Parent-Child Emotion Talk, Parent-Child Physical Touch and Children's Understanding of Emotions

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Abstract

The aim of the present research was to analyze parent-child emotion talk and parent-child physical touch and their relation with children's understanding of emotions. A total of sixty-three children (30 girls and 33 boys), aged 4 (M = 53.35 months, SD = 3.86; range = 48 - 60 months) and 6-years-old (M= 76.62 months, SD = 3.91; range = 72- 84 months) participated with both of their parents. Parent-child interviews took place in the participants' own homes. On a first visit, the mother or the father and the child completed two storytelling tasks. One of these tasks involved a storytelling task and the other involved a four events reminiscence task. Within a minimum of one day and a maximum of seven days, the other parent and the child completed the same two tasks. Parent-child emotion talk and parent-child physical touch was analyzed throughout both tasks. The findings indicated that mothers and fathers did not differ in how they talk about emotions. Indeed, mothers' and fathers' talk correlated with each other and with their children's emotion talk. However, mothers and fathers talked more about emotions with their daughters than with their sons. Parents discussed more often happiness with their daughters than with their sons. No gender or age differences were found in children's emotion talk. The analysis of parent-child touch revealed that where age differences were found, findings indicated that parent-child touch decreased as children grow older. Where parent gender differences were found, results show that mothers were more physically affectionate than are fathers. In addition, children completed twice a standardised test of emotion understanding (Test of Emotion Comprehension, TEC). On the first occasion the TEC was administered before one of the two parent-child storytelling sessions. Six months later it was administered again. Findings indicated that emotion understanding is predicted by prior emotion understanding. Above and beyond prior emotion understanding, fathers' emotion explanations during the events task predicted children's emotion understanding and mothers' use of emotion labels during the storytelling task predicted

children's emotion understanding. On the contrary, parents' physical touch was not related to children's emotion understanding. Finally, children completed a test (Test of Behavioural Consequences of Emotions, TBCE) analyzing the relation between emotions and their behavioural consequences. Six-year-old children had a greater understanding that emotions influence situations than did four-year-old children. Moreover, understanding that emotions influence situations was related to mentalistic aspects of emotion understanding. The implications of these findings for future research on children's socializations of emotions are discussed.

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This project is dedicated to my husband, Alejandro, and to my four boys, Alejandro, Rodrigo, Pelayo, and Alonso.

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Chapter 1

The Relevance of the Study of Children's Emotion Understanding

Biology determines how humans react to the different events that they encounter during their lives. However, what is not biologically determined, is how humans understand, express and relate to their own and other people's emotions. Children learn about emotions by watching others' emotions, by observing how others respond to their emotions, and through parents' and carers' explicit teaching about emotions (Denham, Basset, & Wyatt, 2007). These three mechanisms are learnt through a process that has been called socialization of emotions (Kennedy Root & Denham, 2010).

Two key processes are implicated in children's emotion socialization. One is a direct influence, through which children learn about emotions through their parents' reactions to their emotions and through parent-child emotion talk (Denham et al., 2007). When children are very young parents are their main socialization agents, as children grow older, peers, teachers, siblings, their extended family and the media also become important socialization agents (Brand & Klimes-Dougan, 2010; Rich Harris, 1995). The second influence on children's socialization of emotions is indirect and includes the emotional climate in their family (Denham et al., 2007), the quality of attachment, the presence or absence of marital conflict, the family's global warmth, and the existence of hostility (Zahn-Waxler, 2010). In addition, because families do not live in a social vacuum, children's socialization of emotions is influenced by other factors such as the culture where the family lives, their social class, their language abilities, and parents' and children's gender (Denham et al., 2007; Brand & Klimes-Dougan, 2010).

When children successfully learn how to understand, regulate and express their own and others' emotions, they achieve emotional competence (Denham et al., 2007). Emotional

competence is the ability to regulate feelings in a socially appropriate manner and to be able to explain those feelings. Such competence also includes recognizing, understanding, and responding in a socially appropriate manner to their own feelings and to other people's feelings (Halberstadt, 2002).

1.1.Emotion Understanding and Children's Social Development

Emotion understanding alongside other dimensions, such as intelligence, has been found to be an early predictor of later social adaptation (Izard, Fine, Schultz, Mostow, Ackerman, & Youngstrom, 2001). More specifically, children's understanding of emotions predicts children's peer acceptance and popularity, as well as children's prosocial behaviour and emotion regulation skills (Cassidy, Parke, Butkovsky, & Braungart, 1992; Denham, McKinley, Couchoud, & Holt, 1990; Garner, Jones, & Miner, 1994; Garner & Power, 1996). Moreover, children who have difficulty understanding emotions have problems in their social relations with others (Denham et al., 1990).

Children who demonstrate a good level of emotion understanding are more accepted by their peers because they are more capable of responding to others in an appropriate way. In turn, others are more likely to respond to them in a positive way (Denham et al., 1990). Indeed, children who use emotion words more frequently are preferred by their peers over children who mention emotions words less frequently (Fabes, Eisenberg, Hanish, & Spinrad, 2001). Similarly, children with a high level of emotion understanding seem to have certain cognitive abilities that make it easier for them to act successfully and appropriately in different social situations (Denham, 1997). In contrast, children who lack social understanding may be unable to process important social information, which makes it more difficult for them to relate and to respond to others in a successful manner (Denham et al., 1990).

1.2.Emotion Understanding and Academic Performance

In addition, the importance of researching children's understanding of emotion is underscored by the fact that it is also a predictor of later academic performance (Izard et al., 2001; Valiente, Swanson, & Eisenberg, 2012). Specifically, Izard et al. (2001) found that children's understanding of emotions at age five predicted academic performance at age nine ($R^2 = .08, \beta = .36, p < .008$). Further, specific emotions have been linked to academic performance. For example, pride (Byrd & Chavous, 2009) and positive emotions (Frederikson, 2001) have been linked with high academic achievement, whereas negative emotions have been linked to poor academic achievement (Gumora & Arsenio, 2002).

There are two reasons that might account for the relationship between emotional competence and academic performance. First, children who lack emotional competence are more likely to have difficulties interacting with their peers in school settings, which might hinder their learning and academic achievement (Rosenthal, 1995). Second, children who lack emotional understanding might have difficulties in their relationship with their teacher, which might lead to the teacher lowering his or her expectations of the child's potential accomplishment. In turn, teachers' low expectations are likely to have an impact on the child's actual performance (Rosenthal, 1995).

1.3. Emotion Understanding and its Influence in Education

Helping children to understand emotions is necessary in the field of early education (Fabes et al., 2001). By gaining a better understanding of how children understand emotions, the present series of studies aim to help parents, teachers, social workers, doctors and nurses, to teach children the most effective way of negotiating their understanding of emotions. Indeed, typically one of the most difficult tasks that early educators face is how to deal with conflicts among children, as often these interactions become violent and aggressive. To solve

these conflicts educators try to teach children to "use their words" instead of resorting to abuse, physical or otherwise. Research supports this technique, as it has been concluded that peers not only prefer those children who use a high number of emotion words but also how these emotions words are used (Fabes et al., 2001). Early identification of difficulties in emotion understanding is important because by identifying these individual differences, it is possible to design early intervention programs that will help children to achieve their maximum potential in different areas of their lives (Izard et al., 2001).

1.4. Emotion Understanding and its Influence on Psychological Theory and Research

It is also important to research children's understanding of emotions because the work can make a substantial contribution to cross-cultural research. For example, researchers have been long interested in which aspects of emotion understanding are universal (see Tenenbaum, Visscher, Pons, & Harris, 2004 for an example). Indeed, the study of children's understanding of emotions aids research on the universality of emotion understanding (Eisenberg, 1999). So far research indicates that while there are some components of emotionality that are universal, there are others that are culturally influenced, such as the interpretation of emotional experiences, the social conventions of emotional displays, or the regulation of emotions (Eisenberg, 1999). However, more research is needed in this area because to this date most research has focused on the study of the universality of facial expression of emotions.

In addition, the study of children's emotion understanding informs work on gender stereotypes. Much is still unknown about how, why, and under what circumstances gender stereotypes are more likely to appear (Fivush, Brotman, Buckner, & Goodman, 2000). Research indicates that by the age of four, children already hold gender stereotypes (Karbon,

Fabes, Carlo, & Martin, 1992). These stereotypes generally assume that females are more emotional than men and that females experience sadness more frequently, while males are more likely to experience anger.

Lastly, the analysis of children's understanding of emotions helps inform research on the influence that parents and carers have in their children's socialization of emotions. Research indicates that a large proportion of children's understanding of emotions is accounted for by the influence of the family, especially the parents (Denham, 1997; Eisenberg, Fabes, Carlo, & Karbon, 1992; Eisenberg & Fabes, 1994; Halberstadt, 1991). This link is supported by two main findings. First, there is a strong relationship between parents' expressiveness and peer popularity. Specifically, research has concluded that children who have expressive parents are more popular among their peers (Cassidy et al., 1992). The underlying reason behind this finding could be that those children whose parents talk often about emotions, and express emotions often, have more opportunities for experiencing emotions and learning how to negotiate and express emotions in an appropriate manner (Denham, 1997). Furthermore, research shows that those parents who are harsh and/or very permissive have children who are less popular with peers, than children of parents who are warm and consistent in their discipline techniques (Cassidy et al., 1992). Consistent with these findings, it has also been concluded that popular children have parents who are more positively affective than parents of less popular children (Parke et al., 1989). Second, research shows that parents who talk more about emotions, have children who not only talk more about emotions but who also have a better understanding of emotions than their peers (Dunn, Brown, & Beardsall, 1991a; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991b).

1.5. Children's Emotion Understanding and its Influence on Psychopathology

Most research on children's socialization of emotion has been focused on normally developed children. However, because emotions share the same function in children with psychopathologies and in normally developed children, the analysis of abnormally developed children might inform research on normal population (Cicchetti, Ackerman & Izard, 1995). Children with psychopathologies have one or more areas of their emotional system impaired (Kring & Bachoroswky, 1999). Most psychopathologies have impairments in emotional processes and responses, however the exact problem differs from disorder to disorder. For example, depressed individuals experience extreme sadness, while schizophrenic individuals have difficulties expressing and experiencing emotions (Kring & Bachorowsky, 1999).

So far emotion research has focused on Down's syndrome, Williams syndrome, Depression, Bipolar disorder, Schizophrenia, Psychopathy, and some anxiety disorders. Emotions have their own developmental system with the function of organizing and motivating behaviour (Cichetti et al., 1995; Kring & Bachorowski, 1999). That is, the cognitive, motivational, and emotional systems are all independent although they work with each other. During childhood, the independence between these three systems is greater but as children grow older the connections between the systems grow stronger and more efficient. It is when the collaboration between these systems fails, that the individual will have problems adjusting his or her behaviours and emotions to the situation that he or she is facing (Cicchetti, Ganiban, & Barnett, 1991).

In sum, children's emotion knowledge is important both for applied as well as theoretical benefits. In terms of applications, research suggests that emotion understanding contributes to children social and academic development (Denham, 1991). Research on

children's understanding of emotions is also needed to design appropriate interventions to improve children's understanding. Finally, the study of children's emotion understanding can inform debates about the universality of emotions, gender stereotypes, and how parents contribute to children's learning more generally.

Chapter 2

Children's Emotion Understanding

Much research has been conducted on children's understanding of emotions. Children's understanding of emotions has great implications for many aspects of their lives, such as their ability to relate to their own and others' feelings, their peer relationships, and their relationship with their parents and siblings (Denham et al., 2003; Izard et al., 2001). However, there are still areas of research on children's understanding of emotions that remain unclear. The existing research on this topic is reviewed and discussed below.

2.1. Children's Acquisition of Emotion Understanding

The question of how children start to understand emotions does not have a clear answer. William James (1850) was the first psychologist to analyze this question. He suggested that children learn about others' emotions based on their own behaviour. However, he admitted that human behaviour does not always reflect human emotions, but that children already know this (cited in Harris, 1989). Therefore the question is: How do children know this?

Following James (1850), different socialization theories have been proposed (e.g., Denham, Zoller, & Couchoud, 1994; Gottlieb, Wahlsten, & Lickliter, 2006; Halberstadt, Denham, & Dunsmore, 2001; Harris & Olthof, 1982; Saarni, 1985). All of these theories posit that children learn about emotions through their parents' behaviours and emotion talk. Parents constantly give explicit as well as implicit messages about emotions to their children. One such mini-theory, the simulation theory, was proposed by Harris (1989). He suggested that children learn to recognize others' emotions by using imaginative understanding. Through imagination children consider the different realities that people might hold at any given time. When a child understands another person's emotions, it is because he or she

generates an "as if" emotion. The child understands someone else's emotions without having to experience the emotion himself. Moreover, to be able to understand another's emotions the child must be able to recognize his or her own mental states and to be able to project them onto others through imagination (Harris, 1989). According to this theory children are able to understand emotions that are not linked to facial expressions. This is important because it has been suggested that children learn about emotions by recognizing and labelling facial expressions.

Others, such as Denham (1998), Izard (1971), and Walker-Andrews and Lennon (1991) proposed a fast-mapping acquisition hypothesis to explain how children learn emotions. This hypothesis suggests that young children recognize emotions through facial and vocal expressions. Children are able to recognize facial displays of emotions and they simply have to learn to label the faces correctly (Widen & Russell, 2008). However, this theory does not explain how children learn to label emotions.

2.2. Developmental Patterns of Children's Emotion Understanding

Two patterns to describe the developmental trajectory of children's emotion understanding have been proposed. One pattern, such as the fast mapping acquisition theory (Dollaghan, 1985; Heibeck & Markham, 1987; Rice, 1990) suggests that children learn about emotions quickly and early (Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986; Denham, 1998;Dunn, Bretherton, & Munn, 1987; Izard, 1971; Rigdeway, Waters, & Kuczaj, 1985; Walker-Andrews, & Lennon, 1991; Wellman, Harris, Banerjee, & Sinclair, 1995). In contrast, other theories suggest that this progress is gradual.

Indeed, the fast mapping acquisition theory (Dollaghan, 1985; Heibeck & Markham, 1987; Rice, 1990) posits that children learn about emotions quickly and early. This hypothesis is supported by findings showing that children's understanding of emotions is

stable over time. That is, a child who shows from an early age a good level of understanding of emotions will continue to show a good level of understanding over time, whereas children who have a delayed pattern will remain behind (Dunn et al., 1991b). For example, it has been found that three-, four-, and five-year-old children's individual differences in emotion understanding were stable over a thirteen month period (Hughes & Dunn, 1998).

In contrast, theories in the latter camp suggest that children learn gradually about emotions. There are a number of findings that support this theory. The first finding is that when emotions are analyzed in-depth, it can be seen that children do not have an adult-like understanding of emotions (Markham & Adams, 1992; Vicari, Reilly, Pasqualetti, Vizotto, & Caltarigone, 2000). Another finding that supports this theory is that in other categories, such as colour and size, children have been found to learn about them gradually (Bornstein, 1985). Also in support of this theory, it has been found that the errors that children make when they are categorizing emotions can be predicted. This is, errors are systematic, rather than random. This pattern also happens when children categorize colours (Roberson, Davidoff, Davies, & Shapiro, 2004).

Also in support of a gradual acquisition of emotion understanding is the Differentiation Model (Widen & Russell, 2003). This model posits that at the beginning young children are only able to categorize emotions in terms of pleasure and displeasure and levels of arousal. As they grow older, children gain a higher level of emotion understanding based on more information. Lastly, Widen and Russell (2003) also found that two- to five-year-old children are more likely to mislabel faces that are expressing similar emotions than those expressing very different emotions. For example, two-year-old children labelled as "happy" a happy face, but they also labelled as "happy" surprised faces.

Further support for this notion was proposed by Pons, Harris, and De Rosnay (2004). They posit, based on the results obtained by testing children with the Test of Emotion Comprehension (TEC), that there are three developmental periods. First, when children are three years of age they understand public aspects of emotion such as its situational causes (e.g., different situations provoke individuals to experience different emotions), its outward expression (e.g., individuals tend to express their emotions) and reminders' effect on affect (e.g., when someone reminds a child about a recently deceased pet, the child might experience sadness again). Children typically master this level of understanding by five. Second, between five and seven years of age, children understand the mentalistic aspects of emotion, such as its connections to desires and beliefs and the difference between expressed and felt emotions (e.g., individuals not always express the emotions that they experience at any given time). Finally, when children are between seven and eleven years of age, they understand the possibility of reflecting on an emotion from different perspectives. They come to understand that they can experience conflicting feelings, or distress when for example, failing to confess their true feelings. At this age children also learn that they can cognitively regulate their emotions (Pons et al., 2004). Similar results were found by Donaldson and Westerman (1986). They presented children with an ambivalent story (e.g., a beloved puppy that chews the child's toy) and then asked participants about their understanding of the story. Results showed that children understood the concept of ambivalent emotions around the ages of ten or eleven whereas younger children did not understand that two emotions can be felt at the same time.

Furthermore, Harris's (1989) work also supports the theory of children learning gradually about emotions. He suggested that when children are one year old they are already able to react to the mother's emotions but not to answer them. This implies that children are already able to understand the intentionality of emotions and whether an emotion is negative

or positive. By the age of two, children are able to intentionally provoke emotions in others. As a result of this understanding they start comforting others as well as teasing, hurting and annoying others to create a change in their emotional state.

Research also indicates that there are other factors that affect the development of children's understanding of emotions. For example, Harris (1989) conducted a study in British boarding schools. His findings indicated that children's emotion understanding depends on the children's age and on their cognitive abilities. Another variable that seems to have an impact on children's emotion understanding is children's circumstances. Harris and Lipian (1989) and Lipian (1985) conducted a series of studies analysing hospitalized children and healthy children. They found, for example, that whereas ten year-old healthy children displayed a clear developmental trend, hospitalized children of that same age, when asked questions that involved emotions, gave simpler answers typically provided by younger children. These findings suggest the possibility that children's understanding of emotions has a clear developmental pattern; however, this pattern might be affected by any special circumstance that the child goes through during his or her childhood.

2.3. Simple Emotions

The simple or basic emotions are anger, surprise, fear, sadness, happiness, and disgust. Although they have been widely analyzed, there are some aspects that still remain unclear. One of these aspects is their developmental pattern. Widen and Russell (2008) analyzed fear, happiness, sadness, and anger. They found that children from two to five years old start by having a broad understanding of these emotions, and it is through their preschool years that children are able to refine this understanding. In addition, research shows that there are gender differences in the developmental pattern of children's simple emotions.

2.3.1. Gender differences in the development of children's understanding of simple emotions. Research shows that gender stereotypes affect both, how one behaves towards others and how others react towards one (Karbon et al., 1992). The same gender differences that have been found in emotion understanding in adults, have been found among children. For example, Birnbaum and Chemelski (1984) found that preschool children hold the same gender stereotypes that adults have. Both children and adults believe that males are emotionally less expressive than females (Fabes & Martin, 1991). Specifically, in a study conducted by Brody (1984) it was found that preschool children thought that males feel less sad than any other group and angrier than any other group. Also males reported experiencing anger more intensely than females. The reason behind this finding could be that boys consider that they get angry more often than girls do. Therefore, it has been suggested that the differences found in adulthood have their origin in childhood (Brody & Hall, 2000).

2.3.2. Sadness. Along with happiness, sadness is one of the first emotions that children are able to understand. However, from a very early age research shows that the developmental pattern of girls and boys is different (Brody, 1984). Gender differences in the experience of sadness appear very early in life and are long lasting. There is abundant research consistent with this finding (e.g., Fabes & Martin, 1991). For example, Zahn-Waxler, Cole, Welsh, and Fox (1995) found that four- and five-year-old girls reported feeling sadder than boys when listening to a sad story. Similarly, six-year-old girls reported experiencing more sadness than boys in sorrow-eliciting situations (Brody, 1984). Perhaps the underlying reason behind this gender difference is that boys report that as they grow older they find that it is unacceptable for them to show sadness, and therefore they learn to conceal it (Cummings, Ballard, El-Sheikh, & Lake, 1991). In contrast, Stapley and Haviland (1989) did not find that females feel sad more often than males.

2.3.3. Fear. School aged girls report experiencing more fear than boys of the same age. The reason for this difference remains unclear. Brody (1999) suggested that this difference appears because fear is context specific. Boys show more fear to socio-evaluative situations such as failure, whereas girls display more fear to dangerous situations such as jumping from a high altitude. On the contrary, Stapley and Haviland (1989) found no difference in the level of fear experienced by females and males.

2.3.4. Anger. There is a gender stereotype suggesting that boys and men, experience anger more often than girls and women (Brody, 1984). Research also shows that anger is more often expressed by males than by females (Brody, 1999). However, this does not necessarily mean that males experience anger more frequently; it could also mean that both females and males experience anger with the same frequency but that females learn to hide this emotion, whereas males do not. The reason for this stereotype could be that anger is linked to aggressiveness, a trait that is also considered more common among boys and men. There is research suggesting that there are no gender differences between girls and boys in the experience of anger (Fabes & Martin, 1991), whereas other research has found that boys experience anger more often than girls (La Freniere & Dumas, 1996).

2.4. Complex Emotions

Complex emotions appear as a result of various simple emotions felt at the same time. There are several complex emotions: pride, jealousy, gratitude, shame, and guilt. As with simple emotions, the developmental pattern of complex emotions has not yet been completely determined. Different authors have reached different conclusions. For example, Russell and Paris (1994) argued that children learn about complex emotions gradually. Specifically, they found that children start to learn about complex emotion when they are six-years-old and by age nine, children have an almost adult-like understanding of this type of emotion. These

findings are also supported by Graham (1988), Graham and Weiner (1986), Graham, Doubleday and Guarino (1984), and Thompson (1989). In further support of this notion, Clemente and Adrian (2004) suggested that children's acquisition of complex emotions is gradual and highly influenced by their verbal skills. On the other hand, Harris, Olthof, Meerum Terwogt, and Hardman (1987) analyzed less researched complex emotions, such as pride, jealousy, and gratitude and concluded that children gain understanding of complex emotions abruptly. However, most developmentalists agree that if complex emotions are based on facial features, it is highly unlikely that they are learnt abruptly (Russell & Paris, 1994).

2.4.1. Guilt and shame. These two complex emotions are so closely linked to each other that many researchers (Harter & Whitesell, 1989) do not differentiate between them. However, it is important to distinguish one from the other, because current models of emotion show that each emotion has its own particular emotional consequences. Also by understanding each emotion, children are able to anticipate how their acts will make them feel, and to act as a result (Ferguson, Stegge, & Damhuis, 1991).

Guilt supports prosocial behaviour, while at the same time inhibits the appearance of aggressive behaviour (Ferguson et al., 1991). On the other hand, shame helps the child to accept the rules set by a certain social group. According to the theory of attributional analysis (Weiner, 1986) children believe that they experience guilt or shame depending on the attribution that they give to a particular event. For example, when children consider an event under their control they associate it with guilt, whereas when they consider that an event is out of their control, they associate it with shame.

Findings indicate that children younger than nine do not understand the difference between guilt and shame (Ferguson et al., 1991; Harter &Whitesell, 1989). It is between the

ages of ten and twelve that children start to differentiate between both emotions (Stipek & De Cotis, 1988). At this age children believe that guilt appears when they violate moral norms, whereas they experience shame when they violate social norms (Ferguson et al., 1991).

There are not clear answers over whether there are gender differences in the development of shame and guilt. On the contrary, in the case of embarrassment, there is research showing that two year-old girls showed more embarrassment than boys, whereas at age three no gender differences were found (Lewis, Stanger, & Sullivan, 1989). In contrast, other studies have found that three-year-old girls showed more embarrassment than boys when they did not succeed in the completion of a task (Lewis, Alessandri, & Sullivan, 1992).

2.5. Ambivalent Emotions

Ambivalent emotions are those that combine both negative and positive aspects (e.g., a three-year-old boy who wants to go into the sea but at the same time is afraid of it). This double aspect makes them especially difficult to be understood. Children learn to understand ambivalent emotions after they have understood single emotions, at around the age of seven or eight (Reissland, 1985). However, children have been found to express ambivalence from the age of one (Harris, 1989). For example, Ainsworth, Blehar, Waters, and Wall (1978) found that some children showed an ambivalent reaction towards their mothers after being separated from them for a short period of time (e.g., they tried to contact their mothers while at the same time actively refusing to contact her). It takes a few years for children to understand the concept of ambivalent emotions. When children are between three and six years of age, they do not understand that two emotions can be experienced at the same time. When children are between six- and eight-years-old they are able to think that there are situations that can elicit two emotions, but always one taking place after the other. When children are seven- or eight-years-old they understand that two emotions can be experienced

at the same time but these emotions must be of the same valence. At age ten, children understand that they can experience ambivalent emotions. And finally, at age eleven, children can describe a situation that elicits a mixed emotion (Harter, 1977; Reissland, 1985).

There is still controversy about the origins of ambivalent emotions. Ainsworth et al. (1978) and her followers proposed that they are a result of the mothers' inconsistent handling of the child. This hypothesis, however, has been contradicted by cross-cultural research (Harris, 1989). Specifically, research shows that the proportion of ambivalent children varies greatly in different countries. For example, in Japan one in four infants show ambivalent behaviour (Miyake, Chen, & Campos, 1985) while in Sweden only one infant in twenty-five was categorized as ambivalent (Lamb, Hwang, Frodi, & Frodi, 1982) (see Harris for a review, 1989). Yet the developmental pattern of understanding is similar (Harris, 1989).

2.6. Hiding Emotions

During infancy, children express their emotions as they feel them. However, as children grow older they start to hide some of the emotions that they experience (Brody, 1999). Indeed, from the age of three, children learn to monitor and hide their emotions (Cole, 1986). Therefore it is necessary to understand why and how children learn to hide their emotions. One possible explanation is that children learn to hide their emotions because they learn to conform to the rule of politeness (Harris, 1989) and more generally to the different sociocultural norms. It has also been suggested that children learn to hide emotions at the later age of six. By the age of six children understand that what someone might be feeling is not what he or she might express (Harris, 1989; Harris, Donnelly, Guz & Pitt-Watson, 1986). At this very age is when children start to think that they do not want other people to know what they are feeling (Gross & Harris, 1988). In order to hide their emotions, children must

first understand that they can have two different points of view at the same time: a view of what is really happening and a view of what is visible to an outlooker (Harris, 1989).

Gender differences have also been found in how children hide their emotions. Specifically, Joshi and MacLean (1994) analyzed the distinction between real and apparent emotions in ten-, six-, and four-year-old English and Indian children. Results showed that in the older group, both Indian and English boys did worse in hiding their emotions than their female counterparts.The reason for this gender difference remains unclear.

2.7. Hurting and Comforting Others

There is a developmental pattern in children's ability to comfort others. At age one, children do not yet make any attempt to comfort others. It is at the beginning of the second year that they start comforting their parents and siblings and a bit later, their friends at nursery. At this stage children comfort others with gestures or words of sympathy (Dunn & Kendrick, 1979; Zahn-Waxler, Radke-Yarrow, & King, 1979). Girls, beginning in their toddler years until they are in school, display higher levels of comforting behaviour than do boys (Fabes, Eisenberg, & Eisenbud, 1993; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992; Zahn-Waxler et al., 1995). This finding is supported by research indicating that from age seven, girls display higher levels of empathy than boys (Whiting & Edwards, 1973). It has been suggested that this gender difference could have its origin in that across cultures, girls typically are given the role of caregivers. In fact, in those cultures where boys are also asked to take care of their young siblings, the gender difference in empathy is less evident (Brody, 1999).

Hurting also becomes more common during the second year of children's life (Dunn & Munn, 1985). At age three, children are more likely to start a fight with their younger siblings (Abramovitch, Corter, & Lando, 1979; Abramovitch, Corter, & Pepler, 1980). Once

a child has started a fight it is likely that following a deliberate strategy, he or she will do something to aggravate the victim's distress (e.g., a child will continue hitting his or her sibling even though the sibling is already crying; Dunn & Munn, 1985).

Nevertheless, both hurting and comfort vary greatly among families. There are a few possible explanations for these individual differences in hurting and comfort. First, it has been suggested that children who show high levels of comfort and hurting, are more socially engaged than those who display lower levels (Dunn & Kendrick, 1982). The second possible explanation is that there are temperamental differences that predispose children to act in a certain way and as a result, these children construct their social relationships in a particular way (Dunn & Kendrick, 1982). In addition, Zahn-Waxler et al. (1979) suggested that mothers who punish their children when they hurt someone, have children who react in a negative fashion. In contrast, children whose mother gave explanations about why they should not hurt others reacted in a positive manner. These findings seem to suggest that empathy is not an innate reaction; children learn to feel empathy for others (Harris, 1989)

2.8. Individual Differences in Children's Emotion Understanding

One of the most important aims of psychology is to detect early indicators of individual differences that will predict differences in later social adaptation (Izard et al., 1991). Emotion understanding has been identified as a source of individual differences that is linked with social adaptation. Indeed, emotion understanding has been linked to emotional intelligence (Salovey & Mayer, 1990), emotion communication and social relationship. Until recently, research on children's understanding of emotions has been focused on its universal aspects, therefore little is known about individual differences in children's emotion understanding. The few studies that have analyzed individual differences (e.g., Cutting & Dunn, 1999; Pons, Lawson, Harris, & De Rosnay, 2003; Pons & Harris, 2005) suggest that

these differences appear early and remain stable over time (e.g., Pons et al., 2003) however more research is needed in this area.

In their review of research on individual differences in children's emotion understanding, Pons and Harris (2005) reached six main conclusions. First, individual differences in children's emotion understanding appear early. Second, these differences can be seen as the child grows older. Third, these differences appear in many components of emotion understanding. Fourth, possible causes of these differences are language ability, attachment, and family expressiveness. Fifth, individual differences in children's emotion understanding appear to be linked to their social relationships with peers and adults. This is, the better understanding of emotions a child shows, the more accepted he or she is among his or her peers (e.g., Dunn, Cutting, & Fischer, 2002; Pons et al., 2002b). Lastly, children can be taught about emotions. However, none of the existing training programs has been able to narrow the individual differences.

The stability of individual differences in children's emotion understanding has also been analyzed. For example, Pons and Harris (2005) analyzed emotion understanding in seven-, nine- and eleven year-olds over a one year period. Overall, they found that while in the two younger groups, children improved their emotion understanding over time, the oldest group showed no improvement in their emotion understanding. In addition, results also showed that not all components of emotions improve equally. The external components of emotion showed a non significant improvement, while children's improvement of reflective and mental components of emotion was significant. Overall, results showed that across the three groups, individual differences remain stable over a one year period.

Different sources for the appearance of individual differences in children's emotion understanding have been proposed and analyzed with most attention given to gender and

parental influence. According to Brody (1999) children's emotional development is influenced by parents' characteristics, children's characteristics and cultural norms. Parents and children are constantly influencing each other with cultural expectations dictating how and when it is acceptable to display emotions. This theory is endorsed by Denham, Renwick-DeBardi and Hewes (1994). They proposed that individual differences in children's emotion understanding are due to parents' socialization. Especially influential are parental emotional expressiveness, its intensity, and parents' reactions to their children's expression of emotions. This theory is also supported by Denham et al. (1993) and may explain why children's expression of emotions and emotion understanding is very similar to their parents' emotion expression. More research is needed to establish whether culture, ethnicity, social class, and levels of education, play a significant role in children's emotion understanding, as Eisenberg (1999) proposes, while Pons et al. (2003) proposes the analysis of personality and IQ level.

2.8.1. The development of language and its influence on children's understanding of emotions. The developmental pattern of children's understanding of emotions seems to be intrinsically linked to children's language development. Emotion language appears at twenty months (Bretherton & Beeghly, 1982) and during the second year, children begin to include it into their conversations (Bloom, 1993). The development of emotion language helps children to develop their emotion understanding. For example, as children grow older they start making more emotion references related to others. Indeed, Pons et al. (2003) found that the better the children's language abilities, the higher emotion understanding they showed. The reason behind this relationship could be that if language is a tool that represents emotions, it makes sense that those with better language skills should have a higher level of emotion understanding. Another possibility could be that, it is not that those children with better language skills have a better understanding of emotions, but rather that they are able to communicate their emotions better (Pons et al., 2003).

In fact, this is one of the reasons why researchers believe that girls generally have a better understanding of emotions than boys. Girls seem to develop their language skills earlier (Brody, 1999; Leaper, Gleason, & Hirsch, 1990; Reznick & Goldsmith, 1989). Indeed, it has been found that from a very early age, girls show greater vocabulary, reading ability and word fluency (Iacciano, 1993). This finding is consistent with research showing that between 14-20 months girls acquire more vocabulary than boys (Schachter, Shore, Hodapp, Chalfin, & Bundy, 1978). Girls may be more verbal than boys either because of a genetic proclivity for language or because of socialization factors. For example, a comprehensive meta-analysis found that mothers talk more to their daughters and use a higher quality of speech than with boys (Leaper, Anderson, & Sanders, 1998).

2.8.2. The influence of social class on children's emotion understanding. There is very little research examining parent-child emotion talk in different socioeconomic groups. For example, Dunn et al. (1987) analyzed white working and lower class families while Eisenberg (1997) analyzed Anglo and Mexican American working and middle class families. Neither of them found differences in mother-child emotion talk. In contrast, Flannagan, Baker-Ward and Graham (1995) found that mothers from lower economic classes talked less about emotions than mothers from higher economic classes. Similarly, research shows that low income African-American parents use fewer emotion words than middle income African-American and European-American parents (Hall, Scholnick, & Hughes, 1987). Overall, studies on social class have found that lower-class families generally talk less (Hart & Risley, 1992; Hoff-Ginsberg, 1991) and express more negative emotions and use a poorer vocabulary (Tizard & Hughes, 1984) than middle-class children. It has also been found that parents with lower levels of education display harsher discipline, more negativity (Deater-Deckard, Atzaba-Poria, & Pike, 2004; Pinderhughes, Dodge, Zelli, Bates, & Pettit, 2000), more stress and more parental differential treatment (Jenkins, Rasbash, & O'Connor, 2003). However,

there are many cofounding variables that influence children's understanding of emotions in addition to social class.

Chapter 3

Mother-Child, Father-Child, and Children's Emotion Talk

The existing literature on the topic of children's understanding of emotions and its relationship with mother-child and father-child emotion talk will be reviewed in this chapter. Whereas mother-child emotion talk has been widely researched, the relationship between father-child emotion talk and children's understanding of emotions remains largely unexplored.

3.1. Parental Emotion Talk and its Relationship with Children's Understanding of Emotions

Research indicates that the analysis of parent-child emotion talk is one of the most useful tools to further the understanding of children's socialization of emotions (Adams, Kuebli, Boyle, & Fivush, 1995; Fivush et al., 2000; Kuebli & Fivush, 1992). Emotion talk is important because it is a constructive way of regulating emotions. In fact, children who talk more about emotions are more socially competent that those children who use other ways to regulate their emotions (e.g., aggression, social withdrawal; Eisenberg et al., 1994). Two reasons have been proposed to explain the role of parent-child emotion talk in the development of children's understanding of emotions. First, during childhood parents are typically the primary caregivers of their children and therefore children establish their most significant relationships with them (Ainsworth, 1962; O'Connor, Bureau, McCartney, & Lyons-Ruth, 2011). For this reason, it is expected that how parents understand their own and others' emotions, how they manage their emotions, and how they talk about emotions will have an impact on their children's ability to understand, and talk about their own and others' emotions (Adrian, Clemente, & Villanueva, 2007; Cassidy et al., 1992). Also, mothers' emotion talk has been linked to children's internal state language (Beeghly, Bretherton,

&Mervis, 1986), childrens' emotional situational knowledge (Denham, Cook, & Zoller,1992) and children's emotional role taking skills (Dunn et al., 1991b). Second, research indicates that individuals and especially children tend to experience emotions more intensely and more frequently within their family setting (Halberstadt & Eaton, 2002). More specifically, even school aged children, report showing more emotions to their family members than to their friends in school (Zeman & Garber, 1996).

Perhaps for these reasons, Halberstadt and Eaton (2002) found that parents' reactions to their children's emotions, parents' discussions of emotions with their children, parents' styles of expressing their emotions and parents' selection and modification of emotions have an impact on how children express their emotions, and how children interpret their own and other's emotions. Indeed, in those families in which emotions are discussed freely, children have a better understanding of emotions and show higher levels of peer popularity (Cassidy et al., 1992). However, it has also been found that in those families in which negative emotions are discussed often, children have a lower level of emotion understanding and are less popular with their peers (Dunn & Brown, 1994; Roberts & Strayer, 1987). Nonetheless, research also shows that when children are frustrated, they argue and reason more effectively (Dunn, 1988).Finally, Halberstadt and Eaton (2002) and Denham and Kochanoff (2002) agreed that this parental influence on emotions is long lasting.

Different factors affect families' expressiveness. First, there are individual differences in the frequency and intensity of emotions. Second, members of a family can suppress or promote other members' emotions. Finally, all members of a family affect and influence the emotions of the rest of the family members (Halberstadt & Eaton, 2002). Although there is abundant literature supporting the notion that parents' emotion talk has an influence on children's emotion understanding, Fivush (1998) warns against simply accepting the widely

extended assumption among most developmental psychologists, that what parents do matters. She argues that although most studies have found significant correlations between parental emotion talk and children's understanding of emotions, many of these correlations have been small, inconsistent, and do not indicate clear age or gender differences. Similarly, Laible (2004) did not find a link between mothers' emotion talk and children's understanding of emotions. Laible's (2004) lack of significant findings may have resulted from children being too young in that particular study, as opposed to children in other studies. It might be that younger children have not yet developed the ability to talk about and understand emotions. Similarly, Garner, Robertson, and Smith (1997) posit that parents do not influence children's understanding of emotions, and that emotional expression and understanding might depend solely on the children's age.

In sum, these findings support the need to obtain a better understanding of mother-child as well as father-child emotion talk. Unfortunately, however, over the years the bulk of the research has focused on the topic of mother-child emotion talk. On the contrary, research on father-child emotion talk has not received as much attention. This chapter will review the existing literature on mother-child and father-child emotion talk. First, the existing literature on mother-child emotion talk will be critically reviewed, followed by the literature on father-child emotion talk; finally these literatures will be compared and contrasted.

3.2. Mother-Child Emotion Talk

The majority of the research on the topic of mother-child emotion talk has focused on relations between mother-child talk and children's emotion understanding and emotion talk (e.g., Dunn & Brown, 1994; Laible, 2004) and on gender differences (e.g., Dunn et al.,1987; Kuebli, Butler, & Fivush, 1995) in mother-child talk to sons and daughters. Although these literatures are fairly extensive, there are many unanswered research questions.

3.2.1. Relations between talk and understanding. The analysis of mother-child emotion talk has revealed a number of findings. First, research shows that how a child understands emotions is influenced by the frequency that his or her mother talks to him or her about emotions. The more the child talks about his or her emotions with his or her mother, the better understanding of emotions he or she will acquire (Denham, et al., 1994; Dunn et alb., 1991; Harris, De Rosnay, & Pons, 2005; Tenenbaum, Alfieri, Brooks, & Dunne, 2008). The reason for this could be that children tend to learn more effectively when they are directly involved in the process, rather than when they are simply spectators (Slamecka & Graf, 1978). Simply talking a lot will not increase children's emotion understanding in and of itself; the talk must be focused on emotions specifically. In other words, having a mother who talks a lot about other topics but who does not mention emotions will not improve a child's emotion understanding.

A series of longitudinal studies suggest that mothers who talked more about emotions, have children who also talk more about emotions (Denham et al., 1994; Dunn et al., 1987; Kuebli et al., 1995). Moreover, Dunn et al. (1991b) concluded that three-year-olds living in families where emotions were discussed more often, obtained higher scores than their peers when judging someone else's emotions at age six. In similar research, Kopp (1992) found that those preschool children who were allowed to discuss their emotions, were less likely to become frustrated when faced with a challenging situation.

Much of this literature (e.g., Cervantes & Callanan, 1998) has examined emotion labels (e.g., the boy is sad) and explanations (e.g., the boy is sad because his pet died). Research shows that those children whose mothers explain emotions more often understand emotions better than those children whose mothers give fewer explanations about emotions. Indeed, findings show that maternal explanations predict emotion understanding (de Rosnay

& Hughes, 2006). For example, Denham and Grout (1992) found that those daughters whose mothers often explained causes of emotions to them, are more emotionally responsive to others than those daughters whose mothers explained about emotions less often.

In an experimental paradigm, Tenenbaum et al. (2008) found that five to eight year-old children found it equally beneficial to generate emotion explanations or to be provided with them. In both situations, children improved their understanding of emotions, as opposed to those children who did not either generate emotion explanations or receive them. This may occur because while talking about emotions, children are able to distance themselves from the immediacy of their feelings (Dunn et al., 1991a). Moreover, it could be that explanations about emotions might allow the children to learn about causes and consequences of emotions. This might help children who often receive explanations about emotions to develop their understanding of emotions further than those children who receive fewer explanations. Similarly, Keil (2006) suggested that explanations help children improve their emotion understanding because it allows them to predict future events. Finally, Wellman and Lagattuta (2004) found that explanations allow the child to further develop theories about mental states and activities.

3.2.2. Gender differences in emotion talk. The second area of interest within the analysis of mother-child emotion talk has focused on possible gender differences. So far findings have been inconsistent. On the one hand, there are researchers who found differences in the ways that mothers talk to daughters and to sons (Adams et al., 1995; Dunn et al., 1987; Flanagan & Perese, 1998; Leaper, Anderson, & Sanders, 1998). For example, Dunn et al. (1987) found gender differences in mothers' emotion talk. They found that when infants are eighteen months, mothers talked more about emotions with their daughters. Similar results were found when children were twenty-four months. These findings are

supported by Leaper et al. (1998). They found that mothers talked more about emotions with their daughters than their sons. Differences may also be nuanced. For example, Cervantes and Callanan (1999) found that mothers used similar amounts of emotion talk with their preschool children. However, mothers provided more explanations than labels when talking to sons, whereas mothers used more labels than explanations when talking to daughters. Also, Flannagan and Perese (1998) found that when mothers talked with their four year-old children about school, they mentioned more emotion words when talking with their daughters than when talking to their sons.

These differences may result from more general gender differences in talk. Flannagan et al. (1995) concluded that mothers talked more about people with their daughters, while they talked more about learning related topics with their sons. Similarly, in their meta-analysis, Leaper et al. (1998) concluded that mothers talked more supportively to their daughters. In addition, mothers use language to create and keep relationships with others, whereas fathers are more focused on achieving their goals as a tool to reinforce their independence.

Some take a middle ground in this debate. Fivush (1989, 1991), for example, suggests that gender differences in emotion talk are so subtle that they might depend on the particular emotion being discussed. For example, mothers talked more about sadness with their daughters, whereas they have been found to talk more about anger with their sons (Adams et al., 1995; Fivush et al., 2000; Kuebli & Fivush, 1992). With early adolescent children, mothers and fathers used a higher proportion of references to frustration with daughters than with sons, but a similar proportion of references to sadness and anger (Aldrich & Tenenbaum, 2006). In contrast, others like Denham et al. (1994), Dunn et al. (1991a), Lytton and Romney (1991), and Peterson and Roberts (2003) have not found any gender differences in maternal

emotion talk. One possible source for the emergence of these contradictory results was suggested by Peterson and Roberts (2003). They pointed out that most studies on mother-child narratives have typically been conducted with pre-school children. Therefore, they suggested that if studies were to be conducted with older children, more gender differences in maternal emotion talk would appear.

There are also more general differences in how mothers talk to sons and daughters. For example, Peterson and Roberts (2003) analyzed mothers and children between 2-5 years-old and 8-13 years-old. They found that mothers' and daughters' narratives correlate in length, elaborative details, cohesion, coherence, and provision of context. However, these authors did not find correlations between mothers' and sons' narratives. Therefore, according to the findings of Peterson and Roberts (2003), girls' and boys' narratives should differ. Similar to the study of mother-child emotion talk, researchers have also tried to establish whether fathers differ in how they talk about emotions to their sons and to their daughters. Many have found that fathers gave more attention to their sons than to their daughters (Bronstein, 1984; Kotelchuck, 1976; Lamb, 1977; Parke & O'Leary, 1976). However, Tauber (1979) and Block, Block, and Harrington (1974) found that fathers interacted more sociably with their daughters.

3.3. Father-Child Emotion Talk

Although there is very little research on the influence that fathers have on their children, there are several studies that seem to indicate that fathers influence their children's development (e.g., Amato & Rivera, 1999). Cabrera, Tamis-LeMonda, Bradley, Hoffert, and Lamb (2000) pointed out that a father's absence is linked to poor school achievement, less involvement in labour force, early childbearing, and more risk taking behaviours. However, they found that the absence of a father has different effects for girls and for boys. Boys that

grow up without a father are more likely to show problems in sex-roles, gender identity development, school performance, psychosocial adjustment, and self-control. In contrast, according to Cabrera et al. (2000) the effects on girls who do not have a father are less dramatic.

Over the years, there has only been a vague interest in the study of father-child talk. For example, Greif (1979) found that fathers were more likely to interrupt their children and to talk at the same time as them. Mazur (1980) found that fathers were more likely than mothers to provide their children with functional information and to encourage their children's performances, while Bellinger (1980) found that fathers were more likely than mothers to give their children directions.

Accordingly, there are only a few studies that have analyzed father-child emotion talk. Kuebli and Fivush (1992) asked parents and their three year-old children to converse about past events. Mothers and fathers talked similarly about emotions, and both discussed emotions more often, particularly sadness, with their daughters than with their sons. Three years later, Adams et al. (1995) conducted a longitudinal study with the same participants who collaborated in Kueblis's and Fivush's (1992) study. As in the previous research, they concluded that there are no gender differences in mother and father emotion talk. They both talked more with their daughters than with their sons, especially about sadness. Finally, Fivush et al. (2000) conducted a study in which parents were asked to discuss emotional experiences with their four year-old children. Their findings differed from the previous two studies. These authors found differences in mothers' and fathers' emotion talk. Specifically, they found that mothers discussed the causes of emotion at greater length. One possible source for the emergence of these differences is that in the Adams et al. (1995) study, participants were not asked to discuss emotions, and as a consequence few were discussed.

Others have found that fathers may treat girls and boys differently. For instance, Adams et al. (1995), Dunn et al. (1987) and Fivush et al. (2000) reported that both mothers and fathers mentioned more emotion words when talking to their daughters than when talking to their sons.

3.4. Father-Child and Mother-Child Emotion Talk

So far, as it has been mentioned earlier, the bulk of the research has focused on mother-child emotion talk, while paternal emotion talk has been largely ignored. When comparing fathers' and mothers' emotion talk, researchers have converged on a number of conclusions, but disagreements remain. For example, Fivush et al. (2000) found differences in mother and father emotion talk. Specifically, they found that when discussing the causes of an emotional experience, mothers discussed them for longer than fathers. Perhaps mothers are more concerned than fathers in helping their children understand emotions. Leaper et al. (1998) similarly found that mothers tend to use language to create and keep relationships with others, whereas fathers are more focused on achieving their goals as a tool to reinforce their independence. This may explain why girls use more cooperative skills than boys, whereas boys use more controlling language than girls.

Presently, researchers have not reached an agreement over what factors explain why parents talk differently to their daughters than to their sons. Lytton and Romney (1991) proposed two explanations. First, they proposed that parents treat girls and boys differently because they hold different values. Alternatively, the evocative genotype hypothesis (Scarr & MacCartney, 1983) could explain some of these differences. This hypothesis proposes that boys and girls have different predispositions, and as a result parents treat them differently. This is, parents talk to their children differently as a reaction to boys and girls being different.

Of course, mothers and fathers do not always differ in emotion talk (Adams et al., 1995; Kuebli & Fivush, 1992). The possible reason why Adams et al. (1995) did not find any differences is that they did not ask their participants to discuss emotions, and as a consequence, little talk was devoted to emotions in their participants. In contrast Fivush et al. (2000) asked their participants to discuss emotions and consequently, they found differences between mothers and fathers in emotion talk (Fivush et al., 2000).

3.5. Boys' and Girls' Emotion Talk

Although there are researchers who have found gender differences in children's emotion talk (e.g., Adams et al., 1995), there are others who have not found differences (Fivush et al., 2000; Kuebli & Fivush, 1992). These contradictory results are explored and analyzed below.

There is evidence suggesting that there are gender differences in children's emotion talk. Research suggests that daughters' narratives tend to correlate with their mothers' narratives in length, detail, cohesion, and coherence (Peterson & Roberts, 2003). This finding seems logical if we consider that children grow up listening to their parents' own style of narrative. Therefore, it is likely that children talk in a similar style to their parents. However, Peterson and Roberts (2003) did not find narrative similarity between mothers' and sons' narratives or between fathers' and children's narratives. Moreover, as narratives are gendered-specific, children are likely to match their behaviour with these narratives through identification, modelling, or cognitive structures (Peterson & Roberts, 2003). For example, Buckner and Fivush (1998) found that eight year-old girls' narratives were longer, more coherent and more detailed than eight year-old boys' narratives. These findings are also consistent with Peterson's and Roberts's (2003) research. They pointed out that there is increasingly more evidence that narratives are important reflections of one's identity.

Therefore, it makes sense that girls' narratives should be more similar to their mothers' than to their fathers' narratives.

In research examining specific emotions, Hudson, Gebelt, Haviland, and Bentivegna (1992) found that four-year-old boys denied being scared, as opposed to their counterparts. They hypothesized that the reason for this could be that it is not considered appropriate for males to feel and express fear. In related research, Leaper et al. (1998) found that whereas girls used more cooperative communication skills than boys, boys were more likely to use controlling language.

Some of the gender differences found in children's emotion talk could be due to a difference in the development of language (Fabes & Martin, 1991; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). Specifically, Fabes and Martin (1991) suggest that while boys reach their maximum emotional expressivity in their early school years, which then decreases over adolescence, girls' emotional expressivity seems to increase with age. It has also been argued that these differences could be due to girls establishing closer friendships than boys. These friendships would allow girls to have more chances to understand others (Hughes & Dunn, 1998).

Another difference between sons and daughters was found by Fivush et al. (2000). They found that when girls talked about emotions with their parents, half of the narratives made reference to interpersonal themes. On the other hand, in parent-son conversations, only a third of them made reference to interpersonal themes. However, it is important to note than Fivush et al. (2000) did not analyze who was starting the conversation. If the parent was the one choosing the theme of the conversation and not the child, then it is plausible to argue that it is more difficult to establish that there is a difference in children's emotion talk.

One surprising result was found by Adams et al. (1995). They found that children used more emotion words when talking to their fathers than when talking to their mothers. Possibly, it could be that children found more exciting talking to their fathers because they do not have the opportunity to talk to them as often as with their mothers. Second, it might be that because fathers are less expert in interpreting non-verbal cues, children might feel that they need to express more emotions verbally than when they talk to their mothers. In contrast, Dunn et al. (1987) did not find any difference in the amount of times that daughters and sons started conversations about emotions; nor did Fivush et al. (2000), Fivush (1992) and Cervantes and Callanan (1998). However, it is important to note that Kuebli and Fivush (1992) conducted their study with three year-old children. It might be possible that at such early age, gender differences in emotion talk and understanding might have not yet arisen. This hypothesis is supported by Fivush et al. (2000) who suggested that gender differences in emotion talk might appear at the end of the preschool years.

This hypothesis could be confirmed through the analysis of the follow up study that Adams et al. (1995) conducted two and a half years later with the same children that participated in Kuebli and Fivush's (1992) study. This time, gender differences in children's emotion talk were found. Results showed that girls talked more about emotions, and especially about sadness. In addition to this, girls seemed to note the emotional part of the experience more than did boys. On this subject, Fivush et al. (2000) suggested that girls talk more about sadness and in a more elaborated way because parents discuss this emotion more often with them, and therefore, they learn to consider sadness as a central emotion. Along the same lines, Grossman and Wood (1993) found that women reported experiencing more frequently feelings of sadness than did men. Fivush and Buckner (2000) proposed that because parents talk more about sadness with their daughters, they learn to ruminate about this emotion, while on the other hand boys might be learning to ignore their sad feelings

because they have not learned how to deal with them. Indeed, rumination about sadness has been linked to depression (Raes et al., 2006). Therefore, it makes sense that women being the ones who ruminate more about sadness, suffer more from depression than their male counterparts. In fact, research in the United Kingdom shows that approximately twice as many women as men suffer from depression each year (National Institute for Mental Health, 2001).

Cervantes and Callanan (1991) report findings that further support the notion of gender differences in emotion talk developing with age. They found no differences in children's emotion talk at age two but they found differences when children were three-and four-years-old. These data suggest that gender differences in emotion talk develops with age and consequently, they are likely to be influenced by many factors such as parental emotion talk, family expressiveness, parents' personalities, children's personalities, or socioeconomic factors among others. Similarly, Aldrich and Tenenbaum (2006) analyzed parent emotion talk with early adolescents. They found that when sons talked to their fathers, they used more emotion words than daughters. Daughters used more frustration words with both of their parents, and in turn, both parents talked more about frustration with their daughters. However, no differences were found in parental emotion talk about anger with daughters and sons.

When looking at the peer literature on emotion talk, the findings are contradictory. More specifically, Fabes et al. (2001) did not find gender differences in children's emotion talk. In contrast, girls used more emotion talk than did boys in dyads (Fabes et al., 2001; Aldrich, Tenenbaum, Brooks, Harrison, & Sines, 2011). In sum, the literature does not paint a clear picture. More research is needed in order to establish whether there is a gender difference in children's emotion talk. One of the problems in existing research seems to be

the difficulty of comparing different age groups. It might be that in order to establish clear conclusions, only same age groups should be compared.

Chapter 4

Parent-Child Touch and its Influence on Children's Understanding of Emotions

Newborns and infants communicate with the world and learn about their environment mainly through touch (Koester, Brooks, & Traci, 2000). However, research on the influence of touch on children's sociemotional development (Hall & Veccia, 1990; Hatfield, 1994; Walker-Andrews, 1997; Stack, 2001; Hertenstein & Keltner, 2011) and on children's emotion understanding is still very scarce. Indeed, it is surprising that until recently the analysis of emotion communication has almost exclusively been focused on the verbal and facial channels, leaving touch almost completely ignored (Hertenstein & Campos, 2001). This fact is striking because as Muir (2002) suggested, not only is the skin the largest sensory system but also the first sensory organ to be developed during pregnancy. In addition, from birth and through the first months, infants learn about the world almost exclusively through touch (Hertenstein, 2002; Kisilevsky, Stack & Muir, 199; Muir, 2002)[1]. Moreover, touch has been described through the years as the most important sensory system that human beings possess. Barnett (1972) also described touch as the most powerful system of communication. Therefore it is surprising that touch has been neglected in the study of communication of emotions (Hertenstein, 2002; Kisilevsky et al., 1991; Muir, 2002).

At present, researchers have not come to a consensus on a definition of tactile communication. Hertenstein (2002) argued that tactile communication is "a change in the infant's perception, thoughts, feelings and/or behaviour as a function of another's touch in relation to the context in which it occurs"(p.72). Kaas (2000) defined touch as a physical quality processed by the somatosensory cortex and mediated by the skin.

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[1]Indeed, Descartes called the hand the "outer brain". According to him, there is a strong link between the hand and the brain because the hand is linked to personality and is an important tool of communication (cited in Lundborg, 2003).

The existing literature on touch and its relationship with parent-child communication will be reviewed in this chapter. This chapter will begin with a summary of the biological basis of touch. Next, it will review the functions and the development of touch, and the process through which touch acquires meaning. Lastly, the relationship between parent-child touch and children's emotion understanding will be analyzed.

4.1. The Biological Basis of Touch

Systems most necessary for survival are the ones that are developed first during pregnancy. Touch is one of the first systems to be developed. Once neural connections are established based on the more a connection is used, the stronger the connection will be. Indeed, research (e.g., Malkasian & Diamond, 1971) shows that the higher frequency of touch between a mother and his or her offspring, the thicker certain areas of the offspring's cerebral cortex are.

Animal research has been a very important tool in the field of touch. Indeed, one of the fathers of research on touch is Harlow (1958). With his studies on the touch deprivation of monkeys, he showed that it is not enough for the normal development of a baby monkey to be fed and clean. In fact, he concluded that baby monkeys preferred to stay with "soft mothers" who had no food than with "wired mothers" who had food. They only chose to go with the "wired mothers" when they had food. From these experiments, the great importance that bodily contact had for baby monkeys became clear. As a consequence of the deprivation of touch, the baby monkeys suffered severe stress. Critics of Harlow claimed that applying these findings to humans overestimates the importance that physical contact has for the normal development of children.

Later research has furthered Harlow's findings. The connection between touch and aggressiveness and between touch and growth has received special attention. The relationship

between touch deprivation and aggressiveness has been widely analyzed (e.g., Harlow & Harlow, 1965; Kraemer, 1985; Rogeness, Hernandez, Macedo, & Mitchell, 1982). Specifically, Kraemer (1985) found that baby monkeys who suffered a lack of touch experienced low levels of norepinephrine and serotonin, whose role is to control monkeys' levels of impulsivity (controlled by dopamine). Similarly, in their work with children with conduct disorders, Rogeness et al. (1982) found that these children had higher levels of dopamine and lower levels of serotonin and norepinephrine, which could be explained by the lack of touch that they had experienced. Consistent with this, Kuhn et al. (1991) were able to increase children's levels of norepinephrine by giving them extra touch, whereas Ironson et al. (1996) increased children's levels of serotonin through the same method.

Animal studies, specifically with rats, have also indicated a relationship between touch and growth. Schanberg, Evoniuk, and Kuhn (1984) found that touch deprived rats experienced a decrease of the growth hormone. Moreover, after receiving a treatment of being stroked regularly with a brush, the levels of the growth hormone increased. Along the same lines, Schanberg et al. (1984) found that when the mother rat leaves its offspring, even if it is just for an hour, the baby rats' level of growth hormone decreased. Finally, research (e.g., Kuhn & Schanberg, 1998; Schanberg & Field, 1987) showed that infant rats' growth is regulated by their mothers' licking and grooming. In humans, research analysing the relationship between touch and growth in children seems to indicate that they are indeed related (Provence & Lipton, 1962; Spitz, 1945).

4.2. Developmental Patterns of Touch

Research indicates that newborns have a highly developed sense of touch. This may result from the somatosensory cortex being one of the first parts of the brain to develop (Koester et al., 2000) or because as newborn infants cannot see very accurately, nor can they

speak, their mothers rely almost exclusively on touch to communicate with them. However, as the infants grow older, their patterns of interaction with their parents change and the frequency of touch between mother-child decreases (Ferber, Feldman, & Mackhoul, 2008; Jean, Stack, & Fogel, 2009; Stack, LePage, Hains & Muir, 1996). Jean et al. (2009) argued that this is because as the child becomes more independent and his or her parents perform fewer caregiving tasks, he or she becomes more socially and physically alert and as a consequence, touching stops being such an important system of communication, and is replaced by gazing, vocalizations, and facial expressions.

Similarly, Brazelton and Cramer (1990) concluded that during their infants' first months, mothers tend to give them plenty of tactile stimulation to guide the development of attentiveness and alertness. Finally, Ferber et al. (2008) argue that during their first months of their lives, infants need plenty of stimulation, but as soon as the infant starts crawling, the amount of maternal touch that they need decreases. However, maternal touch still serves a vital function in helping the child to regulate and organise his or her emotions (Ferber et al., 2008).

In addition, Ferber et al. (2008) differentiated three categories of maternal touch: stimulating, affectionate, and instrumental. He posits that those mothers who touched their children more often were found to use all types of touch more frequently than those mothers who touched their children less frequently.

4.2.1. Gender differences in touch. Touch is a method of communication and therefore, similarly to other methods of human communication (e.g., emotion talk and facial expressions of emotions) it is likely to be influenced by gender (Hertenstein, 2011). Overall, researchers have hypothesized gender differences in touch. Specifically, Henley (1973) posits that women initiate touch less often than males because of the status differences between men

and women. This hypothesis has been very influential in the field of touch as well as in the wider field of non verbal communication.

There have been several studies analysing gender differences in touch. However, it is difficult to compare these studies as each one of them used different measurement techniques and many of them suffer from methodological problems. For example, Stier and Hall (1984) in their meta-analysis across studies on touch found that there was no gender difference in touch, except that females showed a tendency to touch more than males. They also found an unclear tendency for females to receive more touch than males, and a tendency for same-sex dyads (especially female dyads) to touch more than opposite-gender dyads. In similar research, Hall and Veccia (1990) observed 4,500 adults and teenagers in a public place and concluded that across all ages males touched females with the same frequency as females touched males. The only difference that they found was that men scored higher in the "arm around" variable, whereas females scored higher in the "arms linked" variable.

Furthermore, research also suggests that touch can convey specific emotions and it has even been found that there are gender differences in the way in which emotions are communicated through touch (Hertenstein & Keltner, 2011). Specifically, it was found that anger was communicated through touch more often when there was at least one male in the dyad, whilst sympathy appeared more often when at least there was one female in the dyad. Happiness was only communicated when they were two females in the dyad (Hertenstein & Keltner, 2011). These findings are consistent with research on emotion talk showing that males talk more about anger whereas females talk more about happiness (e.g., Fivush, 1989; Kuebli & Fivush, 1992).

4.3. Influence of Touch in Children's Development

Touch during the early stages of life has a great influence in the normal development of a child (Montagu, 1971; Stack, 2001), although its exact role is still not clear (Stack, 2001). A number of functions of touch have been suggested. For example, the aim of touch between mothers and infants may be to communicate security, reduce distress and promote emotional regulation (Stack & Muir, 1992; Tronick, 1995; Weiss, Wilson, Hertenstein, & Campos, 2000). In addition, others have suggested that touch is important for the emotional, intellectual and physiological development of children (Field, 1996; Montagu, 1971; Morris, 1973; Spitz, 1947), as well as for physiological and behavioural development (Brazelton, 1990). Specifically, touch has been found to change infants' behaviours (e.g., crying) (Korner & Thomas, 1972) and to stimulate infants (Brazelton, 1984). Also, touch influences the quality of mother-child relationships (Montagu, 1986; Stack & Muir, 1992). However, the exact role that touch has in the child's social and emotional development has not yet been analyzed (Stack, 2001).

The importance that touch has in the normal development of an infant can be seen in the extreme cases in which infants and children are completely neglected of touch. For example, Prescott (1970) found that touch deprived individuals were more likely to be drug and alcohol users, had more difficulties in knowing pain from pleasure and were more likely to engage in self-destructive behaviours. Spitz (1945, 1947) also pointed out the importance of touch when he discovered that children under his care died from lack of touch, even when their basic needs were well provided for. Lastly, Field (2004) concluded that children in Romanian orphanages, who were completely deprived of touch, only reached half of the normal height and suffered cognitive and emotional delays.

Research on depressed mothers also shows the importance of touch in a child's normal development. Studies on touch between depressed mothers and their children show that these mothers touch their children less often both at six and ten months of age. As a consequence these children spent less time touching themselves or touching toys. Also, depressed mothers had more frequent negative touch (e.g., hit, pinch, poke) with their children than non-depressed mothers (Herrera, Reissland, & Shepherd, 2004). In related research, Pelaez-Nogueras, Gewirtz, and Field (1996) found that depressed mothers had poorer quality of relationship with their children, and their children were at a higher risk of suffering behavioural, cognitive, social, and emotional areas than children of non depressed mothers. These findings imply that early maternal touch has both short- and long- term implications for the normal development of a child.

Consistent with these findings, research also suggests that lack of touch from teachers can increase aggression (Field, 2004). She found that as children grew older they were touched less by their teachers, and at the same time children were found to become increasingly violent. However, it is unclear whether children became increasingly violent because they were touched less or because they were growing older. Similarly, Prescott (1990) and Field (1999a, 1999b) found that in those cultures in which children are touched more in nurseries (e.g., France) there are lower rates of adult violence than in those cultures were children are touched less in nurseries (e.g.., U.S.). Nevertheless, there are other variables that might influence violence rates.

4.4. How Does Touch Acquire Meaning to the Child?

It has been suggested that touch conveys meaning (Hertenstein, 2000; Field, 2004; Jones & Mize, 2007; Stack, 2004; Tronick, 1995). However, the process through which meaning is acquired by children is still unknown. Gibson and Gibson (1969) claim that touch

transmits meaning to the child simply by his or her perception of it. Accordingly, children do not need higher cognitive processes or past experiences to imbue touch with meaning. That is, a child who feels his mother hugging him for the first time will immediately perceive this type of touch as a demonstration of love.

Alternatively, Hertenstein (2002) suggested that children create relationships between touch and the environment to provide touch with meaning. Children learn to create these kinds of relationships through three types of learning mechanisms: classical conditioning, operant conditioning, and observational learning. Further, Hertenstein (2002) argues that there are three mechanisms involved to provide touch with meaning, namely discrepancy, memory, and attention, each of which will be explored in turn.

A discrepancy appears when there is a stimulus that diverges from the child's past experiences. As a consequence it might be difficult for the child to incorporate a discrepant touch with the rest of his or her memories, although at the end, the experience will fit with the rest of his or her memories, resulting in a positive experience. Therefore according to this process, if the child receives a touch that slightly differs from the others that he or she is used to receiving, he or she still will be able to incorporate it, experiencing a positive feeling. On the contrary, if the child receives a type of touch that he or she is not used to receiving, he or she will not be able to incorporate it and will experience a negative emotion (Whiterington, Campos, & Hertenstein, 2001). This idea is problematic if according to Hertenstein (2002) the child compares new touches with previous ones that he or she has received; the questions of how these previous touches acquire meaning remains unanswered. Second, Hertenstein (2002) posits that touch acquires meaning through memory. This is, when a child is touched, he or she recalls his or her earlier experiences of touch to give meaning to that newly experienced touch. The child will not only remember a particular touch but he or she will also remember the context in which he or she was touched.

Finally, Hertenstein (2002) suggests that touch involves attention. Children are always surrounded by many different stimuli. From all the stimuli around them, they decide on which of them to focus at any given time. This same process takes place when a child is, for example, being stroked on the head and at the same time having his or her back rubbed. He or she might choose to focus his attention on one of the two stimuli, ignoring the other one. Perhaps this last mechanism does not really explain how touch acquires meaning, it just explains which type of touch the child prefers.

4.5. Functions of Physical Touch

In the past, researchers have pointed out that touch has two main functions: to communicate positive and negative hedonic values (Jones & Yarbrough, 1985; Knapp & Hall, 1997) and to enhance facial and vocal emotional displays (Knapp & Hall, 1997). For example, Kisilevsky et al. (1991) and Montagu (1986) proposed that touch soothes, regulates, and arouses children's feelings. They also proposed that parental touch during the first year of a child's life might help to elicit attention, modulate his or her affect, and help establish social interactions. Indeed, maternal touch can compensate for a lack of verbal communication between parents and children (Pelaez-Nogueras et al., 1996). Others such as Koester et al. (2000) proposed that through touch the child learns boundaries between himself or herself and others, as well as those between his or her own body and other people's bodies. Along the same lines, Ferber et al. (2008) report that high frequency of maternal touch during the first year of life predicts cognitive and neurobehavioral development (Fieldman & Eidelman, 2003), helps women accept better their new role as mothers (Keren, Feldman, Eidelman, Sirota, & Lester, 2003) and provokes a higher frequency of infants' smiles and vocalizations (Stack & Muir, 1992).

Evidence also suggests that it is possible to transmit specific emotions through touch (Barret & Campos, 1987; Clynes, 1977; Hertenstein, 2011; Stack & Muir, 1990; Stack & Le Page, 1996; Stack & Arnold, 1998). Hertenstein (2002) further posit that touch might have similar communication functions as the visual and auditive senses. For example, according to Stack (2004) touch can transmit love, caring, sympathy, empathy, anger, and a sense of security. Indeed, Tronick (1995) maintained that holding might mean "you are safe" whereas poking might mean "you are threatened". On this same subject, Clyness (1977) found that there is cross-cultural agreement in the method that individuals use to express discrete emotion. However, these results must be considered carefully because this study analyzed the process of transmitting specific emotions by analyzing the pressure of a fingertip on a keypad (e.g., when transmitting love the fingertip's pressure had a shallow curve, whereas when transmitting anger it dipped suddenly), therefore it is difficult to know whether the transmission of emotion onto the skin will work in the same mode (Hertenstein, 2002). Lastly, Montagu (1986) pointed out that a single touch is not the same as an emotion, but that they both induce the same neural, glandular, muscular, and mental changes in us.

Current literature suggests that a range of emotions can be communicated through touch. The main evidence behind this claim is that the skin has receptors that contain hedonic values. Hedonic values are important as they are amongst the most primitive ones in the generation of emotions. Therefore, it appears that the sensory system is linked directly with the creation of emotions (Hertenstein, 2002). Hedonic values determine whether an individual feels happy or sad for every action in which he or she engages. They are generated by one of two mechanisms, either because there are parts of the skin that are erogenous or because there are nerve endings that are nociceptive (receptors of intense stimuli such as pain) (Hertenstein, 2002).

Even further, certain types of touch have been linked to particular emotions. For example, Hertenstein,Verkamp, Kerestes, and Holmes (2006) found that strangers in Spain and in the U.S. could decode specific emotions when they were touched by a stranger. Thus, it seems that tactile communication may be more differentiated than the voice or the face (Hertenstein, Holmes, McCullough, & Keltner, 2009). Indeed, only the facial expression of joy has been found to be universally recognizable (Ekman, 1993), whereas there is some evidence of sympathy (Eisenberg, Fabes, Miller, & Fultz, 1989) and love (Gonzaga, Keltner, Londahl, & Smith, 2001) as being also universal. Regarding verbal communication, there is evidence of differences for positive emotional states such as happiness and affection (Juslin & Laukka, 2003). However, Hertenstein et al.'s (2009) conclusions should be carefully considered. First, because although the study of facial expressions and tone of voice have taken place over many years with plenty of studies to support the different conclusions, there are only a few studies on touch to support this view. Second, because the existing studies on touch contradict the principle of equipotentiality also proposed by Hertenstein et al. (2009). This principle states that the same type of touch can have different meanings and consequences. Therefore, if this principle is valid, it is difficult for a single touch to convey a specific meaning, and even more difficult to measure what touch means.

Lastly, research also suggests that individuals favour a particular communication channel depending on the particular emotion transmitted. This is, individuals tend to communicate embarrassment, guilt, pride, and shame through the body. In turn, anger, fear, disgust, happiness and sadness are communicated via the face. Lastly, touch is used to communicate love and sympathy. Thus, the communication channel chosen for each emotion depends on the emotion's social function. Specifically, the body channel is used to transmit social-status emotions (embarrassment, shame, guilt, and pride), touch is used to

communicate intimate emotions, whilst survival emotions (anger, happiness, fear, disgust, and sadness) are transmitted through the face (App, McIntosh, Reed & Hertenstein, 2011).

4.6. Touch between Parents and Children

Parental touch is part of the parent-child communication system and it is directly linked to the level of parental sensitivity and the level of reciprocity (level of give and take between mother and child) and synchrony (coordination between mother's and child's behaviours) between mother and child (Ferber et al., 2008). However, the exact role of physical touch during childhood is still ignored (Hertenstein, 2002).

Special attention has been placed on the physical benefits of touch through infant and premature infant massage (de Chateau, 1976; Ferber et al., 2005; Harrison & Woods, 1991; Onozawa, Glover, Adams, Modi, & Kumar, 2001). Specifically, Ferber et al. (2005) posit that mother-infant massage therapy might have long-term effects on infants' social skills as well as on mother-child relationships.

The amount of time that parents spend touching their children suggests that parental touch must play an important role in children's lives. Research indicates that a large proportion of the time that parents interact with their children is spent touching them. For example, Stack and Muir (1990) concluded that in the U.S mothers spend between 33% and 61% of the total time that they spend interacting with their infants, touching them; whereas the ¡Kung mothers touch their children even more than the Americans, for an average of 75% of the time that they spend together. As these figures show, parents rely heavily on touch to communicate with their children. For example, Stack and Arnold (1998) found that when mothers were asked to communicate with their five-and-a-half-month-old children only through touch, they touched their children more and they also were more successful in provoking their children's smile and directing their attention. When mothers of three-month-

old infants were asked to interact normally with their children without touching them, infants smiled less and gazed less frequently at their mothers (Gusella, Muir, & Tronick, 1988). In another study, Koester et al. (2000) found that deaf mothers were very responsive to their children's tactile needs. Similarly, hearing mothers of deaf children relied heavily on touch. These two sets of results could imply that mothers try to compensate a lack of hearing with touch.

The type of touch that is most common between mother and children has also been analysed. Tronick (1995) found that the most common types of touch during mother-child interactions are stroking, rhythmic touching and holding the infants. Following these are tickling, kissing, and rarely poking and pinching. However, it is important to note that those types of touch rated as rare are all negative touch and that the reason for their rare appearance could be the presence of the experimenter.

4.6.1. Individual differences in touch. Touch is a bidirectional phenomenon; therefore it is influenced by a number of variables. First, parent-child touch is influenced by the context in which it takes place. Second, it is influenced by the mother's and the child's characteristics (Harrison-Speake, & Willis, 1995; Hertenstein, 2002; Weiss et al., 2000). Indeed, research shows that as children grow older, parental touch decreases (Field, 2004; Ferber et al., 2008; Jean et al., 2009). These findings suggest that parents adjust their tactile stimulation to their children's development (Stack & Jean, 2011). However, it is important to note it is only the quantity of touch that has been found to decline with age, other parameters of touch, such as type, function or location, have not been analyzed in relation to age.

Last, parent-children touch is also influenced by cultural background (Richter, Yach, Cameron, Griesel, & de Wet, 1995; Harrison-Speake & Willis, 1995) and social class.

Specifically, Clay (1968) found that mothers and children from low socioeconomic status touched more than those from middle classes.

4.6.2. Touch and attachment. Touch is fundamental in the establishment of mother-child attachment (Stack, 2004). Bolwby (1980) posits that touch is the main channel through which parents communicate love to their children. Indeed, frequency and duration of touch are considered by some researchers as an index of mothers' attachment (Anisfield & Lipper, 1983; Willis & Briggs, 1992; Sroufe, Carlson, & Shulman, 1993). For example, children who were carried on a sling were rated as more secure than those children who were carried in infant seats (Anisfield, Casper, Nozyce, & Cunningham, 1990). Specifically, higher levels of touch are linked to secure styles of attachment (Ainsworth et al., 1978). Further, parent-child touch has also long term implications. Specifically, low frequency of touch during childhood has been linked with the appearance of depression during adolescence and early adulthood (Takeuchi et al., 2010).

4.7. Mother-Child and Father-Child Touch

There are very few studies analysing whether there are gender differences in the way fathers and mothers touch their children. And even more, these studies do not analyse touch in relation to emotion. Rather, they have focused on the frequency of parent-child touch, location, who touches whom, and rough and tumble play between fathers and children.

Research is not consistent on this topic. There are studies that have found that mothers and fathers differ in how they touch their children (e.g., Bronstein, 1984; Lamb, 1997) whereas other studies have found no differences (e.g., Maccoby & Jacklin, 1974). For example, Lamb (1997) concluded that fathers held their infants for play whereas mothers held them for caretaking tasks. Because playing is a more pleasurable experience for children than having, for example, a nappy change, this could explain why children were found to respond

more positively to being held by fathers than by mothers. Similarly, Jourard (1966) found that fathers touched fewer areas of their children's bodies than mothers did. Fathers do less caregiving tasks than mothers. However, it is expected that as the children grow older these differences will tend to disappear as they are held less by both of their parents. Indeed, Bronstein (1984) found that Mexican fathers were more playful than mothers. In turn, mothers were more nurturing when having to perform caregiving tasks. In related research, Lamb (1981) concluded that in those families in which the mothers were more expressive than the fathers, fathers were found to be more physically affectionate than mothers. In contrast, Maccoby and Jacklin (1974) did not find differences between mothers and fathers in touch.

Research has also analysed whether child's gender has an impact on parental touch. Again, research is inconsistent. Whilst some researchers (e.g., Baildum, Hillier, Menson, & Bamford, 2000; Sigelman & Adams, 1990) found that child's gender does not influence parental touch, there is also research suggesting that child's gender plays an important role in the way mothers and fathers touch their children (e.g., Field, Vega-Lahr,Goldstein, & Scafidi 1987; Lindalh & Heimann, 2002; Russell & Saebel, 1997). However, its exact role is still unclear. Some studies have found that same-sex dyads touch more than different-sex dyads. For example, Russell and Saebel (1997) found that mother-daughter dyads were found to show more affectionate closeness than mixed gender dyads. Similarly, mothers touched their infant girls more than their infant boys (Field et al., 1987; Goldberg & Lewis, 1969). Indeed, Goldberg and Lewis (1969) found that mothers breastfed their daughters for longer than their sons. On the contrary, other studies (e.g., Lewis, 1972) found that different-sex dyads touch more than same-sex dyads. Similarly, Snow, Jacklyn, and Maccoby (1983) found that fathers held daughters more than fathers held sons. Even further, Siegal (1987) suggested that fathers differentiate more than mothers between daughters and sons, especially in the areas of

discipline and physical tasks. This finding is consistent with research conducted by Snow et al. (1983) who found that fathers use more physical prohibitions with their sons than with their daughters. However, none of these studies have analysed when and how these differences start. It is unclear if these differences between genders appear because daughters and sons behave in different ways and as a result their parents respond differently, or if on the contrary, parents have learnt to touch their children differently or they are predisposed to touch their children differently.

In conclusion, it remains unknown whether there are differences in the way fathers and mothers demonstrate physical affection toward their children. More research is needed on this topic. In these present series of studies the aim is to go one step beyond the existing research and analyze the relationship between verbal expression of emotions and parents' and children's touch.

4.8. Parent-Child Touch and its Relationship to Emotion

In early research, touch was not considered to be a communication system; rather it was considered to serve as an enhancer of the verbal and facial channels, or a transmitter of the hedonic tone of emotions. More recent research, has found that touch is in itself a system of emotion communication. Specifically, research (Hertenstein, 2002; Tronick, 1995; Weiss, 1979) suggests that different types of touch can communicate different types of emotions. For example, research shows that mothers touch their children differently, depending on the emotional reaction that they want to obtain from their child (Ferber et al., 2008; Harrison & Woods, 1991; Polan & Ward, 1994; Stack et al., 1996). Similarly, Stack et al. (1996) found that when mothers were asked to make their child smile, they used tickling and lifting but not holding.

Moreover, Stack and Arnold (1998) and Stack and Le Page (1996) pointed out that mothers can elicit specific emotions from their children. Specifically, they found that through touch mothers can produce positive emotions in children as well as helping negative ones to disappear. In addition, through touch parents can communicate their feelings and perceptions to their children as well as to regulate children's perceptions and feelings. Therefore, touch can serve as a means of communication between parent and child even when it does not carry specific information (Hertenstein, 2002). Even more, Hertenstein (2002) pointed out that communication takes place even if the parent does not have any intentionality, if the parent is not mindful of the touching, or even if the parent's emotional state is not induced in the child.

Through touch parents can for example, elicit positive emotions (Pelaez-Nogueras et al., 1996; Wolff, 1963). In addition, Pelaez- Nogueras et al. (1996) concluded that those infants, who were touched more, cried less and smiled and vocalized more. Similarly, Stack and Muir (1992) concluded that when performing a maternal still-face task, those five-and-a-half-months old infants who were touched more by their mothers, smiled more and grimaced less during the task.

Conversely, physical touch can elicit children's negative emotions. For example, Brossard and Decarie (1968) found that static touch can elicit negative emotions. Similarly, Weiss, Wilson, St John-Seed, and Paul (2001) concluded that early experience of harsh touch is associated with later emotional and behavioural problems. Specifically, those infants who experienced harsh touch, showed later aggressive and destructive behaviours. Therefore, parental physical touch might have both, long and short term effects on children. Moreover, negative touch is correlated with later emotional and behavioural problems (Herstenstein & Campos, 2001; Weiss et al., 2001). For example, research has concluded that depressed mothers poke, jab, and tickle their children more often than non-depressed mothers. As a consequence children of depressed mothers show more negative emotional responses than

children of non-depressed mothers (Cohn & Tronick, 1989; Field, Healy, Goldstein, & Guthertz, 1990).

In conclusion, although research shows that parent-child touch influences children's physiological and socioemotional development, its exact role is not yet clear. The present research specifically aims to further the analysis of gender and age differences in parent-child touch as well as to analyze the relationship between parent-child touch, parent-child emotion talk, and children's emotion understanding.

Chapter 5

Gender Differences in Language

Language is a very important tool in children's gender socialization (Tomasello, Conti-Ramsden, & Ewert, 1990), and socioemotional development and behaviour (Vygotsky, 1978; Ochs & Schieffelin, 1984; Brady, Warren, & Sterling, 2009). For example, research indicates that when mothers talk more, children also talk more (Paavola, Kunnari, Moilanen, & Lehtihalmes, 2005) and have a larger vocabulary (Tamis-Le Monda, Cristofaro, Rodriguez, & Bornstein, 2006; Tomasello & Todd, 1983). Language also influences children's emotion understanding, although its exact role is not yet clear (Harris et al., 2005). Parental talk contributes to children's emotion understanding and emotion talk (Kuebli & Fivush, 1998; Hurtado, Marchman & Fernald, 2008). Mirroring results in general talk, research shows that mothers who talk often about emotions have children who talk more about emotions (Dunn et al., 1987) and have a better understanding of emotions (Dunn et al., 1991a; Denham & Auerbach, 1995) than children whose mothers talk about emotions less often. The aim of this chapter is to explore the role of parental talk in children's emotion understanding.

5.1. Differences in Children's Acquisition of Language

From 14 to 20 months girls acquire more vocabulary words than do boys (Schachter et al., 1978). Gender differences in vocabulary growth are consistent up to the age of two (Reznick & Goldsmith, 1989), after this age these differences disappear (Maccoby & Jacklin, 1974). Research suggests that girls receive more parental encouragement than boys to achieve their maximum verbal skills (Huttenlocher et al., 1991; Schachter et al., 1978). Indeed, a comprehensive meta-analysis concluded that mothers talk more and with a higher quality of speech to their daughters than to their sons (Leaper et al., 1998). It has also been

suggested that girls form closer friendships, which gives them more opportunities to discuss and express emotions (Huttenlocher et al., 1991). Alternatively, girls and boys mature in different ways (Huttenlocher, Levine, & Vevea, 1998).

5.2. The Role of Language in Children's Emotion Understanding

Many suggest that language plays an important role in children's emotion understanding (Harris et al., 2005; Pons et al., 2003; Ruffman, Slade, Rowlandson, Rumsey & Garnham, 2003). The developmental pattern of children's understanding of emotions seems to be intrinsically linked to children's language development. Emotion language appears at twenty months (Bretherton & Beeghly, 1982; Dunn et al., 1987) and during the second year, children begin to include it in their everyday conversations (Bloom, 1993). By thirty-six months, children are able to discuss causes and consequences of emotions as well as to discuss past and future emotions (Huttenlocher & Smiley, 1987).

Research shows that the development of emotion language helps children to develop their emotion understanding. For example, as children grow older they start making more emotion references related to others. Indeed, Pons et al. (2003) found that the better the children's language abilities, the higher emotion understanding they showed (Pons et al., 2003; Clemente & Adrian, 2004). Also, Tenenbaum et al. (2008) suggest that the more children talk about emotions, the better their emotion understanding. Similarly, Beck, Kumpschick, Eid, and Klan-Delius (2012) found that there is a common general ability underlying emotion competence and language competence in seven- to nine-year-old children. Specifically, literacy and receptive language (children were asked to rate which of four pictures best represented a word) were strongly related to emotion knowledge and awareness of mixed emotion. These findings indicate that perhaps if language is a tool representing emotions, then those with better language skills have a higher level of emotion

understanding. Another possibility could be that, it is not that those children with better language skills have a better understanding of emotions, but rather that they are able to communicate their emotions better (Pons et al., 2003).

In fact, this is one of the reasons why researchers believe that girls generally have a better understanding of emotions than boys. Girls seem to develop their language skills earlier (Leaper et al., 1990; Brody, 1999). Indeed, it has been found that from a very early age, girls show greater vocabulary and word fluency (Iacciano, 1993).

5.3. Mothers' and Fathers' Differences in Talk

Findings about whether mothers and fathers talk differently to their children are not consistent. For example, in their meta-analysis focused on parental socialization of gender, Lytton and Romney (1991) found no differences in the way mothers and fathers spoke to their children. However, one area in which differences were found was that fathers were more likely to encourage sex-typed behaviours than mothers. For example, fathers did not encourage their daughters to play with car toys; neither did they encourage their sons to play with dolls.

In contrast, in an extensive meta-analysis, Leaper et al. (1998) found differences in mothers' and fathers' speech. One possible source for the emergence of these differences is that whereas Lytton and Romney (1991) analyzed studies conducted in laboratory settings, Leaper et al. (1998) analyzed research conducted in naturalistic environments as well as labs and used this factor as a moderator. Indeed, Leaper et al. (1998) concluded that location plays a very important role when analyzing parental talk with their children. Specifically, they found that parental differences in talk were larger when the observation took place in the participants' home than when it took place in a laboratory. They also found larger differences

in talk when participants were asked to complete an unstructured task than when they had to complete a problem-solving task.

Moreover, Leaper et al. (1998) concluded that mothers talked more, and were more supportive, as well as being less directive and more informative than fathers. Consistent with these results, it has been found that when talking to their children, fathers demand their children to speak to the best of their abilities, whereas mothers are more sensitive to their children's abilities. This finding could reflect that mothers try to give security to their children, whereas fathers aim for their children to achieve their maximum potential (Le Chanu & Marcos, 1994). This hypothesis is supported by the finding that fathers use a more challenging vocabulary when talking to their children than do mothers (Ratner, 1988). However, fathers ask for more clarifications from their children when talking to them than mothers and ignored children's utterances more often than did mothers, which could mean that fathers have more difficulties in understanding their children's speech (Tomasello et al., 1990). These findings support the Bridge Hypothesis which posits that fathers challenge their children's verbal skills to prepare them to communicate with less familiar individuals (Tomasello et al., 1990).

Gender differences in parent-child talk are similar to those obtained regarding reminiscing. Research on reminiscing is relevant because there is evidence suggesting that narratives are a very important reflection of who an individual is. Identity theory and social learning theory both suggest that girls' narratives should be more similar to those of their own mothers than to those of other women and more similar to their mothers' narratives than to their fathers' narratives (Peterson & Roberts, 2003). Women have been found to reminisce for longer, in a more detailed and vivid fashion. Their narrative is typically focused on emotions, and interpersonal relationships. As a consequence, women tend to be able to access their autobiographical memory quicker than can men because they produce more narratives

(Peterson & Roberts, 2003). In contrast, men's style of reminiscing is less detailed, shorter, and more focused on goal achievement, and performance. Additionally, when men and women reminisce together it was found that women recalled more details and both women and men rated women's memory as more accurate than men's (Peterson & Roberts, 2003).

Research has also analyzed differences in total talk between mother and fathers. In this aspect, results are also mixed. Some studies (Hladick & Edwards, 1984) have found that men produce a higher number of verbal utterances than women whereas others have found no differences (Masur& Gleason, 1980). No studies have found that fathers talk more to their children than mothers.

5.4. Mothers' and Fathers' Talk to Boys and Girls

Research about whether there are differences in how mothers and fathers talk to their daughters and to their sons is not consistent. There are studies that have found differences in mothers and fathers talk to daughters and sons. For example, Flannagan et al. (1995) found that mothers were equally elaborative with daughters and sons but that they differed in the topics of the conversations. Specifically, mothers talked more about people with daughters and more about learning related topics with sons. Leaper and Gleason (1996) found that parents use more affiliative and more instrumental language with daughters than with sons. However, they also concluded that the relationship between children's communication and parents' gender remains unclear. Leaper et al. (1998) similarly found that mothers tend to use language to create and keep relationships with others, whereas fathers are more focused on achieving their goals as a tool to reinforce their independence.

Further, research shows that fathers are more likely than mothers to socialize differently their daughters and sons (Lytton & Romney, 1991), especially in areas such as language, play and discipline (Barton & Tomasello, 1994). Finally, Leaper et al. (1998)

suggested that the underlying factor behind these contradictory results is that mothers and fathers differed in the way they talk to their children. However, these differences are not fixed, and instead depend on the context.

In conclusion, although research seems to suggest that there are parental differences in the language dimension, more research is still needed, as there are still some contradictory results. Overall, fathers and mothers seem to talk similarly to their children, although fathers tend to challenge them more than mothers do.

Chapter 6

Aims and Objectives

The present series of studies analyzed gender differences in mother-child and father-child emotion talk, gender differences in mother-child and father-child physical touch, and the relationship between parents' emotion talk, parents' touch and children's understanding of emotions.

Research suggests that mothers' emotion talk influences children's emotion understanding (Adrian et al., 2007; Cassidy et al., 1992). Indeed, children whose mothers talk more about emotions not only talk more about emotions themselves but have a better level of emotion understanding (Denham et al., 1994; Dunn et al., 1987; Harris et al., 2005; Tenenbaum et al., 2008). However, mothers' emotion talk has not always been found to influence children's emotion understanding. Even when relations are found, they tend to be small, inconsistent, and do not indicate clear age or gender differences (Fivush, 1998; Laible, 2004; Garner et al., 1997). Thus, the first aim of the present series of studies was to further research on the relation between mothers' emotion talk and children's emotion understanding. Based on social cognitive theory (Bandura, 2005), it was hypothesized that children whose mothers mentioned more emotion words would have a better understanding of emotions as measured by the Test of Emotion Comprehension (TEC) and the Test of Behavioural Consequences of Emotions (TBCE) than children whose mothers mentioned emotion words less frequently. Similarly, it was also hypothesized that mothers who mentioned more emotion explanations would have children with a higher level of emotion understanding than children of mothers who mentioned less emotion words. Finally, it was expected that mothers who mentioned more emotion words during the reminiscence task would have children with a higher level of emotion understanding.

Research indicates that when there are gender differences in mothers' talk, mothers talk more about emotions to daughters than to sons. The second aim of the present research was to analyze gender differences in mother-child emotion talk. Specifically, it was hypothesized that mothers would talk more about emotions to daughters than to sons.

Further, we extended previous research by examining both mothers and fathers. This is especially relevant because in recent years fathers have acquired a more active role in children's upbringing and everyday care. There are only five studies on father-child emotion talk (e.g., Kuebli & Fivush, 1992; Adams et al., 1995; Fivush et al., 2000; Fivush & Wang, 2009; Denham et al., 2010) and only one has outcome meaures. This project examined emotion talk and children's emotion understanding. Specifically, it was hypothesized that fathers who mentioned more emotion words and more emotion explanations would have children with a better emotion understanding than children whose fathers mentioned fewer emotion words and explanations. In addition, the aim was to explore gender differences in fathers' emotion talk. Specifically, it was hypothesized that mothers and fathers would talk similarly about emotions and that both of them would mention more emotion words to daughters than to sons.

However, parent-child communication of emotions does not only happen through talk; emotion communication also happens via non-verbal channels, such as parent-child touch. However, the influence that parental touch has on children's emotion understanding has been largely ignored (Jean et al., 2009). In early research, touch was not considered to be a communication system. Rather it was considered to serve as an enhancer of the verbal and facial channels, or a transmitter of the hedonic tone of emotions (e.g., positive and negative; Hertenstein, 2002). More recent research has found that touch is in itself a system of emotion communication. Specifically, research suggests that different types of touch can communicate different types of emotions (Hertenstein, 2002; Tronick, 1995; Weiss, 1979). Regarding

touch, the present research had four main aims. First, the aim was to analyze gender and age differences in parent-child touch, as well as the relation between parents' touch and children's emotion understanding, and between parents' emotion talk and parents' touch. Specifically, mothers were expected to be more physically affectionate than fathers, and both fathers and mothers were expected to touch daughters more than sons. Second, we expected that parents would touch younger children more than older children. Third, we hypothesized that if parent-child emotion talk and parent-child touch are two components of the same system of emotion communication, then we could hypothesize that parent-child touch could have an influence on children's emotion understanding. Finally, the present research examined the relationship between parental emotion talk and parental physical touch.

The final aim of the present research was to analyze a gap in the literature of children's emotion understanding. Although there has been extensive research examining children's understanding of the relationship between causes and their emotional consequences, there is no research analyzing the converse- children's understanding of the relationship that emotions motivate behaviours. To examine this relationship the Test of Behavioural Consequences of Emotions (TBCE) was designed. Based on two key lines of research such as the children's theory of mind (Gopnik & Astington, 1988; Sabbagh, Moses, & Shiverick, 2006) and emotion understanding (Harris, 1989), it was hypothesized that six-year-old children would have a better understanding of the relation between emotions and their behavioural consequences than four-year-olds, that children who had a mentalistic understanding of emotions would score higher in the TBCE, and finally that there would be a relationship between the TBCE and the TEC.

Finally, it is important to note that most research on parent-child emotion talk and on parent-child physical touch has been conducted with American and British White middle-class participants. The present research was conducted with Spanish participants. Research

indicates that Spain is high touching country as opposed to Northern European countries (Lusting & Koester, 1996). In addition, most studies on touch have examined children up to the age of one and research on emotion talk has analyzed children up to the age of four. The present research examines four- and six-year-old children with the aim of achieving a clearer picture of children's development of emotion understanding.

To analyze these series of questions, a complex methodology was designed. To design this method, first of all a thorough revision of all the existing methods in the literature was conducted. Second, participants conducted the tasks in their own homes to achieve a more naturalistic behaviour. Third, to control for extraneous variables mothers and fathers both completed the same tasks with their children. Finally, to test children's emotion understanding, two tests were used. First, the Test of Emotion Comprehension (TEC) measures emotion understanding of three-to-twelve-year-old children. It was chosen because it has been widely used and replicated (Pons, Harris, Doudin, 2002). In addition, it has been translated to Spanish. The second test was the Test of Behavioural Consequences of Emotions (TBCE). This test was designed by the author and Dr Harriet Tenenbaum as there are no existing tests measuring the relationship between emotions and their behavioural consequences. The methodology will be explained in detail in the next section.

Chapter 7

General Methods

7.1. Participants

A total of sixty-three children (30 girls and 33 boys), aged 4 (M = 53.35 months, SD = 3.86; range = 48 – 60 months) and 6 years old (M= 76.62 months, SD = 3.91; range = 72- 84 months) participated with both of their parents (mothers' mean age was 36.30 years, SD = 2.88; range = 29 – 42 years; fathers' mean age was 40.60 years, SD = 4.42; range = 34 – 54 years). All families were Spanish, twelve of them lived in London (UK), 47 lived in Madrid (Spain), one lived in Barcelona (Spain) and one lived in Malaga (Spain). All families came from predominantly middle-to upper-class socioeconomic status. All families were intact. The average number of children per family was 2.76 (SD = .95). Of the child participants, 24 were firstborns and the rest were later-borns. All parents had attended university. In addition, 17 mothers and 24 fathers held a postgraduate degree. Of the fathers, 58 fathers worked outside their home, one worked from home and one was unemployed. Of the mothers, 27 of them worked outside their home, eight worked from home, 22 of them were homemakers, one was a studying and three were unemployed. Spanish was the first language for both parents and children.

Participants were recruited on a volunteer basis. Two other families were not included because they failed to complete the procedure.

The present research received ethical approval from the Faculty of Arts and Social Sciences at Kingston University.

Five studies composed the research presented here.

7.2. Study 1

7.2.1. Materials. A plastic house and a set of six family figures (e.g., a grandfather, a grandmother, a father, a mother, a son, a daughter and a dog) were used to elicit the story (see Appendix A). Each family figure is eight centimetres tall. The house is furnished and has two stories. On the top floor there is one bedroom and a bathroom. The lower floor comprises the kitchen and a sitting room. It measures 28x30 centimetres.

Second, four index cards with events were used. These included a visit to the zoo, a visit to the doctor, the first day of school, and the last time the child fell down.

7.2.2. Procedure. Parent-child interviews took place in the participants' own homes. On a first visit, the mother or the father and the child completed two storytelling tasks. One of these tasks involved the plastic house and the other involved the four events discussion task. Both are explained in detail below. Within a minimum of one day and a maximum of seven days, the other parent and the child completed the same two tasks. These two tasks were counterbalanced. Parent order was also counterbalanced. Mothers participated first 35 times and fathers did 28 times. The length of time devoted to the stories was participant-determined as it has been argued (e.g., Cervantes & Callanan, 1998; Fivush et al., 2000; Kuebli & Fivush, 1992) that this enables emotions to be used in a more naturalistic manner. These sessions were videotaped.

Mothers' conversations about the plastic house story lasted for an average of 10.58 minutes (*SD* = 6.12; range = 2.26 – 32.58 minutes) and mothers' conversations about the four events storytelling task lasted for an average of 7.54 minutes (*SD* = 3.66; range = 1.17 – 23.06 minutes). Fathers' conversation about the plastic house story lasted for an average of 11.42 minutes (*SD* = 5.05; range = 2.60 – 27.51minutes) and fathers' conversations about the

four events storytelling task lasted for an average of 10.20 minutes (*SD* = 4.53; range = 3.00-21.54 minutes).

In the plastic house task, the child and the parents were asked to play with the figures and the house while they created a story together. To help them create the story, the researcher provided them with four events: the parents leave their children to go on an overnight trip, one child falls down and hurts himself, the dog runs away, and the parents return home (Cervantes & Callanan, 1998).

This task has been very useful in prompting discussion about emotions, and it has been used in different studies (e.g., Bretherton, Ridgeway and Cassidy, 1990; Cervantes & Callanan, 1998; Oppenheim, Emde, & Winfrey, 1993). The first three episodes were taken from the attachment story-completion task by Bretherton et al. (1990). All of them have important emotional themes for preschool children (Cervantes & Callanan, 1998).

For the storytelling task, the researcher provided participants with four emotional events typed in four index cards: the child's first day in school, a visit to the doctor, a time that the child fell in the playground, and a trip to the zoo. The order in which these four events were discussed was participant determined. These four emotional events were chosen because of two reasons. First, they all involve important emotional events for preschool children. Second, research by Fivush (1989) has suggested that children's conversations about their own emotions might play an important role in children's socialization of emotions, and specifically, it may enhance children's understanding of emotions.

7.2.3. Transcription and coding. Videotaped conversations were transcribed verbatim by a first transcriber and checked for accuracy by a second transcriber. For each transcript, mother's, father's and child's emotion utterances were identified. Emotion utterances were coded for the following: total number of emotion words, theme of emotion word, emotion

labels versus emotion explanations, emotion behaviours and emotion sounds, valence of the emotion utterance, statement versus question, participant who uttered the emotion word, target of the emotion utterance, number of unique emotion words, total number of utterances, and total length of the conversation.

Total number of emotion words. The total number of emotion words that mothers, fathers, and children mentioned during the conversations were counted.

Theme of the emotion words. These words were divided into themes, which included sadness, (e.g., sad, miss, upset), happiness (e.g., happy, fun, cheer up), anger (e.g., angry, mad), jealousy (e.g., jealous, envious), pride (e.g., proud), affection (e.g., love, affection), concern (e.g., worried, concerned), fear (e.g., afraid, scared, scary, frighten), dislike (e.g., do not like, distaste, hate), surprise, indifference (e.g., do not mind, do not care), distress, excitement, and embarrassment. "Like" was included when used to convey an emotion (e.g., "I like that dog") but not when it was used as a desire (e.g., "I would like to have that cake"). "Nice" was included when it referred to liking but excluded when used as an attribution. Terms referring to volition and desire (e.g., want, wish, and need) were excluded.

Emotion labels versus emotion explanations. Labels were those emotion references that refer to an emotion or ask about an emotion without including a causal relationship (e.g., "My brother is very sad"). Explanations were those emotion references that make a statement about an emotion including a causal relationship (e.g., "My brother is very sad because his best friend hit him"). Emotion words were also considered explanations if there was a causal link (e.g., "My brother is very sad because his best friend hit him"), a lexical causative (e.g., "My brother's friend made him very sad when he hit him) or if there was no explicit causal link but the utterances were adjacent and were considered to be semantically causal (e.g.,

"My brother is very sad. His best friend hit him"). This criterion is based on Bloom and Capatides (1987).

Emotion behaviours and emotion sounds. There were four categories of emotion behaviours which included hit (e.g., hit, punch, push, bite, slap), kiss (e.g., kiss, hug, hold hands, tickle, stroke), cry, and laugh. There were two categories of emotion noises: "gua" (cry) and "mua" (kiss).

Emotional valence. Emotion utterances were categorized as positive (e.g., happy, excited), or negative (e.g., sad, angry).

Participant who uttered the emotion word. Whether the mother, father or the child spoke the utterances was recorded.

Target of the emotion utterance. To whom the emotion utterance made reference was recorded. There were four categories which included the child (the speaker attributes an emotion to the child), the parent (the speaker attributes an emotion to the parent), other person (the speaker attributes an emotion to a person other than the child or the parent, e.g., "Your brother was happy"), and shared (the emotion was shared by the child and one or more individuals, e.g., "We were all very happy" or "It was very scary"). This coding was only conducted in the events task because in the plastic house task, participants only referred to the characters' emotions.

Statement versus question. Whether the emotion word was part of a statement (e.g., "You were very embarrassed the first day of school") or part of a question (e.g., "Were you embarrassed the first day of school?") was coded.

Number of unique emotion words. The number of unique emotion words that mother, father, and child made during the conversation was calculated. The aim was to analyze

whether participants made reference to a wide range of different emotions words or if on the contrary, they repeated the same variety of emotion words.

Total number of utterances. The number of total utterances made by mother, father and child was recorded.

Total length of the conversation. The duration of the conversations was analyzed.

7.2.4. Reliability. Reliability was attained separately for each coding scheme. The author coded all transcripts and Dr. Harriet Tenenbaum coded twelve transcripts (20% of the data set). Reliability was achieved with a kappa of .80 for the emotion words, 1.00 for the emotion behaviours, and with a κ of .91 for the labels and explanations. For the statements and questions the kappa was .99 and for the reference the κ was .90.

7.3. Study 2

7.3.1. Procedure. This study was conducted using the data obtained by study one. This study analyzed physical touch between parents and children.

7.3.2. Coding of parent-child physical touch. First, the overall degree of proximity between parent and child was analyzed. Three degrees of proximity were coded, which included child on parent's lap, parent and child less than one foot apart, and parent and child more than three feet apart.

Second, each specific touch between parent and child was recorded and analyzed. For each touch four variables were analyzed:

Person who initiates the touch. Whether it was the mother, the father or the child who initiated the touch was coded.

Type of touch. Twelve types of touch were coded: stroke, rhythmic touch, hold, tickle, kiss, poke, pinch, hold hands, hug, demonstrate, rest and aimful (based on Tronick, 1995).

Location of touch. Six types of touch were coded: head, face, arm, hand, whole body, and other.

Duration of touch. For each touch it was recorded its duration in seconds.

7.3.3. Reliability. Reliability was attained separately for each coding scheme. The author coded all transcripts and a research assistant coded twelve transcripts (20% of the data set). Reliability was achieved with a K of .91 for the location of touch and with a K of .76 for the function of touch.

7.4. Study 3

7.4.1. Materials. The Test of Emotion Comprehension (TEC) (Pons et al., 2004) was administered to the child participants. The TEC is a test that measures emotion understanding of 3-to 12-year- old children. It shows vignettes in which a character faces situations that bring out a series of emotional responses. The story character always matches the participant's gender. After each situation, the child is asked to decide how the character is feeling by choosing from four different options. The TEC is organized in an increasing order of difficulty so that participants do not get frustrated (Pons et al., 2004). Its administration typically lasts ten minutes.

The TEC is divided into nine different sections. The first section shows the child a number of faces and asks him/her to identify the emotions that the faces represent (e.g., "Which face looks scared?"). The second section shows vignettes in which the protagonists' feelings are affected by external conditions ("This boy/girl is being disturbed by his little

brother. How is this boy/girl feeling?"). The next section represents different scenarios in which feelings are a consequence of the character's wishes. Two characters are introduced; one likes a certain food and the other does not. The participant is asked: "How does each protagonist feel when they discover that inside a cupboard there is that certain food?". The fourth section tests whether the participant understands the concept of false belief and its effect on emotion ("A fox is hiding behind a tree, watching a rabbit. How does the rabbit, which does not see the fox, feel?").

The next two sections test whether participants understand that emotions can be caused by reminders (e.g., the character looks at a picture of his dead rabbit), and what the protagonist could do to stop feeling sad (e.g., "Do you think that the boy will not be sad any more if he plays outside or if he thinks about something else?"). The seventh and eighth sections involve two complex emotions: hidden and conflicting emotions. To test the child's level of understanding of hidden emotions, the child is asked how a character that is being teased is really feeling even though he or she is smiling. The objective of the next section is to test if the participant understands the concept of conflicting emotions. Therefore, the child has to decide how a character, who has received a bicycle for his birthday, but has never ridden one before, is feeling. The final section tells the story of a boy or a girl who eats a biscuit without asking for permission and he or she also decided not to tell his or her mother what he or she did. The test asks the child to identify the emotion resulting from self-restraint and the emotion resulting from not being truthful (Pons et al., 2004).

The TEC was chosen to test children's level of emotion understanding because it has been widely used and replicated. Its different components are scalable (index of consistency I = 0.676) and the scale is valid (Coefficient of reproducibility R = 0.904; Pons et al., 2002). In addition, the TEC is different from other tests of emotion comprehension, in the simplicity of the language that it uses (Pons et al., 2003). This reduces the effect of language ability on the

understanding of emotions. The TEC correlates with two other tests: the WAIS-III (r =.63; Hernandez-Blasi, Pons, Escalera, & Succo, 2003), the Test of Receptive Grammar (TROG) (r = .81 and r = .51; Pons et al., 2003). Also, a high test-retest correlation (r = .83) with a 3-month period (Pons et al., 2002) and a 13-month period (r = .68; Pons & Harris, 2005) of the TEC has been found. Last, the comparison of components' scaling in children from both the UK and Quechua children from Peru, showed significant correlations between r = .56 and .91 (Tenenbaum et al., 2004).

7.4.2. Scoring of the TEC. Children receive one point for each one of the nine components that they answer correctly. The highest score is nine and the lowest is zero. Both components one and two include five questions, a minimum of three correct answers were needed to get one point in each one of these two first components. The other six components included one test question.

7.4.3. Procedure. The present study was conducted using the data obtained by studies one and two in addition to the TEC, which was administered before one of the two parent-child storytelling session and again six months later. Administration of the TEC at two time points enabled the researcher to control for prior TEC score when predicting later emotion understanding. A regression was conducted examining if the later TEC score was predicted by talk and touch after controlling for the prior TEC score.

7.5. Study 4

7.5.1. Procedure. The present study was conducted using the data obtained by studies one, two, and three. Its aim was to analyze the relation between the TEC, parents' physical touch, and parents' emotion talk.

7.6. Study 5

7.6.1. Materials. The child participants were provided with the Test of Behavioural Consequences of Emotions (TBCE). This test was devised by the author and Dr. Harriet Tenenbaum. The test is composed of ten vignettes. Each vignette contains the story of a child who is facing a situation. Vignettes were gendered matched. Participants were asked to choose which action the character of the vignette will take as a result of the feeling that he or she is experiencing at that particular moment. For example, "Rodrigo is in the playroom with his baby brother. He loves him very much. What will Rodrigo do? i) He will hug his brother, ii) He will hit his brother, iii) He will play with a car" (see Appendix D).

7.6.2. Procedure. The TBCE was administered before one of the two parent-child storytelling tasks. The researcher explained to the participant that she is going to read him or her ten vignettes. At the end of each one of them, the participant chose from three possible answers.

7.6.3. Scoring of the TBCE. There were ten vignettes. Each one of them had three possible answers for the participants to choose from. Participants received one point when they chose the correct answer and zero points when they chose any of the two incorrect answers. Therefore, each participant obtained one score ranging from zero to ten, with zero meaning no understanding that emotions elicit particular behaviours, and ten implying a very good understanding of this relationship.

In sum, four different measures were used in these series of studies. By using this wide range of measures the aim was to achieve a global view of how children and parents express their emotions and how this influences the understanding that children have of their own and others' emotions.

Chapter 8

Study 1

Gender Differences in Parent-Child Emotion Talk

8.1. Introduction

The analysis of parent-child emotion talk is one of the most useful tools to further the understanding of children's socialization of emotions (Adams et al., 1995; Dunn et al., 1982; Fivush et al., 2000; Kuebli & Fivush, 1992). Indeed, research shows that how a child understands emotions is influenced by the frequency that his or her mother talks to him or her about emotions. The more the child talks about his or her emotions with his or her mother, the better understanding of emotions he or she will acquire (Denham et al., 1994; Dunn et al., 1991a; Harris et al., 2005; Kuebli et al., 1995). For example, Dunn et al. (1991a) concluded that three-year-olds living in families where emotions were discussed more often, obtained higher scores than their peers when judging someone else's emotions at age six. In similar research, Kopp (1992) found that preschool children who were allowed to discuss their emotions, were less likely to become frustrated when faced with a challenging situation. In addition, children who talk more about emotions are more socially competent than children who use other ways to regulate their emotions (e.g., aggression, social withdrawal; Eisenberg et al., 1994). Finally, parents' elicitation of children's emotion talk predicted children's prosocial behaviour (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2012). The present study analyzed the effect of parents' and children's gender on emotion talk.

Two reasons have been proposed to explain how parent-child emotion talk influences children's understanding of emotions. First, during childhood, parents are typically the primary caregivers of their children and therefore children establish their most significant relationships with them (Ainsworth, 1962; Bowlby, 1960). For this reason, it is expected that

parents' understanding of their own and others' emotions, how parents manage their emotions, and how they talk about emotions will have an impact on their children's ability to understand, and talk about their own and others' emotions. Moreover, mothers' emotion talk has been linked to children's internal state language (Beeghly et al., 1986), childrens' emotional situational knowledge (Denham et al., 1992) and children's emotional role taking skills (Dunn et al., 1991b). Second, research indicates that individuals and especially children tend to experience emotions more intensely and more frequently within their family setting (Halberstadt & Eaton, 2002). More specifically, school-aged children report showing emotions more to their family members than to their friends in school (Zeman & Garber, 1996).

Although much research on parent-child emotion talk has been focused on the analysis of gender differences, findings have been inconsistent. On the one hand, researchers like Cervantes (2002), Denham and colleagues (1994, 2010), Fivush and Wang (2005), and Peterson and Roberts (2003) have not found gender differences in maternal emotion talk. In contrast, others have found gender differences in the amount of emotion talk that mothers engage in with daughters and sons (Adams et al., 1995; Dunn et al., 1987; Flannagan & Perese, 1998; Leaper et al., 1998). For example, Dunn et al. (1987) found that when infants were both 18 as well as 24 months, mothers talked about emotions more with their daughters than with their sons. Leaper et al. (1998) also found that mothers talked about emotions more to their daughters than their sons. Similarly, Flannagan and Perese (1998) found that when mothers talked with their four-year-old children about school, they mentioned more emotion words when talking with their daughters than when talking to their sons. Lytton and Romney (1991) conducted a meta-analysis of parental gender socialization studies in children from infancy to five years of age. They concluded that parental gender differences in children's socialization of emotions decline with age. Differences may also be nuanced. Indeed,

Cervantes and Callanan (1999) found that mothers used similar amounts of emotion talk with their preschool children. However, mothers provided more explanations than labels when talking to sons, whereas mothers used more labels than explanations when talking to daughters.

Alternatively, the particular emotion under discussion may influence gender differences. Indeed, Fivush (1989, 1991) suggests that gender differences in emotion talk are so subtle that they might depend on the particular emotion being discussed. For example, mothers talked more about sadness with their daughters, whereas they have been found to talk more about anger with their sons (Adams et al., 1995; Fivush et al., 2000; Kuebli & Fivush, 1992). Similarly, mothers have been found to play a unique role in children's socialization of anger, whereas fathers' influence was distinct for children's socialization of sadness (Zeman, Perry-Parish, & Cassano, 2010). With early adolescents, mothers and fathers used a higher proportion of references to frustration with daughters than with sons, but a similar proportion of references to sadness and anger (Aldrich & Tenenbaum, 2006).

There are only a few studies that have analyzed father-child emotion talk. Kuebli and Fivush (1992) asked parents and their three-year-old children to converse about past events. Mothers and fathers were found to talk similarly about emotions, and to discuss emotions more often with their daughters than with their sons, especially sadness. Three years later, Adams et al. (1995) conducted a longitudinal study with the same participants. As in the previous research, they did not find differences between mothers and fathers in their use of emotion talk. Parents talked more about emotions with their daughters than with their sons, especially about sadness. Additionally, Fivush et al. (2000) conducted a study in which parents were asked to discuss emotional experiences with their four year-old children. Differences in mothers' and fathers' emotion talk were found. Specifically, they found that

mothers discussed at greater length the causes of emotions. One possible source for the emergence of these differences is that in the Adams et al. (1995) study, participants were not asked to discuss emotions, and as a consequence few were discussed. Lastly, Denham, Bassett, Hamada, and Wyatt (2010) found that fathers mentioned a higher number of emotions words to their three- and four-year-old daughters than to their sons, whereas there was no gender difference in maternal emotion talk. In addition, fathers talked more about others' emotions and the child's emotions than did mothers. Whereas in these four studies parents only talked about past events, in the present study parents and children discussed about past events and also created an emotion-laden story together.

When comparing fathers' and mothers' emotion talk, researchers have converged on a number of conclusions, but disagreements remain. For example, Fivush et al. (2000) found differences in mother and father emotion talk. Specifically, they found that when discussing the causes of an emotional experience, mothers discussed them for longer than fathers. Perhaps mothers are more concerned than fathers in helping their children understand emotions. In a comprehensive meta-analysis of parents' talk, Leaper et al. (1998) similarly found that mothers use language to create and keep relationships with others, whereas fathers are more focused on achieving their goals as a tool to reinforce their independence. This difference may explain why girls use more cooperative language than do boys, whereas boys use more controlling language than do girls. In a study analyzing reminiscing in nine-to twelve-year-old children, and their mothers and fathers, Fivush, Marin, McWilliams, and Bohanek (2009) found that mothers were more elaborative than fathers. However, both mothers and fathers elaborated more about the positive aspects of the events than about the negative aspects.

Children's emotion talk has also been investigated. Research suggests that daughters' narratives tend to correlate with their mothers' narratives in length, detail, cohesion, and coherence (Peterson & Roberts, 2003). Indeed, there is increasingly more evidence that narratives are important reflections of one's identity, therefore it makes sense that girls' narratives should be more similar to their mothers' than to their fathers' narratives. In further support of this notion, Peterson and Roberts (2003) did not find narrative similarity between mothers' and sons' narratives or between fathers' and children's narratives.

In research examining specific emotions, Hudson et al. (1992) found that four-year-old boys denied being scared, as opposed to their female counterparts. Perhaps it is not considered appropriate for males to feel and express fear. When discussing sadness, Fivush et al. (2000) shows that four-year-old girls used more emotion words when discussing scary events than four-year-old boys. Other studies have found no gender differences in the discussion of specific emotions (e.g., Adams et al., 1995; Kuebli et al., 1995).

Fivush et al. (2000) also found that girls and boys differed in the frequency to which they made reference to interpersonal themes. When girls talked about emotions with their parents, half of the narratives made reference to interpersonal themes. In contrast, in parent-son conversations, only a third of the conversations made reference to interpersonal themes. However, it is important to note than Fivush et al. (2000) did not analyze who was starting the conversation. If the parent was the one choosing the theme of the conversation and not the child, then it is plausible to argue that it is more difficult to establish that there is a difference in children's emotion talk.

One surprising result was found by Adams et al. (1995). They found that children used more emotion words when talking to their fathers than when talking to their mothers. Possibly, it could be that children were more excited talking to their fathers because they do

not have the opportunity to talk to them as often as with their mothers. Second, it might be that because fathers are less expert in interpreting non-verbal cues, children might feel that they need to express more emotions verbally than when they talk to their mothers. In contrast, Dunn and colleagues (Dunn et al., 1987, 1991) did not find any difference in the amount of times that daughters and sons started conversations about emotions. Nor did Fivush et al. (2000), Fivush (1992) and Cervantes and Callanan (1991). However, it is important to note that Kuebli and Fivush (1992) conducted their study with three-year-old children. It might be possible that at such early age, gender differences in emotion talk and understanding might have not yet arisen. Fivush et al. (2000) suggested that gender differences in emotion talk might appear at the end of the preschool years. This idea was confirmed through the analysis of the follow up study that Adams et al. (1995) conducted two and a half years later with the same children that participated in Kuebli and Fivush's (1992) study. This time, gender differences in children's emotion talk were found. The findings indicated that girls talked more about emotions, and especially about sadness. In addition, girls seemed to note the emotional part of the experience more than did boys.

Regarding specific emotions, Fivush et al. (2000) suggested that girls talk more about sadness and in a more elaborated way because parents discuss this emotion more often with them, and therefore, they learn to consider sadness as a central emotion. However, it could also be that it is not that girls consider sadness more important than boys, but simply that they choose to discuss sadness often, whereas boys might consider that it is not appropriate for them to talk about sadness. In sum, research on gender differences in parent-child emotion talk suggests that from an early age, children learn to think and to talk about emotions in a gender-specific way.

In sum, three hypotheses were proposed. First, mothers and fathers were expected to talk similarly about emotions based on Kuebli and Fivush (1992) and Adams et al. (1995), Second, mothers and fathers were expected to talk more about emotions with daughters than with sons based on Kuebli and Fivush (1992). Third, gender differences were expected in children's emotion talk based on Adams et al. (1995) and Cervantes (2002). Specifically, we expected four- and six-year-old daughters to mention more emotion words than four- and six-year-old sons.

8.2. Method

8.2.1.Participants. As described in the general methods.

8.2.2. Materials. As described in the general methods

8.2.3. Procedure. As described in the general methods.

8.2.4. Reliability. Reliability was attained separately for each coding scheme. The author coded all transcripts and Dr. Harriet Tenenbaum coded twelve transcripts (20% of the data set). Reliability was achieved with a *K* of .80 for the emotion words, 1.00 for the emotion behaviours, and with a *K* of .91 for the labels and explanations. For the statements and questions the kappa was .99 and for the reference the *K* was .90.

8.3. Results

Number, type, and variability of emotion words were analysed. Analyses were conducted for mothers, fathers and children separately. When conducting studies on parent-child emotion talk, the decision about whether to analyse it as total frequencies or as proportions is controversial (Pine, 1992). In the present study, emotion words were analyzed as proportions. By doing so, parents' and children's total amount of talk was controlled. Proportions were calculated as the amount of emotion utterances divided by the total number

of utterances. These were calculated separately for each individual. Finally, η^2 estimates are provided to indicate the size of the effect. A η^2 between 0.01 and 0.09 indicates a small effect size, a η^2 between 0.09 and 0.24 indicates a moderate effect, and a η^2 more than 0.25 indicate a large effect (Cohen, 1988).

8.3.1. Analyses of Parents' Emotion Talk

Analysis of total number of utterances. A 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA was conducted on parents' number of utterances. Parent gender and task served as repeated factors. The total number of utterances served as the dependent variable. There was no significant effect of parents' number of utterances. Mothers spoke a mean of 260.92 utterances (SD = 135.52), whereas father spoke a mean of 271.11 utterances (SD = 117.05). The total number of utterances made by mothers and fathers and children combined varied greatly. Fathers' and children's number of utterances ranged from 146 to 890, whereas mothers' and children's number of utterances ranged from 133 to 1141.

Analysis of proportion of emotion utterances. A 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA was conducted on parents' emotion talk. The proportion of emotion words parents used served as the dependent variable. Parent gender and task served as repeated factors. Mothers and fathers did not differ in the proportion of emotion words they used with their children, F (1, 59) = 2.59, $p < .11$. However, both fathers and mothers used a higher proportion of emotion words when talking to their daughters than when talking to their sons, F (1, 61) = 4.16, $p <$ .04, $\eta^2 = .06$. Specifically, parents used a mean proportion of 0.06 emotion words (SD = .04) when talking to girls, whereas they used a mean proportion of 0.04 emotion words (SD = .02)

when talking to boys. Thus, parents used a third more emotion words with girls than with boys.

Analysis of task. The findings come from the analysis described above. Mothers and fathers differed in the proportion of emotion words that they used when completing the house task compared to when completing the events task, $F(1, 59) = 42.95, p < .001$. Specifically, in the house task of all the utterances that parents made, a mean proportion of 0.04 ($SD = .15$) included an emotion word. In the events task, of all the utterances that parents made a mean proportion of 0.08 ($SD = .42$) contained an emotion word.

Analysis of type of talk. The findings come from the analysis described above. Both mothers and fathers used a higher proportion of emotion labels than of emotion explanations across both tasks, $F(1, 59) < 1$. Specifically, parents mentioned a mean proportion of 0.05 emotion labels ($SD = .22$) in both tasks, whereas they mentioned a mean proportion of 0.10 emotion explanations ($SD = .06$) in both tasks. Therefore, 5% of all the utterances contained an emotion label, whereas only 1% of all the utterances contained an emotion explanation.

Both mothers and fathers differed in the type of talk that they used across both tasks, $F(1, 59) = 78.65, p < .001, \eta^2 = .57$. During the house task, parents used a mean proportion of 0.01 emotion explanations ($SD = .01$), and a mean proportion of labels of $M = .02$ ($SD = .01$), $F(1, 27) = 33.20, p = .001, \eta^2 = .55$. During the events task, parents uttered a total proportion of $M = .01$ ($SD = .09$) of explanations, whereas they gave a total proportion of labels of $M = .07$ ($SD = .04$), $F(1, 27) = 65.39, p = .001, \eta^2 = .71$. Overall, parents used more labels in the events task than in the house task. There was a significant effect of Parent x Task x Gender x Age x Type of talk, $F(1, 59) = 5.37, p = .02, \eta^2 = .08$. No follow-up tests were significant.

Analysis of emotional themes. Sadness, happiness, and fear were the emotions that parents used the most and therefore they were analyzed separately. Sadness, happiness, and fear were analyzed in a 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA. Parent gender and task served as repeated factors. There was no gender difference for sadness, $F(1, 59) < 1$, nor for fear, $F(1, 59) < 1$. In contrast, there were gender differences for happiness, $F(1, 59) = 7.39, p = .009, \eta^2 = .11$. Both mothers and fathers used a higher proportion of emotion words related to happiness with their daughters ($M = .09$, $SD = .04$) than with their sons ($M = .01$, $SD = .02$).

Analysis of emotion words variability. In addition to the analysis of the proportion of emotion words used by parents, the variety of emotion words that parents used was analysed to see if either parent used a greater variety of emotion words. Emotion words variability was analyzed in two 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVAs. Parent gender and task served as repeated factors. The analysis revealed that the number of unique words mentioned by parents differed across tasks, $F(1, 62) = 6.85, p = .01, \eta^2 = .10$. Both mothers and fathers used a higher number of unique words when completing the house task ($M = 4.87$, $SD = 2.40$) than during the events task ($M = 5.82$, $SD = 2.50$). There was also a significant effect of Parent x Task x Gender x Age, $F(1, 59) = 5.15, p = .05, \eta^2 = .08$. Fathers used a higher variability of unique words with their four-year-old daughters ($M = 3.30$, $SD = 1.57$) than with their four-year-old sons ($M = 2.00$, $SD = 1.37$), $F(1, 34) = 6.75, p = .005, \eta^2 = .17$.

The analysis of the variability of emotion words also indicated that mothers and fathers of the same child correlated in talking about emotion words. Finally, it was found that mothers' emotion talk was related to their children's emotion talk across both, the storytelling and the events tasks. In contrast, fathers' use of emotion talk was related to children's emotion talk only in the events task. Results are shown in Table 1.

Table 1. *Relations between mothers', fathers' and children's narratives*

	1	2	3	4	5	6	7	8
1. mother house proportion of emotion utterances	-							
2. mother events proportion of emotion utterances	.28*	-						
3. father house proportion of emotion utterances	.02	.1	-					
4. father events proportion of emotion utterances	.01	.27*	.74**	-				
5. child and mother house proportion of emotion utterances	.5**	.21	.06	.01	-			
6. child and mother events proportion of emotion utterances	.2	.51**	.11	.14	.3	-		
7. child and father house proportion of emotion utterances	.05	-.1	.06	.01	.03	.15	-	

8. child and father events proportion of emotion utterances	.48**	.37**	.43**	.46**	.27	.24	-.1	-

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

8.3.2. Analyses of Children's Emotion Talk

The number, type and variability of children's emotion words were analysed.

Analysis of total number of utterances. The number of utterances made by children was analyzed in a 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA. The total number of utterances served as the dependent variable. Parent gender and task served as repeated factors. Children used the same number of utterances when talking to their mothers and when talking to their fathers, $F(1, 62) = 2.51, p = .12$. Children spoke a mean number of 152.57 utterances ($SD = 79.70$) when they talked with their mothers, whereas they spoke a mean number of 169.67 utterances ($SD = 71.14$) when they talked with their fathers.

Analysis of type of talk. The effect of children's type of talk was analyzed in a 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA. The type of talk served as the dependent variable. Parent gender and task served as repeated factors. Children used a higher proportion of labels, $M = .01$ ($SD = .01$) than explanations, $M = .002$ ($SD = .005$) across both tasks, $F(1, 61) = 40.9, p = .001, \eta^2 = .40$.

Analysis of task. The findings come from the analysis described above. There was a task difference in the proportion of emotional utterances made by children, $F(1, 61) = 22.04$,

$p = .001$, $\eta^2 = .27$. Children used a mean proportion of 0.009 emotion utterances ($SD = .01$) when completing the house task, whereas they used a mean proportion of emotion utterances of 0.02 ($SD = .02$) when completing the events task.

Also, a significant effect of Task x Type of talk was found, $F(1, 61) = 13.7, p = .001$, $\eta^2 = .19$.Children mentioned a higher proportion of labels ($M = .005$, $SD = .005$) during the house task than they did of explanations, ($M = .001$, $SD = .005$). Similarly, children used a higher proportion of labels, ($M = .01$, $SD = .02$) during the events task than explanations ($M = .002$, $SD = .005$). There was a larger effect size for labels, $F(1, 61) = 20.46, p = .001$, $\eta^2 = .24$, than for explanations, $F(1, 61) = 5.14, p = 0.27$, $\eta^2 = .07$

Analysis of emotional themes. Children's emotional theme was analyzed in a 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA. Parent gender and task served as repeated factors. Sadness, happiness, and fear were the emotions most used by children and therefore they were analysed separately. Sadness, happiness and fear were analyzed for gender differences. No gender differences were found for use of sadness, $F(1, 61) = 1.21, p = .27$, nor happiness, or anger.

8.4. Discussion

This study examined gender differences in parent-child emotion talk during the completion of two storytelling tasks. Partial support for the three hypotheses was found. First, as expected mothers and fathers talked similarly about emotions. Indeed, mothers' and fathers' talk correlated with each other and with their children's emotion talk. Second, both mothers and fathers used more emotion words with their daughters than with their sons. Parents discussed happiness more often with their daughters than with their sons. Finally, both mothers and fathers mentioned more emotion words during the events task than during

the house task. Contrary to the hypothesis, no gender differences were found in children's emotion talk. These findings will be discussed in greater detail.

The present study found gender differences in maternal emotion talk. Specifically, mothers mentioned more emotion words when talking to their daughters than when talking to their sons. This finding is consistent with previous research by Dunn et al. (1987) analysing mothers in conversation with their 18 and 24 month-old children. Similar results were found by Leaper et al. (1998) and Flannagan and Perese (1998) examining mothers in conversation with their four-year-old children. It seems that gender differences in mothers' emotion talk appear early and remain stable over time. This study demonstrates that these age differences continue with older children (up to age 6). In addition, the gender difference occurs with Spanish families.

Similarly to mothers, fathers also mentioned more emotion words with their daughters than with their sons. Indeed, it was found that mothers and fathers talked similarly about emotions. Although research on father-child emotion talk is scant, three studies have found that fathers use more emotion talk with daughters (aged three with Kuebli & Fivush, 1992; aged six with Adams et al., 1995, and aged three to four with Denham et al., 2010). Future research should examine fathers' emotion talk with older children.

Given that mothers and fathers may have distinct influences on children's emotion understanding (Denham et al., 2010; Zeman et al., 2010) mothers' as well as fathers' interactions with children need to be examined. It has also been suggested that gender differences in emotion talk might depend on the specific emotion being discussed (Fivush, 1989, 1991). For example, mothers have been found to talk more about sadness with their daughters than sons, whereas they talk more about anger with their sons than daughters (Adams et al., 1995; Fivush et al., 2000; Kuebli & Fivush, 1992). Mothers and fathers engage

children differently when discussing anger and sadness (with 6- to 11-year-olds, Zeman et al., 2010). Specifically, fathers led more conversations than mothers about sadness, especially with their daughters. In contrast, mothers were more directive when discussing anger with their older daughters than with their older sons (Zeman et al., 2010).

With early adolescents, mothers and fathers used a higher proportion of references to frustration with daughters than with sons, but a similar proportion of references to sadness and anger (Aldrich & Tenenbaum, 2006). Finally, Melzi and Fernandez (2004) found that mothers talked more about positive emotions with their sons than with their daughters. The present study also found that both mothers and fathers talked more about happiness with their daughters than with their sons. These results indicate that the effect that mothers and fathers have on the socialization of each emotion is distinct. Future research should analyze maternal and paternal influence on the socialization of each emotion across children of different age groups. Of particular interest would be to analyze the socialization of emotions in children living in single parental households.

Indeed, research on children's socialization of emotions has consistently found mothers and fathers being more affectionate towards girls than towards boys (e.g., Harris & Morgan, 1991; Russell & Saebel, 1997). Similarly, research on emotion talk indicates that parents talk about emotions more often with girls than with boys (e.g., Kuebli & Fivush, 1992). Hence, it could be hypothesized that if girls grow up receiving more affection than boys, both girls and boys will learn that it is more appropriate for girls than for boys to express affection and to discuss emotions. Indeed, past work suggested that girls become more affiliative than boys (Leaper, 2002). Engagement in certain types of interactions may provide girls with opportunities to practice particular skills, such as affection, more than boys. Future research should analyze whether parents also show gender differences in emotion talk with older children, to establish their stability across time.

Presently, researchers have not reached an agreement over what factors explain why parents talk differently to their daughters than to their sons. Lytton and Romney (1991) proposed two explanations. First, they proposed that parents treat girls and boys differently because mothers and fathers hold different values. Alternatively, the evocative genotype hypothesis (Scarr & McCartney, 1983) proposes that boys and girls have different predispositions, and as a result parents treat them differently. This is, parents, talk to their children differently as a reaction to boys and girls being different. Alternatively, some of the gender differences found in children's emotion talk result from a difference in the language development (Fabes & Martin, 1991; Huttenlocher et al., 1991). Specifically, Fabes and Martin (1991) suggest that while boys reach their maximum emotional expressivity in their early school years, which then decreases over adolescence, girls' emotional expressivity seems to increase with age. These differences might result from girls establishing closer friendships than boys. Such friendships would allow girls to have more chances to understand others (Hughes & Dunn, 1998).

It has also been suggested that the content of the conversation influences parents' emotion talk (e.g., Fivush, 1993; Stern, 1985). Findings indicated that both mothers and fathers used a higher number of emotion words when they reminiscence about past events than when they create a storytelling task. Perhaps parents use more emotion words when talking about personal events than when they discuss a narrative that is not related to them, even when that narrative is emotion laden. Reminiscence is important because as Fivush et al. (2000) posit, discussing past events gives the child the possibility of putting emotions into perspective and to reflect on them, this is more difficult when discussing present emotions. Hence, children who have parents who discuss emotions often will have more opportunities to discuss and to reflect on emotions and therefore are more likely to achieve a better understanding of emotions than those children who reminiscence with their parents less

frequently. The present study is the first to analyze parent-child emotion talk across two different types of task, a storytelling task and a reminiscence task. Findings are consistent with previous research suggesting that the content of the conversation influences parental emotion talk. More research is needed to analyze whether these differences are found across different studies.

Past research has not only focused on the frequency and themes of emotion talk but also on the type of emotion talk. This study found that when parents discuss both non-personal and personal emotion laden situations, they use more emotion labels than emotion explanations. That is, it is more frequent for parents to refer to emotions without discussing their causes and consequences, than to explain causes and consequences of emotions to their children. In contrast, Cervantes (2002) analyzed mother-child story-telling task and found that Mexican mothers used more explanations than labels in conversation with their four-year-old children whereas Mexican American used the same amount of both. However, Cervantes and Callanan (1998) found that mothers discussing the same storytelling task as Cervantes (2002), with their two-, three-, and four-year-old children used more explanations than labels to boys whereas they used similar number of both with their daughters. More research is needed to find out why. The analysis of type of talk is relevant because as Fivush et al. (2000) suggested it is not only the amount of emotion talk that is important between parents and children, but the quality of this talk. Perhaps children of parents who discuss causes and consequences of emotions more often will have a better understanding of emotions than children whose parents only make reference to emotion labels.

As well as analyzing the total number of emotion words mentioned by parents, the total number of unique emotion words mentioned by parents was also analyzed. Three interesting results were found. First, mothers and fathers use a similar amount of unique emotion words. However, this correlation only appears during the four events task and not

when they complete the storytelling task. Kuebli and Fivush (1992) also found that fathers and mothers used a similar amount of unique emotion words when reminiscing with their children, however contrary to the present study, parents and children did not complete a storytelling task. Second, fathers used a higher number of unique words with their four-year-old daughters than with their four year-old sons. This difference does not happen when fathers are in conversation with their six- year-olds. Finally, mothers and their children used a similar amount of emotion words across both tasks. This is, mothers and their children express and discuss emotions in a similar way, both when they reminiscence together and when they create a story together. In contrast, fathers' emotion talk was only related to their children's when dyads reminiscence together.

Thus, when families reminiscence together, they discuss the emotional components of experiences in a similar way. Moreover, mothers and fathers discuss the emotional components of experiences similarly even when they do not discuss past events together. Therefore it can be assumed that if children learn about emotions from their parents, they will grow up holding a similar way of understanding and discussing emotions as their parents. There are two possible interpretations of these findings. First, it could be that parents' emotion talk influences children's emotion talk. Indeed, those mothers and fathers who talked more about emotions have children who also talked more about emotions (Denham et al., 1994; Dunn et al., 1987; Kuebli et al., 1995). However, it could also be that the influence of maternal emotion talk is greater than fathers' influence on children's emotion talk, because mothers' emotion talk was related to their children's emotion talk across both tasks. Perhaps mothers' emotion talk is more similar to children's than fathers' because, according to the gender theory and the social role theory (Eagly, 1987; Wood & Eagly, 2002), mothers are the main caregivers of their children and therefore they are likely to have more opportunities to discuss emotions with their children. If this was indeed the case, perhaps children are learning

from an early age that it is more appropriate for women to talk about emotions than for men. The other possibility is that the children themselves are the ones who have an impact on parent-child emotion talk and that parents talk in a certain manner about emotions depending on their children's emotionality. Therefore, parents would respond to their children's emotionality. Although it is difficult to establish causality on this topic, future research should establish the direction of parent-talk emotion talk.

The present study also analyzed gender differences in children's emotion talk. There were no differences in the amount of emotion words uttered by girls and boys when in conversation with their parents, nor were there differences in the theme of the emotion words mentioned by children or in their use of emotion labels and explanations. Similarly, there are studies that have found no differences (e.g., with four-year-olds, Fivush et al., 2000; with three- and five-year olds, Melzi & Fernandez, 2004). In contrast, other studies have found gender differences (e.g., with six-year-olds, Adams et al., 1995; with four-year-olds, Hudson et al., 1992; with four-year-olds, Cervantes, 2002). There are some interesting points for consideration. First, given that mothers and fathers were found to talk more about emotions with their daughters than with their sons, we expected girls to talk more about emotions than sons. However, this was not the case.

Similarly, the present study found no effect of children's age on emotion talk. That is, parents did not talk differently about emotions depending on their children's age, nor did children differ in their use of emotion words depending on their age. Similar findings were obtained by Aldrich and Tenenbaum (2006) with early adolescents. These findings support the fast mapping acquisition theory (Dollaghan, 1985; Heibeck & Markham, 1987; Rice, 1990) which posits that children learn about emotions quickly and early. Indeed, it has been found that children's understanding of emotions is stable over time and that if a child shows a good level of understanding of emotions from an early age, he or she will continue to show a

good level of understanding over time, whereas children who have a delayed pattern will remain behind (Dunn et al., 1991a; Hughes & Dunn, 1998). In contrast, other studies have found age differences in children's emotion talk (e.g., Adams et al., 1995; Denham et al., 1992). For example, Melzi and Fernandez (2004) found that three-year-old children mentioned fewer emotion words than five-year old-children, whereas Cervantes and Callanan (1998) found an age-related increase for boys only. Longitudinal research should further analyze age-related patterns in parents and children emotion talk.

Finally, it is worth noting a few important points when comparing the findings on emotion talk. First, different studies on parent-child emotion talk have analyzed different children's age groups, therefore we must be cautious when extracting conclusions from results involving different age groups because it is not yet clear what influence has age on parent-child emotion talk as well as on the development of children's emotion understanding. Second, not only do different studies use different methodologies, but they also use different coding schemes. Third, when gender differences are found, they do not always appear in all categories of emotion talk. For example, gender differences can be found in the number of emotion utterances and not in the emotional theme of the conversation. Finally, it has been suggested that emotion talk is context-specific (e.g., Cassidy et al., 1992; Dosser, Balswick, & Halverson, 1986; Kuebli & Fivush, 1992). For example, women have found to be more expressive in the home context than in the laboratory context (Balswick & Avertt, 1977). All these variables must be considered when comparing results from different studies.

In sum, mothers and fathers talked similarly about emotions. Specifically, they both talked more about emotions to their daughters, especially about happiness, than to their sons. Future research should examine the influence that these differences have on the development of children's understanding of emotions and on children's gender socialization of emotions.

Chapter 9

Study 2

Gender and Age Differences in Parent-Child Touch

9.1. Introduction

Touch is one of the main channels of communication between parents and children. This is evident when observing parents interact with their newborn babies. Parents rely almost exclusively on touch to communicate with them. Indeed, research indicates that a large proportion of the time that parents interact with their children is spent touching them. For example, Stack and Muir (1990) concluded that U.S mothers touched their three-, six-, and nine-month-old infants for 65% of the total time that they spend interacting with them. Moreover, ¡Kung mothers touch their three- to six- month-old infants, even more than American mothers, for an average of 75% of the time that they spend together. As children grow older and they start to talk and become more physically able, other means of communication become also important (Jean et al., 2009). Indeed, Jean et al. (2009) found that mothers touch to their one-, three- and five- and-a-half-months-old infants decreased as infants grew older. However, touch remains an important channel of communication during the rest of children's lives. The present study examined how age and gender influence parent-child touch.

Touch plays an important role in children's early physical and socioemotional development. Evidence from analyses on mother-child touch on children of depressed mothers (Herrera et al., 2004), abused (Weiss et al., 2000), premature (Minde, 2000) and institutionalized children (Field, 2004) indicate that lack of touch in infancy has negative implications for the normal socioemotional development of children. Indeed, attachment theory posits that touch communicates security (Tronick, 1995). So far, mother-child touch

has been found to regulate children's perceptions and emotions (Brazelton, 1990; Hertenstein, 2002; Kisilevsky et al., 1991), and to sooth (e.g., Kisilevsky et al., 1991), arouse (e.g., Kisilevsky et al., 1991), and change children's behaviour (Pelaez-Nogueras et al., 1996; Stack & Muir, 1992).

Studies analyzing individual differences in parent-child communication posit that communication is influenced by variables such as children's and parents' gender, children's age (e.g., Ferber et al., 2008; Field, 2004), socioeconomic status, children's temperament (e.g., Weiss et al., 2000) and culture (Richter et al., 1995) amongst other variables. Research suggests that touch is not an exception and that it is also influenced by these variables.

Touch may be a means of communicating connectedness in every-day parent-child interactions. Moreover, interactions involving touch enable children to appropriate physically affectionate behaviours. Given than girls tend to be closer to their families than are boys (Tenenbaum & Leaper, 2002), and women are more likely to be physically affectionate than are men (Briton & Hall, 1995), we would expect girls to be involved in more interactions involving touch than are boys. Children's gender may also be related to parental touch. Whereas some researchers (e.g., Baildum et al., 2000; Sigelman & Adams, 1990) found that children's gender does not influence parental touch, other research suggests that children's gender plays an important role in the way mothers and fathers touch their children. For example, Russell and Saebel (1997) found that mother-daughter dyads showed more affectionate closeness than mixed gender dyads. Similarly, mothers touched their infant girls more than their infant boys (Field et al., 1987; Goldberg & Lewis, 1969; Lindalh & Heimann, 1997; Robin, 1982). With older children, mothers have also been found to touch girls more than boys (Austin & Braeger, 1990; Benenson, Morash, & Petrakos, 1998). In contrast, other studies (e.g., Lewis, 1972) found that different-sex dyads touched more than same-sex dyads. Similarly, Snow et al. (1983) found that fathers held daughters more than sons. Even further,

Siegal (1987) suggested that fathers differentiate more than mothers between daughters and sons, especially in the areas of physical tasks. Similarly, Harris and Morgan (1991) found that fathers are more involved (both behaviourally and affectionally) with adolescent sons than daughters. Finally, Snow et al. (1983) found that fathers use more physical prohibitions with their sons than with their daughters. However, the number of studies is very small and therefore we must be cautious when interpreting these results. Also, the direction of the effect is unclear although it is generally assumed that it goes from parents to children, it could also go from children to parents or in both directions (Leaper, 2002).

Few studies analyse parent gender differences in parent-child touch; findings have been inconsistent. Indeed, some studies have found that mothers and fathers differ in how they touch their children (e.g., Field et al., 1987; Lamb, 1977) whereas other studies have found no differences (e.g., Jean, Moszkowski, Girouard, & Stack, 2005). For example, Lamb (1977) concluded that fathers held their one-year-old children for play whereas mothers held them for caretaking tasks. In contrast, Field et al. (1987) found that mothers touched their eight-month-old infants more than did fathers. Similarly, analysis of preterm babies suggests that mothers touch them more than do fathers (Harrison & Woods, 1991). Finally, Li-Ching and Roopnarine (1996) found that Taiwanese mothers held infants more than fathers, whereas fathers engaged in more rough and tumble play with children than did mothers. However there was no difference in parents' soothing behaviours or displays of affection.

Age differences in parent-child touch have also been analyzed. Research shows that as children grow older, parents tend to touch them less frequently (e.g., Jean et al., 2009). These findings suggest that parents adjust their tactile stimulation with their children's development (Stack & Jean, 2011). However, it is important to note it is only the quantity of touch that has been found to decline with age.

Whereas research on parent-child touch has been focused on young infants, the present research analyzes parent-child touch in four- and six- year-old children. The present study has three main hypotheses. First, we expected mothers to be more physically affectionate than fathers based on Tronick (1995), and Briton and Hall (1995). Secondly, we expected that parents would touch younger children more than older children based on Ferber et al. (2008), Field et al. (1987), and Jean et al. (2009). Finally, we hypothesized that parents would touch daughters more than sons.

9.2. Method

9.2.1. Participants. As described in the general methods.

9.2.3. Materials. As described in study 1.

9.2.4. Procedure. This study was conducted using the data of study 1.

9.2.5. Coding of parent-child physical touch. First, the distance between parent and child was calculated for both tasks. There were three levels of proximity, which were coded as child on parent's lap, child and parent less than one foot apart, and child and parent more than three feet apart. To calculate the total degree of proximity, the time in seconds that parent and children spent at each one of these three distances were added together. They were then divided by the total duration of the interaction for a proportion score.

Second, each type of specific touch between parent and child was recorded and analyzed. Parents' and children's touch had to be intentional for it to be recorded. Accidental touching was not recorded. For each touch four variables were analyzed.

Person who initiates the touch. It was recorded whether the parent or the child initiated the touch.

Type of touch. Twelve types of touch were recorded which were stroke, rhythmic, hold, tickle, kiss, poke, pinch, hold hands, hug, demonstrate, rest and aimful (based on Tronick, 1995).

Location of touch. Six types of touch were recorded which were head, face, arm, hand, whole body, and other.

Duration of touch. For each type of touch its duration in seconds was recorded.

9.2.6. Reliability. Reliability was attained separately for each coding scheme. The first author coded all videos and a research assistant coded twelve videos (20% of the data set). Reliability was achieved with a *K* of .91 for location of touch and with a *K* of .76 for the function of touch.

9.3. Results

9.3.1. Proximity. To examine whether mothers were in closer proximity to their children more than were fathers, three 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: Storytelling, events) mixed-design analyses of variance (ANOVA) were conducted on parent-child degree of proximity (on lap, less than a foot apart, and further than three feet apart). The level of proximity served as the dependent variable. Parent gender and task served as repeated factors. First, there were no significant effects for the ANOVAs conducted for children being on their parents' laps or less than one foot away. However, there was a significant age difference indicating parents of four-year-olds (*M* proportion = .19, *SD* = .28) stayed for longer more than three feet apart from their children than did parents of six-year-old children (*M* proportion = .17, *SD* = .20), $F(1, 42) = 9.62$, $p = .001$, $\eta^2 = .18$. There were no significant effects of child gender, parent gender, or task and no significant interaction effects.

9.3.2. Type of touch. Twelve types of touch were coded: stroke, aimful, kiss, hold hands, hold, rest, rhythmic, tickle, poke, pinch, hug, and demonstrate. Type of touch was analyzed as a proportion comparing the total number of times that a specific type of touch appeared divided by the total time in minutes of the parent-child interaction. The analysis of parental touch revealed that across both tasks mothers' most common types of touch were stroke (*M* proportion = .50, *SD* = .50), aimful (*M* proportion = .44, *SD* = .43) and holding (*M* proportion = .11, *SD* = .21). Fathers' most common types of touch across both tasks were also stroke (*M* proportion = .32, *SD* = .43), aimful (*M* proportion = .36, *SD* = .45), followed by holding (*M* proportion = .04, *SD* = .08) in the house task and by demonstrating (*M* proportion = .09, *SD* = .11) in the events task. Only stroke and aimful touch appeared with enough frequency to be analyzed separately. Tables 2 and 3 show the total number of times that parents stroked, held, and aimfully touched their children during both tasks. Frequencies are reported because they are more intuitive than proportions to interpret.

Table 2. *Total number of times that parents stroked, held and aimfully touched their children during the house task.*

	N	Minimum	Maximum	Mean	SD
mother house stroke	61	,00	19,00	,87	2,52
mother house holding	61	,00	6,00	,36	1,11
mother house aimful	61	,00	6,00	,62	1,21
father house stroke	59	,00	11,00	1,05	2,07
father house holding	59	,00	5,00	,42	,90
father house aimful	59	,00	19,00	1,01	2,70

Table 3. *Total number of times that parents stroked, held, and aimfully touched their children during the events task.*

	N	Minimum	Maximum	Mean	SD
mother event stroke	61	,00	10,00	3,18	2,92
mother event holding	61	,00	6,00	,67	1,15
mother event aimful	61	,00	11,00	2,63	2,40
father event stroke	58	,00	14,00	2,43	3,50
father event holding	58	,00	3,00	,40	,70
father event aimful	58	,00	16,00	2,45	3,10

Table 4.

Common Types of Touch Measured in Terms of Total Number of Times that a Specific Type of Touch Appeared Divided by the Total Number of Times that Parents Touched Their Children.

	Mothers		Fathers	
	M	*SD*	*M*	*SD*
Stroke	.50	.50	32	.43
Aimful	.44	.43	.36	.45
Holding	.11	.21	.04	.08

Stroke. Parents' stroke was analyzed in a 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA. Stroke served as the dependent variable. Parent gender and task served as repeated factors. During the house task, mothers (*M* proportion = .09, *SD* = .22) and fathers (*M* proportion = .08, *SD* =

.14) did not differ in the proportion of time that they stroked their children, $F(1, 53) = .11, p = .73$. The analysis revealed a significant Parent x Task interaction, $F(1, 52) = 4.37, p = .04, \eta^2 = .08$. During the events task, mothers (*M* proportion = .44, *SD* = .42), stroked their children more than did fathers (*M* proportion = .25, *SD* = .37), $F(1, 52) = 4.68, p = .04, \eta^2 = .08$. The analysis also revealed that during the events task, mothers stroked their four-year-old children more frequently (*M* proportion = .51, *SD* = .47) than they did their six-year-old children (*M* proportion = .30, *SD* = .27), $F(1, 59) = 4.27, p = .04, \eta^2 = .07$. A significant Parent x Task x Age interaction, $F(1, 52) = 1.95, p = .03, \eta^2 = .09$ was found

Aimful touch. Parents' aimful touch was analyzed in a 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed-design ANOVA. Aimful touch served as the dependent variable. Parent gender and task served as repeated factors. First, a gender difference was significant for girls only, $F(1, 27) = 9.01, p = .006, \eta^2 = .25$ with mothers touching aimfully their daughters more frequently (*M* proportion = .49, *SD* = .46) than did fathers (*M* proportion = .23, *SD* = .29). In contrast, there was no significant difference in the way in which mothers (*M* proportion = .36, *SD* = .38) and fathers (*M* proportion = .45, *SD* = .55) aimfully touched their sons, $F(1, 52) = 5.99, p = .01, \eta^2 = .10$. A significant Parent x Gender interaction was found, $F(1, 52) = 5.99, p = .01, \eta^2 = .10$. Next, analyses yielded a significant age difference in aimful touch, $F(1, 52) = 2.90, p = .02, \eta^2 = .10$. Mothers aimfully touched their four-year-old children (*M* proportion = .94, *SD* = .78) more frequently than they aimfully touched their six-year-old children (*M* proportion = .45, *SD* = .50).

9.3.3. Location of touch. Six locations of touch were analyzed: head, face, arm, hand, whole body and other. Location of touch was analyzed as a proportion between the number of times that parents touched a part of their children's bodies compared with the total number of times that parental touch appeared. Descriptive analysis shows that mothers touched more

frequently their children heads' (*M* proportion = .33, *SD*= .40) and arms (*M* proportion = .34, *SD*= .38). Fathers touched more frequently children in their arms (*M* proportion = .22, *SD* = .40) and in other parts of the body. Six 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling task, events) mixed design ANOVA were conducted on touching children's heads. Parent gender and task served as repeated factors. Separate ANOVAS were conducted for head, face, arm, hand, whole body and other.

Children's head. There was a significant parent effect in the proportion of times that parents touched their children's heads. Specifically, mothers touched their children's heads more (*M* proportion = .33, *SD* = .40) than did fathers (*M* proportion = .16, *SD* = .30), $F(1, 52) = 4.78$, $p = .03$, $\eta^2 = .08$.

Children's face. In the house task mothers touched their children's faces for a mean proportion of $M = .02$ ($SD = .07$), whereas in the events task they touched their children's faces for a mean proportion of $M = .14$ ($SD = .21$), $F = (1, 55) = .30$, $p = .58$. There was a significant Parent x Task interaction in the proportion of times that parents touched their children's faces, $F(1, 52) = 4.35$, $p = .04$, $\eta^2 = .07$. Fathers in the house task touched their children's faces for a mean proportion of $M = .04$ ($SD = .08$), whereas in the events task they touched their children's faces for a mean proportion of $M = .08$ ($SD = .13$). No main effects were significant.

The analysis of parents' touch of children's faces also revealed that during the events task mothers touched, $F(1, 52) = 4.29$, $p = .04$, the faces of their four-year-old children (*M* proportion = .19, *SD* = .25) more than they touched the faces of their six-year-old children (*M* proportion = .08, *SD* = .13), $F(1, 52) = 11.11$, $p = .002$, $\eta^2 = .17$. In the house task, fathers touched the faces of their four –year-old children more (*M* proportion = .06, *SD* = .09) than they touched the faces of their six-year-old children (*M* proportion = .01, *SD* = .05), $F(1, 57)$

= 5.14, p = .02. Results showed a significant interaction of Parent x Task x Age. Finally, the analysis of touch on the face revealed that parents touched the faces of their younger children (M proportion = .36, SD = .29) more than they touched their older children's faces (M proportion = .20, SD = .20), F (1, 52) = 4.60, p = .03, η^2 = .08.

Finally, the analysis also yielded a significant difference in the way in which during the events task mothers touched their children's faces. Mothers touched their four-year-old children's faces for a mean proportion of 0.19 (SD = .20), whereas they touched their six-year-old children for a mean proportion of 0.81 (SD = .21), F (1, 59) = 4.30, p = .04. There was also a significant difference in how fathers touched their children's faces during the house task. Specifically, during the house task, fathers touched their four-year-old children's faces for a mean proportion of 0.06 (SD = .09), whereas they touched their six-year-old children's faces for a mean proportion of 0.01 (SD = .08), F (1, 57) = 5.14, p = .02.

Children's hands. The analysis of parent child touch on the hands revealed that during the house task mothers touched their children's hands during a mean proportion of 0.02 (SD = .07) whereas fathers did the same for a mean proportion of 0.66 (SD = .17), F (1, 52) = 6.84, p = .01, η^2 = .11. During the events task, mother touched their children's hands for a mean proportion of 0.18 (SD = .26) whereas fathers did so for a mean proportion of 0.12 (SD = .21), F (1, 55) = 3.33, p = .07, η^2 = .05. Results revealed a Parent x Task interaction.

Children's arms. There was not a significant difference in the proportion of times that mothers (M proportion = .06, SD = .13) and fathers (M proportion = .08, SD = .18) touched their children's arms during the house task, F (1, 56) = .89, p = .34. The analysis revealed a significant Parent x Task interaction in the proportion of times that parents touched their children's arms, F (1, 52) = 4.90, p = .03, η^2 = .08. However, there was a significant difference in the mean proportion that mothers (M proportion = .30, SD = .37) and fathers (M

proportion = .17, *SD* = .22) touched their children's arms during the events task, $F(1, 55) = 4.02$, $p = .50$.

Children's whole body. There was a significant age effect in the proportion of times that parents touched children's whole bodies, $F(1, 52) = 4.19$, $p = .04$, $\eta^2 = .07$. Parents touched younger children more often (*M* proportion = .32, *SD*= .37) than they touched older children (*M* proportion = .15, *SD*= .22). There was also a significant difference, $F(1, 27) = 5.79$, $p = .02$, $\eta^2 = .17$ in the proportion of times that mothers (*M* proportion = .06, *SD*= .13) and fathers (*M* proportion = .24, *SD* = .35) touched their sons' whole bodies. Finally, it was found that during the events task, parents touched their four-year-old children for a mean proportion of 0.27 (*SD* = .35) whereas they touched their six-year-old children's whole body for a mean proportion of 0.06 (*SD* = .01), $F(1, 52) = 8.34$, $p = .006$, $\eta^2 = .13$. There was a significant interaction between Task x Age in parental touch of children's whole body.

9.3.4. Duration of touch. The total time that parent and children touched throughout the duration of both tasks was analyzed. It was calculated as a proportion of the time that participants touched compared to the total time that the tasks lasted. A 2 (Child gender: girl, boy) x 2 (Age: 4, 6) x 2 (Parent gender) x 2 (Task: storytelling, events) mixed-design ANOVA with parent gender and task as repeated factors showed a significant main effect of task, $F(1, 46) = 17.70$, $p = .001$, $\eta^2 = .28$. Specifically, in the house task parents touched their children for a mean proportion of *M* = .45 (*SD* = .56) whereas in the events task, parents touched their children for a mean proportion of *M* = .80 (*SD* = .55). No other main effects were significant.

9.4. Discussion

The present study analyzed age and gender effects on parent-child touch. Partial support for the two hypotheses was found. Where age differences were found, parents

touched their four-year-old children more than their six-year-old children. Where gender differences were found, mothers were more physically affectionate towards their children than fathers. These findings will be discussed in greater detail below.

Both mothers' and fathers' most frequent type of touch was stroke (consistent with findings by Tronick (1995) in the analysis of mothers and their six-months-old infants). Also, mothers stroked their children more frequently than fathers did. Similarly, Hertenstein and Keltner (2011) found gender differences in touch between adults. Specifically, they found that stroke was more likely in adult dyads with at least one female. They hypothesized that a stroke conveys happiness, sympathy, and love. Hence, findings from the present study suggest that because mothers stroke their children more than do fathers, they transmit affection and happiness to their children more often than fathers do. Therefore children might learn that women are more affectionate than men and girls grow up to be more physically affectionate than boys. At the same time, as boys grow up they observe that their mothers are more affectionate than their fathers. They learn that males should not be as affectionate as females. These findings support the stereotypical idea of women being more affectionate than men. Indeed, previous research has found evidence for this hypothesis. For example, in the field of parent-child emotion talk, parents have been found to talk more often about negative emotions to their daughters than to their sons (Kuebli & Fivush, 1992). Also, men are expected to be more aggressive than women, whereas women are believed to smile more and to express more warmth and affection (Briton & Hall, 1995). Similarly, Starrels (1994) found that mothers' main role is to provide affection whereas fathers' role is disciplinary. These findings support the social cognitive theory (Bandura, 2005). This theory posits that children learn how to behave through direct observation of those around them. When children are very young, parents are their main models of behaviour, as children grow older, their peers, teachers, and the media also become important models.

In addition to stroke, aimful touch was the most frequent type of touch used by parents. For a very long time, research on touch was ignored because it was not considered to have a communicative function of its own. Rather, touch was an accessory of verbal communication, simply used to enhance verbal communication. This idea has been challenged by research (e.g., Barnett, 1972; Barret & Campos, 1987; Hertenstein, 2002) showing that indeed touch has a communicative function of its own. The present study provides further evidence for the latter hypothesis. Indeed, aimful touch was the second type of touch more frequently used parents. Throughout both storytelling tasks, parents used aimful touch to regain the child's attention, to focus the child's attention on the given task and to refrain the child from repeating a behaviour not desired by the parents. Therefore we argue that parents use aimful touch to regulate the child's physical and psychological status (Brazelton, 1984). Future research should examine gender differences in these uses of aimful touch.

Gender differences were also found on location of touch. Both mothers and fathers touched their children's faces more often during the events task than during the house task. The underlying reason behind this finding could be that when talking about personal events, parents feel emotionally closer to their children than when they talk about an event that is not personally related to them, and therefore they touch more often their children's faces. The face is a very intimate part of one's bodies and it is typically only stroked or touched by those who are intimately close. This might indicate that the content of the verbal communication has an influence on touch. Therefore it could be hypothesised that if the verbal content of the parent-child communication influences touch, it would also be possible for touch to influence the verbal content of the parent-child communication. Further research on the links between touch and verbal communication needs to be conducted to explore this conjecture. Such findings suggest that the analysis of parent-child communication of emotions cannot be

limited to one channel of communication but rather it has to be analyzed from a multi-channel approach.

The second aim of this study was to analyze the effect of children's age on parental touch. Previous research shows that parental touch decreases as children grow older (e.g., Ferber et al., 2008; Field et al., 1987; Harrison-Speake & Willis, 1995; Jean et al., 2009; Lamb, 1977). The present study found further evidence in support of this hypothesis. Overall, where differences were found, results show that parents touch their four-year-old children more than their six-year-old children. However, it is important to note that previous studies have analyzed age differences in young infants and mostly they have been focused on duration of touch, leaving age differences on type of touch ignored (Stack & Jean, 2011) as well as location of touch. The present study found that mothers stroked and aimfully touched their four-year-old children more than their six-year-old children. Such findings are similar to those found by Ferber et al. (2008) who found that affectionate and stimulating touch decreased during first year of children's lives.

A similar age pattern was found regarding the location of touch. Specifically, both mothers and fathers touched their four-year-old children's faces more than they touched the faces of their six-year-old children. Also, parents touched the whole bodies of their four-year-old children, more often than they did their six-year-old children. There are two possible reasons underlying age differences on parent-child touch. First, parents are the ones withholding their touch as the children grow older because they believe that as children grow older they have less need of physical contact, it is less appropriate to touch them, or because parents themselves are less inclined to touch older children. Another possibility is that children are the ones who refuse parental touch as they grow older, and as a consequence parents reduce the amount of touch that they give them. Perhaps as children grow older, they have less need for physical contact and they substitute physical contact with other forms of

communication. In fact, it has been suggested (e.g., Hertenstein, 2002; Lorenz, 1943 cited in Fullard & Reiling, 1976) that children have smooth skin and "babyness characteristics" to attract more physical attention from their parents and carers. Therefore, it could be suggested that as children grow older and these characteristics disappear, the amount of touch received by children would decrease.

The analysis of parent-child proximity gives further support for the idea that parental touch decreases as children grow older. Indeed, although parents and their six-year-old children stayed closer throughout the tasks than parents and their four-year-old children, parents still touched their four-year-old children more often, even though they were further apart from them. These findings could suggest that younger children found it more difficult than older children to stay focused during the tasks and that they moved around the room more often and further away than older children. Why parents chose to touch more often their younger children even though they were further away awaits further investigation.

Finally, previous research has analyzed the amount of time that parents and children touch each other while they interact. The present study found that mothers touched their children 30% of the time during which they interacted, while fathers touched children for 32% of their interaction. Other studies have found higher percentages. For example, Stack and Muir (1990) reported mothers in the United States touching their three-, six-, and nine-month-old children for 65% of the time spent together. The !Kung mothers reportedly touched their three-to-six-month-old infants during 75% of their interaction (Konner, 1976). Last, Field (1984) found mothers touched their eight-month-old infants during 33-61% of the interaction. These differences could again be explained from a developmental perspective as these studies have analyzed much younger children than the present study. Future research should analyze touch on older children to find whether age differences continue to appear and establish a developmental pattern of parent-child touch.

Two limitations of the present study are worth noting. Other forms of non-verbal communication such as tone of voice and facial expressions were not analyzed. Future studies should integrate all elements of verbal and nonverbal communication to analyze parent-child communication of emotions. Second, other studies on parent-child touch have used different coding schemes and also have been conducted with much younger children. Therefore, comparisons between them should be considered with caution.

In sum, the present study provides further evidence for the importance that touch has in children's everyday lives. Perhaps the time has come for a longitudinal study on touch that would offer a window onto a developmental pattern of touch, as well as to establish the exact influence that touch has on children's social and emotional development.

Chapter 10

Study 3

Parents' Emotion Talk and Children's Understanding of Emotions

10.1. Introduction

Children's emotion understanding has been found to be an early predictor of later social adaptation (Izard et al., 2001), children's peer acceptance and popularity, as well as children's prosocial behaviour and emotion regulation skills (Cassidy et al., 1992; Denham et al., 1990; Garner et al., 1994; Garner & Power, 1996). Moreover, children who have difficulty understanding emotions have problems in their social relations with others (Denham et al., 1990). Children's understanding of emotions has also been linked to academic performance (Izard et al., 2001), as well as to the development of psychopathology (Cicchetti et al., 1995; Kring & Bachorowsky, 1999). The present study investigates whether parental emotion talk predicts children's understanding of emotions.

Children's understanding of emotions experiences dramatic changes between the ages of four and six. Specifically, between three and five years of age, children understand the situational aspects of emotions. They learn to recognize emotions from facial expressions, to identify emotions and to reminiscence about emotions (Harris, 1989; Pons et al., 2004; Tenenbaum et al., 2004). Between five and seven years of age, children acquire a mentalistic understanding of emotions (Wellman, Cross, & Watson, 2001). They learn to hide emotions (Harris et al., 1986; Joshi & MacLean, 1994), and to understand the relationship between desires, beliefs and emotions (Harris, Johnson, Hutton, Andrews, & Cooke, 1989). Despite evidence for a clear developmental pattern of children's emotion understanding, there are

also individual differences in children's emotion understanding from a very early age (Pons & Harris, 2005).

Research has investigated the factors that underlie individual differences in children's emotion understanding. During early infancy, parent-child emotion talk (Denham et al., 2000; Pons et al., 2003) and the emotional climate in the family (Denham et al., 2007; Zahn-Waxler, 2010) have been found to influence children's emotion understanding. As children grow older, peers, teachers, siblings, their extended family and the media play an important role as socialization agents (Brand & Klimes-Dougan, 2010). In addition, because families do not live in a social vacuum, the process of children's socialization of emotions is influenced by other factors such as the culture in which the family lives (Brody, 1999), their social class, their language abilities, children's age, and the parents' and children's gender (Brand & Klimes-Dougan, 2010; Denham et al., 2007).

Special attention has been paid to mother-child emotion talk and its relation with children's emotion understanding. Indeed, how a child understands emotions is influenced by the frequency that his or her mother talks to him or her about emotions. The more the child talks about his or her emotions with his or her mother, the better understanding of emotions he or she acquires (Denham et al., 1994; Denham & Auerbach, 1995; Dunn et al., 1987; Dunn et al., 1991; Halberstadt, Crisp, & Eaton, 1999; Harris et al., 2005; Laible & Song, 2006). Moreover, Dunn et al. (1991a) concluded that three-year-olds living in families where emotions were discussed more often, obtained higher scores than their peers when judging someone else's emotions at age six. In similar research, Kopp (1992) found that preschool children, who were allowed to discuss their emotions, were less likely to become frustrated when faced with a challenging situation. Finally, Denham (1997) found that teachers rated

children who reported having parents who talked frequently about emotions as cooperative, empathic, and prosocial.

Research on parent-child emotion talk and its relation with children's emotion understanding has been limited to the analysis of mother-child emotion talk. Little is known about the relation between father-child emotion talk and children's understanding of emotions. The analysis of fathers' emotion talk is necessary because there is evidence suggesting that mothers and fathers have a distinct influence on children's emotion understanding. For example, Zeman et al. (2010) found that mothers play a unique role in children's socialization of anger, whereas fathers influence children's socialization of sadness. In related research, mothers' elaborations and evaluations about negative emotional events were related to higher children's well-being whereas fathers' elaborations and evaluations about negative emotional events were related to children's lower well-being (Fivush et al., 2009). The present study furthered research on the field of parent-child emotion understanding, by analyzing mothers' and fathers' emotion talk and its relation with children's emotion understanding.

There is little research investigating fathers' emotion talk and children's emotion understanding. Indeed, there is only one study (Denham et al., 2010) that has analyzed fathers' emotion talk and children's understanding of emotions. There are several limitations in the Denham et al. study. First, Denham et al. (2010) analyzed children aged three and four. Thus, whether parents continue to influence children at a later age is unknown. Second, Denham et al. (2010) asked parents and children to complete a reminiscence task, but not a storytelling task. In contrast, the present study incorporated a reminiscence task as well as a storytelling task. The use of both tasks is informative in that mothers' and fathers' talk during different tasks influences children's emotion understanding. Finally, Denham's study examined North American children, whereas the current study focused on Spanish children.

So far, research on parent-child emotion talk has mainly been focused on US population, whereas other cultures have been ignored.

Much of the parent-child emotion talk literature (e.g., Cervantes & Callanan, 1998; Cervantes, 2004; Laible, 2002, 2004) has examined emotion labels (e.g., the boy is sad) and explanations (e.g., the boy is sad because his pet died). Some researchers (e.g., Cervantes, 2004; Garner, Dunsmore, & Southam-Gerrow, 2008) argue that children whose mothers explain emotions, understand emotions better than children whose mothers give fewer explanations about emotions. Indeed, maternal explanations predict emotion understanding (Denham et al., 1994; de Rosnay & Hughes, 2006; Wellman & Lagattuta, 2004). For example, Denham and Grout (1992) found that daughters whose mothers explained the causes of emotions to them, were more emotionally responsive to others than those daughters whose mothers did not.

In an experimental paradigm, Tenenbaum et al. (2008) found that five to eight year-old children found it equally beneficial to generate emotion explanations or to be provided with them compared to a control group who simply listen to stories. In both situations, children improved their understanding of emotions, compared to a control group. When explaining or being explained to, children are able to distance themselves from the immediacy of their feelings (Dunn et al., 1991a). Moreover, perhaps explanations about emotions might allow the children to learn about causes and consequences of emotions. Learning about causes and consequences of emotions might help children who often receive explanations about emotions to develop their understanding of emotions further than those children who receive fewer explanations. Similarly, Wellman and Lagattuta (2004) found that explanations allow the child to further develop theories about mental states, activities, and lives. Therefore it is not only the frequency of parental emotion talk that matters but its

quality (Fivush, 1998). In the present study, parents and children constructed an emotionally-laden narrative about others.

In addition, research shows that not only are the frequency and type of parent-child emotion talk important, the content of the conversation is also important (e.g., Stern, 1985). Specifically, it has been suggested (e.g., Adams et al., 1995; Kuebli & Fivush, 1992; Kuebli et al., 1995; Melzi & Fernandez, 2004) that children who reminiscence about emotions frequently with their mothers, have a better understanding of emotions than children who reminiscence with their mothers less frequently. Reminiscing about past events gives children the opportunity to reflect on their own as well as on other people's emotions, something that is more difficult when discussing current emotions, because the experience of them is more intense than that of past emotions (Fivush, 1993, 2000).

Reminiscing with his or her mother also gives the child the opportunity to receive feedback from his or her partner (Kuebli et al., 1995). The more feedback the child receives about emotions, the more opportunities a child has to achieve a better understanding of emotions. Moreover, when children reminisce about past events, they elaborate their personal narratives. Melzi and Fernandez (2004) suggested that talking about past emotions gives the child the opportunity to organize their experiences and to integrate each one of them with its interpretation. Indeed, there is increasing evidence suggesting that narratives are an important reflection of who we are. For example, identity theory and social learning theory posit that girls' narratives should be more similar to their mothers', because girls grow up listening to their mothers' own narratives than to other women's narrative, and in turn boys' narratives should be more similar to their fathers' narratives than to other men's narratives (Peterson & Roberts, 2003). Denham et al. (2010) analyzed parents' and their three- and four-year-old children's talk about four occasions in which they had shown happy, angry, scared, and sad

emotions in each other's presence. Findings indicated that mothers' use of positive emotion words in a negative manner, and mothers' use of negative emotion words in a positive manner, predicted children's emotion knowledge. In the present study children reminisced about past events with each of their parents.

Although there is abundant literature supporting the notion that parents' emotion talk has an influence on children's emotion understanding, Fivush (1998) warns against simply accepting the widely extended assumption among most developmental psychologists, that what parents do matters. She argues that although most studies have found significant relations between parental emotion talk and children's understanding of emotions, many of these correlations have been small, inconsistent, and do not indicate clear age or gender differences. Moreover, Cassidy et al. (1992), Halberstadt and Eaton (2002), and Laible (2004) did not find a link between mothers' emotion talk and children's understanding of emotions. Laible's (2004) lack of significant findings may have resulted from children being too young in that particular study, as opposed to children in other studies (children were three- and five-years-old). It might be that younger children have not yet developed the ability to talk about and understand emotions. Similarly, Garner et al. (1997) posit that parents do not influence children's understanding of emotions, and that emotional expression and understanding might depend solely on the children's age.

The present study focused on the relationship between parental emotion talk and children's understanding of emotions. First, we expected children of mothers and fathers who mentioned emotion words more frequently to have a better understanding of emotions after controlling for prior emotion understanding based on Denham et al. (1994), Dunn et al. (1991a), Harris et al. (2005), and Laible and Song (2006). Second, we expected children whose mothers and fathers mentioned emotion explanations more frequently to have a better

understanding of emotions after controlling for prior emotion understanding than children whose parents mentioned more labels than explanations based on Cervantes and Callanan (1998), Cervantes, (2004), and Laible, (2002, 2004). Third, we expected that children whose parents used more emotion words during the reminiscence task, to have a better understanding of emotions after controlling for prior emotion understanding than children whose parents use fewer emotion words when reminiscing.

10.2. Method

10.2.1. Participants. As explained in the previous study.

10.2.2. Materials. A plastic house and a set of six family figures which included a grandfather, a grandmother, a father, a mother, a son, a daughter and a dog were used to elicit the story. Second, four index cards with events to elicit talk were used. These events included a visit to the zoo, a visit to the doctor, the first day of school, and the last time the child fell down.

The Test of Emotion Comprehension (TEC, Pons et al., 2004) was administered to the child participants. The TEC is a test that measures emotion understanding of 3-to-12 year old children. It shows vignettes in which a gender-matched character faces situations that bring out a series of emotional responses. After each situation, the child is asked to decide how the character is feeling by choosing from four different options. The TEC is organized in an increasing order of difficulty so that participants do not get frustrated (Pons et al., 2004). Its administration typically lasts ten minutes.

The TEC is divided into nine different sections. The first section shows the child a number of faces and asks him/her to identify the emotions that the faces represent (e.g., "Which face looks scared?"). The second section shows vignettes in which the protagonists' feelings are affected by external conditions ("This boy/girl is being disturbed by his little

brother. How is this boy/girl feeling?"). The next section represents different scenarios in which feelings are a consequence of the character's wishes. Two characters are introduced; one likes a certain food and the other does not. The participant is asked: "How does each protagonist feel when they discover that inside a cupboard there is that certain food?" The fourth section tests whether the participant understands the concept of false belief and its effect on emotion ("A fox is hiding behind a tree, watching a rabbit. How does the rabbit, which does not see the fox, feel?").

The next two sections test whether participants understand that emotions can be caused by reminders (e.g., the character looks at a picture of his dead rabbit), and what the protagonist could do to stop feeling sad (e.g., "Do you think that the boy will not be sad any more if he plays outside or if he thinks about something else?"). The seventh and eighth sections involve two complex emotions: hidden and conflicting emotions. To test the child's level of understanding of hidden emotions, the child is asked how a character that is being teased is really feeling even though he or she is smiling. The objective of the next section is to test if the participant understands the concept of conflicting emotions. Therefore, the child has to decide how a character, who has received a bicycle for his birthday, but has never ridden one before, is feeling. The final section tells the story of a boy or a girl who eats a biscuit without asking for permission and he or she also decided not to tell his or her mother what he or she did. The test asks the child to identify the emotion resulting from self-restraint and the emotion resulting from not being truthful (Pons et al., 2004).

The TEC was the chosen test to assess children's level of emotion understanding because it has been widely used and replicated. Its different components are scalable (index of consistency I = 0.676) and the scale is valid (Coefficient of reproducibility R = 0.904; Pons et al., 2002). In addition, the TEC is different from other tests of emotion comprehension, in the simplicity of the language that it uses (Pons et al., 2003). This reduces

the effect of language ability on the understanding of emotions. The TEC correlates with two other tests: the WAIS-III (r = .63) (Hernandez-Blasi et al., 2003), the Test of Receptive Grammar (TROG, r = .81 and r = .51) (Pons et al., 2003). Also, a high test-retest correlation (r = .83) within a 3-month period (Pons et al., 2002) and a 13-month period (r = .68) (Pons & Harris, 2005) of the TEC has been found. Finally, the comparison of components' scaling in children from both the UK and Quechua children from Peru, showed significant correlations between r = .56 and .91 (Tenenbaum et al., 2004).

10.2.3. Scoring of the TEC. Children receive one point for each one of the nine components that they answer correctly. The highest score is nine and the lowest is zero. Both components one and two include five questions, a minimum of three correct answers were needed to get one point in each one of these two first components. The other six components included one test question.

10.2.4. Procedure. In addition to the two storytelling tasks completed by parents and children, the TEC was administered before one of the two parent-child storytelling sessions and again six months later. The TEC was administered in a quiet room in the presence of their parents. Administration of the TEC at two time points enabled the researcher to control for prior TEC score when predicting later emotion understanding. A regression was conducted examining if later TEC score was predicted by emotion talk after controlling for prior TEC score

10.2.5. Transcription and coding of the two tasks. As described in the previous study.

10.2.6. Reliability. As described in the previous study.

10.3. Results

The results are presented in three parts. First, a descriptive analysis on TEC 1 and TEC 2 scores is presented. Second, the relationship between mothers' and fathers' emotion talk and children's concurrent emotion understanding is analyzed. Finally, a regression is conducted examining if TEC 2 score was predicted by parental emotion talk after controlling for prior TEC score.

10.3.1. Descriptive statistics. A 2 (Children's age: 4, 6) x 2 (Children's gender: girl, boy) ANOVA conducted on the first administration of the TEC (TEC 1) as a dependent variable revealed no significant effect of gender but as expected, it revealed a significant age effect, $F(1, 62) = 42.35, p = .00, \eta^2 = .41$. The analysis of TEC 1 revealed that the mean score of four-year-old children was 4.48 ($SD = 1.44$), whereas the mean score of six-year-old children was 6.53 ($SD = .99$). Across both age groups, the minimum score was two and the maximum score was eight. Overall, children scored a mean of 5.39 ($SD = 1.62$). In addition, the analysis of TEC 1 revealed a non significant effect of mothers' and fathers' emotion words, $F(1, 62) < 1, p = .44$. The analysis of TEC 2 also revealed a non significant effect of mothers' and fathers' emotion words, $F(1, 62) < 1, p = .39$.

A 2 (Children's age: 4, 6) x 2 (Children's gender: girl, boy) ANOVA conducted on the second administration of the TEC (TEC 2) as a dependent variable revealed no significant effect of gender but as expected, it revealed a significant age effect, $F(1, 62) = 16.56, p = .00, \eta^2 = .21$. The analysis of TEC 2 revealed a mean score of four-year-old children was 4.68 ($SD = 1.72$), whereas the mean score of six-year-old children was 6.35 ($SD = 1.40$). Across both age groups, the minimum score was two and the maximum score was eight. Overall, children scored a mean of 5.42 ($SD = 1.78$).

Scores for TEC 1 and TEC 2 were significantly correlated, $r(61) = .78, p = .05$.

Relations between mothers' and fathers' emotion talk, and children's understanding of emotions. To examine whether children of mothers and fathers who mentioned emotion words more frequently had a better understanding of emotion, a correlation and a regression were conducted. No significant relations were found.

To examine which elements of mothers' and fathers' emotion talk were related to the TEC 1 and TEC 2, correlations were conducted between TEC 1 and TEC 2 and mothers' emotion talk (emotion labels and emotion explanations during the house task and the events task) and fathers' emotion talk (emotion labels and emotion explanations during the house task and the events task). Three significant correlations were found. First, there was a significant relation between TEC 1 and mothers' labels during the events task, r (61) = .28, p = .05. Also, there was a significant correlation between the TEC 2 and mothers' labels during the events task, r (61) = .28, p = .05. Finally, there was a significant relation between TEC 2 and fathers' emotion explanations during the events task, r (61) = .28, p = .05. Results are shown in Table 3 below.

Table 5. *Relations between mothers' and fathers' emotion talk, TEC 1, and TEC 2.*

	1	2	3	4	5	6	7	8	9	10
1.TEC 1	-									
2.TEC 2	.78**	-								
3. Mothers'house labels	.07	.22	-							
4. Mothers' house explanations	-.10	-.08	.33**	-						
5. Mothers' events labels	.28*	.29*	.27*	.08	-					
6.Mothers'events explanations	.06	.08	.31*	.13	.42**	-				
7.Fathers' house labels	.12	.16	.00	-.00	.14	.11	-			
8.Fathers' house explanations	-.14	-.02	-.07	-.04	-.09	-.08	.37**	-		
9. Fathers' events labels	.04	.12	.02	-.06	.28*	.11	.71**	.46**	-	
10. Fathers'events explanations	.09	.28*	.08	.08	.12	.20	.33**	.44**	.468**	-

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

Mothers' and fathers' emotion talk and children's predicted emotion understanding.

Hypothesis testing. To examine whether scores on TEC 2 are predicted by mothers' and fathers' emotion talk after controlling for prior TEC scores, two hierarchical multiple regression analyses, one for mothers and one for fathers, were conducted. In step 1, TEC 1 was entered. In step 2, mothers' and fathers' proportion of labels and explanations during the house and the events tasks were entered. As expected, TEC 1 predicts TEC 2. Above and

beyond prior emotion understanding, fathers' explanations during the events task predicts children' s emotion understanding and mothers' emotion labels during the house task predict children's understanding of emotions. Results are shown in Table 4 and Table 5 below.

Table 6. *Regression model predicting mothers' emotion talk, TEC 1, and TEC 2.*

		B	SE B	B
Step 1	Constant	1.51	.43	
	TEC 1	.83	.09	.78
Step 2	constant	1.44	.46	
	TEC 1	.79	.09	.75
	Mothers' proportion of labels during the house task	11.83	5.49	.19*
	Mothers' proportion of explanations during the house task	-8.08	9.27	-.07
	Mothers' proportion of labels during the events task	1.43	3.03	.04
	Mothers'proportion of explanations during the events task	-3.64	11.37	-.03

Note. $R^2 = .60$ for Step 1, $\Delta R^2 = .60$ for Step 2 ($p < .05$). * $p < .05$.

Table 7. *Regression model predicting fathers' emotion talk, TEC 1, and TEC 2.*

		B	SE b	B
Step 1	Constant	1.51	.43	
	TEC 1	.83	.86	.78
Step 2	Constant	1.42	.46	
	TEC 1	.8	.09	.75
	Fathers' proportion of labels during the house task	1.6	6.4	.03
	Fathers' proportion of explanations during the house task	-.4	17.27	0
	Fathers' proportion of labels during the event task	-1.16	4.02	-.03
	Fathers' proportion of explanations during the events task	33.3	14.08	.22*

Note. $R^2 = .60$ for Step 1, $\Delta R^2 = .60$ for Step 2 ($p < .05$). * $p < .05$.

10.4. Discussion

The present study examined the relationship between mothers' and fathers' emotion talk and children's emotion understanding. Partial support for the three hypotheses was found. First, contrary to what we expected children of parents who mentioned a higher number of emotion words did not have a better understanding of emotions than children whose parents mentioned emotions words less frequently. Second, mothers' use of emotion labels during the story task predicted children's emotion understanding after controlling for prior emotion understanding. Third, fathers' explanations during the reminiscing task predicted children's emotion understanding above and beyond prior understanding. These findings will be discussed in greater detail below.

Research suggests that the content of the parent-child conversation influences both parental emotion talk (e.g., Fivush, 1993; Stern, 1985) and children's understanding of emotions (Fivush, 2000). Indeed, findings from the present study support this hypothesis. Fathers' emotion explanations during the reminiscing task predicted children's understanding of emotions. Reminiscence is important because discussion about past events gives the child the possibility of putting emotions into perspective and to reflect on them. Putting emotions into perspective is more difficult when discussing present emotions (Fivush et al., 2000). Therefore, children of fathers who reminiscence frequently have more opportunities to discuss and to reflect on emotions and in turn, are more likely to achieve a better understanding of emotions than children who reminiscence with their fathers less frequently.

In addition, there is increasing evidence suggesting that narratives are an important reflection of who we are (Peterson & Roberts, 2003). When individuals reminiscence they work on their "personal history". The more one reminisce and reflects on one's own "personal history" and on the emotions that each event provoked, the more detailed his or her personal narrative will be. As children grow up listening to their parents' narratives, children's narratives will be similar to their parents' narratives. Hence, parents and children will hold a similar way of understanding emotions. This finding endorses the identity theory and the social learning theory (Peterson & Roberts, 2003). To our knowledge this is the first study that has analyzed the influence of mothers' and fathers' emotion talk across two tasks (a reminiscence task and an emotion laden story-telling task), on children's understanding of emotions.

The findings of the present research suggest that reminiscence might be of special importance for fathers. The Bridge Hypothesis (Gleason, 1975) posits that fathers are less "tuned in" to their children than primary caregiver mothers, and therefore children must make

an effort to communicate with them. Talking with children, can improve children's language ability and also prepares children to communicate with less familiar adults (Tomasello et al., 1990). This hypothesis might explain why in the present study the frequency of fathers' explanations during the reminiscence task predicted children's understanding of emotions. Perhaps children whose fathers use more frequently emotion explanations, learn more about emotions than children whose fathers mention emotion explanations less frequently. Indeed, these findings support Laible's (2004) hypothesis which posits that both, the content of the conversation and its elaboration are relevant for children's sociemotional development. Research analyzing maternal elaborative style suggests that it influences not only children's memories but children's emotion understanding. Laible (2004) found that mothers' narrative style at 30 months, predicted children's emotion understanding at age 36 months. Future research should extend the research on mothers and analyze the relationship between fathers' reminiscence elaborative style and children's emotion understanding.

In the case of mothers, it was their use of emotion labels during the house task that predicted children's emotion understanding. Of special interest is to understand the underlying reason behind these parental differences. There are two plausible explanations behind this difference between mothers and fathers. First, perhaps fathers' explanations predicted children's emotion understanding because when fathers explain emotions, children distance themselves from their emotions. Through the use of explanations children are able to put their emotions into perspective and to integrate these emotions with the event which caused them. Second, it could be that when mothers label emotions during the house task, they are drawing children's attention to them and therefore children are able to improve their understanding of emotions.

The use of both tasks is informative in that mothers' and fathers' talk during different tasks influences children's emotion understanding. Many mothers and children engage in storytelling and book reading. Moreover, mothers' use of mental state terms during book reading predicts children's theory of mind (Adrian, Clemente, Villanueva, & Rieffe, 2005). The current study suggests that mothers' emotion labels similarly predict children's emotion understanding. Why mothers' and fathers' influence was greater during the different tasks merits further investigation.

These findings suggest that mothers and fathers have a different influence on children's socialization of emotions. More research is needed to establish the extent to which fathers influence children's emotion understanding and whether their influence is similar to that of mothers. Indeed, these findings evidence the importance of incorporating research of both mothers and fathers in the analysis of children's socialization of emotions.

Finally, results indicate that individual differences in children's emotion understanding cannot be fully explained by differences in parent-child emotion talk. Different sources for the appearance of individual differences in children's emotion understanding have been proposed and analyzed with most attention given to gender and parental influence. According to Brody (1999) children's emotional development is influenced by parents' characteristics, children's characteristics and cultural norms. Parents and children influence each other with cultural expectations dictating how and when it is acceptable to display emotions. Denham et al. (1994) proposed that individual differences in children's emotion understanding are due to parents' socialization. Especially influential are parental emotional expressiveness, its intensity, and parents' reactions to their children's expression of emotions. Such synchronicity might explain why children's expression of emotions and emotion understanding is very similar to their parents' emotion expression.

In conclusion, the present study furthers the research on the influence of parent-child emotion talk on children's emotion understanding. First, the findings indicate that fathers influence children's socialization of emotions. Future research should focus on conducting more research with fathers and children from different age groups and socioeconomic status groups. Second, findings also indicate that mothers' and fathers' influence on children's socialization of emotions might be distinct. More research is needed to determine the ways in which mothers and fathers influence children's emotions understanding

Chapter 11

Study 4

Predictors of the TEC

11.1. Introduction

Children's emotion understanding follows a developmental pattern. Specifically, Pons et al. (2004) posit, based on the results obtained by testing children with the Test of Emotion Comprehension (TEC), that there are three developmental periods. First, when children are three years of age, they understand public aspects of emotion such as its situational causes (e.g., different situations provoke individuals to experience different emotions), its outward expression (e.g., individuals tend to express their emotions) and reminders' effect on affect (e.g., a past event can make one sad). Children typically master this level of understanding by five years. Second, between five and seven years of age, children understand the mentalistic aspects of emotion, such as its connections to desires and beliefs and the difference between expressed and felt emotions (e.g., individuals do not always express the emotions experienced at any given time). Finally, when children are between seven and eleven years of age, they understand the possibility of reflecting on an emotion from different perspectives. Children come to understand that they can experience conflicting feelings, or distress for example when, failing to confess their true feelings. At this age children also learn that they can cognitively regulate their emotions (Pons et al., 2004).

Similarly, Donaldson and Westerman (1986) found that children understand ambivalent emotions between seven and eleven years of age. They presented children with an ambivalent story (e.g., a beloved puppy that chews the child's toy) and then asked participants about their understanding of the story. The findings indicated that children

understood the concept of ambivalent emotions around the ages of ten or eleven, whereas younger children did not understand that two emotions can be felt at the same time. However, from a very early age there are individual differences in children's emotion understanding. The present study examined the relationship between parent-child touch and children's understanding of emotions, and parent-child emotion talk and parent-child touch.

The few studies that have analyzed individual differences (e.g., Cutting & Dunn, 1999; Hughes & Dunn, 1998; Pons et al., 2003; Pons & Harris, 2008) suggest that these differences appear early and remain stable over time (e.g., Pons et al., 2003). For example, Pons and Harris (2005) analyzed emotion understanding in seven-, nine- and eleven year-olds over a one year period. Overall, they found that while in the two younger groups, children improved their emotion understanding over time, the oldest group showed no improvement in their emotion understanding. In addition, not all components of emotions improve equally. The external components of emotion showed a non significant improvement, while children's improvement of reflective and mental components of emotion was significant. Across the three age groups, individual differences remain stable over a one year period.

Different sources for the appearance of individual differences in children's emotion understanding have been proposed and analyzed with most attention given to gender and parental influence. According to Brody (1999) children's emotional development is influenced by parents' characteristics, children's characteristics and cultural norms. Parents and children continuously influence each other with cultural expectations dictating how and when it is acceptable to display emotions. Denham et al. (1994) proposed that individual differences in children's emotion understanding result from parents' socialization. Especially influential are parental emotional expressiveness, its intensity, and parents' reactions to their children's expression of emotions. Moreover, Denham (1993) suggests that children's

expression of emotions and emotion understanding is very similar to their parents' emotion expression.

Special attention has been placed on the analysis of mother-child emotion talk and its influence on children's emotion understanding. However, the influence that parental touch has on children's emotion understanding has been largely ignored. In early research, touch was not considered to be a communication system rather it was considered to serve as an enhancer of the verbal and facial channels, or a transmitter of the hedonic tone of emotions (e.g., positive and negative; Hertenstein, 2002). More recent research has found that touch is in itself a system of emotion communication. Specifically, research suggests that different types of touch can communicate different types of emotions (Hertenstein, 2002; Tronick, 1995; Weiss, 1979). For example, mothers touch their children differently, depending on the emotional reaction that they want to obtain from their child (Ferber et al., 2008; Harrison & Woods, 1991; Polan & Ward, 1994; Stack et al., 1996). Similarly, Stack et al. (1996) found that when mothers were asked to make their child smile, they used tickling and lifting but not holding. In addition, through touch parents can communicate their feelings and perceptions to their children as well as regulate children's perceptions and feelings (e.g., parents stroke children to calm them down when they cry). Therefore, touch can serve as a mean of communication between parents and children even when it does not carry specific information (Hertenstein, 2002). Moreover, Hertenstein argued that communication takes place even if the parent does not have any intentionality, if the parent is not mindful of the touching, or if the parent's emotional state is not induced in the child.

Communicating emotions is important for children's ability to understand emotions. Indeed, how a child understands emotions is influenced by the frequency with which his or her mother talks to him or her about emotions. The more the child talks about his or her emotions with his or her mother, the better understanding of emotions he or she acquires

(Denham et al., 1994; Denham & Auerbach, 1995;Dunn et al., 1987; Dunn et al., 1991a; Halberstadt et al., 1999; Harris et al., 2005; Laible & Song, 2006).

Two main hypotheses motivated the present study. First, mothers' and fathers' touch was expected to be related to children's understanding of emotions based on Hertenstein (2002). Second, parental physical touch was expected to be related to parental use of emotion talk.

11.2. Method

11.2.1. Participants. As described in previous studies.

11.2.2. Materials. As described in previous studies.

11.2.3. Procedure. As described in previous studies.

11.3. Results

11.3.1. Descriptive statistics

Mothers' and fathers' touch. The analysis of parental touch revealed that across both tasks mothers' most common types of touch were stroke (*M* proportion = .50, *SD* = .50), aimful (*M* proportion = .44, *SD* = .43) and holding (*M* proportion = .11, *SD* = .21). Fathers' most common types of touch across both tasks were also stroke (*M* proportion = .32, *SD* = .43), aimful (*M* proportion = .36, *SD* = .45), followed by holding (*M* proportion = .04, *SD* = .08) in the house task and by demonstrating (*M* proportion = .09, *SD* = .11) in the events task. Mothers touched more frequently their children heads' (*M* proportion = .33, *SD* = .40) and arms (*M* proportion = .34, *SD* = .38). Fathers touched more frequently children in their arms (*M* proportion = .22, *SD* = .40) and in other parts of the body. Parents touched their children

for longer during the events task, (*M* proportion = .80, *SD* = .55) than during the house task (*M* proportion = .45, *SD* = .56).

Mothers' and fathers' emotion talk. The findings indicated that mothers and fathers did not differ in how they talk about emotions, $F(1, 59) = 2.59, p < .11$. Indeed, mothers' and fathers' talk correlated with each other and with their children's emotion talk. However, mothers and fathers talked more about emotions with their daughters than with their sons. Specifically, parents used a mean proportion of 0.06 emotion words (*SD* = .04) when talking to girls, whereas they used a mean proportion of 0.04 emotion words (*SD* = .02) when talking to boys. Parents discussed more often happiness with their daughters (*M*= .09, *SD* = .04) than with their sons (*M* = .01, *SD* = .02).

TEC results. The analysis of TEC 1 revealed a mean score of four-year-old children was *M* = 4.48 (*SD* = 1.44), whereas the mean score of six-year-old children was *M* = 6.53 (*SD* = .99). Across both age groups, the minimum score was two and the maximum score was eight. Overall, children scored a mean of 5.39 (*SD* = 1.62). The analysis of TEC 2 revealed that the mean score of four-year-old children was *M* = 4.68 (*SD* = 1.72), whereas the mean score of six-year-old children was *M* = 6.35 (*SD* = 1.40). Across both age groups, the minimum score was two and the maximum score was eight. Overall, children scored a mean of 5.42 (*SD* = 1.78).

11.3.2. Hypothesis testing. There was no significant relationship between parental touch and children's emotion understanding. Neither was there a significant relationship between parents' use of emotion words and parents' use of physical touch.

Table 8. *Relations between TEC 1, TEC 2, parents' emotion talk, and parents' physical touch.*

	1	2	3	4	5	6	7	8
1. TEC 1	-							
2. TEC 2	.78**	-						
3 .Mother expla prop	.12	-.09	-					
4. Mother label prop	.24	.32**	.33**	-				
5. Father expla prop	-.02	.17	.05	0	-			
6. Father label prop	.09	.15	.02	.2	.52**	-		
7. Mother touch prop	-.18	-.24	.18	.06	-.22	-.13	-	
8. Father touch prop	-.12	-.17	-.02	-.13	-.05	-.09	.02	-

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

In addition, the relationship between mothers' and fathers' stroke and parents' use of emotion words was not significant, r (54, 61) = .02, p = .89.[2]

11.4. Discussion

The present study examined predictors of children's emotion understanding. Contrary to what was expected, no significant relationships were found between children's emotion understanding and parental touch. Neither was there a significant relationship between parental use of emotion words and parental use of physical touch. These findings will be discussed in greater detail below.

[2] Due to recording issues the number of participants is different (For stroke N = 56, and for use of emotion words N = 63).

[3] Mother expla= mother proportion of explanations, father expla = father proportion of explanations, mother label = mother proportion of labels, father label = father proportion of labels, mother touch = mother proportion of touch, father touch = father proportion of touch.

As mentioned, no relationship was found between parental touch and children's emotion understanding. It is not possible to compare this finding with previous studies because to the best of our knowledge, this is the first study to analyze this relationship. However, this finding is surprising because if indeed, parental touch is a channel of communication of emotions, it would make sense to assume that there should be a relationship between parental emotion touch and children's emotion understanding. Nevertheless, there are at least three possible reasons underlying this finding. First, perhaps touch communicates emotions only between parents and young infants. Maybe as children grow older and the verbal channel becomes the main mean of communication, touch loses relevance in the communication of emotions. Indeed, previous research shows that parental touch decreases as children grow older (e.g., Field et al., 1987; Jean et al., 2009; Lamb, 1977; Ferber et al., 2008; Harrison-Speake & Willis, 1995). For example, Jean et al. (2009) found that mothers touch to their one-, three- and five- and-a-half-months-old infants decreased as infants grew older. Similarly, in the present study parents touched four-year-olds more frequently than they touched six-year-olds.

A second possibility is that perhaps touch is only used to communicate certain emotions (App et al., 2011) and maybe those emotions did not appear in the parental narrative frequently enough and therefore a significant relationship between parental touch and children's emotion understanding was not found. Indeed, App et al. (2011) found love and sympathy to be associated with touch, anger, disgust, fear, happiness, and sadness to be related to the face, and embarrassment, guilt, pride, and shame, to be associated to the body. Future research should continue to investigate the nature of the relationship between parent-child touch and children's emotion understanding. Finally, the effects may be small and a larger sample would be needed to discern effects.

Also, contrary to what was expected there was no relationship between parental emotion talk and parental touch. It was hypothesized that as touch and talk are two channels of communication that interact during parent-child conversations, it would make sense to assume that they would be related to one another. Indeed, evidence suggests that individuals communicate emotions not only through the verbal channel, but also through touch, and facial and body expressions (Buck, 1984). More research is needed to analyze the relationship between these two channels of communication.

Finally, children's language ability is also related to children's emotion understanding. Indeed, Pons et al. (2003) found that the better the children's language abilities, the higher emotion understanding they showed. The reason behind this relationship could be that if language is a tool that represents emotions, it makes sense that individuals with better language skills should have a higher level of emotion understanding. Another possibility could be that, it is not that those children with better language skills have a better understanding of emotions, but rather that they are able to communicate their emotions better (Pons et al., 2003). The present study did not analyze the relationship between levels of children's language development and children's emotion understanding. The main reason behind this decision was that children's participants were asked to complete a significant number of tasks and there was a concern that adding to the length of task would make it too difficult for young children. It would have also been interesting to analyze children's level of emotion understanding in relation to their academic performance, to analyze whether indeed, children's emotion understanding is a predictor of academic performance (Izard et al., 2001).

In sum, this study did not find support for either of its hypotheses. Children's emotion understanding is a complex developmental process influenced by a significant number of cofounding variables. Further research should continue to identify and analyze all the variables that influence children's emotion understanding.

Chapter 12

Study 5

Children's Understanding of the Relation between Emotions and their Behavioural Consequences

12.1. Introduction

Children's emotion understanding is a key factor predicting their social competence. Indeed, emotion understanding predicts popularity and acceptance amongst children's peers, as well as their prosocial behaviour and emotion regulation skills (Cassidy et al., 1992; Denham et al., 1990; Garner et al., 1994; Garner & Power, 1996). Moreover, children who have difficulty understanding emotions experience problems in their social relations with others (Denham et al., 1990). Although much research has examined children's understanding that situations result in emotional reactions (Pons et al., 2004) and that mental states, such as beliefs, influence behaviour (Wellman et al., 2001), work has not yet examined whether children understand that emotion motivates behaviour. The present study focussed on developmental differences in children's understanding that emotion influences behaviour.

Two key lines of research influenced the current study. These two lines include children's theory of mind (Gopnik & Astington, 1988; Sabbagh et al., 2006) and emotion understanding (Harris, 1989). Research on children's theory of mind has indicated at 41 months, children do not understand that people's false beliefs motivate their behavior, whereas by 48 months, children demonstrate false-belief understanding (Wellman et al., 2001). This age-related change tends to be found in many cultural communities (Chasiotis, Kiessling, Hofer, & Campoes, 2006) and continues to develop across the lifespan (Flavell, Green, & Flavell, 1993).

Similarly, research on children's emotion understanding influenced the current study. Children's emotion understanding undergoes rapid development between the ages of three

and seven. Between three and five years, children learn to identify emotion expressions, understand that situational factors cause emotions, and realise that reminiscing causes an emotional reaction (Harris, 1989, Pons, et al., 2004, Tenenbaum et al., 2004). This understanding is based on situational causes of emotion. Between the ages of five and seven, children learn that emotions cannot be based on facial expressions alone, but depend on people's mental states (Wellman et al., 2001). Specifically, children at these ages understand that people hide emotion (Harris et al., 1986; Joshi & MacLean, 1994) and that emotions are based on beliefs and desires (Harris et al., 1989). Thus, children experience a dramatic shift in emotion understanding between four and six. Specifically, children's understanding of emotion incorporates mentalistic knowledge rather than relying on more obvious, situational factors. Notice that although children understand that beliefs influence behavior by age 4 (Wellman et al., 2001), they do not understand that false beliefs influence emotions until at least age 5 (Pons et al., 2004)

Emotion understanding continues to increase in complexity in middle childhood. To examine emotion understanding in children ranging in age from three to twelve years, Pons et al. (2004) created the Test of Emotion Comprehension (TEC). In addition to situational and mentalistic understanding of emotion, they also examined the understanding that cognitive reflection and appraisal influence emotional reactions. Between seven and nine years, children learn that people experience ambivalent emotions (Donaldson & Westerman, 1986), understand how to regulate their own emotions, and recognise moral emotions (Pons et al., 2004; Tenenbaum et al., 2008). Pons et al. (2004) found a clear developmental improvement in three to nine-year-old children's understanding with the awareness of particular components emerging at different ages (see also Pons et al., 2002; Pons et al., 2003, for similar findings with different samples of children).

Although children's understanding that emotions cause behaviours has not been investigated, children's understanding that their emotional expressions influence others' behaviours and reactions has been studied in an unpublished study. In an experimental paradigm Saarni (1987) presented 7-, 10-, and 13- year-old children with seven social situations in which a child character showed his or her emotions. Children were asked to choose the parents' most likely reaction to the character's emotional expression from four given options. Across all age groups, children were aware that their emotions were able to influence others' emotions and behaviour. Children were especially aware that they could make someone feel bad as a result of them expressing their real emotions (e.g., the child showing dislike to a present for his or her grandmother). Thus, children understood that by changing their emotional expressions, they can influence others' reactions and behaviours. However, children in Saarni's study were 7-year-old and the present study focuses on younger children.

In sum, past research has investigated children's understanding that different situations and cognitions cause emotional reactions. However there is scant research investigating the converse- whether children understand that emotions cause actions. There are only three studies that have analyzed the relation between emotions and behaviors. Graham (1988) analyzed five- to eleven-year-olds understanding of the relationship between attributions, affect and social behavior. Children were presented with three scenarios (success in an exam, being selected for the basketball team, and a bicycle collision). In experiment 1, children had to decide how guilty, proud, and grateful the character would feel, predicted the characters' behavior, and judged the characters' locus of control. In experiment 2, children judged again the characters' behavior once the affective information and the causes of the situations had been changed. There are three main differences between Graham's study and the present research. Whereas Graham's study focused on five-to-eleven-year-olds, the

present research interviewed four- and six-year-olds. Second, whereas the present study only measured children's understanding of the behavioral consequences of emotions, Graham's study tested children's understanding of a wider number of variables. In addition, the present research proved children's understanding of ten positive and negative simple and complex emotions, whereas in Graham's study only three complex emotions are analyzed.

In similar research (Bennet & Galpert, 1992), analyzed five- and eight- year-olds understanding of how happiness and sad emotions influence a protagonists' performance in a maths test. Half of the children understood that negative emotions would be detrimental for results. Lastly, Amsterlaw, Lagattuta, and Meltzoff (2009) analyzed five-, six-, and seven-year old children's understanding of how positive and negative emotions and positive and negative physiological states affect performance on academic tasks. Findings indicated that whereas all age groups understood the effects that negative emotions and physiological states have on behavior, only older children understood how positive emotions and physiological states affect behavior. Whereas these two studies analyze how children's emotions influence motivation, the present study analyzes children's understanding that emotion influences behaviors.

Understanding that emotions result from mental actions may be related to the knowledge that emotions cause behavioral reactions because neither understanding is observable directly. For this reason, in this study children who were four years old and most likely to have a situational but not mentalistic understanding of emotion were compared to children who were six years old and more likely to have a mentalistic understanding of emotion. We expected that six-year-old children would have a better understanding that emotion influences behaviours than would four-year-old children based on research suggesting that six-year-old children have a mentalistic understanding of emotion (Pons et al., 2004). Given that one cannot see how emotions influence behaviours directly, it was

expected that the understanding that emotions influence behaviours would be related to mentalistic understanding. Additionally, the knowledge that emotion influences behavior was expected to be related to emotion understanding in general as measured by the TEC.

12.2. Method

12.2.1. Participants. A total of sixty-two children (30 girls and 32 boys), aged 4 (M = 53.35 months, SD = 3.86; range = 48 – 60 months) and 6 years old (M = 76.62 months, SD = 3.91; range = 72- 84 months) completed two measures of emotion understanding in Spanish. These two tasks were counterbalanced. All children were White and Spanish, twelve of them lived in London (UK), 47 lived in Madrid (Spain) and one in lived in Barcelona (Spain). Spanish was their first language. All children came from intact families from middle-to upper-class socioeconomic status. Participants were recruited on a volunteer basis.

12.2.2. Materials. The Test of Emotion Comprehension (TEC) (Pons, et al., 2004) measures nine aspects of emotion understanding (e.g., face recognition, understanding of external causes of emotions, understanding of desire, understanding of belief, understanding of reminders, understanding of emotion regulation, understanding of emotion hiding, understanding of mixed emotions and understanding of morality) and has been normed extensively for 3-to 9- year old children. Its administration typically lasted ten minutes.

The Test of Behavioural Consequences of Emotions (TBCE) measures children's understanding of the relationship between emotions and behaviours. The experimenter read ten vignettes to the participants. Each vignette contains the story of a gender-matched character facing a situation. Participants were asked to choose which action out of the three the character of the vignette will take as a result of the emotion that he or she is experiencing at that particular moment. For example, "Rodrigo is in the playroom with his baby brother. He loves him very much. What will Rodrigo do? i) He will hug his brother, ii) He will hit his brother, iii) He will play with a car". Specifically, the vignettes proved children's

understanding of five simple emotions (happiness, sadness, fear, affection, and anger) and five complex emotions (jealousy, respect, pride, excitement and guilt). To ensure that children did not become frustrated, simple and complex emotions were counterbalanced. The correct answer varied in position. Its administration typically lasted ten minutes.

12.2.3. Procedure. Children were administered the tasks in their homes in a quiet room in the presence of their parents. These two tasks were counterbalanced.

12.2.4. Scoring and coding. On the TEC, children received one point for each one of the nine components that they answered correctly. The highest score was nine and the lowest was zero.

On the TBCE participants received one point when they chose the correct answer. Therefore, each participant obtained a score ranging from zero to ten. Depending on the item, 69% to 89% of children answered the individual questions correctly.

12.3. Results

12.3.1. Descriptive Statistics. Six-year-old children ($M = 5.82$, $SD = 1.09$) attained higher scores on the TEC than did four-year-old ($M = 3.86$, $SD = 1.56$) children, $F(1, 61) = 32.01$, $p = .0001$, $\eta^2 = .34$.

12.3.2. Hypothesis Testing. As predicted by the first hypothesis, six-year-old children ($M = 8.67$, $SD = 1.41$) answered more vignettes correctly than did four-year-old ($M = 6.91$, $SD = 1.40$) children, $F(1, 61) = 23.65$, $p = .0001$, $\eta^2 = .28$.

To examine which aspects of emotion were related to the TBCE, correlations were conducted between the TBCE and the three (situational, mentalistic and cognitive) components of the TEC. There was a significant relation between the TBCE and the TEC as a whole, $r(60) = .33$, $p = .01$. As hypothesised, there was a significant correlation between the second component, mentalistic emotions, and the TBCE, $r(60) = .28$, $p = .03$. In contrast,

neither the situational causes of emotions, r (60) = .20, p = .11, nor cognitive emotions, r (60) = .16, p = .23, were related to the TBCE.

To examine whether age or emotion understanding better predicted the understanding of behavioural consequences of emotions, two multiple regressions were conducted predicting the scores on the TBCE. For the first regression, TEC and age (in months) served as predictors. The model was significant, F (1, 59) = 11.88, p = .0001, R^2 = .29. Age predicted the scores on the TBCE, t = 4.20, p = .0001, whereas TEC did not, t = 1.05, p = .30.

In the second model, the mentalistic component of the TEC and age (in months) served as predictors. The model was significant, F (1, 59) = 11.18, p = .0001, R^2 = .28. Age predicted the scores on the TBCE, t = 3.98, p = .0001, whereas mentalistic emotions did not, t = .28, p = .78. Table 9 shows these findings in more detail.

Table 9. *Relations between TBCE scores, TEC scores and Children's age.*

	B	SE B	B
Regression 1: TEC			
TEC	-.16	.15	.16
Child's age	.08***	.02	.63
Regression 2: Mentalistic Emotions			
Mentalistic Emotions	.06	.22	.04
Child's Age	.07***	.02	.51

Note. *** p< .001; ** p < .01; * p < .05

12.4. Discussion

The present study found partial support for the two hypotheses. First, six-year-old children had a better understanding that emotions cause behavioural consequences than did four-year-old children. Secondly, support was found for a relation between children's emotion understanding and children's' understanding of the behavioural consequences of emotions. More specifically, there was a relationship between mentalistic aspects of emotions and the understanding between emotions and their behavioural consequences. These findings will be discussed in greater detail.

Children's understanding that emotions cause behavioural reactions was related to their understanding of mentalistic emotions. Children achieve a mentalistic understanding of emotion once they understand that there is a mental process mediating between a situation and the emotion that it provokes. More specifically, children are said to have a mentalistic understanding after they understand that the same situation can provoke different emotions in different people (e.g., one person can feel very happy at their birthday while other can feel very sad), that people's beliefs influence their emotional reactions, and that people can hide emotions. The relation between these separate competencies, mentalistic emotions and the knowledge that emotions influence behaviour, may stem from an implicit understanding that emotions are not observable. Therefore, if a child is cognitively able to understand the concept of mentalistic emotions, then he or she is more likely to understand the link between emotions and behaviours. On the contrary, those children who still hold a situational understanding of emotions (e.g., everybody feels happy at their birthday) might not be able yet to understand the unobservable relationship between emotions and behaviours. Another possibility could be that it is not that there is a relation between mentalistic understanding of

emotions and the understanding of the relation between emotions and their behavioural consequences, but rather that this relation could be explained by increases in age.

Indeed, the question of how children are able to identify and to understand others' emotions and mental states is not new. There are at least two conflicting hypotheses. First, the simulation theory (Harris, 1989, 1992) posits that to be able to understand others' mental states, children might be first able to recognize and understand their own mental states. Once children have mastered this skill, it is through a process of imaginative understanding that they are able to infer what others are feeling. Children project onto others their own emotions to identify and understand what others are feeling (Harris et al., 1987; Harris, 1989). Alternatively, the theory-theorists (e.g., Gopnik, 1993; Wellman, et al., 1995) maintain that children have a system of mental constructs that they equally apply to themselves and to others and that children do not need to experience an emotion to be able to identify it in someone else. Based on their empirical observations in everyday interactions, children build a folk theory of psychology (Gopnik, 1998). Such a theory would incorporate emotional understanding as a component of understanding other people's mental states.

Harris' simulation theory has been critised because of its assumption that self understanding develops before the understanding of others. If this was the case, then children should successfully complete false belief tasks about themselves, before being able to pass false belief tasks about others. However, a meta-analysis conducted by Wellman et al. (2001) concluded that this is not always the case. Instead, there was a similar level of performance across all age groups on self and others false belief tasks. Harris (1992) countered that children failed to pass self belief tasks because they fail to remember a past emotion. Moreover, the difficulty is increased when the emotion children experience at that particular

moment is of opposite valence as the one that they are expected to remember (Wellman et al., 2001).

One explanation behind the current results that those children who have a mentalistic understanding of emotion also have a better understanding of the relationship between emotions and behaviours could be that such children have mastered the use of imaginative understanding to identify others' emotions (see Harris, 1992). However, it may also be that such children have a more developed theory of emotion understanding (see Gopnik, 1998). Future research needs to untangle which of these two theoretical perspectives best accounts for children's emotion understanding.

Taking these results into consideration, they suggest a rich area for future research on children's understanding of the consequences of emotions. First, research should focus on expanding the scarce data on children's understanding of the consequences of emotions with the aim of designing intervention programs to improve children's emotional competence. Second, more research is needed to analyze the relationship between children's understanding of the consequences of emotions and children's general understanding of emotions. Finally, attention should be paid to the analysis of individual differences in the understanding of behavioural consequences of emotions. This research will help to contribute to ways of improving children's well being as well as increasing theoretical knowledge about emotion understanding.

Chapter 13

Final Discussion

The aim of the present research was to analyze parent-child emotion talk, parent-child physical touch and their relation with children's understanding of emotions. The present research yielded interesting findings. The analysis of parent-child emotion talk indicated that mothers and fathers did not differ in how they talk about emotions. Indeed, mothers' and fathers' talk correlated with each other and with their children's emotion talk. However, mothers and fathers talked more about emotions with their daughters than with their sons. Parents discussed happiness more often with their daughters than with their sons. No gender or age differences were found in children's emotion talk. Finally, findings indicated that emotion understanding is predicted by prior emotion understanding. Above and beyond prior emotion understanding, fathers' emotion explanations during the reminiscence task and mothers' use of emotion labels during the storytelling task predicted children's emotion understanding.

The analysis of parent-child physical touch indicated that where age differences were found, parent-child touch decreased as children grow older. Where parent gender differences were found, mothers were more physically affectionate than were fathers. Finally, results indicated that parents' physical touch was not related to children's emotion understanding. Neither was parents' physical touch related to parents' emotion talk. These findings will be discussed in greater detail below.

13.1. Parent-Child Emotion Talk

One's understanding of emotions is mainly established during the first years of life (Harris, 1989; Pons et al., 2004). One of the main influences in children's understanding and regulation of emotions is their parents (Adams et al., 1995; Dunn et al., 1982; Fivush et al.,

2000; Kuebli & Fivush, 1992). The present series of studies analyzed mothers' and fathers' emotion talk. Although there is much research on mother-child emotion talk, findings are still inconsistent. Whereas some studies have found gender and age differences in mother-child talk (Adams et al., 1995; Dunn et al., 1987; Flannagan & Perese, 1998; Leaper et al., 1998), others have found that mothers talk similarly about emotions to boys and girls (Cervantes, 2002; Denham et al., 1994; Denham et al., 2010; Fivush & Wang, 2005; Peterson & Roberts, 2003). In contrast, research on father-child emotion talk is scant and there is only one study that examined relations between father-child talk and emotion understanding (Adams et al., 1995; Denham et al., 2010; Fivush et al., 2000; Kuebli & Fivush, 1992). Findings from the present research indicated that mothers and fathers did not differ in how they talk about emotions. Indeed, mothers' and fathers' talk correlated with each other and with their children's emotion talk. However, mothers and fathers talked more about emotions with their daughters than with their sons. In addition, parents discussed happiness more often with their daughters than with their sons.

Mothers' and fathers' emotion talk correlated with each other and with their children's emotion talk. Specifically, mothers and their children expressed and discussed emotions in a similar way, both when they reminisced together and when they created a story together. In contrast, fathers' emotion talk was only related to their children's when dyads reminisced together. This finding implies that families share similar narratives and relate to emotions in a similar way. One possible explanation behind this finding is that perhaps some families have a genetic proclivity to discuss emotions. Another possibility is that when parents talk about emotions, children understand that discussions about emotion are a valued daily activity. Perhaps children whose parents frequently discuss emotions will grow up to also discuss emotion. Indeed, research indicates that children learn about emotions by observing parents' expression of emotions, by observing how parents react to their own and

to children's emotions, and through parent-child emotion talk (Denham et al. 2010). The more parents talk about emotions, the better children understand emotions (Denham et al., 1994; Denham & Auerbach, 1995; Dunn et al., 1987; Dunn et al., 1991; Halberstadt et al., 1999; Harris et al., 2005; Laible & Song, 2006).

Moreover, this study provides further evidence for the importance of reminiscence. Specifically, it was found that both mothers and fathers used a higher number of emotion words during the reminiscence task than when they created a story with their children. Hence, children who have parents who reminisce frequently will have more opportunities to discuss and to reflect on emotions and therefore are more likely to achieve a better understanding of emotions than those children who reminiscence with their parents less frequently. Importantly, fathers' use of emotion explanations during the reminiscence task predicted children's emotion understanding. Reminiscence is important because it gives children a sense of identity as well as helping them to integrate events with their emotions and to make sense of those emotions (Fivush, 2009). It is therefore important to create awareness of the relevance that reminiscing has for children's emotional development. Future research should analyze how different models of families influence children's understanding of emotions and their socioemotional development.

Surprisingly, no gender or age differences were found in children's emotion talk. Because mothers and fathers talked more about emotions to their daughters than to their sons, it was expected that daughters would talk more about emotions than would sons. Also, contrary to what was expected, older children did not mention more emotion words than did younger children. However, older children scored higher in both emotion understanding tasks (TBCE and TEC). These findings suggest that although older children have a better understanding of emotions than younger children, they chose not to express emotions more frequently.

In addition and consistent with previous research (e.g., Denham & Auerbach, 1995; Denham et al., 1994; Dunn et al., 1991a; Dunn & Brown, 1994; Dunn et al., 1991b), the present study found a relation between mothers' emotion talk and children's understanding of emotions. Similarly to Denham et al. (2010), fathers' talk was found to be related to children's emotion talk. However, the present study extended this finding to school-aged children. Unlike previous studies, the present study analyzed mothers' and fathers' use of emotion labels and emotion explanations and its relation with children's emotion understanding. Findings indicated that whereas mothers' use of emotion labels during a storytelling task influenced children's emotion understanding, it was fathers' explanations during a reminiscence task that influenced children's understanding of emotions. Parents' emotion talk influenced children's emotion understanding above and beyond children's age. Thus, although children's emotion understanding undergoes a clear developmental pattern, this pattern is influenced by parents' emotion talk. Moreover, this finding implies that fathers and mothers have a distinct influence on children's emotion understanding and as a consequence on children's socioemotional development. The distinct influence of mothers and fathers on children's emotion understanding will be discussed below.

Findings also indicated that whereas there was an age difference in parents' touch there was no age difference in parental emotion talk. These results are consistent with research indicating that mothers' and fathers' touch decreases as children grow older. However, mothers' and fathers' emotion talk did not increase with age. It could be that parents do not increase the amount of emotion talk as children grow older, rather that the complexity of the conversation about emotions increases.

13.2. Parent-Child Physical Touch

Talk is not the only mean of communication between parents and children. Non-verbal communication and specifically, touch also are also important means of communication. Moreover, touch is the main mean of communication between parents and young infants, before infants learn to speak (Jean et al., 2009). Therefore, it is surprising that the role of parents' touch in children's emotion understanding has received little attention. Although evidence from analyses on mother-child touch on children of depressed mothers (Herrera et al., 2004), abused (Weiss et al., 2000), premature (Minde, 2000) and institutionalized children (Field, 2004) indicate that lack of touch in infancy has negative implications for the normal socioemotional development of children, the role of parents' touch on children's sociemotional development is still unclear (Stack & Jean, 2011). So far, mother-child touch has been found to regulate children's perceptions and emotions (Brazelton, 1990; Hertenstein, 2002; Kisilevsky et al., 1991), and to sooth (Kisilevsky et al., 1991), arouse (Kisilevsky et al., 1991), and change children's behaviour (Allen & Daly, 2002; Field et al., 1987; Goebel, 2002; Harrison & Woods, 1991; Pelaez-Nogueras et al., 1996; Stack & Muir, 1992). In addition, there is scant research on father-child touch, leaving many questions unanswered.

The analysis of parent-child physical touch also yielded interesting results. First, mothers were found to be more physically affectionate than were fathers. These findings suggest that from a very early age children learn that it is more appropriate for women than for men to demonstrate and communicate affection. Indeed, this finding is consistent with research on gender roles and culture (Dibiase & Gunnoe, 2004). Spain is considered a traditional culture in which gender roles are much differentiated. In fact, there tend to be more gender differences in Southern European cultures than in Northern European cultures (Dibiase & Gunnoe, 2004). In Spain for example, women are children's main caregivers and

although over the last decades a higher number of women have joined the work force (in 2010 41.6% of women in Spain worked outside their homes), women continue to take care of their children and of the domestic chores (Instituto de la Mujer). In sum, Spanish women (similarly to Southern European women) hold a nurturant role and are considered to be the emotional keepers of the family (Dibiase & Gunnoe, 2004).These factors imply that Spanish children learn from a young age that girls must grow up to be nurturant and physically affectionate women, whereas boys grow up with the idea that they should not be as affectionate as women.

Relevant to the present study, Spain, alongside with the rest of southern European countries, is considered a high-touching country as opposed to northern European countries, Asia, and the United States, which are considered low-touching cultures (Lustig & Koester, 1996). People from Southern European countries touch others more frequently and have smaller personal spaces than people from Northern European countries who have larger personal spaces (Sussman & Rosenfeld, 1982). Research, thus, needs to explore differences in parental touch in southern and northern European countries.

Second and consistent with previous research (e.g., Jean et al., 2009), mothers' and fathers' physical touch decreased as children grow older. Interestingly, although parents and their six-year-old children stayed closer throughout both tasks than parents and their four-year-old children, parents still touched their four-year-old children more often, even though they were further apart from them. These findings support the hypothesis stating that during the first months of life when children cannot talk, parents rely more heavily on touch to communicate with them. As children grow older and they start to talk, the verbal channel becomes more relevant (Jean et al., 2009). More longitudinal studies are needed to establish a developmental pattern of parent-child physical touch. Research on parent-children touch has

been focused on infants and toddlers (Field et al., 1987; Stack & Muir, 1990). The present research extended the investigation to school-aged children.

The present study did not find a relation between parental physical touch and children's emotion understanding. However, this finding must be considered with caution. It could be that the influence of physical touch on children's emotion understanding takes place mainly during children's infancy and declines as children grow older. Or perhaps the effect of parental touch on children's emotion understanding and socioemotional development is mainly relevant for children when the experience of parental touch is harsh or in extreme cases of neglect. Future research should further investigate the relation between parents' touch and children's understanding of emotions and socioemotional development.

From social cognitive theory (Bandura, 2005), children develop from observational learning as well as differential treatment. Mothers and fathers use more emotion words with their daughters than with their sons. Thus, girls are given more opportunities to practice communicating emotions. From performing such behaviours and engaging with their parents in a more emotionally rich manner, girls may become more comfortable than boys in verbal displays of emotion. Moreover, such patterns may become crystallised. Second, mothers are more physically affectionate with their children than are fathers. Hence, these results suggest that children learn both verbally and non-verbally that women show more affection than men and that it is more appropriate for women than for men to express and to receive affection. Therefore children learn that it is expected for men and women to behave differently and to relate to their emotions differently.

Finally, findings on both parents' emotion talk and touch, suggest that mothers and fathers might have a distinct influence on the process of children's understanding of emotions, and moreover that mothers and fathers have a distinct influence on emotion

socialization of girls and boys. These findings are consistent with previous research (Denham et al., 2010; McElwain, Halberstadt, &Vollin, 2007; Zeman et al., 2010). For example, Zeman et al. (2010) found that mothers' and fathers' influence on children's socialization of anger and sadness is different. Fathers used more control when discussing sadness than did mothers, whereas mothers were more directive than fathers when discussing anger. One reason for the different influence of mothers and fathers on children's socialization of emotions might be the different roles that men and women hold. For example, Starrels (1994) found that mothers' main role is to provide affection whereas fathers' role is disciplinary. These differences might imply that the relationship between mothers and fathers and their children is different, and that the manner of relating to emotions that children learn from women and men is also different. In further support of this notion, McElwain et al. (2007) found that children's ability to regulate emotions was better when fathers and mothers differed in their way of responding to their children's emotions than when mothers and fathers reacted to their children's expressions of emotions in a similar way. Finally, Denham et al. (2010) found that fathers mentioned a higher number of emotions words to their three- and four-year-old daughters than to their sons, whereas there was no gender difference in maternal emotion talk. In addition, fathers talked more about others' emotions and the child's emotions than did mothers. More research is needed to establish if the distinct influence of mothers and fathers affects all aspects of children's emotion understanding and regulation or if for example, this distinct influence only affects the socialization of specific emotions or specific aspects of children's emotionality.

13.3. Limitations of the Present Study

There are a number of limitations that should be mentioned. First, all participants came from the same socioeconomic group. Research suggests that parents' socioeconomic status plays a significant role in parents' relationship with their children. For example, it has

been found that mothers from low socioeconomic status touched their children more frequently than middle-class mothers (Clay, 1968). In the field of parent-child talk, research indicates that families from working-class backgrounds talk less than families from higher socioeconomic statuses (Hart & Risley, 1992). Finally, research on parent-child emotion talk is not consistent on this topic. Whereas there are studies that have found differences in parental emotion talk depending on socioeconomic status (e.g., Flannagan et al., 1995), others have found no differences (e.g., Dunn et al., 1987). Thus, future research should evaluate the effect of socioeconomic status on parent-child emotion talk. Second, the present research did not investigate other elements of parent-child emotion communication such as tone of voice and facial expressions. Tone of voice and facial expressions are relevant because they are, alongside talk and touch, two channels through which emotions are transmitted. Research suggests that the emotions that are heard (e.g., tone of voice) and seen (e.g., facial expressions) are processed by the same cognitive mechanism (de Gelder & Vroom, 2000). However, the exact way in which parents' emotion talk, parents' physical touch, parents' tone of voice and parents' facial expressions interact in the transmission of emotions has not yet been analyzed. Third, the present research did not investigate other factors that are related to children's emotion understanding such as children's language abilities. Research indicates that the development of children's language is intrinsically linked to the development of children's emotion understanding (Ruffman et al., 2003). Indeed, if language is a tool that represents emotions, it makes sense to assume that those who have better language skills will also have a better understanding of emotions (Pons et al., 2003). The reason why the present study did not measure children's language skills was that children were already asked to perform a considerable number of tasks. Finally, because children's touch did not appear with enough frequency, it was not possible to examine gender or age differences in children's touch.

13.4. Future Research

There are still many areas in the fields of parent-child talk and parent-child touch that merit study. The present study was focused on analyzing parent-child emotion talk which is a direct way of socializing children's emotion understanding. However, there is scant research analyzing indirect factors of socialization of emotions, such as marital conflict, global warmth, hostility, quality of attachment (Zahn-Waxler, 2010) and parental consistency (Brand & Klimes-Dougan, 2010). Through the joint investigation of direct and indirect factors that influence children's socialization of emotions, it might be possible to determine the role that each of these factors has on children' emotion understanding. This understanding, in turn could help to design educational programmes to improve children's emotion understanding.

Within the field of parent-child touch and its relation with children's emotion understanding there are also many aspects that still need to be investigated. Of particular interest is to determine the reason why there are parents who touch their children more frequently than others and also the reason why there are children who are touched more frequently than others. Perhaps there are children that have specific characteristics that make them more "touchable" or perhaps there are parents who are more inclined to touch their children than others.

In sum, the present series of studies furthers the existing research on parent-child emotion talk and parent-child touch and their relation with children's emotion understanding. Of particular relevance is the finding suggesting that mothers and fathers have a different influence on children's socialization of emotions. Given that fathers have become more active in child-rearing, the time has come to increase the scant research on fathers' influence

to begin to understand how different members in a family influence children's sociemotional development.

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Appendix A

Coding schemes review

Findings from the fields of parent-child emotion talk and parent-child touch are not consistent. One of the possible reasons underlying inconsistent results might be that different studies use different coding schemes to assess both parent-child emotion talk and parent-child touch. The present chapter reviews the most recent and relevant coding schemes to give the reader a better sense of these differences.

Overview of emotion words coding across different studies

Operationally defining emotion is difficult. Within parent-child literature, researchers do not agree on how to code emotion talk. For example, some studies count behavioural emotion words as valid (e.g., kiss), whereas others do not. This difference might be one of the causes of conflicting results across different studies. This section will review how twelve researchers have operationalized parent-child emotion talk.

Dunn, Brown and Beardsall (1991). Dunn is one of the more prominent researchers in parent-child emotion talk. In her work, she and colleagues first coded the number of conversational turns. A conversational turn was a reference to one emotional state (e.g., happy). If more than one emotional state was mentioned or if the state was attributed to more than one person, each reference was coded independently. Second, they coded for types of conversational turns (i) a conversational turn in which the speaker used a feeling state term

(e.g., sad, happy), (ii) a conversational turn in which the speaker used a phrase that conveyed a feeling state (e.g., "make a fuss"), and (iii) a conversational turn in which the speaker used an expletive to convey a feeling state (e.g., "yuck!").

Furthermore, conversational turns were also analyzed in terms of: (i)conversational partners (who the speaker was and to whom the turn was addressed), (ii) referent (the person to whom the emotion states were referred to), (iii) theme, (iv) dispute (whether the turn involved a dispute about the action, intentions, beliefs or points of views), (v) causal reference (discussion about causes and consequences of an emotion) and (vi) pragmatic context (the intention of the speaker when referring to that emotion state: self-interest (gain assistance, comfort or meet immediate needs), discussion/pretend (discussion about past events), influencing affect (effort to change other's feelings). Mothers' influencing affect was further coded in terms of (i) control (reinforce socially acceptable behaviour), (ii) discussion/pretend (about past events), and (iii) influencing affect/other (efforts to change child's feelings).

In addition to coding individual turns, whole conversations about feeling states were also coded because in many cases the conversation about an emotion continued over several turns beyond the turn in which it was explicitly mentioned. Conversations were coded in terms of (i) who the speakers were, (ii) the number of conversational turns each speaker made, (iii) whether a dispute occurred in a conversation, and (iv) the appearance of a causal reference.

Behavioural expressions of emotions (e.g., cry, hug, kiss) were not included. The word "nice" was included when referring to liking but excluded when referring to moral sense "good" or when used as an adjective, whereas "like" was only included when referred to enjoyment or dislike but excluded when referred as volition (e.g., "Would you like to have an apple?"). Terms that attributed feeling states to objects (e.g., poor, scary) were included. Internal states about volition, motivation or cognition were not included. Also recorded were the mean length utterance (MLU) and the total talk (the total number of turns between mother and child was counted for each dyad).

Kuebli and Fivush (1992). Fivush is also among the most prominent researchers in the field of parent-child emotion talk. To analyze emotion talk, first she and colleagues identified the total number of emotion words mentioned by the speakers. Next, they categorized the emotion words as: (i) emotional states or reactions, (ii) objects imbued with emotions (e.g., "bad throat"), or (iii) exclamations that can substitute an emotional reaction (e.g., "waaaa"). Third, emotion words were coded as positive or negative. Last, they coded to whom the emotional state was attributed, namely (i) the child, (ii) other, or (iii) the group (e.g., "It was scary").

This coding scheme has several different aspects to that of Dunn et al. (1991). The main difference between them is that whereas Dunn et al. (1991) focused on conversational turns, Kuebli and Fivush (1992) placed the emphasis on identifying emotion words. Overall, Dunn et al.'s (1992) is a more complex coding scheme than Kuebli's and Fivush's (1992).

Kuebli, Butler and Fivush (1995). The coding scheme used in Kuebli et al. (1995) is more complex than Kuebli and Fivush's (1992) previous one. In both coding schemes, they coded the number and type of emotion words. However, in this coding scheme they also categorized emotion behaviours. In addition, they also included emotion words referring to pleasure/displeasure and liking/disliking but excluded moral judgements of others as good/bad, and terms referring to volition and desire (e.g., want, wish, need). The valence of the emotion word was also coded (positive or negative). Emotion words were further coded as labels or explanations. In the case of explanations, they were further coded as (i) cause, (ii) result, (iii) intervention or (iv) elicitation (the speaker requested an explanation about an emotion without giving causal information, e.g., "Why is the girl so excited?").

Like the previous coding scheme, they coded for the person who makes the utterance as well as who initiates the discussion for each emotion: mother or child. Next, they coded for the people to whom the speakers attributed the emotion: (i) emotions attributed to the child (e.g., "You cried"), (ii) emotions attributed to others (e.g., "Your sister cried"), (iii) or emotions shared by the child and others (e.g., "We all cried"). Last, the type of discussion in which these emotional references were mentioned was coded.

Adams, Kuebli, Boyle, and Fivush (1995). The main difference between this coding scheme and Kuebli and Fivush (1992) and Kuebli et al. (1995) is that in this one they also coded variability of emotion words. This is, they analyzed the number of unique emotion words mentioned by the parent and the child for it to serve as an index of the variety and

richness of the participants' emotion language, as opposed to only counting the total number of emotion words. Emotion words were also rated as positive or negative. Next, they coded to whom the emotion was attributed. Also new to this coding scheme, emotion words were grouped into nine mutually exclusive categories. These categories were: sadness, fear, anger, negative evaluation, negative state, positive evaluation, positive state, affection (e.g., hug, kiss), and other (e.g., fierce, brave). Last, mother and child talk was coded for: (i) unelaborated comments about emotions, (ii) explanations about causes and consequences of emotion, or (iii) empathy-related statements (e.g., "Poor little girl").

Fivush, Brotman, Buckner, and Goodman (2000). The main difference between this coding scheme and Fivush's previous ones (Adams et al., 1995; Kuebli & Fivush, 1992; Kuebli et al., 1995) but similar to Dunn et al.'s (1991), is that in this case they identified emotional narratives. An emotional narrative was considered as three or more emotional turns about an event. Narratives were rated as happy, sad, angry, or scared. An alternative category was disagreement (e.g., "You were happy", "I was not happy. I was sad"), which were excluded from analyses because they could not be considered as a shared experience. A sentence was considered an emotional utterance even if no emotion word was explicitly mentioned. (e.g., "Were you sad?" "Yes and so was Sally"). In these cases, both sentences were counted as emotion utterances. Finally, they identified the number of explicit emotion words and the overall theme (interpersonal or autonomous) of the conversation.

Denham and Auerbach (1995). Denham is another prominent researcher in the emotion talk field. Denham and Auerbach (1995) coding system was based on Denham, Cook, and Zoller (1992) and Zahn-Waxler, Ridgeway, Denham, Usher, and Cole (1993). Emotion words were coded for (i) emotion states, (ii) behavioural expressions of emotions (opposed to Dunn et al., 1991 and Kuebli & Fivush, 1992), and (iii) valence (positive or negative). The function of emotion utterances was also coded. In cases where an utterance served more than one function, it was double coded. They were five possible functions: commenting, explaining or clarifying, questioning, invoking emotions to guide behaviour and socialization of emotion. Finally, the type of utterance was coded (based on Izard, 1971).

Garner, Carlson Jones, Gaddy, and Rennie (1997). Garner, Carlson Jones, Gaddy, and Rennie's (1997) coding scheme is quite simple as there are many variables (e.g., variability of emotion words, target of the emotion word, or conversational turns) included in other coding schemes that they did not analyze. They analyzed mothers' and children's emotion talk by coding their (i) unelaborated comments about emotions, (ii) explanations about causes and consequences of emotions, and (iii) empathy-related statements (e.g., "Poor little girl").

Cervantes and Callanan (1998). Two coding schemes were created by Cervantes (1998), one in 1998 and another one in 2002. The main difference between the two of them is that in Cervantes (1998), she created nine categories of emotion words (pleasure, affection, surprise, fear, distress, concern, indifference, anger, and dislike) whereas in her latter one she

created ten emotion categories (she added provocation/annoyance). Also in her latter one, she categorized emotion noises and behaviours whereas she did not do it in the 1998 coding scheme. In both coding schemes "like" was counted as an emotion word when used to convey a feeling (e.g., "I like that dog") but not when used as a desire (e.g., "I would like to eat that cake"). The final difference is that in her latter scheme she added a new type of explanation: elicitation. Overall, her latter coding scheme is more elaborated than her previous one.

Furthermore, they categorized emotion words as labels (utterances or questions about an emotion without reference to any causal relationship) or explanations (utterances or questions about an emotions giving or requesting a causal relationship). An emotional utterance was considered as an explanation if it was linked by a causal connector (e.g., because), a lexical causative (e.g., make), or linked without any causal connector (e.g., "The boy is sad. His dog ran away"). Explanations were further categorized as (i) causes (e.g., "The girl is sad because his dog died"), (ii) results (e.g., "Mum we can't go to sleep. We miss our dog so much"), or (iii) interventions (e.g., "He is sad that the dog died, let's go and buy another one" or e.g., "Don't be sad, why don't we play a game").

Cervantes (2002). In her second coding scheme Cervantes (2002) coded emotion words as labels or explanations. There were four types of explanations: (i) cause, (ii) result, (iii) intervention and (iv) elicitation (the speaker requested an explanation about an emotion without giving causal information, e.g., "Why is the girl so excited?"). Second, both emotion labels and explanations were coded in terms of their emotional valence: positive or negative.

Third, emotion references were categorized as either emotion words or sounds effects. Finally, emotion references were also coded based on their themes. These themes were: pleasure/liking, surprise, affection, concern, distress, fear, anger/frustration, provocation/annoyance, dislike/disgust, and indifference /courage.

Melzi and Fernandez (2004). Melzi and Fernandez's (2004) coding scheme is based on Dunn et al., (1992). Emotion words were coded according to three categories: (i) type of emotion (emotional states, emotional behaviours, and references to affect-laden behaviours, e.g., "Did you like the toy?"), (ii) valence of the emotion and (iii) the speaker who mentioned the emotion word. The emotion discourse was coded into three categories: (i) single utterance references, elaborated references or explanatory discussions. First, single utterances were categorized as (i) attributions, (e.g., "We had fun at the beach, right?"), (ii) comments (e.g., "Something funny happened when we went to the beach"), and (iii) mnemonic cues, (e.g., "What did you like about the beach?"). Those emotion discourses that were considered as elaborated references (at least one turn per participant) were further coded into three types: (i) confirmation of attributions (the speaker attributes an emotional state to someone and the partner confirms it without further discussion), (ii) negation of attributions (the speaker attributes an emotion to someone else and the partner denies the attribution) and (iii) expansions of attributions (the partner expands on the attribution made by the speaker without giving any causal explanations). Finally, explanatory discussions involved several turns and included multiple emotion words.

Laible (2004). Laible's (2004) coding scheme is based on those of Dunn and Munn, (1987); Fivush and Fromhoff (1988); Kuebli et al.(1995),and Laible and Thompson, (2000). Mother-child conversations were coded according to three criteria: (i) references to emotions, (ii) maternal elaborative style in which conversations were rated on a 5-point scale (1=low, 5=high), iii) clarity of maternal discourse rated on a 5-point scale (1=low, 5=high). Because the length of the conversations varied, the conversations were corrected based on the number of conversational turns. Scores reflected the number of turns that contain an emotional reference.

Tenenbaum, Ford, and Alkhedairy (2011). Tenenbaum Ford, and Alkhedairy's (2011) coding scheme was based on Cervantes and Callanan (1998).

In sum, this review on parent-child emotion talk coding schemes illustrates that each coding scheme is different. Even the same authors use different coding schemes in their different studies. However, it is also true that most schemes contain similar coding elements. Note that because each coding scheme is different, it is difficult to compare results from different studies. As a result, the existing conclusions in the field of parent-child emotion talk must be carefully considered. Perhaps the moment has arrived to create a unified parent-child emotion talk coding scheme.

Present Research's Emotion Talk Coding Scheme

For each transcript, mother's, father's and child's emotion utterances were identified. Emotion utterances were coded for the following: total number of emotion words, theme of emotion word, emotion labels versus emotion explanations, emotion behaviours and emotion sounds, valence of the emotion utterance, statement versus question, participant who uttered the emotion word, target of the emotion utterance, number of unique emotion words, total number of utterances, and total length of the conversation.

Total number of emotion words. The total number of emotion words that mothers, fathers, and children mentioned during the conversations were counted.

Theme of the emotion words. These words were divided into themes, which included sadness, (e.g., sad, miss, upset), happiness (e.g., happy, fun, cheer up), anger (e.g., angry, mad), jealousy (e.g., jealous, envious), pride (e.g., proud), affection (e.g., love, affection), concern (e.g., worried, concerned), fear (e.g., afraid, scared, scary, frighten), dislike (e.g., do not like, distaste, hate), surprise, indifference (e.g., do not mind, do not care), distress, excitement, and embarrassment. "Like" was included when used to convey an emotion (e.g., "I like that dog") but not when it was used as a desire (e.g., "I would like to have that cake"). "Nice" was included when referred to liking but excluded when used as an attribution. Terms referring to volition and desire (e.g., want, wish, and need) were excluded.

Emotion labels versus emotion explanations. Labels were those emotion references that refer to an emotion or ask about an emotion without including a causal relationship (e.g., "My brother is very sad"). Explanations were those emotion references that make a statement about an emotion including a causal relationship (e.g., "My brother is very sad because his best friend hit him"). Emotion words were also considered explanations if there was a causal link (e.g., "My brother is very sad because his best friend hit him"), a lexical causative (e.g.,

"My brother's friend made him very sad when he hit him) or if there was no explicit causal link but the utterances were adjacent and were considered to be semantically causal (e.g., "My brother is very sad. His best friend hit him"). This criterion is based on Bloom and Capatides (1987).

Emotion behaviours and emotion sounds. There were four categories of emotion behaviours which included hit (e.g., hit, punch, push, bite, slap), kiss (e.g., kiss, hug, hold hands, tickle, stroke), cry, and laugh. There were two categories of emotion noises: "gua" (cry) and "mua" (kiss).

Emotional valence. Emotion utterances were categorized as positive (e.g., happy, excited), or negative (e.g., sad, angry).

Participant who uttered the emotion word. Whether the mother, father or the child spoke the utterances was recorded.

Target of the emotion utterance. To whom the emotion utterance made reference was recorded. There were four categories which included the child (the speaker attributes an emotion to the child), the parent (the speaker attributes an emotion to the parent), other person (the speaker attributes an emotion to a person other than the child or the parent, e.g., "Your brother was happy"), and shared (the emotion was shared by the child and one or more individuals, e.g., "We were all very happy" or "It was very scary"). This coding was only conducted in the events task because in the plastic house task, participants only referred to the characters' emotions.

Statement versus question. Whether the emotion word was part of a statement (e.g., "You were very embarrassed the first day of school") or part of a question (e.g., "Were you embarrassed the first day of school?) was coded.

Number of unique emotion words. The number of unique emotion words that mother, father, and child made during the conversation was calculated. The aim was to analyze whether participants made reference to a wide range of different emotions words or if on the contrary, they repeated the same variety of emotion words.

Total number of utterances. The number of total utterances made by mother, father and child was recorded.

Total length of the conversation. The duration of the conversations was analyzed.

Appendix B

Overview of touch coding schemes across different studies

It is not easy to define touch. Not only is the literature available on parent-child touch, scarce, even the existing literature is not consistent in defining physical touch. Different studies use different coding schemes; this might be one of the causes behind the conflicting results found across studies. This section will review seven different coding schemes. Notice that this review is focused only on observational touch coding schemes. Other coding schemes used in paradigms such as the Still Face were not included.

Kaye and Fogel (1980). Kaye and Fogel (1980) analyzed mother and child face to face communication. Both infants' and mothers' communication were coded in terms of their (i) head orientation, (ii) eye quality, and (iii) facial expression, and various touching categories including (iv) "touch" defined as "any touch, stroke, poke or jiggle", (v) "touching" defined as "bursts of touches less than two seconds", and (vi) changing baby's position. The main limitation of this coding scheme is that it simply records total number of touches but it does not code types or touch nor the total duration of touch.

Weinberg and Tronick (1994). This coding scheme is more complex than that of Kaye and Fogel (1980) because it analyzes total amount of touch as well as types of touch. They coded six types of touch: stroke, rhythmic touch, hold, tickle, kiss, and poke/pinch.

Feldman (1998). Feldman (1998) created the Coding Interactive Behaviour Manual (CIB). It measures global parent-child interaction. There are three versions: for newborn, for infants and for toddlers. It includes 42 codes: 21 for parents, 16 for infants and 5 for dyads, rated on a scale ranging from low = 1 to high = 5.

Stack, Le Page, Hains and Muir (1996). Stack, Le Page, Hains, and Muir (1996) created the Caregiver Infant Touch Scale (CITS). They coded six types of maternal touch: (i) static, (ii) stroke/ rub/ caress/ massage, (iii) pat/ tap, grab/ squeeze/ pinch, (iv) tickle/ finger-walk/ prod/ poke/ push, shake/ wiggle, (v) pull/ *lift/ flexion/ clap, (vi) and other (kiss, rock,* posture change, adjusting clothes, bounce, touching with toys). They recorded touch every one second interval. Mothers' touch had to last a minimum of 0.5 seconds to be coded as touch. The aim of this scale and its main difference with other coding schemes was to go beyond simply measuring the duration and frequency of touch, to measure its quality and parameters.

Moszkovsky and Stack (2007). Moszkovsky and Stack (2007) created the Infant Touch Scale (ITS). The main novelty of this coding scheme is that it adds the coding of location of touch and it is not only focused on mothers' touch but also it measures child's touch. First, it measures seven types of touch: (i) static touch, (ii) rub/caress/wipe/stroke, (iii) grasp/clutch/clasp, (iv) finger/ manipulate/ scrumble/poke/ prod, (v) mouth, (vi) pat/tap, and (vii) pull/ push/ lift. It also measures location of child's self touch: (i) face, (ii) head, (iii) neck area and mouth, (iv) arm, feet and leg and (v) trunk. Third, it recorded child's touch of his or her mother as well as of other objects. They also created The Function of Infants Touch Scale (FITS) which rates each touch recorded in the ITS from a communication perspective. There are two published versions of the FITS, one measures eight types of touch (Moszkovsky, Stack, & Chiarella, 2009) and the other one measures eleven types of touch (Moszkovsky et al., 2009): (i) intense play, (ii) light play, (iii) passive play, (iv) quiet

acceptance, (v) soothing regulatory, (vi) reactive- regulatory/attention-seeking, (vii) exploratory, (viii) regulatory exploratory, (ix) dysregulated, (x) partial engaged and (xi) disengaged.

Jean and Stack (2009). In another coding scheme, Jean and Stack (2009) created the Functions of Touch Scale (FTS). It is an observational coding scheme in which each second of the mother-child interaction is coded. Nine types of touch were coded: (i) passive accompaniment (static touch happens alongside another form of communication), (ii) active accompaniment (active touch happens alongside another form of communication), (iii) nurturing, (iv) playful, (v) attention getting, (vi) accidental, (vii) utilitarian, (viii) harsh or negative, and (ix) unspecified function. It records both, types of touch and duration of each type of touch. This coding scheme differs from others in that it aims to obtain a holistic view or mother-child touch, therefore it also measures variables such as verbalizations, infants' emotional displays and attention, and maternal affect.

Weiss, Wilson, St. John Seed, and Paul (2001). Weiss, Wilson, St. John Seed, and Paul (2001) created the Tactile Interaction Index. They coded 28 different types of touch between mothers and infants.

Hertenstein (2002). He analyzes touch in terms of its: (i) location, (ii) duration, (iii) frequency, (iv) extent of area touched, (v) action (specific type of touch used), (vi) intensity (degree of pressure applied in the touch), (vii) abruptness (acceleration or deceleration used to touch), (viii) and temperature of the mothers' skin. Overall, this coding scheme is more complex than those of Stack and Tronick as it codes a higher number of variables.

In summary, this review of the different coding schemes on touch aims to illustrate that coding schemes on touch are not only scarce but inconsistent. Perhaps the time has come to create a unified parent-child touch coding scheme.

Present Research Physical Touch Coding Scheme

First, the distance between parent and child was calculated for both tasks. There were three levels of proximity, which were coded as child on parent's lap, child and parent less than one foot apart, and child and parent more than three feet apart. To calculate the total degree of proximity, the time in seconds that parent and children spent at each one of these three distances were added together. They were then divided by the total duration of the interaction for a proportion score.

Second, each type of specific touch between parent and child was recorded and analyzed. Parents' and children's touch had to be intentional for it to be recorded. Accidental touching was not recorded. For each touch three variables were analyzed.

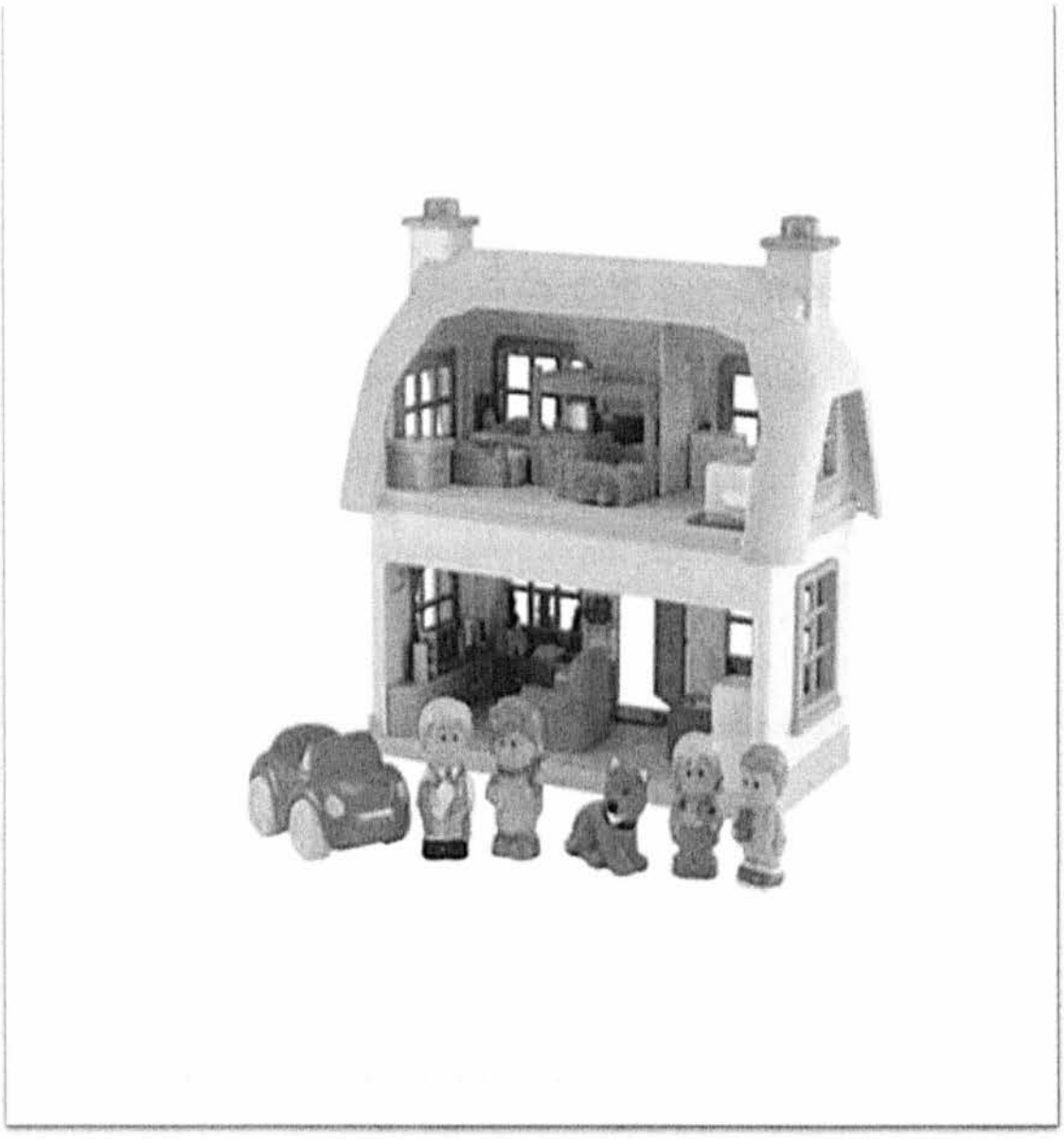
Person who initiates the touch. It was recorded whether the parent or the child initiated the touch.

Type of touch. Twelve types of touch were recorded which were stroke, rhythmic, hold, tickle, kiss, poke, pinch, hold hands, hug, demonstrate, rest and aimful (based on Tronick, 1995).

Location of touch. Six locations of touch were recorded which were head, face, arm, hand, whole body, and other.

Appendix C

Storytelling Task



Appendix D

Test of Behavioural Consequences of Emotions (TBCE)

1. Cristina sees a group of girls that are playing. She feels very happy because she loves playing with other girls. What will she do?
   a. She will join them.
   b. She will go home
   c. She will run
2. Carlota is playing with her friend. Her friend is eating chocolate. Carlota is jealous because she does not have any chocolate. What will she do?
   a. She will continue playing
   b. She will ask her friend to give her some chocolate
   c. She will go home
3. Marta is very sad because her dog died. What will Marta do?
   a. She will go to the park
   b. She will sing a song
   c. She will cry
4. Ana respects very much the headmistress of her school. What will Ana do when the headmistress greets her in the morning?
   a. She will shake the headmistress' hand and say good morning
   b. She will kick the headmistress

c. She will sing a song when she gets to the school

5. Blanca is very proud of herself because she won a merit at school for doing well in a test. What will Blanca do when her mother picks her up?

   a. She will not show her mum the merit

   b. She will show her mum the merit

   c. She will tell her mum what she had for lunch

6. Alejandra is afraid of dogs. She sees a dog in the street. What will Alejandra do?

   a. She will pat the dog

   b. She will laugh

   c. She will run away from the dog

7. Teresa is playing with her little sister. She loves her sister very much. What will she do?

   a. She will hug her sister

   b. She will hit her sister

   c. She will continue playing

8. Marina is very angry because her sister broke her favourite toy. What will Marina do?

   a. She will continue playing

   b. She will kiss her sister

   c. She will hit her sister

9. After a while Marina feels bad for hitting her sister. What will she do?

   a. She will say sorry to her sister

   b. She will hit her again

   c. She will continue playing

10. Beatriz is very excited because she is going to her best friends' birthday party.

    She is waiting for her mother to take her. What will Beatriz do?

    a. She will watch T.V.

    b. She will tell her mother to hurry up

    c. She will cry

Appendix E

Example of a transcript

Ines with her mother

Storytelling task

CH I am here

CH We are going to go away for a night

CH Can you take care of the kids?

CH Of course

M How nice are the grandparents!

CH Yes

M Are the children happy?

M Ines?

M Do they mind that the parents are leaving?

M Ines?

CH They don't mind

M They don't mind?

CH Children!

CH take care of the dog

CH Take care of the dog

M Say it louder because I can't hear you

CH He ran away

M He ran away

M He ran away

CH Aaaauuuuuu

M What happened?

M What is his name?

CH Perico

M Perico

CH Grandma!

CH Perico fell down

M Let me see

M I can't see it

CH I am taking to you to have a bath

CH Let's see if the pain goes away

M Who is taking him?

M Grandma?

CH Grandma

M How nice is Grandma

M These children are happy, right?

M You are not happy when mummy and daddy leave, right?

CH No

M These children are very good

CH I am going to prepare dinner

CH In the meantime you can watch TV

M Is grandpa preparing dinner?

CH yes

M Does he know how to cook?

M And what is he preparing?

CH Sauce

M Sauce

M And the child that fall down is OK?

CH The same

M The same

CH I am going to watch TV

M And shouldn't you check on your brother?

M To see if he is OK or not?

CH Wait

M Wait

CH Grandpa can I check on Perico?

CH Yes

CH Grandma Perico is fine

CH Go to bed

CH I am going to take him once he is alright

CH OK

M And he goes to bed

M This girls is really good

M She is very obedient

M Very obedient

CH Because you told her to go to bed

CH She had to have dinner

M She has not eaten yet

CH It doesn't matter

M It doesn't matter

CH They were very tired

M This is grandma

M The one that talks like this

CH Yes

M Ok

CH You are going to pee

M But let me see

M Ines

M Who is going to pee?

M Grandpa?

M It is Perico before going to bed

CH Grandpa

M And what else?

CH I am going to call someone

CH Because the mummy said that we had to call her if something happened

CH I am going to tell them what happened

M Are you going to tell them what happened?

M Where is the phone?

M She is going to tell them

CH Perico fell down

CH Come back

CH Of course

CH OK

CH Grandma I am leaving

Ch You take care of them

M Are the parents coming?

CH Of course

M OK

M Come here

CH Who is it?

CH Can I stay?

M Grandpa is staying

M Come back

M He has decided to stay

M Let me see

M Turn around

M Like this

CH OK

CH I am also going to bed

M Are the parents coming back?

CH Of course they are coming

M Ok

CH Are you better Perico?

CH Yes

CH I am taking you to bed

CH I am also going to bed

M Where is the dog?

M He ran away

CH It's us

M And now they are going to tell them that the dog ran away

CH They will see it

M They will see it

CH The children turn the TV on

CH Grandma!

CH grandpa!

CH Why have you let them turn on the TV?

CH Because they wanted to

CH Now I am going to wake them up

M I think we are done

M The parents are back

CH No

CH The parents are not back

M But the dog ran away

M They will have to look for it

CH Where is the dog?

M Where is the dog?

CH I am going to look for it

M I found it

CH I found it

M And then?

CH I have finished

M Have you?

M The parents are back

M The grandparents go back to their house?

CH Yes

CH And now can we sleep in this bed?

M They have to say goodbye

M And they thank them for taking care of the children

CH No

M Why not?

CH The dog sleeps in the bathtub

M In the bathtub?

M We have finished

Events task

CH OK

CH A visit to the zoo

M This is the first one

M Calm down

M Calm down

M A visit to the doctor

M Don't do that

M Sit down properly

Ch In Madrid

M In Madrid?

M Sit down properly

CH When we saw dolphins

M OK

M We haven't been to the zoo in Madrid

M We have been to Battersea zoo

CH That was before

M That was before

M But the dolphins

M Where did we see dolphins?

M I can't remember

CH In Madrid

M That is right

M Last year

M That is right

M We went to the zoo

M Blanca came with us

M She behaved very badly

CH Yes

M Sit down properly

M Do you remember that Blanca came with us?

M We saw dolphins

CH No

CH We saw elephants and bears

M Yes

M We went with them

M We saw the dolphins

M Do you remember about it?

CH Yes

M What did you liked best the dolphins or the ponies?

M At the end you didn't ride

CH Yes

M Only Belen did

M Did you ride?

CH Yes

M Did you like the pony?

CH I liked the pony best

M More

M Sit down

CH She had to stop to poo

M to poo

M Did you like that?

CH Yes

M She stopped for a long time

M I can't remember

CH I remember the names

M What were their names?

CH Barrita

M Are you sure?

CH Barrita and Pana

M Is that the one you rode?

M And Belen?

CH Belen rode on Pana

M Did you like the dolphins?

M It was fun

CH Yes

CH I liked it but

M It was very hot

CH Yes

CH And it was boring just looking

M Was it boring?

M Did you want to swim?

CH Yes

M We'll tell them next time

CH No

M Why not?

M Didn't you want to swim?

CH No

M Are you afraid to do it?

CH Yes

M Why?

M They say they are very good

CH I don't mind

M You don't mind

M What else did you see in the zoo?

CH Penguins

M What else

CH Flamingos

M Flamingos

M Are you sure

CH Yes

M I can't remember

M Which one was the one that you liked best?

CH Penguin

M Blanca behaved really badly

M She didn't sleep

M She cried a lot

M And she behaved very bad

M Do you want to go back to the zoo?

CH Yes

CH But it is far

M Which one did you like best Battersea or Madrid?

CH Battersea

M Battersea is cooler

M Battersea is smaller

CH No

CH It is much bigger

M OK

M Now this

CH Mum

CH Look my stickers

M I have seen them

M Come

M Which one do you want to do now?

CH A visit to the doctor

M Speak properly

M A visit to the doctor

CH Should we talk about the wart?

M that is not a doctor

M that is a podologist

M A man that takes care of feet

M But it is OK

M The last time you went with your father

M You are not scared any more, right?

CH I don't mind

M Does it hurt?

CH No

M What does he do?

M I have been with you

CH It doesn't hurt

M But what does he do?

CH I lie down

CH He looks at my foot

CH And he takes the plaster off

CH And he takes off a bit with a special thing

M And he puts a liquid

CH Yes

M And you are not afraid?

CH No

M Do you prefer mum or dad to take you?

CH Dad

M I haven't take you in a while

M You are never sick

M We are going to go in Madrid to check this

M I want the doctor to have a look at your hand

CH But he doesn't have to take it off

M Maybe

M You are hurting yourself

M You don't mind going to the doctor?

M This one is finished

CH The last time I fell down

M When was that?

M I can't remember

CH In Tenerife

M Did you fall in Tenerife?

M But when?

CH We were playing in the monkey bars

M There weren't any

CH Yes

M In the park

CH Yes

M But I was there

CH No

M Who was you with?

CH With Dad and Dolores

M Where was I?

CH I think you were buying a watch

M Buying a watch?

CH Some dresses

M I didn't buy anything in Tenerife

M Well I wasn't there

CH I think you were resting by the pool

M Resting

M And you fall down

CH Because my hands were slippery

M Slippery

M And you fell down

M And you hurt yourself

CH Yes

CH In the forehead and in the bottom

M You didn't tell me about it

M It didn't hurt that much

M Because you didn't tell me

CH It did

M And who helped you?

CH No one

M So you were ok

CH Yes

M It wasn't that bad

CH Can we watch the video

M No

M We still have one

M Your first day of school

M Tell me about it

CH I remember

M I don't

CH I was

M come here

M In Pippa or in Redcliffe?

CH In Redcliffe

M Redcliffe

CH They told my name to all the children

CH My name is Ines

M But you said it or was it Miss Watts?

CH No

CH Miss Owen

M In nursery with miss Owen

M Did she say your name?

CH She did

M She told your name to the children?

CH Yes

M Were you embarrassed?

CH Si

M A bit

CH Yes

M Why?

M Why were you embarrassed?

CH Because I thought the people were bad

M The children were bad?

CH Yes

M Why?

CH I don't know

CH But now I have a very good time

M You have a very good time

M Because you didn't know them

M And ana was there

CH Yes

M She was there

CH Yes

M And you make friends?

CH Yes

CH It took me a few days

M And the first day you went to the playground?

CH Yes

M And you have fun?

CH Yes

M And did you like the teacher?

CH Yes

M Miss Owen

CH Miss Owen

M She is not in the school anymore

M And miss Dobson

CH Yes

CH And that one that speaks Spanish

M I can't remember

M And which teacher did you like the best?

M Chich one did you love the most?

CH The one that speaks Spanish

M The one that speaks Spanish

M We can't remember the name

M And was it a long day

CH Yes

M And you wanted me to pick you up

CH Yes

M Why?

M You have fun at school right?

CH Yes

M But you were tired

CH Yes

M But you liked it?

CH Yes

M The first day

CH Yes

M Let's call Ana

Ines with her father

Events task

F Let's start with this one

F Don't bite your nails

F Don't put your feet on the table

F Tell me about the zoo

F Yes

F Tell me

F Say yes

CH yes

F When did you go to the zoo?

CH In Madrid

F That's right

F We went together

F I remember

F When was that?

F Do you remember?

CH Yes

F It was this year

F And we have pictures

F I remember

F What did you see?

F No

F When was that?

F In Easter

CH Yes

F How was the day?

CH It was sunny

CH And it was cold

F Why do you put the voice like that?

F It was cold and sunny

F But it was very sunny

CH Yes

F What did we do?

F What did we see?

CH Dolphins, penguins

F Dolphins, penguins

F How was it?

F What were the dolphins doing?

CH They

F Were in the pool

F What were they doing?

CH Jumping

F What else

CH There was a boat

F A boat

CH Yes

CH The dolphins were pulling a boat

F I can't remember that

F What else did we see

CH Flamingos, ducks

F Who did we see at the entrance?

F Don't you remember that we saw a friend of your mother?

CH Yes

F She was with her children

CH Yes

F What else?

F Did you ride or was it only Belen?

CH I did

F In ponies

F And we have pictures

CH Yes

F Do you want to go another day?

CH Yes

F In Madrid

CH The only thing is that it took very long

F It didn't take long

CH Yes

CH It took us long to get there

F It is close to home like Chinchon

F What did it happened?

F Did Blanca come?

CH Yes

F And who else?

CH Ana and Luis

F That is true

F They came

F I didn't remember

F And what is the name of their daughter?

F It is not Sophia

CH yes

F Is it Sofia?

F OK

F And next time do you want to go with them?

CH I would change friend

F OK

F We have finished talking about the zoo

CH Yes

F Lets see

F Tell me how was your first day at school this year

CH It went fine

CH Because the teacher

F Speak louder

CH It went well because the teacher was very good

F The one that you have now

CH Yes

F What is her name?

CH Miss Owen

F What did you do?

CH We started our

F Your?

CH

F What is that?

CH It is a rectangle with a few circles

CH And you put stars on it

CH Once you have finished you get a surprise

F You didn't do homework on the first day?

F You didn't have homework

CH No

F Was the first day more fun than the rest of the days?

CH The same

F Were there any new children?

CH No

F You are the same ones as last year

CH Yes

F There were no new children

CH No

CH But there was one today

F Was there a new child today?

F Why?

F What was his name?

CH Annabel

F Annabel

F It is a girl

CH Yes

F OK

F And what did you like best the first day or a normal day?

CH The first day

F And did you want to go to school or did you want to be on holidays a bit more?

Ch Holidays

F You wanted to stay on holidays

F You did not want to go to school?

CH No

F OK

F Let's talk now about a visit to the doctor

F When was the last time that you went to the doctor?

F That is not a doctor

F Well OK

F Tell me about it

CH Last week

F Exactly

F We have to go back next week

CH Yes

F Why did you go?

CH Because I have a wart

F You have a wart in your foot

F Is the wart still there?

F What did you tell the doctor?

CH That I had a wart

F I explained him that

CH Yes

CH They put a liquid and some plasters

F And what did he tell you to do?

CH Not to wet it in two days

CH And to change the plasters

F And why don't you have it now?

F Don't touch it

F Don't touch your feet

F Don't touch it

CH Because in swimming today the plaster fell off

F And did it hurt?

CH No

F No

F How long did it take?

CH A minute

F A minute

F Do you remember anything else?

CH No

F Did he tell you why was your skin so bad?

CH No

F Yes he did

F He told me

F I explained him

CH Because I don't want to put cream on

F That is right

F And because of the London water

F Is that right?

CH Yes

F OK

F Now we have to talk about something else

F When was the last time you fall down?

CH In Tenerife

F Where did you fall down?

CH I was climbing

CH And I fell down

F I can't remember

F You didn't fall down with the bike

F I don't think you fall down

CH no

F You haven't fall down with the bike

CH not one

F You ride very well in the bike

F The last time was in Tenerife

CH Yes

F That was a long time ago

CH Yes

F You haven't fall down since then

CH No

F That was in Easter

Ch It doesn't matter

F How was the fall?

CH I was holding something

CH My hands were very slippery

Ch And I fall down

F And where did it hurt?

CH In the bottom and in the forehead

F In the bottom and in the forehead

F Where else?

CH In the forehead

F Yes

F I can't remember

F What do you have to do not to fall down again?

CH Don't do that again

F Don't play around

CH Yes

F That is what dad always tells you

Storytelling task

F How does the story continue?

CH I don't know

F The parents have to go away

F They are not here

CH But first what do we have to do?

F They have already gone

F They have left

CH Now the dog runs away

F The dog runs away

F He is not there

CH The boy falls down

Ch He hurts himself

F The boy is lying down here

F He is crying

CH wuuuuuaaaaaaa

F And now how does the story continue?

F What can you think of?

CH The girl tells the grandparents that the boy has fallen down

F Grandma!

F Perico fell down

F The boy is Perico

F Perico has fallen down

F He is crying

CH wuuuuuaaaaaaa

F You move them

CH Perico stand up

F Talk properly

CH Grandmothers talk like this

CH Perico stand up

F He is crying

CH Let's go to have a bath

F He is going to have a bath to see if the pain goes away

F We forgot about the dog

CH Yes

F What happens now?

CH Dadddyyyy

F Is he the grandfather?

CH Grandpa!

CH Where is the dog?

CH I don't know

CH Ask grandma

CH Where is the dog?

CH I don't know

CH Ask your grandpa

CH I already did

CH He has ran away

CH I am going to look for it

F We need to find him

F What happens next?

F The brother is there

CH Very well

F He is going to drown in the bath

CH No

F Should we put him here?

F He is better now

CH Now I am going to look for the dog

F On your own

F The girl went on her own to look for the dog

CH This is a mistery

F Where is the dog?

CH I am going to watch TV

F The girl left

CH Has she find the dog?

F The TV

F She found the dog

CH Yes

F And the parents come back

CH Yes

F But first the dog

CH I have found the dog

CH I have found the dog

F That is great

CH Now we need to go home

CH Grandma I have found the dog

CH Fantastic

CH Ana

F And does the boy get better?

F Perico is better

F Is he crying?

CH I am going to make dinner

F Dinner

CH Yes

F Dinner

F And are the parents coming back?

CH Yes

CH Children we are here!

CH Mum!

CH Dad!

CH The dog ran away

CH I found him

F And the boy is now fine

CH And also Perico fell down

CH And he is with grandma in the bathroom

CH And grandpa is cooking dinner

F Grandpa!

F Dinner is ready

CH Yes

F And now we have finished the story

CH Yes

F We have finished

F Very well