furthermore, children's discomfort associated with mixed emotions, and ways that children manage this discomfort, were explored. The thesis also investigated mixed emotion understanding in anxious children and included an exploration of the appropriateness of a psychoeducation module aimed at improving awareness of mixed emotions.

This chapter will review the two studies included in the thesis. It will also include an overview of the theoretical and clinical implications of the current research, its strengths and limitations, and recommendations for future research.
Review of Study One

The first study was designed to address two key goals. Firstly, it involved a preliminary investigation of mixed emotion understanding in seven children between 7 and 12 years of age who were experiencing anxiety concerns. Secondly, it involved an exploration of the appropriateness of a story-based psychoeducation module aimed at enhancing mixed emotion understanding in this group of children in the context of the Cool Kids Anxiety Program (School Version) (Rapee et al., 2006), a cognitive behavioural group anxiety program in a school setting.

Although the story-based mixed emotion psychoeducation module did not appear to influence children's mixed emotion understanding overall, two of the four younger children did show consistent patterns of improvement in the interview that followed the module. However, it is important to note that change was difficult to assess due to the highly exploratory nature of the study, small sample size, and the absence of a control group.

The storytelling procedure used for the psychoeducation module was considered to be appropriate for use with children experiencing mild anxiety concerns to enhance their mixed emotion understanding. Participants showed many signs of high engagement, and few signs of low engagement, and the module was considered to be enjoyable and helpful by most of the children. Its strengths were that it was brief, fun, flexible, developmentally sensitive, and did not require additional highly specialised training of the clinician. More children than expected did not remember the module. Increasing its salience by integrating the module with the original workbooks and providing related homework tasks, lengthening the intervention to include a more intensive discussion of mixed emotions and aspects that focus on skill development, and including further modules focusing on mixed
emotions throughout the program, might help to improve children’s memory of the module and their responses to this.

The study also explored the reasons that children provided for believing some emotion combinations were not possible. These included the ideas that some emotions are mutually exclusive and can therefore not be mixed, and that mixed emotions are impossible due to the cognitive difficulties of this experience.

Review of Study Two

The second study investigated children’s understanding of six mixed emotions in mother-child relationships: happy and angry, happy and sad, happy and scared, loving and angry, loving and sad, and loving and scared. There were two targets, a fictional child experiencing mixed emotions towards the child’s mother, and the fictional mother experiencing mixed emotions towards her child. Several indices of understanding were investigated: children’s beliefs about the possible existence of each combination of emotions, their ability to provide a plausible reason for each combination, their perceptions of the mixed emotions as “separate” or “mixed up”, the intensity of the mixed emotions, the discomfort associated with experiencing mixed emotions, proposed coping strategies for managing these emotions and any discomfort they caused, and their own experiences of mixed emotions.

The study had the following main findings. Children’s abstract understanding of the mixed emotions investigated increased with age. Most older children reported believing mixed emotions were possible, and could provide plausible reasons for why the different combinations would occur, whereas fewer younger children could. However, children’s reports of their experience of mixed emotions in their own lives were poorer, and did not increase with age. There were no differences in abstract
understanding across the different emotion combinations, however differences were found across combinations in the children's reports of their own experience.

Boys and girls did not differ in their beliefs that mixed emotions were possible, but girls were more able to recognise them in their own lives, and to provide plausible reasons for experiencing them both in their own lives and in the abstract. Children were able to understand mixed emotions experienced by a fictional child and a fictional mother equally well. Most children reported that the mixed emotions investigated would be experienced as mixed up, and this did not change with age, gender, target, or emotion combination. The reported intensity of the mixed emotions also did not change with age or gender. A wide variety of reasons were provided for mixed emotion experience that included both everyday situations and major life events involving family relationships.

Most, but not all, children considered the experience of mixed emotions as something that they would not like. Their expectations of discomfort did not change with age, gender, target, or emotion combination. Various coping methods were reported, and those methods most frequently reported were considered appropriate for being strengthened through clinical intervention.

**Comparison Between Studies One and Two**

Overall, the development of mixed emotion understanding in anxious children in the first study appeared to follow a similar progression to the typically developing children in the second study. In both studies, older children appeared to have more difficulties understanding mixed emotions than younger children. Similarly, children in both studies appeared to have a good understanding of basic emotions, but had progressively more difficulties with understanding mixed emotions and reporting their own experiences of mixed emotions respectively.
Most, but not all, children in both studies reported experiencing at least some discomfort associated with mixed emotion experience and the coping strategies that anxious children described were similar to those reported by typically developing children. In both studies, the triggers for mixed emotions included both everyday situations and major life events.

One factor that might be specific to anxious children might be a particular difficulty with the combination of anger with a positive emotion. Embarrassment about feeling mixed emotions might also be specific to children experiencing anxiety concerns.

Theoretical Implications

The current project has theoretical implications for several aspects of mixed emotion understanding. These include the existence of mixed emotions, the process involved in children's development of mixed emotion understanding, the differentiation between children's understanding of mixed emotions and their experience of mixed emotions, the relationship between gender and mixed emotion understanding, the association between discomfort and mixed emotion experience, and the relationship between mixed emotion understanding and anxiety.

Overall, the findings of the current study provided further support for theories which argue that emotions can be mixed (Cacciopo & Bernstein, 1994) and against theories which argue that this cannot occur for certain combinations (Russell & Carroll, 1999; Watson & Tellegen, 1985). They demonstrated that mixed emotions can occur, consistent with previous research (Brehm & Miron, 2006; Carrera & Oceja, 2007; Goldstein & Strube, 1994; Larsen & McGraw, 2011; Larsen et al., 2001; Schimmack & Colcombe, 1999).
The findings from the current project suggest the following sequence in the development of the understanding of opposite-valence mixed emotions in the self and others. Children first understand that mixed emotions are possible, a step affected more by age than by gender. Next, they are able to provide plausible reasons to explain why specific combinations of emotions might occur, a step that is affected by both age and gender, with girls able to provide plausible reasons for the combinations they consider possible earlier than boys. At this point, both boys and girls recognise that the emotions which are mixed interact with each other, by describing the emotions as mixed up, rather than separate. No differences in reported emotional intensity are evident at either stage. The target of the emotion does not affect children's mixed emotion understanding at either stage.

Children's ability to report their own mixed emotion experiences seems to develop more gradually than their ability to understand mixed emotions. Children were slower in reporting their own personal experiences of mixed emotions; at all ages less than half of the children who reported that a mixed emotion experience was possible also reported an experience of this mixed emotion in their own lives. Girls of all ages were more able to report experiences of their emotions than boys. Both girls and boys appeared to have particular difficulty reporting the experience of feeling scared combined with feeling happy or loving, and were more able to report their personal experiences of feeling angry combined with feeling happy or loving.

When considering children's development of mixed emotion understanding, the thesis provided overall support for previous research that suggests that children's understanding of mixed emotions of opposite valences improves with age (Aldridge & Wood, 1997; Arsenio & Kramer, 1992; Donaldson & Westerman, 1986; Harter & Buddin, 1987; Reissland, 1985; Zajdel et al., 2013). However, while most children
demonstrated understanding of at least one mixed emotion, only a minority
demonstrated the same level of understanding for all combinations. This suggests
that understanding opposite-valence mixed emotions involves a longer
developmental trajectory and begins earlier than previous research has suggested.
Furthermore, some children demonstrated an understanding that basic emotions are
not necessarily unitary in valence suggesting that some children have a more
developed understanding of basic emotions that does not appear to be associated
with age. This suggests that children's identification of differing valences within basic
emotions might be an additional aspect of emotion understanding.

The current research differentiated between children's understanding of mixed
emotions and their experience of mixed emotions. It suggests that children might be
able to demonstrate a high degree of understanding of mixed emotions in the
abstract, but at the same time be less able or more reluctant to disclose their own
experiences of particular combinations of emotions, with some combinations being
particularly sensitive. The lower frequency of reported experiences of a positive
emotion in combination with fear suggests that children might find it especially
difficult to report feeling fear towards their mother, or having their mother feel fearful
or worried about them. This finding highlights the importance of methodology, as
asking children about their own experience of mixed emotions is likely to produce a
different profile of understanding than asking about their understanding of mixed
emotions in more abstract ways.

The current research provided further clarification on gender differences in
children's understanding of mixed emotions. There had been inconsistencies in
previous research as Wintre and Vallance (1994), and Brown and Dunn (1996), both
demonstrated that girls outperformed boys on measures of mixed emotion
understanding. In contrast, Donaldson and Westerman (1986) and Steele and colleagues (1999) found that the child's gender does not influence mixed emotion understanding. Aldridge and Wood (1997) found that girls initially outperformed boys in identifying mixed emotions, however both genders were found to perform equally from 10 years of age. In research by Larsen and colleagues (2007), older girls were more likely than younger girls to experience mixed emotions, however no differences were found between boys aged between 11 and 12 years, and boys aged between 8 and 9 years. Further research addressing a methodological constraint in this study found no differences between boys and girls with regard to mixed emotion understanding, however girls reported their own mixed emotion experience more frequently than boys (Zajdel et al., 2013).

It is likely that methodological differences could have contributed to differences in the above findings. The different studies worked with children of different ages and used different methodologies, including providing children with faces demonstrating mixed emotions (Steele et al., 1999), providing children with scenarios aimed at eliciting mixed emotions (Aldridge & Wood, 1997; Brown & Dunn, 1996; Donaldson & Westerman, 1986; Wintre & Vallance, 1994) and providing children with a film clip designed to investigate children's understanding and experience of mixed emotions (Larsen et al., 1997; Zajdel et al., 2013). The current study investigated gender differences more comprehensively on a range of indicators of mixed emotion understanding and across a range of ages. Gender differences emerged on only the more stringent tests of understanding.

The relationship between discomfort and mixed emotions was explored in the current research. The majority of children reported that the experience of mixed emotions would elicit discomfort, however a substantial minority reported that this
experience would be pleasant. These findings are consistent with previous research demonstrating that for most children, mixed emotions result in discomfort but that this experience is not universal (Whitesell & Harter, 1989). This provides further support for the evaluative space model (Cacioppo & Berntson, 1994), which posits that experiencing mixed emotions is expected to be unpleasant (Larsen et al., 2001).

The current research has also provided preliminary insight into mixed emotion understanding for children experiencing anxiety concerns. Although unable to provide further clear empirical support for research that suggests that children with anxiety concerns might also experience difficulties understanding experiences with mixed emotions (e.g. Kendall & Chansky, 1991), it has provided initial evidence that some differences might exist, for example, in the combinations of emotions children were likely to report.

Clinical Implications

The current research is clinically relevant to various assessment and intervention contexts in which children's understanding of mixed emotions is likely to be required, including legal assessments, clinical assessments, and clinical interventions. The findings of the current research suggest that boys and younger children of both genders are likely to be more vulnerable to difficulties understanding mixed emotions, and might therefore be more likely to experience associated difficulties in these contexts.

There are several implications for assessment and intervention derived from the current research. Firstly, when working with children, it is important to recognise that while some 6-year olds are able to understand opposite-valence mixed emotions, understanding develops gradually until children are at least 12 years of age, although it is likely that children continue to develop this understanding further.
Children's ability to report their own experiences of mixed emotions appears to develop even more gradually, with less than half of all children in all age groups who reported that a mixed emotion experience was possible reporting an experience of this mixed emotion in their own lives. In particular, children are most likely to experience difficulties with describing their own experiences of mixed emotion combinations involving happy and scared, or loving and scared. This is important as it demonstrates that children's reported understanding of emotions might depend on the specific emotions under investigation, and that even if a child is unable to demonstrate understanding of one mixed emotion, they might be able to demonstrate understanding of another mixed emotion. These findings also support previous recommendations (Aldridge & Wood, 1997) that questions asking whether the child likes a family member are problematic, because younger children in particular might not be able to express the positive and negative aspects of this relationship simultaneously.

Secondly, the marked differences between children's ability to describe hypothetical mixed emotions and their own personal experience of mixed emotions suggest that children might find it less confronting to describe an emotional experience in the context of a hypothetical situation rather than their own experience. The interview format used in the current study could be a valuable method for examining children's mixed emotions in a clinical setting because it allows them to talk about their own emotions indirectly.

Thirdly, across the different combinations of emotions, many more children felt that they would not like the experience of mixed emotions than felt that they would like it. This finding highlights the need for clinicians to be aware that while most children find mixed emotions uncomfortable, not all do, and that it would be
premature to conclude that a child experiencing mixed emotions is necessarily experiencing distress. Further, the most frequently described coping methods for managing mixed emotions were solving the problem, thinking in a positive manner, and engaging in a pleasant activity, all strategies that can be enhanced through therapeutic work. The studies also showed that some methods of coping might be particular to managing difficult emotions within relationships, such as being nice or helpful to a family member or spending time with the mother.

Finally the current research provided initial evidence for the appropriateness of using a story-based mixed emotion psychoeducation module in the context of the Cool Kids Anxiety Program (School Version) (Rapee et al., 2006), a cognitive behavioural group anxiety program within a school setting, for children reported to be experiencing anxiety concerns.

**Strengths and Limitations of the Current Research**

The current research had several strengths. It involved a systematic investigation of a range of aspects of mixed emotion understanding, including children's discomfort associated with mixed emotions and coping strategies for managing these.

The interview format used in both studies allowed specific questions to be asked about each opposite-valence combination of the five basic emotions of happy, loving, sad, scared, and angry. It also used direct and indirect questions regarding mixed emotions to offer children a less confronting way of describing their understanding of, and experiences with, mixed emotions.

An additional strength of the current research was that it explored mixed emotion understanding in children experiencing anxiety concerns. Another strength
was that it focused on mother-child relationships, which appear to be an important source of mixed emotions for children.

A major limitation of the current research overall were the sample sizes involved. Size was a particular limitation for Study One, as the smaller sample size meant that meaningful statistical analyses could not be conducted for this sample making it difficult to detect associations that might have existed and to generalise the findings. Although a large sample size was used in Study Two to investigate children's understanding of various combinations of emotions, the nature of the interview necessitated the cancellation of particular follow-on questions. This resulted in a limited sample size for investigating the more nuanced factors of mixed emotion understanding such as intensity, separability, discomfort, coping, and children's own experiences.

**Recommendations for Future Research**

Due to the limitations associated with sample size in the current study, repeated research with larger samples would assist in providing further clarity into the more specific areas of mixed emotions, including the experience of mixed emotions for children experiencing anxiety concerns. For Study One in particular, future research involving a setting that enables the presence of a control group would also be necessary to examine the effectiveness of the psychoeducation module for children experiencing anxiety concerns. By including a control group of anxious children that do not receive the story-based psychoeducation module, and thus controlling for many of the variables that could contribute to changes in children's mixed emotion understanding, more direct conclusions can be made about the effectiveness of the module.
The research demonstrated that children are able to identify examples involving mixed emotions not only for those situations that are likely to elicit intense emotions and where people are likely to ask them about how they are feeling, but also for more everyday events. This highlights the importance of examining both of these sources of mixed emotions in future research.

The current research can also be extended in the future by investigating other types of relationships, such as fathers, grandparents, siblings, and peers. This would be useful for those involved in the assessment of children for cases involving care and protection or the family court, and for working with children in individual, group, and family therapy, as this would clarify any differences in children’s understanding of mixed emotions in these relationships.

**Concluding Remarks**

Reconsider the case presented towards the beginning of the thesis where an 8-year old could only acknowledge love without the simultaneous hostility he felt towards his father (Harter, 1977). By examining the findings of the current research in the context of previous research and theoretical models, the thesis can assist a clinician working with a child experiencing these issues by providing further information about various aspects of the child’s understanding of mixed emotions, the potential discomfort the child might feel, and a preliminary strategy for addressing any difficulties associated with mixed emotions.
References


Family Law Act, Section 60CC (1975).


CHILDREN'S UNDERSTANDING OF MIXED EMOTIONS


doi:10.1080/00221325.2012.732125
Appendix A: Demographic Questionnaire (Study One)

DEMOGRAPHIC INFORMATION

Thank you for your interest in the Cool Kids Child Anxiety Program. To help determine whether the program is suitable for your child, it would be helpful if you could please provide us with some demographic information.

Child's Name: ________________________________

Date of Birth: ______________________________

Age: ______________________________

Sex: ______________________________

Languages Spoken At Home: ________________________________

Country of Birth: ________________________________

How many siblings does your child have, and what are their ages? ________________________________

Is your child currently on any medication? If so, please provide details ________________________________

Has your child ever received a previous diagnosis regarding emotional or behavioural concerns? If so, please provide details ________________________________

Does your child have any recent or current medical concerns? If so, please provide details ________________________________

Is there any other important information you feel we should be aware of? ________________________________
### Strengths and Difficulties Questionnaire

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of your child’s behaviour over the last six months.

Your child’s name: 

Date of birth: 

<table>
<thead>
<tr>
<th>Item</th>
<th>Not True</th>
<th>Somewhat True</th>
<th>Certainly True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considerate of other people’s feelings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restless, overactive, cannot stay still for long</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often complains of headaches, stomach-aches or sickness</td>
<td></td>
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<tr>
<td>Shares readily with other children, for example toys, treats, pencils</td>
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<tr>
<td>Often loses temper</td>
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<tr>
<td>Rather solitary, prefers to play alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generally well behaved, usually does what adults request</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many worries or often seems worried</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helpful if someone is hurt, upset or feeling ill</td>
<td></td>
<td></td>
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<tr>
<td>Constantly fidgeting or squirming</td>
<td></td>
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<tr>
<td>Has at least one good friend</td>
<td></td>
<td></td>
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<tr>
<td>Often fights with other children or bullies them</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often unhappy, depressed or tearful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generally liked by other children</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Easily distracted, concentration wanders</td>
<td></td>
<td></td>
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<tr>
<td>Nervous or clingy in new situations, easily loses confidence</td>
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<tr>
<td>Kind to younger children</td>
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<tr>
<td>Often lies or cheats</td>
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<tr>
<td>Picked on or bullied by other children</td>
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<tr>
<td>Often volunteers to help others (parents, teachers, other children)</td>
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<tr>
<td>Thinks things out before acting</td>
<td></td>
<td></td>
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<tr>
<td>Steals from home, school or elsewhere</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gets along better with adults than with other children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Many fears, easily scared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good attention span, sees chores or homework through to the end</td>
<td></td>
<td></td>
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</tbody>
</table>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side
Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

<table>
<thead>
<tr>
<th>No</th>
<th>Yes-minor difficulties</th>
<th>Yes-definite difficulties</th>
<th>Yes-severe difficulties</th>
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<td></td>
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</tbody>
</table>

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?
  - Less than a month
  - 1-5 months
  - 6-12 months
  - Over a year

- Do the difficulties upset or distress your child?
  - Not at all
  - Only a little
  - Quite a lot
  - A great deal

- Do the difficulties interfere with your child's everyday life in the following areas?
  - Not at all
  - Only a little
  - Quite a lot
  - A great deal
  - HOME LIFE
  - FRIENDSHIPS
  - CLASSROOM LEARNING
  - LEISURE ACTIVITIES

- Do the difficulties put a burden on you or the family as a whole?
  - Not at all
  - Only a little
  - Quite a lot
  - A great deal

Signature .......................................................... Date ...........................................

Mother/Father/Other (please specify)

Thank you very much for your help
Appendix C: Strengths and Difficulties Questionnaire (SDQ) – Children 11-12

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of your child’s behaviour over the last six months.

Your child’s name

Date of birth

<table>
<thead>
<tr>
<th>Strengths and Difficulties Questionnaire</th>
<th>Not True</th>
<th>Somewhat True</th>
<th>Certainly True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considerate of other people’s feelings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restless, overactive, cannot stay still for long</td>
<td></td>
<td></td>
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<tr>
<td>Often complains of headaches, stomach-aches or sickness</td>
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<tr>
<td>Shares readily with other youth, for example CD’s, games, food</td>
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<tr>
<td>Often loses temper</td>
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<tr>
<td>Would rather be alone than with other young people</td>
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<tr>
<td>Generally well behaved, usually does what adults request</td>
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<tr>
<td>Many worries or often seems worried</td>
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<tr>
<td>Gets along better with adults than with other young people</td>
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Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side
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If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

<table>
<thead>
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<th>Less than a month</th>
<th>1-5 months</th>
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- Do the difficulties upset or distress your child?

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<tr>
<th>Not at all</th>
<th>Only a little</th>
<th>Quite a lot</th>
<th>A great deal</th>
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- Do the difficulties interfere with your child's everyday life in the following areas?

<table>
<thead>
<tr>
<th>HOME LIFE</th>
<th>FRIENDSHIPS</th>
<th>CLASSROOM LEARNING</th>
<th>LEISURE ACTIVITIES</th>
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- Do the difficulties put a burden on you or the family as a whole?

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Only a little</th>
<th>Quite a lot</th>
<th>A great deal</th>
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</tbody>
</table>

Signature ......................................................... Date ........................................

Mother/Father/Other (please specify:)

Thank you very much for your help
Appendix D: Spence Children's Anxiety Scale – Parent Version (SCAS-P)

SPENCE CHILDREN'S ANXIETY SCALE
(Parent Report)

Your Name: __________________________ Date: ________________

Your Child’s Name: __________________________

BELOW IS A LIST OF ITEMS THAT DESCRIBE CHILDREN. FOR EACH ITEM PLEASE CIRCLE THE RESPONSE THAT BEST DESCRIBES YOUR CHILD. PLEASE ANSWER ALL THE ITEMS.

1. My child worries about things __________________________ Never Sometimes Often Always
2. My child is scared of the dark __________________________ Never Sometimes Often Always
3. When my child has a problem, s/he complains of having a funny feeling in his / her stomach __________________________ Never Sometimes Often Always
4. My child complains of feeling afraid __________________________ Never Sometimes Often Always
5. My child would feel afraid of being on his/her own at home __________________________ Never Sometimes Often Always
6. My child is scared when s/he has to take a test __________________________ Never Sometimes Often Always
7. My child is afraid when (s)he has to use public toilets or bathrooms __________________________ Never Sometimes Often Always
8. My child worries about being away from us / me __________________________ Never Sometimes Often Always
9. My child feels afraid that (s)he will make a fool of him/herself in front of people __________________________ Never Sometimes Often Always
10. My child worries that (s)he will do badly at school __________________________ Never Sometimes Often Always
11. My child worries that something awful will happen to someone in our family __________________________ Never Sometimes Often Always
12. My child complains of suddenly feeling as if (s)he can’t breathe when there is no reason for this __________________________ Never Sometimes Often Always
13. My child has to keep checking that (s)he has done things right (like the switch is off, or the door is locked) __________________________ Never Sometimes Often Always
14. My child is scared if (s)he has to sleep on his/her own __________________________ Never Sometimes Often Always
15. My child has trouble going to school in the mornings because (s)he feels nervous or afraid __________________________ Never Sometimes Often Always
16. My child is scared of dogs __________________________ Never Sometimes Often Always
17. My child can't seem to get bad or silly thoughts out of his / her head __________________________ Never Sometimes Often Always
18. When my child has a problem, s/he complains of his/her heart beating really fast __________________________ Never Sometimes Often Always
19. My child suddenly starts to tremble or shake when there is no reason for this. | Never
20. My child worries that something bad will happen to him/her. | Never
21. My child is scared of going to the doctor or dentist. | Never
22. When my child has a problem, (s)he feels shaky. | Never
23. My child is scared of heights (e.g. being at the top of a cliff). | Never
24. My child has to think special thoughts (like numbers or words) to stop bad things from happening. | Never
25. My child feels scared if (s)he has to travel in the car, or on a bus or train. | Never
26. My child worries what other people think of him/her. | Never
27. My child is afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds). | Never
28. All of a sudden my child feels really scared for no reason at all. | Never
29. My child is scared of insects or spiders. | Never
30. My child complains of suddenly becoming dizzy or faint when there is no reason for this. | Never
31. My child feels afraid when (s)he has to talk in front of the class. | Never
32. My child's complains of his/her heart suddenly starting to beat too quickly for no reason. | Never
33. My child worries that (s)he will suddenly get a scared feeling when there is nothing to be afraid of. | Never
34. My child is afraid of being in small closed places, like tunnels or small rooms. | Never
35. My child has to do some things over and over again (like washing his/her hands, cleaning or putting things in a certain order). | Never
36. My child gets bothered by bad or silly thoughts or pictures in his/her head. | Never
37. My child has to do certain things in just the right way to stop bad things from happening. | Never
38. My child would feel scared if (s)he had to stay away from home overnight. | Never
39. Is there anything else that your child is really afraid of? | YES
   Please write down what it is, and fill out how often (s)he is afraid of this thing: | Never

<table>
<thead>
<tr>
<th></th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
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<td>39</td>
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</tbody>
</table>
Appendix E: Principal Invitation Letter (Study One)

Kristie Thorneywork  
Department of Psychology  
Building 39 Daley Rd  
The Australian National University  
Canberra, ACT, 0200

Telephone: 6125 5168  
Facsimile: 6125 0499  
Email: kristie.thorneywork@anu.edu.au

Dear Principal,

My name is Kristie Thorneywork and I am currently completing a Doctor of Psychology (Clinical) at the Australian National University under the supervision of Dr. Bernd Heubeck. I am going to offer the COOL KIDS CHILD ANXIETY PROGRAM next semester as part of my studies and was wondering whether your school may be interested in taking part.

The Cool Kids Child Anxiety Program is a widely used, evidence-based group program based on cognitive behavioural techniques designed to assist children with managing anxiety. The program involves 10 x 1 hour sessions which will be run during class time, and 2 x optional 2 hour parent sessions. Groups will consist of 4-8 children of similar ages and the program will be run free of charge.

Screening measures will be sent out to interested parents to determine the suitability of the program for each child. Children will also be interviewed prior to participating in the study, and parents will also have the option of attending an interview. Children’s anxiety and emotion understanding will be discussed and examined prior to, during and at the cessation of the program in order to better understand the links between these factors. The study will be conducted by myself and a small quiet room would be required to run the study. All sessions will be audio taped. A member of staff would also be invited to be involved in the program, however this is not a requirement of the program.

Every attempt will be made to ensure that any information provided for this research, will be kept confidential among those involved in the program. Your participation in the study is entirely voluntary and consent would additionally be obtained from both parents and children before commencing the study. I would also be happy to provide a report for the school detailing the outcomes of my research.

If you have any questions about the study, please feel free to contact myself or Dr. Heubeck:

Dr. Bernd Heubeck  
Australian National University  
Tel: (02) 6125 0635  
Email: bernd.heubeck@anu.edu.au

Kristie Thorneywork  
Australian National University  
Tel: (02) 6125 4100  
Email: kristie.thorneywork@anu.edu.au

If you have any concerns regarding the way the research was conducted please contact the ANU Human Research Ethics Committee:

Human Ethics Officer  
Human Research Ethics Committee  
Australian National University  
Tel: 6125 7945  
Email: Human.Ethics.Officer@anu.edu.au

Many thanks,

Kristie Thorneywork
Appendix F: Parent Information Sheet (Study One)

Kristie Thorneywork
Department of Psychology
Building 39 Daley Rd
The Australian National University
Canberra, ACT, 0200

Dear Parent/Guardian,

Kristie Thorneywork, a psychologist from the Australian National University, will be offering the COOL KIDS CHILD ANXIETY PROGRAM at your child’s school next semester. Please read the information contained in this letter and keep it throughout the program.

The Cool Kids Child Anxiety Program is a widely used, evidence-based group program based on cognitive behavioural techniques designed to assist children with managing anxiety. The program involves 10 x 1 hour sessions which will be run during class time, and 2 x optional 2 hour parent sessions. Groups will consist of 4-8 children of similar ages and the program will be run free of charge. A school staff member may or may not be present during the program as it is not compulsory for a staff member to attend the program sessions.

If you are interested in your child participating in the study, please complete the attached consent form and return it in the addressed, reply paid envelope provided. It is important to remember that the program will not be suitable for all children and that places are limited, so providing consent does not guarantee your child a place in the program. After your consent has been received you will receive forms to help to identify whether the program is suitable for your child. You will be notified whether or not the program is considered appropriate.

If the program is considered suitable for your child, your child will be interviewed individually with the researcher to further understand their concerns. You will also be invited to attend an interview to discuss your concerns further, however this is optional. Children will also be provided with information about emotions and children’s anxiety and emotion understanding will be examined prior to, during and at the cessation of the program in order to better understand the links between these factors.

The study will be conducted with Kristie Thorneywork and will contribute to her doctoral thesis in Psychology. If you would like a copy of the final results, please feel free to contact Kristie Thorneywork.

Every attempt will be made to ensure that any information provided for this research, including your child’s results, will be kept confidential among those involved in the program. Your participation in the study is entirely voluntary and your child’s consent to participate in the study will also be obtained. You are also free to withdraw from the study at any time should either you or your child wish to.

Contact Names and Phone Numbers:

If you have any questions about the study please feel free to contact:
Dr. Bernd Heubeck
Australian National University
Tel: (02) 6125 0635
Email: bernd.heubeck@anu.edu.au

Kristie Thorneywork
Australian National University
Tel: (02) 6125 4100
Email: kristie.thorneywork@anu.edu.au

If you have any concerns regarding the way the research was conducted please contact the ANU Human Research Ethics Committee:
Human Ethics Officer
Human Research Ethics Committee
Australian National University
Tel: 6125 7945
Email: Human.Ethics.Office@anu.edu.au
Appendix G: Parental Consent Form (Study One)

CONSENT FORM

I, ........................................, agree to allow my son/daughter .............................., to participate in the COOL KIDS CHILD ANXIETY PROGRAM as part of the research conducted by Dr. Bernd Heubeck and Kristie Thorneywork. I have read the information sheet for this study and understand its contents.

1. I understand that my child will be offered 10 sessions which will be run during school hours and that parents will be offered 2 optional sessions which will be run outside of school hours.

2. I understand that the program will be run free of charge and that I will receive both a child and a parent workbook for the Cool Kids Child Anxiety Program.

3. I understand that a school staff member will be invited but is not required to be present during the Cool Kids Child Anxiety Program and as such a staff member may or may not attend throughout the program.

4. I am aware that participation in the Cool Kids Child Anxiety Program involves testing that will contribute to research about the relationship between emotion understanding and anxiety in children.

5. I understand that participation is voluntary, and that my son/daughter is free to withdraw from the research at any time.

6. I understand that providing consent does not ensure that my child will participate in the program, and that I will be advised whether or not the program is suitable for my child.

7. I am aware that the research will contribute to a doctoral thesis.

8. I understand that sessions will be audio recorded.

9. I understand that names and all other identifying information will be suppressed in all published work.

10. I am aware that all raw data will be stored in locked filing cabinets in the School of Psychology and on a password protected computer accessed only by those involved in the study.

Signed ........................................ Date .........................

Please provide your contact details:
Name:
Address:
Contact Phone Number:
Thank you for participating in the Cool Kids Child Anxiety Program. If you have any comments or suggestions regarding the program, please write these in the space below.

NAME: ________________________________

COMMENTS/SUGGESTIONS: ________________________________

__________________________________________________________________________

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Appendix I: Principal Invitation Letter (Study Two)

Kristie Thorneywork
School of Psychology, Building 39
Faculty of Science
Canberra ACT 0200

Dear Principal,
My name is Kristie Thorneywork and I am currently completing a Doctor of Psychology (Clinical) at the Australian National University. As part of my studies, I am conducting a research study under the supervision of Dr. Bernd Heubeck and was wondering whether your school may be interested in taking part.

The current study is investigating children's understanding of mixed emotions, which are those such as the mixture of excitement and fear on a child's first day of school. Mixed emotions are particularly common in children's family relationships, yet little is known about how well children understand them in this context. This study will therefore investigate children's understanding of mixed emotions in family relationships, factors that influence this understanding, and the impact of difficulties in understanding on coping strategies.

The study involves the children imagining possible reasons behind the feelings of a fictional character, answering some questions about their emotions and completing some brief questionnaires and measures. The study should take no longer than 60 minutes for the child to complete. Parents will also be given a questionnaire about their child which should take approximately 15 minutes to complete. The study will be conducted by myself and a small quiet room would be required to run the study.

Every attempt will be made to ensure that any information provided will be kept confidential. Your participation in the study is entirely voluntary and consent would additionally be obtained from both parents and children before commencing the study. I would also be happy to provide a report for the school detailing the outcomes of my research.

If you have any questions about the study, please feel free to contact myself or Dr. Heubeck:
Dr. Bernd Heubeck
Australian National University
Tel: (02) 6125 0635
Email: bernd.heubeck@anu.edu.au

Kristie Thorneywork
Australian National University
Tel: (02) 6125 4100
Email: kristie.thorneywork@anu.edu.au

If you have any concerns regarding the way the research was conducted please contact the ANU Human Research Ethics Committee:
Human Ethics Officer
Human Research Ethics Committee
Australian National University
Tel: 6125 7945
Email: Human.Ethics.OFFicer@anu.edu.au

Many thanks,

Kristie Thorneywork
Appendix J: Parent Information Sheet (Study Two)

Kristie Thorneywork
Department of Psychology
Building 39 Daley Rd
The Australian National University
Canberra, ACT, 0200

Dear Parent/Guardian,

This letter provides information about a study that is being conducted at your child’s school. Please read this letter carefully and keep it throughout the study.

Parents often wonder about their child’s emotions and sometimes see their children struggling to understand their own emotions as well. This study hopes to examine the way that children understand their emotions and the factors that influence how well children understand their own emotions in family relationships. The research is being conducted by the Australian National University and will contribute to Kristie Thorneywork’s doctoral thesis in Psychology.

The study involves children imagining possible reasons behind the feelings of a fictional character. They will be asked questions about these feelings and their own feelings, and asked to complete some brief questionnaires about their emotions. Their verbal language abilities will also be measured. The entire study should take no longer than 60 minutes and should cause your child no distress. You will also be asked to complete a questionnaire about your child which should take approximately 15 minutes. If you consent to your child participating in the study, please post the questionnaire and consent form in the addressed, reply paid envelope provided.

This study will be conducted individually with Kristie Thorneywork from the Australian National University. If you would like a copy of the final results, please feel free to contact Kristie Thorneywork.

Every attempt will be made to ensure that any information provided, including your child’s results, will be kept confidential. Your participation in the study is entirely voluntary and your child’s consent to participate in the study will also be obtained. You are also free to withdraw from the study at any time should either you or your child wish to.

Contact Names and Phone Numbers:
If you have any questions about the study please feel free to contact:
Dr. Bernd Heubeck
Australian National University
Tel: (02) 6125 0635
Email: bernd.heubeck@anu.edu.au

Kristie Thorneywork
Australian National University
Tel: (02) 6125 4100
Email: kristie.thorneywork@anu.edu.au

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Email: Human.Ethics.Offercer@anu.edu.au

Telephone: 6125 4100
Facsimile: 6125 0499
Email: kristie.thorneywork@anu.edu.au
Appendix K: Parental Consent Form (Study Two)

CONSENT FORM

I, ........................................, agree to allow my son/daughter ............................., to participate in the emotion study conducted by Dr. Bernd Heubeck and Kristie Thorneywork. I have read the information sheet for this study and understand its contents.

1. I am aware that the testing will provide information about how children understand emotions in family relationships and the factors that contribute to their understanding of emotions.

2. I understand that the testing will contribute to research about the development of emotion understanding in children.

3. I understand that participation is voluntary and that my son/daughter is free to withdraw from the study at anytime.

4. I am aware that the research will contribute to a doctoral thesis.

5. I understand that names and all other identifying information will be suppressed in all published work.

6. I am aware that all raw data will be stored in locked filing cabinets in the School of Psychology and on a password protected computer accessed only by Dr. Bernd Heubeck and Kristie Thorneywork.

Signed .................................... Date ..........................
Appendix L: Demographic Questionnaire (Study Two)

STUDY ON CHILDREN'S UNDERSTANDING OF EMOTIONS

Thank you for allowing your child to participate in the study of emotions in family relationships. Before we can begin the study, it would be helpful if you could provide us with some demographic information.

Child's Name: _______________________
Date of Birth: _______________________
Age: _______________________________
Sex: ________________________________
Languages Spoken At Home: _______________
Country of Birth: _______________________
How many siblings does your child have, and what are their ages? _______________________
Is your child the oldest, second, third ….. or the youngest child? _______________
What is your relationship to the child (e.g. father, step-mother, grandfather etc)? _______________________
Who is your child's primary caregiver? _______________________________________
Including yourself, please describe which adults live with the child at home (e.g. mother, step-father, grandmother) and their occupations.

Adult:  
1. _______________________________  
   Job: _______________________________
2. _______________________________  
   Job: _______________________________
3. _______________________________  
   Job: _______________________________
4. _______________________________  
   Job: _______________________________
5. _______________________________  
   Job: _______________________________
6. _______________________________  
   Job: _______________________________
# Appendix M: Major Life Events and Changes Questionnaire (MLECQ)

**MAJOR LIFE EVENTS OR CHANGES**

For each sentence on the list first circle either YES if this has happened to your child, or NO if this has never happened to your child. Then, if it has happened to your child, circle on the right side how much you feel it has bothered your child.

<table>
<thead>
<tr>
<th>Event</th>
<th>YES</th>
<th>NO</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>He/she has moved homes more than twice</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Someone close to him/her died</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>A baby brother or sister was born</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>He/she experienced separation or divorce</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>He/she was seriously ill</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>His/her parents had a serious accident or illness</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>One of his/her parents remarried</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>He/she was a victim of crime (assault/abuse/theft)</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>He/she was in a serious car accident</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>One of his/her parents lost his/her job when they did not want to</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>His/her parents had to work at a lot and were not home much</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>He/she had to repeat a year of school</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>His/her house was robbed</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Any other major life events that your child has lived through? Please write here what it was:</td>
<td>YES</td>
<td>NO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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### Table N1

**Comparison of Boys' Understanding of the Possibility of Different Combinations of Emotions Existing by Age**

<table>
<thead>
<tr>
<th></th>
<th>Happy And Angry Possible</th>
<th>Happy And Sad Possible</th>
<th>Happy And Scared Possible</th>
<th>Loving And Angry Possible</th>
<th>Loving And Sad Possible</th>
<th>Loving And Scared Possible</th>
</tr>
</thead>
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<tr>
<td><strong>Child Towards Mum:</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Age 6</td>
<td>4 (57%)</td>
<td>3 (43%)</td>
<td>4 (57%)</td>
<td>3 (43%)</td>
<td>2 (29%)</td>
<td>2 (29%)</td>
</tr>
<tr>
<td>Age 7</td>
<td>4 (57%)</td>
<td>4 (57%)</td>
<td>3 (43%)</td>
<td>5 (71%)</td>
<td>5 (71%)</td>
<td>4 (57%)</td>
</tr>
<tr>
<td>Age 8</td>
<td>4 (57%)</td>
<td>7 (100%)</td>
<td>2 (20%)</td>
<td>3 (43%)</td>
<td>3 (43%)</td>
<td>3 (43%)</td>
</tr>
<tr>
<td>Age 9</td>
<td>4 (57%)</td>
<td>7 (100%)</td>
<td>3 (43%)</td>
<td>4 (57%)</td>
<td>5 (71%)</td>
<td>4 (57%)</td>
</tr>
<tr>
<td>Age 10</td>
<td>4 (57%)</td>
<td>6 (86%)</td>
<td>4 (57%)</td>
<td>3 (43%)</td>
<td>5 (71%)</td>
<td>3 (43%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>6 (86%)</td>
<td>7 (100%)</td>
<td>6 (86%)</td>
<td>5 (71%)</td>
<td>6 (86%)</td>
<td>5 (71%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>5 (83%)</td>
<td>3 (60%)</td>
<td>5 (83%)</td>
<td>4 (67%)</td>
<td>3 (50%)</td>
<td>2 (33%)</td>
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<tr>
<td><strong>Total</strong></td>
<td>31 (65%)</td>
<td>37 (77%)</td>
<td>27 (56%)</td>
<td>27 (56%)</td>
<td>29 (60%)</td>
<td>23 (48%)</td>
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<tr>
<td><strong>Mum Towards Child:</strong></td>
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</tr>
<tr>
<td>Age 6</td>
<td>2 (29%)</td>
<td>1 (14%)</td>
<td>2 (29%)</td>
<td>4 (57%)</td>
<td>1 (14%)</td>
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Table N2

Comparison of Girls' Understanding of the Possibility of Different Combinations of Emotions Existing by Age

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### Table N3

**Comparison of Boys' Ability to Provide Plausible Reasons for Different Combinations of Emotions by Age**

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Appendix O: Coded Concepts and Categories for Reasons Children Provided for Mixed Emotions (Question B)

1. Mother And Child Separation
   - Child Alone
   - Child Going Away
   - Moving House
   - Child Moving Out
   - Mum Away General
   - Mum Away For Work
   - Mum Away On Holiday
   - Child Lost
   - Child Did Something Disagreeable But Has Returned Home
   - Child Returns After Being Away But Something Not Right

2. Moving Home
   - Moving Home

3. Atypical Family Structure
   - Adopted
   - No Father
   - New Step-Mother
   - Parent Divorce

4. Mum Unemployment
   - Mum Unemployed
   - New Job After Unemployment

5. Child Death
   - Child Death

6. Mum Death
   - Mum Death

7. Death Of Other
   - Death General
   - Death of Family Friend
   - Death of Family Member
   - Friend Of Child Death

8. Pet Death
   - Mum Killed New Pet
   - Mum Gave News Of Pet Death

9. Child Supernatural Character
   - Child Supernatural Character

10. Mum Supernatural Character
    - Mum Supernatural Character

11. Child Scared In Fun
    - Child Scared In Fun

12. Mum Scared In Fun
    - Mum Scared In Fun (General)
    - Mum Joked But Child Was Scared She Was Not Joking
13. Child Bullied
   - Child Bullied

14. Child Scary Appearance
   - Child Ugly
   - Child Wearing Costume

15. Mum Scary Characteristic
   - Horrible Mum
   - Mum Evil
   - Mum Plastic Surgery
   - Mum Scary Makeup
   - Tough Mum
   - Mum Ugly

16. Happy Sad Feeling
   - Happy Sad Feeling

17. Child Negative Emotion
   - Child Upset
   - Child Angry But Affectionate
   - Child Previously Upset
   - Child Unhappy But Obeying Mother

18. Mum Upset
   - Mum Upset

19. Angry Mother/Child Interaction
   - Mum Yelling
   - Mum Angry
   - Fighting With Mum
   - Child In Trouble
   - Sibling In Trouble

20. Child Poor Health Past or Present
   - Child Sick
   - Child Injured
   - Child In Hospital
   - Child Nearly Died But Still Alive

21. Mum Poor Health Past or Present
   - Mum Sick
   - Mum Injured
   - Mum Surgery
   - Mum In Hospital
   - Mum Bad History

22. Child Involved In Potential Danger
   - Child Doing Something Dangerous
   - Child In Danger
   - Child Received Dangerous Present

23. Child Attacked
   - Child Attacked (General)
   - Something Bad Happened To Child That Was Also Helpful

24. Mum Asked Child To Do Something Scary
   - Mum Asked Child To Do Something Scary But Provided Assistance
   - Mum Asked Child To Do Something Scary For Reward
25. Mum Involved In Something Scary
   - Something Scary Happening To Mum But Not Serious
   - Mum Doing Something Scary But Child Still Loving
   - Mum Doing Something Scary For Good Reason
   - Something Scary Happened To Mum But There Is A Solution

26. Child Honesty
   - Child Told The Truth
   - Child Admitted To Something Wrong Done
   - Child Confessed A Lie

27. Child Unsuccessful
   - Child Achieved To Enter Competition But Unsuccessful
   - Child Tried But Unsuccessful

28. Child Going To School
   - Child Going To Boarding School
   - Child Going To High School
   - Child Going To School (General)

29. Imperfect Present Or Special Event
   - Imperfect Present
   - Present But Restricted Use
   - Present But Not Another Present
   - Stolen Present
   - Unknown Present
   - Present But Has To Wait
   - Present High Cost
   - Present But Preferred Alternate Payment
   - Child Got Something Good But Mum Couldn't Use It
   - Mum Got Something Good But Child Couldn't Use It
   - Mum Didn't Give Child Something Good But Child Helped Her Get It
   - Imperfect Special Event
   - Imperfect Mum Special Event
   - Incomplete Special Event Plans
   - Having Fun But Having To Stop
   - Child Did Something Disagreeable But Going To Special Event

30. Negative Emotion About Future
   - Mum Happy With Child But Sad About What Could Happen
   - Mum Loves Child But Sad About What Could Happen
   - Mum Happy With Child But Scared Of What Might Happen
   - Child Loves Mum But Scared Of What Might Happen
   - Mum Loves Child But Scared Of What Might Happen
   - Mum Doing Nice Thing But Scared Of What Might Happen

31. Reward/Avoiding Punishment
   - Mum Punished But Provided An Opportunity To Avoid This
   - Reward For Doing Something Disagreeable
   - Scared Would Not Receive Reward

32. Child/Mum Reaction
   - Mum Scared Of Own Reaction
   - Mum Scared Of Child's Reaction
   - Mum Angry About Own Reaction
33. Undesirable Non-Family Relationships
   o Undesirable Child Friend Moving Away
   o Influence Of Child New Friends
   o Mum Broke Up With Boyfriend Child Disliked
   o Child Broke Up With Boyfriend Mum Disliked
34. Child Uncertain About What Mum Was Doing
   o Child Uncertain About What Mum Was Doing
35. Child Did Something Disagreeable Qualified
   o Child Did Something Disagreeable But Child Loves Mum
   o Child Did Something Disagreeable But Mum Loves Child
   o Child Did Something Disagreeable But Apologetic
   o Child Did Something Disagreeable But Took Responsibility
   o Child Did Something Disagreeable But Mum Forgiving
   o Child Did Something Disagreeable But Mum Wouldn't Leave
   o Child Did Something Disagreeable With Good Intentions
   o Child Did Something Disagreeable But It Wasn't All Bad
   o Child Did Something Disagreeable But Is Safe
   o Child Did Something Disagreeable But Stopped
   o Child Did Something Disagreeable But Mum Fixed Problem
   o Poor School Performance
   o Child Injured Mum
36. Mum Did Something Disagreeable Qualified
   o Mum Did Something Disagreeable But Mum Loves Child
   o Mum Did Something Disagreeable But Child Still Loves Mum
   o Mum Did Something Disagreeable That Was Fair
   o Mum Did Something Disagreeable But Apologetic
   o Mum Does Something Child Doesn't Like For Good Reason
   o Mum Couldn't Do Something But It Wasn't All Bad
   o Mum Wouldn't Help But Still Loved Mum
   o Mum Lost Present Child Gave Her
   o Mum Couldn't Afford Present For Child
   o Mum Accused Of Illegal Activity
   o Mum Embarrasses Child But Happy To Have Mum
   o Mum Did Something Disagreeable With Good Outcome
   o Mum Didn't Do Something Good But Something Disagreeable Happened To Her
   o No Permission For Something But Mum Loves Child
   o No Permission For Something But Child Loves Mum
   o No Permission To Do Something But Permission To Do It Another Time
   o No Permission To Do Something But Apologetic
   o No Permission To Do Something But Mum Does Nice Things
   o Mum Punished But Child Loves Mum
   o Mum Punished But Mum Loves Child
   o Mum Punished Unfairly But Mum Cares For Child
37. Child Did Something Agreeable Qualified
   o Child Did Something Agreeable But Mum Unable To See It
   o Child Did Something Agreeable In The Wrong Way
   o Child Did Something Agreeable At The Wrong Time
38. Mum Did Something Agreeable Qualified
   o Child Got To Avoid Something Disagreeable But It Wasn't All Good
   o Mum Did Something Agreeable With Bad Outcome
   o Mum Did Something Agreeable In The Wrong Way
39. Child Did Good Thing And Bad Thing
   o Child Did Good Thing And Bad Thing (General)
   o School Performance
40. Mum Did Good Thing And Bad Thing
   o Mum Did Good Thing And Bad Thing (General)
   o Mum Did Good Thing And Embarrasses Child
   o Permission For One Thing Not Another
   o Child Is Doing Something Agreeable But Mum Doing Something Disagreeable
42. Something Good And Bad Happened To Mum
   o Something Good And Bad Happened To Mum
43. Child Wants To Do Something For Mum But Can't
   o Child Can't Help Mum
   o Made Present That Wasn't Perfect
44. Mum Providing Assistance Or Comfort To Child
   o Mum Tried To Help But Couldn't
   o Mum Soothing Sad Child
### Table P

**Children's Description of Reasons Provided for Different Combinations of Emotions**

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Appendix Q: Coded Concepts and Categories for Coping Strategies Children
Provided for Managing Discomfort Elicited by Mixed Emotions (Question G)

1. Solve Problem
   - Solve Problem

2. Apologise
   - Apologise

3. Pleasant Activity
   - Play Alone
   - Play With Family
   - Play With Friend
   - Play With Pet
   - Play With Someone (General)
   - Play (General)
   - Read
   - Do Something Enjoyable
   - Draw
   - Sing
   - Watch Movie
   - Listen To Music
   - Play Instrument
   - Get Dad To Entertain
   - Do Other Things
   - Fishing
   - Prank
   - Get Something Enjoyable

4. Eat Or Drink
   - Eat
   - Drink
   - Get Food

5. Physical Relaxation
   - Rest
   - Calm Down
   - Relax
   - Sleep

6. Exercise
   - Exercise

7. Focus On Maintaining Positive Aspect
   - Focus On Maintaining Positive Aspect

8. Avoid Negative Aspect
   - Avoid Negative Aspect

9. Think About Situation
   - Think About Situation
10. Think In A Positive Manner
   - Think Of Something Positive
   - Think Of The Positive Aspect
   - Think Optimistically

11. Avoidance Of Thoughts
   - Avoid Thinking About The Negative Aspect
   - Pretend The Situation Is Different
   - Avoid Thinking About It

12. Be Nice Or Helpful To Family Member
   - Do Something Nice For Mum
   - Say Something Nice To Mum
   - Be Nice To Mum
   - Help Mum
   - Do Nice things For Parents
   - Help Family Member
   - Do Something Good That Mum Would Appreciate

13. Talk With Someone
   - Talk With Someone (General)
   - Talk With People (General)
   - Talk With Mum
   - Talk With Friend
   - Talk With Coach
   - Seek Reassurance
   - Fight With Mum

14. Spend Time With Mum
   - Spend Time With Mum

15. Hug Someone Or Something
   - Hug Inanimate Object
   - Hug Someone (General)
   - Hug Mum
   - Hug Dad

16. Be Alone
   - Be Alone

17. Seek Understanding
   - Seek Information
   - Try To Understand Feelings

18. Emotional Expression
   - Cry
   - Physical Expression Of Anger
   - Written Expression

19. Acceptance Of No Change
   - Get Over It
   - Accept Current Situation

20. Do Nothing
   - Do Nothing

21. Unsure
   - Unsure
### Table R

**Children's Description of Coping Strategies for Different Combinations of Emotions**

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Children's Description of Coping Strategies for Different Combinations of Emotions (Continued)

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Table S1

Number of Boys Reporting Experience of Different Combinations of Emotions by Age

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<th>Loving And Sad Experience</th>
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* Percentages of children who were asked about their own emotion experience and who reported experiencing this for each combination of emotions are included in this table. Children not asked this question due to administrative error or due to not stating that the combination of emotion was possible are not included in these percentages.
Table S2

Number of Girls Reporting Experience of Different Combinations of Emotions by Age

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<td>5 (19%)</td>
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<td>14 (47%)</td>
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<td>14 (58%)</td>
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* Percentages of children who were asked about their own emotion experience and who reported experiencing this for each combination of emotions are included in this table. Children not asked this question due to administrative error or due to not stating that the combination of emotion was possible are not included in these percentages.
Table S3

Number of Boys Reporting Plausible Reasons for the Experience of Different Combinations of Emotions by Age

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</tr>
<tr>
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<td>1 (20%)</td>
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</tr>
<tr>
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<td>1 (14%)</td>
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<td>2 (40%)</td>
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<tr>
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<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6 (19%)</td>
<td>4 (11%)</td>
<td>8 (30%)</td>
<td>5 (17%)</td>
<td>3 (13%)</td>
<td></td>
</tr>
</tbody>
</table>

| **Mum Towards Child:** |                            |                          |                             |                            |                            |                              |
| Age 6                  | 1 (50%)                    | 0 (0%)                   | 0 (0%)                      | 0 (0%)                     | 0 (0%)                     | 0 (0%)                       |
| Age 7                  | 0 (0%)                     | 0 (0%)                   | 1 (25%)                     | 0 (0%)                     | 0 (0%)                     | 0 (0%)                       |
| Age 8                  | 0 (0%)                     | 0 (0%)                   | 0 (0%)                      | 0 (0%)                     | 1 (25%)                    | 1 (25%)                      |
| Age 9                  | 0 (0%)                     | 0 (0%)                   | 0 (0%)                      | 0 (0%)                     | 0 (0%)                     | 0 (0%)                       |
| Age 10                 | 2 (40%)                    | 2 (41%)                  | 1 (33%)                     | 1 (50%)                    | 0 (0%)                     | 1 (25%)                      |
| Age 11                 | 2 (40%)                    | 1 (17%)                  | 2 (40%)                     | 2 (50%)                    | 1 (17%)                    | 0 (0%)                       |
| Age 12                 | 0 (0%)                     | 0 (0%)                   | 0 (0%)                      | 1 (25%)                    | 1 (20%)                    | 0 (0%)                       |
| **Total**              | 5 (17%)                    | 3 (11%)                  | 4 (18%)                     | 4 (18%)                    | 3 (11%)                    | 2 (9%)                       |

* Percentages of children who were asked about their own emotion experience and who reported experiencing this, and provided a reason for this experience, for each combination of emotions are included in this table. Children not asked this question due to administrative error or due to not stating that the combination of emotion was possible are not included in these percentages.
Table S4

Number of Girls Reporting Plausible Reasons for the Experience of Different Combinations of Emotions by Age

<table>
<thead>
<tr>
<th></th>
<th>Happy And Angry Experience</th>
<th>Happy And Sad Experience</th>
<th>Happy And Scared Experience</th>
<th>Loving And Angry Experience</th>
<th>Loving And Sad Experience</th>
<th>Loving And Scared Experience</th>
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<tr>
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<tr>
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<td>3 (60%)</td>
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<td>1 (33%)</td>
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<tr>
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<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (33%)</td>
<td>0 (0%)</td>
</tr>
<tr>
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<td>3 (50%)</td>
<td>1 (20%)</td>
<td>3 (100%)</td>
<td>2 (33%)</td>
<td>1 (25%)</td>
</tr>
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<td>1 (17%)</td>
<td>3 (43%)</td>
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<td>1 (33%)</td>
<td>4 (80%)</td>
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<td>9 (30%)</td>
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<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
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<tr>
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<td>1 (25%)</td>
<td>2 (67%)</td>
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<td>1 (20%)</td>
<td>2 (67%)</td>
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<td>1 (25%)</td>
<td>1 (25%)</td>
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<td>Age 9</td>
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<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (100%)</td>
<td>0 (0%)</td>
<td>1 (33%)</td>
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<td>Age 10</td>
<td>4 (80%)</td>
<td>2 (40%)</td>
<td>1 (20%)</td>
<td>2 (50%)</td>
<td>2 (40%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td>Age 11</td>
<td>4 (67%)</td>
<td>1 (14%)</td>
<td>1 (17%)</td>
<td>2 (33%)</td>
<td>1 (14%)</td>
<td>2 (33%)</td>
</tr>
<tr>
<td>Age 12</td>
<td>1 (25%)</td>
<td>2 (67%)</td>
<td>2 (40%)</td>
<td>3 (60%)</td>
<td>3 (60%)</td>
<td>2 (50%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16 (55%)</td>
<td>8 (20%)</td>
<td>7 (25%)</td>
<td>11 (46%)</td>
<td>8 (28%)</td>
<td>8 (32%)</td>
</tr>
</tbody>
</table>

* Percentages of children who were asked about their own emotion experience and who reported experiencing this, and provided a reason for this experience, for each combination of emotions are included in this table. Children not asked this question due to administrative error or due to not stating that the combination of emotion was possible are not included in these percentages.