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Blaise Pierrehumbert, Maria Pia Santelices, Margarita Ibáñez, Maika Alberdi, Barbara Ongari, Isabelle Roskam, Marie Stievenart, Rosario Spencer, Andrés Fresno Rodríguez and Ayala Borghini  
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# Gender and Attachment Representations in the Preschool Years

## Comparisons Between Five Countries

Blaise Pierrehumbert

*Université de Lausanne*

Maria Pia Santelices

*Pontificia Universidad Católica de Chile*

Margarita Ibáñez

Maika Alberdi

*Hopital Universitario San Juan de Dios*

Barbara Ongari

*Università di Trento*

Isabelle Roskam

Marie Stievenart

*Université Catholique de Louvain*

Rosario Spencer

*Universidad Católica del Maule*

Andrés Fresno Rodríguez

*Universidad de Talca*

Ayala Borghini

*Université de Lausanne*

Bowlby proposed that the individual's social experiences, as early as in infancy, contribute to the construction of Internal Working Models (IWMs) of attachment, which will later guide the individual's expectations and behaviors in close relationships all along his or her life. The qualitative, individual characteristics of these models reflect the specificity of the individual's early experiences with attachment figures. The attachment literature globally shows that the qualities of IWMs are neither gender specific nor cultural specific. Procedures to evaluate IWMs in adulthood have been well established, based on narrative accounts of childhood experiences. Narrative procedures at earlier ages (e.g., in the preschool years) have been proposed, such as Bretherton's Attachment Story Completion Task (ASCT), to evaluate attachment representations. More than 500 ASCT narratives of preschoolers, coming from five different countries, have been collected, in the perspective of examining possible interactions between gender and culture regarding attachment representations. A specific Q-Sort coding procedure (CCH) has been used to evaluate several dimensions of the narratives. Girls' narratives appeared as systematically more secure than those of same-age boys, whatever their

culture. The magnitude of gender differences, however, varied between countries. Taylor's model of gender-specific responses to stress and Harwood's and Posada's hypothesis on inter-cultural differences regarding caregiving are evoked to understand the differences across gender and countries.

**Keywords:** *attachment; gender; culture; children*

The field of attachment has provided an abundant literature, established on the observation of infants' attachment behaviors as well as on adults' verbal productions concerning attachment relationships. The empirical data have revealed few gender and cultural differences. On the other hand, several studies based on children's verbal and enactive responses to a narrative task with dolls involved in attachment-relevant settings have reported some gender differences. Cultural differences have not been systematically observed. The comparison of studies remains difficult because they used different coding systems. The study presented here, in contrast, displays data from several countries, all based on the same coding system. Its purpose is to examine possible interactions between gender and culture in children's representations about attachment relationships.

## Background

### From Behaviors to Representations: A "Universal" Model

Bowlby (1969/1982, 1973, 1980) proposed the notion of an adaptive universal "attachment behavioral system," which regulates the infant's attachment behavior in relation to the parent. This system is affected by the parent's sensitivity and responsiveness during early interactions, as demonstrated by Mary Ainsworth, paralleling home observations during the first year of life and the infant's behavior observed during the Strange Situation Procedure (SSP; Ainsworth, Blehar, Waters, & Wall, 1978).

In the SSP, the optimal, adaptive secure strategy (the "Secure" pattern of attachment, or the "primary attachment strategy" as described by Bowlby, 1969/1982) refers to a flexible activation and deactivation of the attachment system: An alarming event (i.e., a separation from an attachment figure) provokes an activation of the attachment system, whereas proximity or availability of an attachment figure deactivates this system ("termination"), thereby letting the exploration system be activated. However, if the attachment figure is expected to be unavailable, insensitive, rejecting, interfering, unreliable, or unpredictable, other strategies may be selected (Bowlby's "secondary attachment strategies"). One is to "deactivate" the attachment system, that is, diverting attention away from attachment emotions ("Anxious-avoidant" pattern); another is, conversely, to "hyperactivate" the attachment system, that is, increasing distress manifestations ("Anxious-resistant" pattern).

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Bowlby (1969/1982) suggests that, with development, children internalize the attachment patterns as Internal Working Models (IWMs) of self in relation to the attachment figures. These models include affective and cognitive components. They reflect the subject's expectations regarding caregiving and intimate relationships. The construction of IWMs is affected by the individual's experiences in early relationships, especially his or her experience of sensitive and responsive caregiving (De Wolff & van IJzendoorn, 1997). In addition, Bowlby mentioned emotionally open verbal communication by parents to children as additional contributors to secure attachment relationships in childhood and to working models of attachment. These mental constructions may then serve as guides in social behaviors with caregivers, with peers, and later in adolescence and adulthood, with partners and infants.

IWMs have been firstly evidenced, at a representational level, in the Adult Attachment Interview (AAI; Main & Goldwyn, 1985-1998). The coding of the AAI is not primarily based on childhood attachment experiences but on the way in which the person describes and reflects on these experiences and the effects on his or her current functioning as adult. The AAI identifies the individual's implicit rules to process attachment-related information. Interviews are categorized in one of three main adult attachment classifications. Adults receiving the "Autonomous" category tend to value attachment relationships, to describe their attachment experiences coherently (whether positive or negative), to consider these experiences as important for their emotional development, and show an important capacity to reflect on their own thoughts. Adults categorized as "Dismissing" tend to minimize the importance of attachment in their lives; they may unconvincingly idealize their childhood experiences. "Preoccupied" Adults tend to maximize the importance of attachment; as adults, they are still engrossed and preoccupied with their past experiences and have difficulties to describe them coherently. Autonomous adults are considered as secure whereas adults with Dismissing or Preoccupied classifications are both considered as insecure.

A fourth category of the SSP ("Disorganized") and of the AAI ("Unresolved trauma") is believed to reflect an intermittent collapse of organized strategies of information processing when emotions are concerned (Main & Solomon, 1986).

The notion that IWMs are stable throughout life has been confirmed in one longitudinal study showing a significant correspondence between infants' attachment behaviors and adults' representations (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). There are, however, other studies that failed to provide concordant data (Lewis, Feiring, & Rosenthal, 2000; Zimmermann, Fremmer-Bombik, Spangler, & Grossmann, 1997); adjustments are likely, for example, due to life events related to attachment figures, such as parental separation or death.

### **Internal Working Models of Attachment and Their Evaluation in the Preschool Years**

In their seminal article introducing representational attachment measurements, Main, Kaplan, and Cassidy (1985) presented an adapted version of the "Hansburg Separation Anxiety Test" (SAT), proposed to 6-year-old children; this semistructured projective interview is based on pictures depicting a child experiencing a separation.

Inge Bretherton, supposing that verbal responses (at the SAT) might underestimate the complexity of the preschoolers' attachment representations, devised the Attachment Story

Completion Task (ASCT; Bretherton, Ridgeway, & Cassidy, 1990). The ASCT aims at exploring the characteristics of 3- to 7-year-old children's representations while evoking attachment themes, using a doll-play procedure.

The ASCT (or adaptations) has been cross-validated in several studies using different coding systems, with children's responses to actual separation/reunion episodes, such as in the SSP (e.g., Gloger-Tippelt, Gomille, König, & Vetter, 2002; Solomon, George, & De Jong, 1995), and with the mothers' AAI (e.g., Gloger-Tippelt et al., 2002; Miljkovitch, Pierrehumbert, Bretherton, & Halfon, 2004). These associations seem to support the assumption that story completions reflect the child's working models of self with parents.

The construction of IWMs is assumed to be affected by the experience with caregivers. The caregivers' attitudes may vary according to the child's gender (Leaper, 2002) and to the cultural background (Bornstein, 1991; Harkness & Super, 2002; Hewlett, Lamb, Shannon, Leyendecker, & Schölmerich, 1998; Lamm & Keller, 2007; Pommereau, Malcuit, & Sabatier, 1991; Richman, Miller, & Le Vine, 1992). Therefore, are attachment—and more generally IWMs—gender- and culture-sensitive?

## Attachment and Gender

Mary Ainsworth (Ainsworth et al., 1978), in her original study on 106 Baltimore middle-class families, found no gender differences in the repartition of attachment categories in the SSP. Since then, only very few studies reported gender differences concerning infants' attachment patterns in the SSP. For instance, Williams and Blunk (2003) and Schoppe-Sullivan et al. (2006) found boys more likely to be securely attached than girls (namely to their fathers), and Carlson, Cicchetti, Barnett, and Braunwald (1989) found more frequent disorganized attachment patterns among boys, in a low-income, maltreated sample. Apart these few exceptions, the attachment literature generally considers gender as a nonrelevant contributor to attachment behaviors in infancy.

Concerning the adults' representations of attachment, the stereotypical notion that dismissing attachment would be more characteristic of men's representations whereas enmeshed attachment would be overrepresented in women, did not find support in van IJzendoorn's meta-analysis on more than 2000 subjects (van IJzendoorn & Bakermans-Kranenburg, 1996).

Concerning preschoolers' narratives (ASCT), very few studies reported data about gender. Gloger-Tippelt, using the Düsseldorf Coding System (DCS; Gloger-Tippelt et al., 2002), found no significant correlation between security scores and gender. However, in a sample of divorced families, Gloger-Tippelt and König (2007) found boys (but not girls) from one-parent families to be significantly less secure and more disorganized, as compared with boys from intact families. Some other studies using the ASCT (Page & Bretherton, 2003) found that girls enact social relationships and represent positive interactions between parent and children more often than boys do. The authors, using an adapted version of the ASCT with children in post-divorce families, also found a pattern of gender differences in relation with children's representations of the father figure.

Gender differences have also been found with the MacArthur Story Stem Battery (MSSB; Bretherton & Oppenheim, 2003; Robinson & Mantz-Simmons, 2003; Warren, 2003), a related doll-play procedure containing several story stems similar to those of the ASCT. Several authors reported that girls represent more often prosocial themes and produce more

caring enactments in their narratives than boys do; boys on the contrary tend to create more violent enactments (Oppenheim, Nir, Warren, & Emde, 1997; von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000). von Klitzing, Stadelmann, and Perren (2007) found, in a Swiss sample of normal and of clinical children, that girls present more prosocial themes whereas boys present more aggressive themes; also, girls had higher scores of coherency in the MSSB tasks. Sher-Censor and Oppenheim (2004) found, with the attachment stories of the MSSB, that girls represent competent caregivers more often than boys do. Concerning the intrinsic quality of the narratives, the authors also found that girls tend to produce more elaborated and coherent narratives with better temporal and causal organization than that of boys. Several other studies, also using the MSSB, did not find gender differences in children's narratives (MacFie et al., 1999; Oppenheim, Emde, & Warren, 1997).

Sher-Censor and Oppenheim (2004) suggested that these differences might be linked to gender-related variations in parental style, when dealing with emotional experiences: Parents talk about emotions and elaborate about their causes with girls more than with boys (Zahn-Waxler, Ridgeway, Denham, Usher, & Cole, 1993).

These differences may already be present in early interactions. Several studies on early parent-child interactions (see Leaper, 2002) have suggested that boys are being socialized so as to control their emotions, whereas girls are being encouraged to express a wider range of emotions. Fagot and Hagan (1991) observed, in parent-18-month-old toddler interactions, that sons received more negative comments in response to communication attempts than did daughters. Zahn-Waxler, Cole, and Barrett (1991) noted that girls are more oriented than boys toward interpersonal relationships, emotional experiences, and conflict resolution. Empathy, prosocial reactions, and more broadly, concern for others have been constantly found to be gender-sensitive, girls showing more concern than do boys, as early as the second year of life (Hastings, Zahn-Waxler, Robinson, Usher, & Bridges, 2000).

It remains certainly difficult to disentangle between children's and parents' contributions: Parents may use stereotypical gender responses to their children; however, gender-related variations in the parents' responsiveness to their infant's emotions may also derive from early temperamental differences. Whatever the pathway, gender differences in early interactions would later be reflected in representational models (such as the Internal Working Models of attachment, IWMs, as described by Bowlby, 1980).

The fact that some gender differences emerge in children's attachment narratives is somewhat disconcerting with regard to the literature on infants' and adults' attachment classifications. However, the various studies on children narratives relied on different coding systems, and whether or not gender differences emerge may, in part, be due to particular coding systems: Some assess specific story themes (e.g., prosocial behavior, aggression), others rate the intrinsic qualities of the narrative (e.g., coherence), and these studies often use different story sets (e.g., attachment stories, transgression stories). Therefore, more systematic research is needed to better understand the ways in which gender could contribute to the quality and content of the narratives.

## **Attachment and Culture**

The question of the cultural specificity of attachment behaviors has been discussed among researchers. LeVine and Miller (1990) proposed that cultural differences in infant care practices account for differences that have been observed in response to the Strange

Situation, such as an overrepresentation of the ambivalent-resistant category in Japanese samples (Takahashi, 1986). Rothbaum, Weisz, Pott, Miyake, and Morelli (2000) challenged Bowlby's (1980) "ethnocentric" model which, according to these authors, does not apply, for example, to infant-mother attachment in Japan. In response, several attachment researchers (e.g., Posada, 2001; van IJzendoorn & Sagi, 2001) underlined the strong empirical evidence of the universality of the secure base phenomenon. van IJzendoorn and colleagues (van IJzendoorn & Kroonenberg, 1988, 1990; van IJzendoorn & Sagi, 1999) meta-analyzed a number of studies using the SSP and originating from Africa (Ganda, Dogon, Gusii), Asia (China, Japan), Israel, Western Europe, and the United States. They confirmed that attachment security is characteristic of the majority of infants in any culture. Interestingly, the proportion of the secure categorization in Takahashi's (1986) sample does not differ from that reported in these meta-analyses.

If the secure pattern is modal in all countries (i.e., around two thirds of the subjects), there are indeed some differences between the samples in the repartition of the insecure subcategories (avoidant and resistant). However, in van IJzendoorn and Kroonenberg's (1990) meta-analysis, intracultural (as opposed to intercultural) variations appeared to be quite considerable. In fact, differences because of socioeconomic status (SES; inside a specific country) exceeded the differences between countries, in a proportion of 1.5 (insecure categories overrepresented in low-SES groups). Even if attachment behaviors in the SSP are context sensitive (e.g., SES), the categorization (the secure categorization at least) appears to have a remarkable cross-cultural consistency.

Concerning the adult's representations, van IJzendoorn's meta-analysis of the AAI on 33 studies (van IJzendoorn, & Bakermans-Kranenburg, 1996) concluded that the distribution of AAI classifications was constant across countries (with rare exceptions). Similar to the SSP, the repartition of AAI categories in samples with very low-SES participants significantly differed from normative nonclinical samples (with an overrepresentation of the dismissing category). Seemingly, intracultural differences were as important—or more important—than intercultural differences.

There are no reports available yet about cross-cultural comparisons of children's attachment representations. The ASCT has been used in several countries other than the United States and in different languages other than English (e.g., Gloger-Tippelt et al., 2002 in Germany; Granot & Maysel, 2001 in Israel; Verschuere, Marcoen, & Schoefs, 1996 in the Netherlands). In each case, slight adaptations have been made to the stories and different coding systems have been used, rendering comparisons impossible. Robinson and Mantz-Simmons (2003) also underlined, about the MSSB, that investigators altered the situations to fit the stories themes to their own specific culture, and they adjusted the coding systems so that to capture culturally appropriate meanings. More research is then needed to know whether cultural aspects may contribute to the characteristics of children's representations during narrative tasks.

## Hypothesis

According to the literature, there are few gender differences regarding the categories of attachment, at different levels, which have been explored: infants' behaviors (SSP), adults' representations (AAI), and children's representations (ASCT). There are studies with children narratives (MSSB) with continuous (not categorical) coding systems showing

some gender-sensitive characteristics of narratives (e.g., girls representing more prosocial themes and producing more coherent narratives). Coding procedures based on categorization may not be sensitive enough to capture subtle gender differences concerning attachment representations.

A comparable observation has been reported in the framework of the alternative theoretical tradition of attachment research, which is mainly based on questionnaires addressed to adults (e.g., Hazan & Shaver, 1987; West & Sheldon-Keller, 1992). It is not our purpose to address the issue of knowing which tradition best captures the constructs fundamental to attachment theory (see, e.g., Roisman et al., 2007), but, interestingly, West, Spreng, Casares-Knight, Rose, and Leiper (1998) found dimensional coding (but not categorical coding) to be sensitive to gender differences.

We hypothesized that a coding procedure based on continuous measures of attachment representations, addressing both the content and the characteristics of children's narratives would be sensitive to gender differences.

There are only marginal differences reported by the literature concerning cross-cultural differences of infant attachment behaviors in the SSP (these differences relate mainly to the relative proportions of anxious avoidant and resistant categories), or of adult attachment representations (AAI). Intercultural comparisons of children representations (ASCT) are not possible because of the variety of procedures and coding systems that have been used. We explored attachment representations in several countries, using the same procedure, and the same coding system. We hypothesized that a quantitative, multifactorial coding system of children's narratives, more finely tuned than traditional categories or than one-dimensional measurements, would be more sensitive to cultural differences. Because gender-related differences in caregiving behaviors vary from one culture to another (e.g., Suizzo & Bornstein, 2006), we expected the presence of interactions between gender and culture—that is, gender differences vary according to culture. No other study on attachment specifically addressed that question.

The development samples of the ASCT coding procedure (presented below) came from French- and Italian-speaking European samples. Because our hypothesis concerned gender by culture interaction, we also included samples originating from two “Hispanic” countries (Spain and Chile), knowing that there is an important literature about parenting and transmission of roles (namely an accentuation of gender-specific roles) in “Hispanic” cultures (Guilamo-Ramos et al., 2007; Harwood, Leyendecker, Carlson, Asencio, & Miller, 2002). We expected gender differences to be more evident in these samples.

The present study does not address the issues of gender differences or of cultural differences per se; instead, it considers cultural differences in the extent of gender differences. Such a study may contribute to the understanding of the universality/specificity conceptions about attachment.

## Method

### Samples

Participants were principally normal subjects from community samples. In some cases however, samples of low-risk premature children have been included, as well as children from low-SES families or presenting light problems of school adaptation. We included such



**Table 1**  
**Number of Participants by Samples (Country), Subsamples, and According to Gender and Age Group (<54 or >54 months). Socioeconomic Status (SES; Low or Average), Preschool Adaptation (Low or Average), and Clinical Status (No Specific Status and Premature Birth) Are Also Given**

Country/ Subsample	Gender		(Total)	Age			SES	School Adaptation	Clinical Status
	Boys, <i>n</i>	Girls, <i>n</i>		Young	Old	(Mean)			
Switzerland									
Switzerland 1	6	11		17	0		Average	Average	No
Switzerland 2	60	75		122	13		Average	Average	No
Switzerland 3	9	9		18	0		Average	Average	Premature
Total	75	95	(170)	157	13	(40)			
Spain									
Spain 1	12	16		0	28		Average	Average	No
Spain 2	9	10		0	19		Average	Average	Premature
Total	21	26	(47)	0	47	(75)			
Italy									
Italy 1	6	4		0	10		Average	Average	No
Italy 2	44	21		27	38		Average	Low	No
Total	50	25	(75)	27	48	(58)			
Chile									
Chile 1	15	11		18	8		Low	Average	No
Chile 2	10	9		7	12		Average	Average	No
Total	25	20	(45)	25	20	(54)			
Belgium									
Belgium 1	91	116	(207)	83	124	(56)	Average	Average	No
Total	262	282	(544)	292	252	(53)			

subsamples because we did not intend to compare raw scores between samples, or cultures, but rather the patterns of gender differences across cultures (see the procedure of data analysis). The potential interference of these specific characteristics (SES, prematurity, and school adaptation) will be addressed in the analysis.

Table 1 presents the number of participants (after exclusion of outliers, see below) by country, gender, and age-group, with specifications concerning subsamples characteristics.

The samples can be described as follows.

*Switzerland.* Three subsamples have been included, all from the French-speaking part of Switzerland. The first one has been recruited at the maternity ward of the Lausanne University Hospital for inclusion in a longitudinal study; acceptance rate was 38%. A second subsample has been drawn from a study on child care and included families randomly selected from a list provided by the population control services of the Lausanne area; acceptance rate was around 30%. The third subsample came from a study in which preterm infants hospitalized at the neonatal intensive care unit (NICU) of the Lausanne University Hospital have been considered for inclusion into a longitudinal study; children included in this third group presented no special neonatal risk (i.e., their perinatal risk inventory was

in the same range than that of full-term infants). Acceptation rate was 78%. Families covered the whole span of SES; most of them originated from the middle class. Experimenters ( $n = 9$ ) were exclusively female psychologists, trained for that procedure.

*Spain.* Two subsamples have been included. The first one was recruited from a public school in Barcelona. The second came from a study in which preterm infants hospitalized at the NICU of the Hospital San Juan de Dios, in the same town, have been considered for inclusion into a longitudinal study; children included in this group presented no squeals. Parents from both samples ranged in the middle-to-high SES. Experimenters were two female psychologists.

*Italy.* Two subsamples have been included: The first was composed of children drawn from preschool kindergartens of the Trento area; families were from average SES background and children normally attended preschool, whereas children from the second subsample were described by their teachers as presenting light adaptation difficulties. Experimenters were female psychologists.

*Chile.* Two subsamples have been included: The first one drawn from public kindergartens run by local authorities in Santiago, with an overrepresentation of modest SES background families. Fifty percent of the families accepted to participate. A second subsample has been recruited by sending letters to families from average SES background having a young child. Experimenters were one female psychologist and one male psychologist.

*Belgium.* Children have been recruited in six different public schools from various geographical areas of the French-speaking part of Belgium, so that to be representative of the whole span of SES. Acceptation rate was 40%. Experimenters were five female psychologists and one male psychologist.

## Measures and Procedures

*The Attachment Story Completion Task.* The ASCT (Bretherton et al., 1990) consists of a series of story stems whose themes have been designed to arouse the child's representations and feelings relating to attachment experiences. Each story beginning is narrated and acted by the interviewer; the child is then asked to show and tell what happens next. This task is well-adapted for preschoolers as young as 3 to 4 years of age. The story beginnings are presented with a set of doll figures, each one initially introduced as a member of a family (mother, father, two children, and a grandmother). The procedure includes five story stems: (a) the child figure causes an accidental mishap (spills juice at the dinner table), (b) is hurt (falls off a rock in a park), (c) is afraid (of a monster in the bedroom), and experiences (d) a separation from and (e) reunion with parents (the parents leave for a trip while the grandmother looks after the children). For more detailed instructions, see Bretherton et al. (1990) and Bretherton and Oppenheim (2003). The procedure (20-30 minutes) is video recorded. The ASCT is administered in the laboratory, at home, or at school.

*The CCH coding system.* The ASCT Q-sort (CCH; Miljkovitch et al., 2004; Miljkovitch, Pierrehumbert, Karmaniola & Halfon, 2003; Pierrehumbert, Ramstein,

Karmaniola, Miljkovitch & Halfon, 2002) is a coding system for children narratives referring to the AAI as a model. It focuses on both the content and the intrinsic qualities of the narrative production.

After viewing the video recording of the whole set of five stories, the coder scores 65 items—each describing potential characteristics of the narrative. Items focus either on the content (e.g., “the child portrays the parents as available”) or on the formal characteristics of the narrative (e.g., “the child enacts emotions within the story”). Constructs used for the definition of the items were principally: attribution of subjectivity to the figures, symbolic distance, narrative coherence, and story resolution. The items are presented on cards. A first step of the CCH coding procedure consists in sorting the cards into seven piles (free distribution), from the most to the least characteristic. Each item then receives a score (range 1-7). A second step consists in a forced distribution—that is, keeping only a specific number of cards in each pile. Each item again receives a score (range 1-7). Four *Q*-correlations (Stephenson, 1935) are computed with the scores of the forced distribution whereas items scores of the free distribution are averaged into three scales (derived from factor analysis).

The CCH then provides seven scores: four *Q*-scores, each one describing a dimension of attachment representations, and three scales (mean scores) describing intrinsic characteristics of the narratives. The four *Q*-scores (see Miljkovitch et al., 2004 for detailed description) are “Security” (the child is collaborative and acknowledges feelings such as sadness or anger, protagonists display a wide range of affective states, adults are presented as supportive); “Deactivation” (the child is reluctant to engage in play, stories tend to be poor, or conventional, affectless, and protagonists scarcely engage in relationships); “Hyperactivation” (the child is aroused by the task, but he or she is unable to present constructive completions of the story stems and is more likely to focus on or emphasize the negative aspects of the stories); “Disorganization” (the child creates stories marked by loss of control, with catastrophic, violent, or destructive themes, protagonists may be depicted as helpless and unprotected; parental and children roles may be reversed). Children of autonomous mothers (AAI) have been found to have higher security scores (ASCT) than did other children (Miljkovitch et al., 2004), whereas children of preoccupied mothers had significantly higher hyperactivation scores, and children of unresolved mothers had higher disorganization scores.

The three scales (see Ibanez & Pierrehumbert, submitted; Pierrehumbert & Ibañez, (2008); for detailed procedure) describe, respectively, the competence to represent emotions (“Mentalization”), the quality of the production in terms of coherency and narrative construction (“Resolution”), and the content of the narrative in terms of parental supportive attitudes (“Parentality”).

Interjudge reliability has been computed (on the Swiss and on the Spanish samples) on, respectively  $n = 68$  and  $n = 30$  cases randomly selected, with a total of 10 judges; intraclass coefficients were, for the Swiss sample, .94, .94, .85, .90 for the four *Q*-scores; .92, .92, .82 for the three scales, and for the Spanish sample, .81, .74, .69, .81 and .76, .77, .76, respectively.

## Results

We first compared the raw scores (boys and girls together) across the five countries. We found some differences: post hoc tests showed that the Belgian sample obtained the highest

**Table 2**  
***Q*-Scores of Security, Deactivation, Hyperactivation, and Disorganization (Transformed Into *T* Scores, Normalized Country by Country) for Males (M) and Females (F). Statistics: Effect of Gender (ANOVAS)**

Country	<i>Q</i> -Scores							
	Security		Deactivation		Hyperactivation		Disorganization	
	M	F	M	F	M	F	M	F
Switzerland	49.19	50.64	50.37	49.71	51.67	48.68	52.43	48.08
Spain	45.97	53.26	53.80	46.93	51.95	48.43	53.17	47.44
Italy	49.56	50.87	50.26	49.47	49.17	51.67	50.60	48.80
Chile	47.66	52.92	51.69	47.89	51.42	48.23	52.63	46.72
Belgium	48.84	50.91	50.58	49.54	49.68	50.25	51.23	49.04
Whole sample	48.74	51.17	50.82	49.23	50.50	49.54	51.74	48.38
Statistics	$F(1, 534)$	$p$	$F(1, 534)$	$p$	$F(1, 534)$	$p$	$F(1, 534)$	$p$
Gender effect	10.94	.001	6.22	.013	1.57	.210	14.65	.000

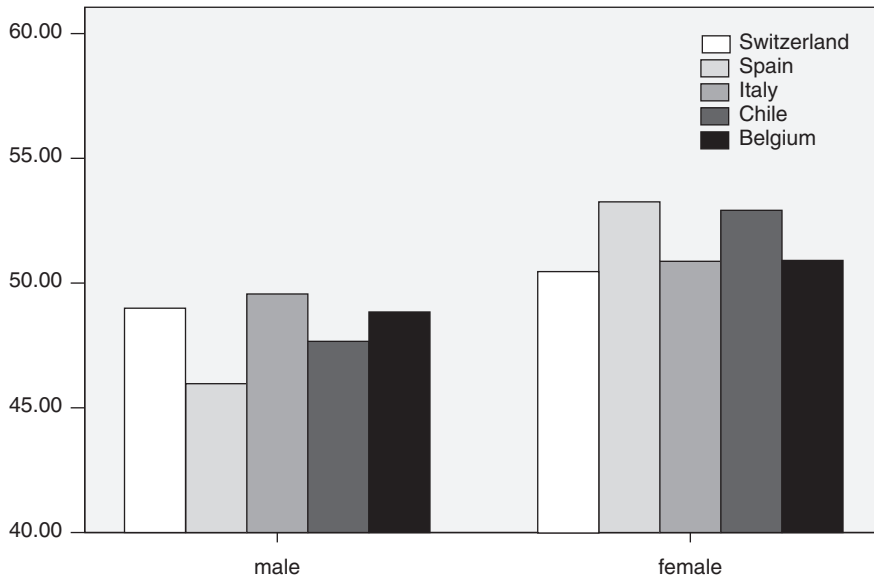
Note: To simplify the table, only means are provided.

indexes of security whereas the Italian sample obtained the lowest scores of security (and, reciprocally, the highest scores on the insecure indexes); consistently, this last sample also ranked among the lowest for the scores at the three scales. The “Hispanic” samples, akin to the Swiss sample, obtained middle ranks. However, the comparison of raw scores between countries is problematic because these samples differ regarding age and SES, and they present specific characteristics. Rather, our main objective was to compare the extent of gender differences across countries. For that purpose, we normalized the scores country by country (“*T*-scores” for the three scales and for the four *Q*-scores). We then obtained mean scores (for each scale in each country, males and females together) of 50 points, with a standard deviation of 10 points. Consequently, possible cross-country differences regarding overall scores were neutralized, and we could focus the analysis on the patterns of gender differences between countries.

Because we were interested in average male/female differences, and not on exceptional cases, outliers have been deleted: Cases having one or more scores lower or higher than 2 standard deviations (*SD*) on any of the scales or of the *Q*-scores were removed (i.e., cases with *T*-scores <30 or >70). Of the original pool of  $n = 668$  subjects,  $n = 124$  have been excluded (remaining  $n = 544$ ). The exclusion rate (18%) may appear relatively high; it is due to the fact that a subject was excluded when at least one score (out of 7) was above or below 2 *SD*. We later checked whether the process of exclusion could have biased the results. We found exactly the same pattern of differences in gender by country (as presented below) when outliers were kept in the analysis. Scores have been renormalized after the exclusion of outliers, so that all mean scores, for each sample (boys and girls summed up) were exactly 50 ( $SD = 10$ ), which allows an easy comparison of the magnitude of gender differences across scales, country by country, or all countries being aggregated.

We first compared males/females on the four *Q*-scores, across countries (Table 2); we then repeated the process for the three scales. Because the *Q*-scores have been normalized

**Figure 1**  
**Boys/Girls Differences by Country for the Score of Security, Expressed**  
**in the Form of T-Scores (the range 40-60 corresponds to 2 standard deviations)**



country by country, the effect of country has not been computed; only the statistics for the effect of gender have been computed.

When we consider the scores of male and female participants on the whole sample, girls clearly show more secure attachment representations than boys. All three insecure  $Q$ -scores (deactivation, hyperactivation, and disorganization) are lower for girls (hyperactivation being nonsignificant). Interestingly, the dominant insecure score for boys (and for girls the less-dominant insecure score) is disorganization. When we consider the  $Q$ -scores for males and females country by country, girls obtain higher secure scores than those of boys in all countries, whereas boys receive higher scores of deactivation and disorganization than those of girls in all countries. There are interesting variations between countries regarding the pattern of boys/girls differences (Figure 1 represents gender differences by country on the  $Q$ -score of security). Two countries present a huge magnitude of boys/girls difference: Spain and Chile, for the  $Q$ -scores of security, deactivation, and disorganization.

Table 3 presents the scores of the three scales (mentalization, resolution, and parentality), for male and female participants. As for the  $Q$ -scores, only the statistics for the gender effect are provided.

Clearly, girls produce narratives that can be characterized as more competent (mentalization), of higher quality (resolution), and with a more secure content (parentality) than that of boys (scores for the whole sample). The most contrasted results, when we consider boys/girls differences, concern the scale resolution. When we compare the scores country by country, girls obtain higher scores than boys on all scales, in all countries; as it was for the  $Q$ -scores, there are interesting variations between countries regarding the pattern of boys/

**Table 3**  
**Scales of Mentalization, Resolution, and Parentality (*t* Scores, Normalized Country by Country) for Males (M) and Females (F). Statistics: Effect of Gender (ANOVAS)**

Country	Scales					
	Mentalization		Resolution		Parentality	
	M	F	M	F	M	F
Switzerland	49.04	50.76	46.65	52.65	48.45	51.22
Spain	46.54	52.80	47.50	52.02	45.18	53.89
Italy	49.66	50.68	49.39	51.21	49.71	50.57
Chile	48.53	51.84	48.08	52.40	47.16	53.55
Belgium	48.88	50.88	47.40	52.04	48.55	51.13
Whole sample	48.85	51.06	47.64	52.20	48.34	51.54
Statistics	<i>F</i> (1, 534)	<i>p</i>	<i>F</i> (1, 534)	<i>p</i>	<i>F</i> (1, 534)	<i>p</i>
Gender effect	7.37	.007	17.08	.000	16.70	.000

**Table 4**  
**Effect Sizes (Absolute Values) of Gender Differences for Each Measure and Each Country**

Country	Security	Deactivation	Hyperactivation	Disorganization	Mentalization	Resolution	Parentality
Switzerland	.14	.06	.30	.44	.17	.63	.28
Spain	.77	.72	.35	.58	.65	.46	.94
Italy	.13	.08	.25	.18	.10	.18	.08
Chile	.54	.39	.33	.61	.34	.43	.66
Belgium	.21	.10	.06	.22	.20	.47	.25

girls differences. Again, Spain and Chile present an important magnitude of gender differences, especially on the scales of mentalization and parentality.

To compare the patterns of boys/girls differences across countries and for each of the seven scores, we computed the effect sizes of gender differences, for each score, country by country. They are presented in Table 4 (see Note 1).

Considering the magnitude of effect sizes of boys/girls differences (regardless of statistical differences), two groups of countries clearly emerge. The average effect sizes of boys/girls differences in the Swiss, Italian, and Belgian samples can be considered as “small,” that is, between .1 and .3 according to Cohen’s (1988) definition, whereas it can be considered as “medium” for Spain and Chile (i.e., between .5 and .6).

Therefore, girls from “Hispanic” countries (Spain and Chile) obtain much higher scores of security than boys of the same countries, whereas girls from other “Latin European” countries (Italy, French-speaking parts of Switzerland, and of Belgium) receive higher scores of security than boys, but a lesser extent. This pattern of boys/girls differences repeats for all four *Q*-scores and for the scales mentalization and parentality. The interaction of gender by “Hispanic” versus “Latin European” reached significance for the indexes

of security,  $F(3, 540) = 4.04, p = .04$ ; deactivation,  $F(3, 540) = 3.88, p = .04$ ; and parentality,  $F(3, 540) = 5.30, p = .02$ .

We wondered whether the overall gender difference observed in our data (i.e., girls presenting more secure and more competent narratives than boys) could be explained by a difference of maturation (i.e., girls being more mature than boys). Galsworthy, Dionne, Dale, and Plomin (2000), for instance, reported that 2-year-old girls scored higher than boys on verbal and nonverbal cognitive abilities scales; Slate (1998) found that 9-year-old girls had higher IQ scores than boys on the WISC verbal scale. Conversely, Sellers, Burns, and Gyrke (2002) did not find an effect of gender on the WPPSI IQ scales with 3- to 7-year-old children.

Even if the literature is not entirely consistent, we envisaged the possibility that the pattern of boys/girls differences found in this study expresses a difference of cognitive maturation. For that purpose, we evaluated the respective effects of gender and of age. We first computed, for the  $Q$ -score of security, the magnitude of the gender effect on the whole sample. We found an effect size  $d = .23$ . We then divided boys of the whole sample into two groups: "young" versus "old" boys (i.e., below and above the median of age). The mean age difference between "young" versus "old" boys is 14 months. Older boys tend to obtain higher scores of security; the effect size is  $d = .15$ . Clearly, the magnitude of the gender difference observed between boys and girls on the security score cannot be attributed to a supposed (yet unproved) difference of mental age, because a difference of more than 1 year of chronological age among boys (14 months) would only explain a fraction of the boys/girls difference ( $d = .15$  vs.  $d = .23$ ).

We then wondered whether the magnitude of gender differences was affected by age. The pattern of boys/girls differences was accentuated in older children; however, we found the same pattern of gender variations in younger children. The average effect size regarding gender, on the seven indexes, was 0.22 for younger children, and 0.32 for older children.

We also wondered whether the cross-cultural variation in the magnitude of gender differences could be explained by possible differences on the SES of the different samples. We had information concerning the parents' SES for two samples only: Switzerland and Chile (the Chilean sample included a low-SES subsample, and we had detailed individual information for the Swiss sample, which covered the whole SES span). We divided each of these samples in, low versus high SES, respectively. We then examined the security index of boys and girls in, low-versus high-SES subsamples, respectively. We found that the higher the SES, the higher the security index (the effect of SES on security was nearly significant,  $F(1, 153) = 3.71, p = .056$ ). This was true for both boys and girls, and we did not find any interaction between SES and gender,  $F(3, 156) = 0.01, p = .907$ .

Two samples (from Switzerland and Spain) included low-risk prematurely born children, and one sample (Italy) included children with light problems of school adaptation. We again looked for possible interactions between these specific characteristics and gender differences regarding the index of security. We found a slight, but nonsignificant, tendency of low-risk prematures to obtain lower security indexes than normal controls,  $F(1, 99) = 2.37, p = .12$ ; this was true for both boys and girls, and we did not find any interaction between prematurity and gender,  $F(3, 102) = 1.50, p = .22$ . We found no difference between children with problems of school adaptation and controls on the same index,  $F(1, 83) = 0.28, p = .60$ , and no more interaction between school problems and gender,  $F(3, 86) = 0.23, p = .87$ .

We evaluated the separate contribution of all these variables simultaneously, on the index of security. For that purpose, we computed four dummy variables (boys “non-Hispanic,” etc.), expressing the intersection between gender and culture; we then introduced these variables in regression models to predict the index of security. Other variables were introduced as well: age (young/old), SES (average/low), school adaptation (average/low), and clinical status (without/prematurely born). The variables concerning school adaptation and age did not predict the index of security, whereas the variables expressing SES ( $t = 2.31$ ,  $p = .01$ ), prematurity ( $t = 2.82$ ,  $p = .00$ ), and the intersection gender by culture (e.g.,  $t = 3.64$ ,  $p = .00$  for the variable “Hispanic” females as opposed to all other children) were found to predict this index, independently of each other. Therefore, the gender by culture effect on attachment security can be considered as independent of age, school adaptation, SES, and prematurity (these last two variables having a separate effect on security).

## Discussion

We found gender differences in children’s expression of emotions related to attachment experiences, at a representational level; girls expressed more secure representations concerning child–parent interactions than boys did; they showed an easier access to emotions related to attachment experiences, and articulated these emotions in a more coherent way. Attachment categorizations in infancy (based on the Strange Situation) or in adulthood (based on the AAI) have revealed few gender differences. So why attachment security expressed in children narratives would be more sensitive to gender differences—in the present study at least? One could argue that the SSP is proposed too early—usually at 12 months—and at that age, gender differences may not be evident yet, even though Fagot and Hagan (1991) did observe gender differences during interactions at that age. Another possible explanation refers to Schoppe-Sullivan et al.’s (2006) study: Children were submitted to the SSP separately with their mothers and with their fathers. The authors noted that attachment classifications were gender-sensitive, but only in father–infant dyads; the classifications of mother–infant dyads revealed no gender differences (the notion of an absence of gender differences in the SSP is implicitly based on mother–infant attachment studies). The ASCT involves two parental figures. This may account for the discrepancy between the two procedures regarding gender differences. Consistently, the ASCT (Page and Bretherton 2003) also found, with children in postdivorce families, a pattern of gender differences in relation with children’s representations of the father figure.

Thus, why the effect of gender on attachment security had not been evidenced in all previous studies using the ASCT (e.g., Glogger-Tippelt et al., 2002)? Even if most coding systems of children attachment narratives include the content as well as—to some point—the quality of the production, the dimensional coding of the CCH integrates at a larger degree the child’s competence and the quality of the narrative (attribution of subjectivity to the figures, coherent resolution). These dimensions may be more relevant to gender differences than the content of narratives alone (e.g., the presence of parental comfort). Also, it may be that fully continuous (instead of categorical) coding procedures integrating all these dimensions are more sensitive to capture relatively subtle gender differences.

We found boys to present more disorganized attachment narratives (loss of control of the story, catastrophic, violent or destructive themes, figures helpless and unprotected). The



literature suggests (Leaper, 2002) a greater likelihood of negative emotionality among boys than among girls during infancy: Boys appear as more vulnerable to emotional disruptions than girls during the first year. Furthermore, boys express a greater distress than girls on separations from the caregivers.

Meta-analysis of the Strange Situation (van IJzendoorn, Schuengel, & Barkermans-Kranenburg, 1999) did not evidence gender differences regarding disorganized attachments, however. As suggested by van IJzendoorn (1995), samples' characteristics may play a role: Gender differences in infant attachment behaviors seem to be more frequently observed in high-risk samples, as compared with low-risk samples. For instance, Carlson et al. (1989) and Cohn (1990) found in a low-income, maltreated sample, a high rate of boys with a disorganized attachment. Boys seem to be more sensitive to environmental risk factors (Lyons-Ruth, Easterbrooks, & Cibelli, 1997); this may explain that gender difference regarding disorganization are especially found in high-risk cohorts, where environmental threat may be more marked. Thus, conditions of severe stress are likely to promote and reinforce gender-specific kinds of behavior problems (Benenson, 1996). Also, Page and Bretherton (2003) suggested that social reinforcements of traditional gender-role behavior might contribute to the promotion of gender-stereotyped behavior in high stress conditions.

In the present study, we found boys from relatively low-risk samples—not from high-risk samples—to obtain relatively high scores of disorganization. The ASCT evokes emotions associated to threat and separation. It may be that representing and playing such emotions—and not actually experiencing them, as it is in the Strange Situation—allows boys, even from low-risk samples, to express behaviors that could be otherwise socially reprehensible, such as aggression or destruction.

David and Lyons-Ruth (2005) found boys and girls to react differently to frightening maternal behavior, in a sample of mother–infant dyads referred because of concerns about the quality of caregiving: Female infants tended to approach their mothers more than males did. Such gender differences in response to threat have been described by Shelly Taylor et al. (2000), who proposed a “tend-and-befriend” hypothesis. Whereas “fight-or-flight” (generally regarded as the prototypic human response to stress) may be more adaptive responses to threat for males among social primates, affiliative responses may be more adequate for females, from an evolutionary perspective. Tending and befriending involve nurturant activities, the creation and maintenance of social networks. The “tend-and-befriend” pattern of behavior would be more adaptive to females in the animal world, because it favors the protection of the self and of offspring in stressful circumstances, the promotion of safety, and the reduction of distress. Animal studies suggest that the “tend-and-befriend” response, or the female tendency to affiliate under stress, is mediated by the brain's processing a particular hormone under stress—oxytocin—which itself plays a key role in the attachment–caregiving system (e.g., Jezova, Jurankova, Mosnarova, Kriska, & Skaltetyova, 1996).

Interestingly, we found an expression of the association between gender and the patterns “fight-or-flight” and “tend-and-befriend” at the level of representations: The attitudes of the play protagonists represented in situations of stress, as elicited by the ASCT material, tended to differ according to the child's gender. Boys' play suggests a representation of male reactivity in stressful circumstances, often characterized by agitated behaviors

(disorganization) or by inhibited emotions (deactivation), whereas girls' play suggests a different representation of reactivity to stress, with a preference for caregiving attitudes (security, parentality).

David and Lyons-Ruth's (2005) data are consistent with the "tend-and-befriend" hypothesis: Whereas females exhibited more affiliative behavioral strategies intended to maintain some proximity to the frightening caregiver in the SSP, males exhibited more pronounced avoidance, resistance, and disorganized behaviors. Turner (1991) also found that 4-year-old boys with insecure attachment classifications displayed more disruptive and aggressive behavior when interacting with peers than secure boys, whereas same-age insecure girls displayed more compliance and positive affiliative behaviors than securely attached girls.

We found the pattern of gender differences to vary across cultures. In the theoretical tradition of attachment research based on questionnaires, Schmitt et al. (2004) collected data on a very large sample of adults from 62 cultural regions, using a self-report measure of adult romantic attachment (the Relationship Questionnaire; Bartholomew & Horowitz, 1991). The authors reported several intercultural differences, but unfortunately, they did not analyze gender differences across cultures because they maintained gender controlled in their analysis. There are other studies reporting interactions between gender and culture in children's emotion expression, for example, Blurton-Jones and Konner (1973), who compared Bushman versus London children. Such differences have been attributed to specific sex-role training. It has been suggested (Triandis & Lonner, 1980) that intercultural differences in emotion-related behavior stem from attitudes toward emotions rather than simply from emotions themselves. This is not inconsistent with the notion of IWM, which indirectly implies patterns, or styles, of emotion regulation. As abundantly evidenced in the literature (e.g., van IJzendoorn, 1995), these patterns appear to be transmitted from one generation to another, which certainly denotes the presence of family-based microcultures regarding emotion regulation.

The magnitude of gender differences was exacerbated in the two "Hispanic" countries represented in our samples—Spain and Chile. The limited number of participants and of samples in the present study does not authorize any conclusion concerning the difference between "Hispanic" versus other Latin cultures. Interestingly, however, there are many studies about cultural specificities in the transmission of roles and values regarding "Hispanic" culture in the United States, comparing immigrant "Latino" (Mexican, Puerto Rican) versus European American cultures (see Cabrera, Shannon, West, & Brooks-Gunn, 2006; Harwood et al., 2002). The notion that "Latino" cultures are relatively more family-oriented than European Americans is consistent in numerous studies (Harwood et al., 2002). Another aspect is the preference for cooperation, as compared with competition. Observational studies report that "Latino" infants spend more time in proximity with their mothers. Harwood (1992), as well as Posada et al. (2002) noted that "Latino" cultures are often reported to stress interpersonal relations, interdependence, as compared with Anglo-American values emphasizing self-confidence, independence, and achievement.

Even if it is difficult to extrapolate from these studies, we found that gender differences while treating emotions related to stress at a representational level ("fight-or-flight," or "tend-and-befriend" responses) were accentuated in cultures ("Hispanic") traditionally favoring heteroregulation (as opposed to self-regulation) in child care attitudes. This suggests an interesting cultural extension of Taylor's hypothesis: Cultural child care practices

would represent a moderator of the biobehavioral systems of emotion regulation, such as those engaged in the gender specific “fight-or-flight”/“tend-and-befriend” responses.

There is of course a crucial limitation to that hypothesis, because we did not collect information concerning actual child-care attitudes in the present study. The study has other limitations. A potential problem comes from the fact that the different samples have not been recruited so that to be representative of specific populations. Evidently, this problem is not proper to the present study. Quintana et al. (2006) suggested that a difficulty of cultural comparisons is that various sociocultural factors, such as race, culture, and social class are involved, each contributing to the findings.

Concerning the social class, we considered the potential confounding effect of SES; the results showed that SES could not explain the specific magnitudes of gender differences in our samples. However, it remains that important socioeconomic differences in these samples may compromise cultural comparisons.

The experimenters also can be a source of bias. Indeed, we could not control a possible interaction between the results (specific patterns of gender differences) and the examiners' gender. Most examiners were females; two were males (in the Chilean and Belgian samples). Page and Bretherton (2003) noted that they could not exclude the interviewer's gender (in their case, a male) to elicit more enactments of aggression in boys than the presence of a female examiner would have done. In addition, we could not control individual or cultural expectations of the examiners regarding children's gender. It has to be reminded that the ASCT is a semistructured procedure; therefore, it is important for the examiner to fully master the children's culture and language; the same problem concerns coders. Therefore, we cannot exclude that the experimenters' representations and attitudes could reinforce stereotypical gender differences.

The transposition of the coding system (CCH) from one culture to another may also partly affect comparisons; however this potential bias is unlikely to explain the magnitude of gender differences between “Hispanic” versus “non-Hispanic” samples. It is interesting to note that the CCH has been translated independently for its use in Spain and in Chile.

Most attachment studies, making use of behavioral observations and verbal narratives, concluded to the absence of significant gender differences and to limited sensitivity of the IWMs to individual and cultural experiences: Whereas Carlson and Harwood (2003) showed that specific cultural caregiving experiences do not affect actual attachment behaviors, several reports (e.g., Lewis et al., 2000) suggested that IWMs could be affected by life experiences. Our data certainly question neither the “universality” nor the “normative” hypothesis of attachment (van IJzendoorn & Sagi, 1999). However, each procedure used to investigate IWMs can certainly be characterized by a specific balance between universal (the “secure base”), and specific factors (gender, individual, and cultural experience). The story completion task, which emphasizes symbolic or pretend play of caregiving relationships, involving the representation of a whole family, may give relatively much weight to gender-sensitive experiences, and to educative or cultural values, as compared with other procedures. The narrative task could tilt the balance between “universal” and specific experiences, in favor of the latter. If the investigations based on actual interactions or on autobiographical narratives mobilize internal modeling of self- and other in-relationships (Bretherton & Munholland, 1999), the narrative task, which evaluates how the child addresses anxiety-provoking situations, involves both the child's IWMs and emotion

regulation processes, which are more gender and experience sensitive. Indeed, the need of regulating emotions constitutes a universal requirement, which is neither gender nor culture dependent; however, the expression of emotions certainly interacts with social systems, cultural processes, individual personality, and gender (Fonagy, Gergely, Jurist, & Target, 2002; Fox, 1994; Lewis & Granic, 2000; Triandis & Lonner, 1980).

Finally, it could be that the doll-play procedure gives an advantage to girls (e.g., Gleason, 2005), advantage that could be reinforced in some cultures (e.g., Haight, Wang, Fung, Kimberley, & Mintz, 1999), explaining partly the gender/culture variations that have been observed.

Therefore, to estimate the actual significance of children's attachment narratives, further intercultural/gender studies using story stems should be done and should correlate narrative productions with parental caregiving attitudes and developmental/behavioral outcomes. As suggested by Carlson and Harwood (2003) or by Page and Bretherton (2003), these correlations should be computed separately for gender and cultures.

## Note

1. Cohen (1988) formula to compute effect sizes is  $d = M_1 - M_2 / \sqrt{[(s_1^2 + s_2^2) / 2]}$ . The author proposes to define effect sizes as "small" ( $d = .2$  to  $.5$ ), "medium" ( $d = .5$  to  $.8$ ), and "large" ( $d > .8$ ).

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**Blaise Pierrehumbert** received his PhD in developmental psychology from the University of Geneva, Switzerland. He is head of the research unit at the Lausanne University Department of Child and Adolescent Psychiatry. His research topics are attachment, emotion regulation, stress reaction, traumatism, and prematurity. He teaches the attachment theory at the Psychology Institute of Lausanne University.

**Maria-Pia Santelices** received her PhD in clinical psychology from the Université Lumière-Lyon 2, France. She is an assistant professor of psychology at the Pontificia Universidad Católica de Chile. Her research interests include early interventions programs to promote a secure attachment within mother-infant dyads, on both public health and educational contexts.

**Margarita Ibáñez** received her PhD in child and adolescent psychopathology from the Universitat Autònoma de Barcelona, Spain. She is a clinical psychologist, head of the clinical unit for children 0 to 5 years and families, at the Department of Child and Adolescent Psychiatry, Hospital of Sant Joan de Déu, Barcelona University. She teaches early developmental psychopathology and attachment at the University of Barcelona.

**Maika Alberdi** is a clinical psychologist at the Department of Child and Adolescent Psychiatry, Hospital Sant Joan de Déu, Barcelona, Spain, and a PhD student of Barcelona University. Her main clinical research topic is attachment representations in prematurely born children.

**Barbara Ongari** is a professor of developmental psychology at the University of Trento, Italy. Her research interests are mainly attachment (during childhood and adulthood), methodological topics (narrative tools), children's attachment toward substitute caregivers (adoptive parents, foster parents, and day care nurses), and the correlations between attachment and emotional regulation or social adaptation. She recently published a book (in Italian) on different coding systems for narrative tasks.

**Isabelle Roskam** is a professor in the Department of Psychology, Laboratory of Educational and Developmental Psychology, at the Catholic University of Louvain, Belgium. Her research interests concern children's and adolescents' development in their family and in the school environment.



**Marie Stievenart** is a PhD student in the Department of Psychology, Laboratory of Educational and Developmental Psychology, at the Catholic University of Louvain, Belgium. Her research interests concern children's attachment profiles, cognitive functioning, and later behavioral adaptation.

**Rosario Spencer** received her PhD in developmental psychology from the University of Toulouse, France. She is a professor of psychology at Catholic University in Maule, Talca, Chile. Her research interests concern attachment relationships between preschoolers and their parents, and adult attachment, in Chilean samples.

**Andrés Fresno Rodríguez** received his PhD in developmental psychology from the University of Toulouse II–Le Mirail, France. He is a professor of psychology at Talca University, Chile. His research interests concern maltreatment, attachment relationship in preschoolers, and socioemotional development.

**Ayala Borghini** received her PhD in clinical psychology from the University of Geneva, Switzerland. Her main research interest concerns the attachment relationship between high-risk infants (such as prematures or infants born with malformations) and their parents, as well as early intervention programs (such as Interactive Guidance) to promote attachment and the quality of parent–infant interaction.

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