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### What about the child's tie to the father? A new insight into fathering, father-child attachment, children's socio-emotional development and the activation relationship theory

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## What about the child's tie to the father? A new insight into fathering, father–child attachment, children's socio-emotional development and the activation relationship theory

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The broad aim of this study on father–child attachment was to verify whether the Risky Situation (RS) procedure is a more valid means than the Strange Situation (SS) procedure of predicting children's socio-emotional development, and to evaluate the moderator effect of day-to-day involvement on attachment and activation. Participants were 53 father–child dyads. The RS and the SS were conducted when children were 12–18 months old to measure attachment and activation, and a questionnaire on fathering was administered at the same time. Childcare workers rated children's socio-emotional development at 30–36 months. Regression analyses revealed that the RS predicted children's socio-emotional development, while the SS did not, even when controlling for paternal involvement. This study advances the field by empirically testing the predictive relationships from attachment and activation to social emotional outcomes, and the moderator effect of fathering. The results underscore the value of the activation relationship theory and the RS procedure as a means for comprehending and capturing the essence of father–child attachment.

**Keywords:** attachment; activation relationship; parental involvement; fathers; socio-emotional development

My father used to play with my brother and me in the yard. Mother would come out and say, 'You're tearing up the grass.' 'We're not raising grass,' Dad would reply. 'We're raising boys.' (Harmon Killebrew)

The Latin root of to feel secure – *se cura* — means to feel free from care or apprehension, referring to the confidence that one will remain safe and unthreatened (<http://oxforddictionaries.com/definition/secure>, 2011). In human beings, a strong inner feeling of security with regard to meaningful caregivers develops as early as the first year of life. It is a feeling that is said to be profound and to have pervasive effects throughout the lifespan. This is what John Bowlby theorised when trying to understand *the nature of the child's tie to his mother* (Bowlby, 1958). He called it the *attachment theory* (Bowlby, 1969). Many researchers have worked on validating this theory over

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the past 40 years. Important links have been found between the quality of attachment during infancy and socio-emotional development during preschool and school years. A child who feels secure during infancy is more likely to become socially competent than a child who feels insecure, and is less likely to have internalising or externalising behaviour problems (Brumariu & Kerns, 2010; Dallaire, 2007; Fearon, Bakermans-Kranenburg, Van Ijzendoorn, Lapsey, & Roisman, 2010; Lyons-Ruth, Easterbrooks, & Cibelli, 1997; Matas, Arend, & Sroufe, 1978; Sroufe, 1983). Even in adulthood, quality of attachment is thought to crystallise into stable internal working models of self and others (Bowlby, 1969, 1973). As grownups, individuals who felt secure in infancy seem to be less likely to develop psychological problems (Carlson, 1998; Warren, Huston, Egeland, & Sroufe, 1997).

Attachment between mothers and young children has been primarily and most effectively validated using the Strange Situation (SS) procedure developed by Ainsworth, Blehar, Waters, and Wall (1978). In this procedure, children must cope with the considerable distress of having their parent leave them alone for two minutes in an unfamiliar room with a complete stranger. The way the child reacts when the parent returns determines the quality of their attachment relationship. *Secure* children are children who experience distress but are able to be comforted by their parent and return to their exploration of the toys in the room. Children can be insecure in an *avoidant* way. Such children will experience distress but will not show it and will not try to obtain the comfort they need. They will continue their exploration but in a less engaged manner. Children can be insecure in a *resistant* way. Comforting such children will be harder and take longer. Their exploration of their environment will cease or diminish significantly. Finally, children can also be insecure in a more problematic way referred to as *disorganised*. They will act in a strange and contradictory way, both desiring comfort and rejecting it at the same time, while also exploring in a disoriented manner (Main & Solomon, 1990).

The SS procedure is based on the theoretical assumption that an attachment figure is a comfort figure. During the procedure, the parent does not interact with the child other than to sooth the child. The procedure has mainly been validated with mothers, who are usually the parent who is more involved in caregiving activities like diaper changing, bathing and dressing. The procedure often fails to be as valid for assessing the quality of attachment or as predictive of children's socio-emotional development when used with fathers (Dubeau & Moss, 1998; Volling & Belsky, 1992; Youngblade, Park, & Belsky, 1993). We know that children do develop an attachment relationship to their fathers (Clarke-Stewart, 1978; Kotelchuck, 1976; Lamb, 1977a,b; Schaffer & Emerson, 1964), but more and more researchers agree that this relationship develops through different mechanisms (Bretherton, 2010; Dumont & Paquette, 2008; Kazura, 2000; Newland & Coyl, 2010; Saracho & Spodek, 2008). In comparison to mothers, fathers are usually involved more in playful activities than in caregiving activities (Kazura, 2000; Kotelchuck, 1976; Lamb, 1977a; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). They also tend to play differently with their children, engaging more in physical and challenging games like rough-and-tumble play, tossing the child up in the air, or chasing games (Clarke-Stewart, 1978; Crawley & Sherrod, 1984). In fact, physical play is the only activity in which fathers are consistently more involved than mothers (Bronstein, 1984). Because the activities they propose are usually more exciting and stimulating, fathers are often the child's favourite play partner (Clarke-Stewart, 1978; Ross & Taylor, 1989). Interestingly, the way fathers play with their children has been related to children's socio-emotional development.

Children who are understimulated by their fathers during play may be less confident and neglected more by their peers, and children who are overstimulated would be more likely to have more externalised behaviour problems and be rejected more by their peers (MacDonald, 1987; Paquette, 2004).

According to Bowlby (1969), readiness to explore is independent of attachment. He views exploration and attachment as two different systems. The exploration system is activated when the attachment system is not. He considers fathers, as play partners, to be only auxiliary attachment figures, less influential than mothers. However, other authors argue that children need to be directly stimulated as much as they need to be comforted (Yogman, 1981). For Le Camus (2000), fathers act as an attachment figure who opens the child to the outside world through playful interactions. In fact, it has been shown that father–child attachment quality is related to involvement in play during infancy and toddlerhood: children securely attached to their fathers play with them more often than insecure children (Kazura, 2000), and rough-and-tumble play in itself is a unique and strong predictor of attachment security (Newland, Coyl, & Freeman, 2008). Years later, the internal working model of attachment of 16-year-old adolescents, measured with the *Adult Attachment Interview* (AAI; George et al., unpublished manuscript) is still related to their father's support and gentle challenges during play in toddlerhood (Grossmann et al., 2002).

Paquette (2004) has proposed a new theory of father–child attachment, the *activation relationship theory*. He focuses primarily on two dimensions of fathering to explain the nature of the child's tie to the father: stimulation and discipline. According to this theory, by encouraging children to open up to the outside world (stimulation) while setting the proper limits for their safety (discipline), fathers would foster the affectional bond needed to develop children's sense of security and self-confidence. Men would appear to be physiologically more aggressive than women and, for Paquette (2004), therefore generally better suited to help children learn to deal with their emotions in a socially acceptable manner. Challenging physical games like rough-and-tumble play would serve that function by creating strong arousal and an opportunity to deal with stimulation and limit-setting at the same time.

A new procedure, the Risky Situation (RS), has been developed by Paquette and Bigras (2005, 2010). During the procedure, children are directly encouraged to explore an unfamiliar room and to take both a social and a physical risk, with the social risk involving a stranger who is increasingly intrusive and interactive with the child in the father's presence, and the physical risk involving a big colourful set of stairs in the middle of the room that appears both perilous and inviting at the same time. Following the procedure, children are classified as *activated*, *underactivated* or *overactivated*. Activated children will interact positively with the stranger while showing some signs of hesitation or fear when the stranger becomes more intrusive. They will also readily explore the stairs while at the same time remaining cautious and obeying the limits set by their father for their protection. Underactivated children will have less positive interactions with the stranger and be more fearful and hesitant. They will be cautious and obedient but will explore less. Overactivated children will be highly sociable with the stranger, showing no signs of hesitation or fear even when the stranger becomes intrusive. Their exploration will be perilous with some signs of imprudence and disobedience.

What remains to be determined is whether fathers become a comfort figure when they are more involved in caregiving, or whether they continue to serve as a figure who opens the child to the outside world, by providing care in a more playful way, for example. This is an important question because research shows that fathers are

increasingly involved in caregiving activities with their children (Bianchi, 2000). Women are more active in the work force and attitudes towards paternity have changed (Cabrera, Tamis-Lemonda, Bradley, Hofferth, & Lamb, 2000; Pleck & Masciadrelli, 2004). Indeed, over the past 30 years, the gap between maternal and paternal involvement has decreased (Pleck & Masciadrelli, 2004). In 1965, fathers would spend 25% of the time that mothers did in caregiving activities (Bianchi, 2000). By 1998, this number had gone up to 56%, meaning fathers would do half as much as mothers.

Studies have been conducted on fathers considered non-traditional because they are the primary caregiver for a child (Bailey, 1994; Radin, 1994, 1988; Russell, 1986; Rustia & Abbott, 1993). Those studies show that, as compared with mothers in general, primary caregiving fathers continue to be less comforting, more playful, more physical and more stimulating (Field, 1978; Frascarolo, 1997; Frodi, Lamb, Hwang, & Frodi, 1983; Lamb, Frodi, Frodi & Hwang, 1982; Lamb, Hwang, Frodi & Frodi, 1982; Lamb, Frodi, Hwang, & Frodi, 1983). However, they do appear to differ from traditional fathers. They are more comforting and they engage in less physical play with their children (Lamb, Frodi et al., 1982, Lamb, Hwang et al., 1982; Russell, 1982).

In general, very few studies have assessed empirical involvement and attachment simultaneously (Dumont & Paquette, 2008). Those few researchers who have done so have obtained contradictory results about the impact of involvement on the formation of an attachment relationship. Interestingly, however, in the one study where fathers were primary caregivers for a longer period of time, involvement did make a difference (Geiger, 1996). When in distress, children exhibited more attachment behaviour toward their father than toward their mother.

### Current study

Two questions guided this study. According to Paquette (2004), father–child attachment needs to be assessed with a procedure, like the RS (Paquette & Bigras, 2005, 2010), that places the emphasis on the quality of activation in the relationship. Our first research question asks whether *the Risky Situation procedure will better predict children's socio-emotional development than the Strange Situation procedure*. Based on the premises of activation relationship theory (Paquette, 2004), we believe it will.

Our second research question asks whether paternal involvement in stimulation, discipline and comfort moderates the predictive effect of the two procedures. We believe that *the Strange Situation procedure will be a better predictor of children's socio-emotional development when the father is more involved in comfort, but no relation will be found to his involvement in stimulation or discipline*. On the other hand, we believe that *the Risky Situation procedure will be a better predictor of children's socio-emotional development when the father is more involved in stimulation and discipline, but no relation will be found to his involvement in comfort*.

## Methods

### Procedures

Fathers of 12- to 18-month-old children were recruited through advertisements placed in neighbourhood newspapers and early childhood centres in the Montreal region and surrounding area. Fathers provided informed consent and each father–child dyad was filmed twice in a laboratory – once for the RS and once for the SS – at one-month

intervals and in a counterbalanced manner. After each filming session, fathers completed questionnaires regarding their socio-demographic situation and their involvement with the participating child.

When the children reached the age of 30–36 months, the fathers agreed by phone to fill out questionnaires on their current socio-demographic status that were mailed to them. Childcare workers were contacted by phone and after their consent was obtained, they were mailed confidential questionnaires on the socio-emotional development of the participating child which they completed. To become an informant in the study, the childcare worker had to have been responsible of the participating child for a minimum of two months.

### ***Participants***

Participants included 58 fathers and their children, 22 boys and 36 girls. Eighty-one percent (80.7%) of the fathers were Caucasian, 8.8% were Hispanic and 10.5% reported being from ‘other’ ethnicities. All the participants were currently living in the City of Montréal or its suburbs, in the Canadian province of Québec. Paternal age ranged from 25 to 49, with an average age of 34.8 years. Children’s age ranged from 12.0 to 18.8 months, with an average age of 15.4 months. All fathers were the biological father (98.3%), except for one who had been the mother’s spouse since the child’s birth. All fathers were in intact two-parent households (96.6%), except for one divorced father who had occasional custody and one remarried father who had half-time custody. Family incomes were as follows: <\$20,000 annually (3.4%), \$20,000–\$39,000 (6.8%), \$40,000–\$59,000 (20.7%), \$60,000–\$80,000 (25.9%) and >\$80,000 (41.4%). As for the fathers’ educational background, 8.6% had attended or graduated from high school, 25.9% had attended or graduated from college and 65.5% had attended or graduated from university.

The study was longitudinal and 53 of the fathers continued to be involved when their children were between the ages of 30 and 36 months (20 boys and 33 girls, mean age of 35.1 months). At that age, 92.5% of the children were in child care (and had been for a minimum of two months), whereas 7.5% were at home full-time with their mothers. In general, 90.6% of children were still living in intact two-parent households.

### ***Measures***

#### *Socio-demographic information*

Basic information on the participants was collected through the use of a socio-demographic questionnaire.

#### *Children’s quality of attachment with their father*

The SS (Ainsworth et al., 1978) was used to assess the quality of father–child attachment. It is an observational procedure designed for 12- to 18-month-old children that lasts about 20 minutes and takes place in an unfamiliar laboratory. The SS will not be described here as it has already been described extensively by Ainsworth and her colleagues. However, it is important to mention that throughout the procedure, all interaction with the child must be kept to a minimum so the level of distress can be

sufficiently heightened to trigger the attachment system and allow for better assessment of the quality of exploration. However, the child may be comforted whenever necessary.

Ainsworth et al. (1978) have developed a scoring system permitting children to be classified as *secure* (B), insecure in an *avoidant* (A) way, or insecure in a *resistant* (C) way. This scoring system was used in the present study. The complementary scoring system developed by Main and Solomon (1990) was also used to code for an additional *disorganised* (D) category, but this category was not included in the statistical analysis for the present study as disorganised insecurity is linked to frightening parental behaviours that fall beyond the scope of our research questions (Main & Hesse, 1990). Scoring was executed by a trained coder. Agreement was as follows: 80% for the three- and the four-category scheme. The correlation coefficient for the inter-rater reliability of the disorganisation scale was 0.73 ( $p < 0.001$ ). To enhance the statistical power of our analysis, we grouped the different types of insecurity together, so children who were avoidant or resistant were compared as a whole (A, C) to those who were secure (B).

#### *Children's quality of activation with their father*

The RS (Paquette & Bigras, 2005, 2010) was used to assess the quality of activation with the father. Similar to the SS, it is a standardised observational procedure designed for 12- to 18-month-old children. The procedure lasts about 20 minutes and takes place in an unfamiliar laboratory. It is divided into six structured episodes lasting three minutes each. After instructions have been given to the parent, the child is seated on the floor in front of available toys, while the parent reads a magazine on a chair behind the child (Episode 1). Then, a male stranger enters the room, sits on the floor and starts playing with the toys without interacting with the child or the parent (Episode 2). After three minutes, or earlier if the child initiates interaction with him, the male stranger starts playing with the child and becomes increasingly stimulating and intrusive (Episode 3). Toys are put away and a big colourful set of stairs that was hidden behind drapes is uncovered (Episode 4). The parent is then asked to place the child on the platform at the top of the stairs, to invite the child to go down the stairs and then to encourage the child to go up and down (Episode 5). Finally, the parent is asked to forbid the child to climb the stairs (Episode 6). Throughout the procedure, the parent is allowed to interact with the child when discipline is required, when giving instructions to stimulate the child or when comfort is needed by the child; otherwise the child is to be left alone, for the same reason as in the SS.

A coding grid was developed by Paquette and Bigras (2005, 2010) to permit children to be classified as activated, underactivated or overactivated. An *activation score* can also be determined based on how much of the child's behaviour corresponds to the activated category. The score ranges from 0 to 5, with the high score of 5 representing optimal activation. This is the score that was used in the present study, since it provides better statistical power for analysis with smaller numbers of participants, as in this case, without the sample having to be subdivided into different categories. For the present study, average inter-rater agreement for the activation score was 70% for the three types and 82% for decisions based on the five criteria. Intraclass correlation was 0.93 ( $p < 0.001$ ) for the activation score. Each case was discussed to reach a final consensus.



### *Fathering*

The *Daily Activities* (DA) questionnaire was used to assess father involvement, utilising items extracted from the *Montreal Father's Involvement Questionnaire*, which has been validated with 434 fathers and shows good internal consistency and test–retest reliability (MFIQ; Paquette, Bolté, Turcotte, Dubeau, & Bouchard, 2000). Fathers answered the following question on a five-point Likert-type scale ranging from 1 ('never or almost never') to 5 ('always or almost always'): 'How frequently are the following activities done by you, your spouse, or someone else (a professional caregiver, a grandparent, an older child, etc.)'. The questionnaire includes different scales related to different spheres of paternal involvement. For the purpose of our research questions, we used only one of the instrument's original scales, Discipline (4 items,  $\alpha=0.64$ , e.g. 'punish your child for bad behaviour', 'scold your child because he disobeyed'), and computed two new scales, a Stimulation scale with related items from the Physical Play, Emotional Support and Opening to the World scales (5 items,  $\alpha=0.73$ , e.g. 'rough and tumble play with your child', 'tickle your child', 'encourage your child to succeed at something difficult', 'introduce your child to sports', 'introduce your child to new games') and a Comfort scale with different related items from the Emotional Support and Basic Care scales (18 items,  $\alpha=0.73$ , e.g. 'comfort your child', 'take care of your child when he or she is sick', 'wake up at night for your child', 'give your child a bath'). All items had to be answered by distributing a total of six points across all possible caregivers (e.g. father, spouse, professional caretaker, grandparent, older child, etc.) Thus, all answers had to rate the involvement of at least two people (the highest possible score on the Likert-type scale being 5). The final score on each scale is therefore relative.

### *Children's socio-emotional development*

Professional caregivers completed an extended version (80 items) of the *Social Competence and Behaviour Evaluation Scale* (SCBE; LaFreniere & Dumas, 1995). Using a six-point Likert-type scale ranging from 1 ('never') to 5 ('always'), they answered the question: 'How frequently does the child engage in the following behaviour?' The questionnaire includes 16 basic scales of five items each that are aggregated into four summary scales. Three of the summary scales were used in the present study: Social Competence (a total of 40 items combining the following basic scales: Joyful, Secure, Tolerant, Integrated, Calm, Prosocial, Cooperative, Autonomous), Internalising Problems (a total of 20 items combining the following individual scales: Depressive, Anxious, Isolated, Dependent) and Externalising Problems (a total of 20 items combining the following individual scales: Angry, Aggressive, Egotistical, Oppositional). On each summary scale, even on the Internalising and Externalising Problems scales, a high score represents optimal development (recoding is done during the coding process so that all scales use the same rating scale). Previous research has demonstrated that the SCBE is significantly related to parent–child interaction, and the measure's reliability and validity have been thoroughly assessed (LaFreniere & Dumas, 1995). Internal consistencies in the present study were similar to those previously reported ( $\alpha=0.77-0.90$ ).

### *Data analysis plan*

Prior to analysis, all variables were examined following the recommendations of Tabachnick and Fidell (2007). Potential group differences were examined on each of

the outcome variables for the dyads lost due to attrition or missing data. No statistical differences were found in either case or were there any differences for demographic variables.

Before regression analyses were executed, predictors (e.g. SS, RS) and moderators (e.g. comfort, stimulation and discipline) were centred to eliminate the risk of multicollinearity. Initial regressions were run for each outcome variable (e.g. social competency, internalising problems and externalising problems). To test for moderator effect, we followed the two-step procedure outlined by Baron and Kenny (1986): in a sequential regression analysis, Step 1 included the selected predictor and moderator, and Step 2 included the interaction between the two (i.e. predictor  $\times$  moderator). The significance of the moderation was indicated by the significance of the interaction in Step 2.

To obtain a better understanding of the specific conditions under which each predictor is significantly related to each outcome, we followed the *post hoc* probing technique recommended by Holmbeck (2002) for all our significant moderator effects. First, two new variables were computed for each moderator by adding or subtracting one standard deviation of the moderator, creating, more specifically, both a high and a low level for each type of involvement. After that, simultaneous regressions were run with each new moderator individually, including once again the predictor, the new moderator and the interaction between the two. The significance of different levels of involvement was indicated by the significance of the simple effect of the predictor at each level of the new moderator. Corresponding regression lines were then plotted by substituting high (1 SD above the mean) and low (1 SD below the mean) values for each predictor (see Figures 1 and 2).

## Results

### *Descriptive statistics*

In our study, 60.3% ( $n=35$ ) of children were secure (B) and 39.7% ( $n=23$ ) of children were insecure (A and C), according to the ABC system. Other means and standard deviations for all variables are shown in Table 1. From Table 1, we can see that the average score for activation was modest, so the children's level of activation was moderate. Categories were not used with the RS, but it is worth mentioning that 43.1% ( $n=25$ ) of the children were activated, 27.6% ( $n=16$ ) were underactivated and 29.3% ( $n=17$ ) were overactivated. The average score on all our outcome variables was noticeably high, suggesting that children's socio-emotional development was generally good rather than problematic. As to paternal involvement, the average score for stimulation and discipline was modest, so involvement in those domains was moderate. The average score for comfort was low, so fathers would appear to have been less involved in this domain. We have to remember that these scales are relative, meaning that fathers do as much stimulation and discipline as their spouses or significant others but do less comforting.

### *Correlations*

Table 1 also shows the correlations among all variables. Interestingly, activation and attachment were not significantly related, providing further evidence that the RS

Table 1. Descriptive statistics and correlations among all variables.

	Mean	SD	1	2	3	4	5	6	7	8
1. RS (activation)	2.29	1.22	–	–0.00	0.09	–0.07	–0.10	.17	0.31*	0.03
2. SS (attachment)	–	–	–	–	–0.08	–0.08	0.08	–.17	–0.01	–0.23
3. Discipline	11.88	2.13	–	–	–	0.23 <sup>†</sup>	0.16	–0.10	0.16	0.07
4. Stimulation	15.28	2.62	–	–	–	–	0.55**	0.09	0.33*	0.13
5. Comfort	27.88	7.89	–	–	–	–	–	0.47**	0.19	0.03
6. Competence	135.10	24.21	–	–	–	–	–	0.32*	0.64**	0.37**
7. Internalising	79.24	8.03	–	–	–	–	–	–	–	0.31*
8. Externalising	76.20	10.47	–	–	–	–	–	–	–	–

<sup>†</sup> $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ .

captures a different construct than the SS. All the outcome variables were significantly related to one another, which is consistent with what would usually be expected (LaFreniere & Dumas, 1995). There was also a moderate, positive correlation between the activation score and internalising problems (recall in the *Methods* Section, a higher score means fewer internalising and externalising problems). By means of an ANOVA, it was possible to determine that underactivated children have more internalising problems ( $F=2.68, p<0.01$ ), as previously predicted by Paquette and Bigras (2010). With the SS (attachment), no significant relationship was found with any of the outcome variables. With regard to involvement, for stimulation a strong, positive correlation was found with social competence, and a moderate, positive relation with internalising problems. For comfort, there was a moderate, positive correlation with social competence. Discipline was not significantly related to any of the outcome variables. This was not problematic for our analysis, as it is better that moderator and predictor variables be uncorrelated with outcome variables for a clearer interpretation of interaction terms (Baron & Kenny, 1986). There was no significant correlation with any of the moderators and predictors either. Finally, there was a strong, positive correlation between stimulation and comfort. No significant relationship was found between externalising problems and any of our predictors or moderators.

### **Regression analyses**

Our first research question led to the hypothesis that the RS procedure with fathers will better predict children's socio-emotional development than the SS procedure. To verify this, sequential regression analyses were run individually with each procedure and outcome variable. Only one of the procedures did indeed predict children's socio-emotional development, and that was the RS. No significant relations were found between attachment (SS) and children's socio-emotional development. Only one aspect of children's socio-emotional development was predicted by activation (RS): internalising problems ( $F=5.04, p<0.05$ ).

Our second research question was divided into two hypotheses. First, we hypothesised that the SS procedure will be a better predictor of children's socio-emotional development when the father is more involved in comfort, but that no relation will be found to his involvement in stimulation or discipline. To verify this, we followed the technique outlined by Baron and Kenny (1986; see *Data Analysis Plan* Section). With attachment (SS), no significant moderator effect was found with any of the outcome variables. Therefore, even when the nature of paternal involvement was taken into account, attachment did not become a better predictor of children's socio-emotional development.

We did the same analyses with the RS. Our second hypothesis here was that *the Risky Situation procedure will be a better predictor of children's socio-emotional development when the father is more involved in stimulation and discipline, but that no relation will be found to his involvement in comfort*. With activation (RS), including father involvement in the analysis produced a new predictive relation. More specifically, the interaction between the RS and father involvement did predict children's social competence: with discipline as a moderator, 16% of the variance was now explained, and with stimulation as a moderator, 35% of the variance was now explained (Table 2). Similar results were not found for internalising and externalising problems.

Table 2. Summary of significant moderator effects (activation by discipline and stimulation) predicting social competence.

Variables	$R^2$	$\Delta R^2$	$B$	SE $B$	$\beta$	$p$
<b>Outcome: social competence</b>						
<i>Moderator: discipline</i>						
<i>Step 1</i>	0.04	0.04				
Activation			3.88	3.01	0.19	0.20
Discipline			1.05	1.97	0.08	0.60
<i>Step 2</i>	0.16	0.12				
Activation			-3.79	2.85	0.18	0.19
Discipline			0.28	1.89	0.02	0.88
Activation $\times$ discipline			-4.89	1.96	-0.35	0.02
<i>Moderator : stimulation</i>						
<i>Step 1</i>	0.28	0.28				
Activation			4.78	2.53	0.24	0.07
Stimulation			4.61	1.15	0.50	0.00
<i>Step 2</i>	0.35	0.07				
Activation			3.10	2.54	0.15	0.23
Stimulation			4.83	1.11	0.53	0.00
Activation $\times$ stimulation			-2.32	1.04	-0.28	0.03

Involvement in comfort did not produce a new predictive relation, which was as expected.

Holmbeck's (2002) *post hoc* probing technique was used to obtain a better understanding of moderator effects. Involvement in stimulation and discipline made a difference, but only at a low level of involvement. As for discipline, when paternal involvement in discipline was low, the more children were activated, the more socially competent they were (Figure 1).

With regard to stimulation, when paternal involvement in stimulation was low, the more children were activated, the more socially competent they were (Figure 2).

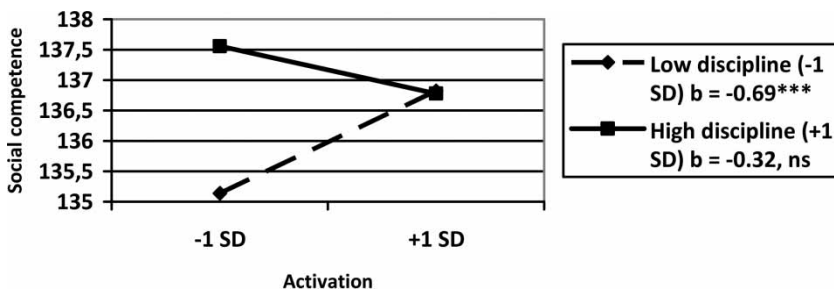


Figure 1. Activation and social competence by discipline.

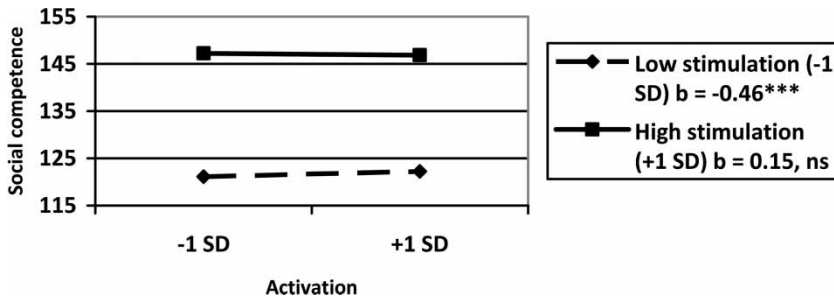


Figure 2. Activation and social competence by stimulation.

## Discussion

What about the nature of the child's tie to the father? It is a tie that develops through different mechanisms than those involved in the development of the tie with the mother, and it influences children's socio-emotional development in a unique way (Dumont & Paquette, 2008; Paquette, 2004). This is what more and more researchers are theorising, but very few have empirically examined how specific fathering behaviours influence the formation of an attachment relationship. However, the present study has done this by comparing how two different procedures for assessing attachment quality are able to predict children's socio-emotional development, with one of the procedures being primarily connected to parental involvement in comfort (SS), and the other to parental involvement in stimulation and discipline (RS). The results underscore the value of the activation relationship theory and the RS procedure as a means for comprehending and capturing the essence of father-child attachment.

First of all, only activation is significantly related to children's socio-emotional development. Attachment is not, even when taking paternal involvement in comfort into account. Based on attachment theory (Ainsworth et al., 1978), we had expected the SS to be a better predictor of children's socio-emotional development when involvement in comfort is higher, but this has proven not to be the case. Higher paternal involvement in comfort does not enhance the predictive validity of the SS. This is consistent with previous research suggesting that the SS is less valid for assessing father-child attachment due to the latter's unique underlying mechanisms (Bretherton, 2010; Dubeau & Moss, 1998; Volling & Belsky, 1992; Youngblade et al., 1993). Fathers might act as activation figures or openness-to-the-world figures, even when they are more involved in comfort (Geiger, 1996). On average, the fathers in the current sample were less involved in comfort than were their spouses or significant others. Perhaps, involvement in comfort needs to be higher in comparison for it to make a difference. Repeating this study with primary caregiving fathers would help verify this (Lamb, Frodi et al., 1982; Lamb, Hwang et al., 1982; Russell, 1982).

The RS scores predict children's socio-emotional development but only for internalising problems. The predictive relationship is positive, meaning that children who are optimally activated are less depressed, less anxious, less isolated and less dependent. This is consistent with the activation relationship theory (Paquette, 2004). When encouraged to take risks, either social or physical, children develop greater confidence in themselves and others, and open up to the outside world. How can one explain the fact that externalising problems and social competence are not predicted by the RS as

well? In the current study, the average score for externalising problems was noticeably high, suggesting that it was generally not a problem. Variance on the scale might have been too low to statistically discriminate between children. Repeating this study with a larger sample or a sample with greater variability in emotional outcomes would be useful to enhance the power of the statistical analysis. As for social competence, although no predictive relationship was initially found with the RS, one was found when paternal involvement was taken into account. The RS did predict social competence, but only for specific levels of stimulation and discipline. In fact, only a low level of involvement makes a statistical difference, and the way it does is somewhat surprising: at low levels of stimulation and discipline, poorer activation quality is associated with lower social competence, and greater activation quality is associated with greater social competence.

With regard to discipline, the activation relationship theory stipulates that limit-setting is important in permitting children to feel safe and secure while exploring (Paquette, 2004). However, discipline can be done in very different ways. Looking back over the items of the scale used, it is apparent that they may have measured a more punitive kind of discipline. For discipline to be beneficial, it must facilitate the development of openness to the outside world, not interfere with it (Paquette, 2004). Punitive discipline could easily interfere with activation, explaining the results found here. In future research, it would be important to measure non-punitive discipline, more specifically, discipline that consists of setting appropriate limits and compare the results. Still, it is interesting to see that discipline makes a difference and more particularly that a punitive kind of discipline can counteract optimal activation. With regard to children who are more poorly activated, it would be interesting in future research to differentiate between overactivation and underactivation. For example, low levels of limit-setting could more often than not be detrimental for children who are overactivated, even if limits are set in a more punitive way.

The results concerning stimulation also seem surprising at first. Again, it is easy to understand how lower rates of involvement in stimulation can be unhelpful when children are poorly activated, but how can they be helpful when activation is optimal? When children are stimulated by their father, they have the opportunity to experience novelty and exciting challenges. According to the activation relationship theory (Paquette, 2004), we would expect those opportunities to help children regulate arousal in a socially acceptable manner and become more socially competent. But like discipline, stimulation can also be done in very different ways (Clarke-Stewart, 1978; Crawley & Sherrod, 1984; Kazura, 2000; Kotelchuck, 1976; Yeung, et al., 2001). The scales used in the present research do not directly measure the quality of involvement, just its frequency. The fathers in this sample may not have stimulated their children in a way that was sufficiently facilitating or exciting to make a difference. In fact, the fathers in this sample were only moderately involved in stimulation, which means that they did not stimulate their child more than their spouses or significant others did. Moreover, there is a strong, positive correlation between the fathers' level of involvement in stimulation and their level of involvement in comfort. Paquette and Bigras (2010) have already suggested that activation would have less impact on children when fathers are more involved in caregiving activities. The resulting quality of stimulation would be less exciting and less destabilising, explaining why it could interfere with activation, as was the case in our study (MacDonald, 1987). For future research, it would be useful to measure stimulation that places a greater focus on risk-taking and compare the results. Nevertheless, it is once again interesting to see that stimulation

does make a difference, and just like punitive discipline, the quality of involvement may have more impact on the socio-emotional development of children who are already optimally activated. For children who are poorly activated, lower involvement is once again detrimental here, perhaps because for such children more involvement is simply better than less. This would need to be verified in future research.

This study was done with a relatively modest number of participants, and statistical power concerns prevented us from doing comparisons between different categories, such as the different types of attachment insecurity (e.g. avoidant, resistant, disorganised), the different types of activation (e.g. activated, underactivated, overactivated), the different types of fathering (e.g. primary vs. secondary caregiver, primary vs. secondary playmate), boys and girls. It would be very interesting to compare those categories with a larger sample, and possibly discover new predictive relations. For example, Paquette and Bigras (2010) have already shown that there may not be any sex difference regarding security of attachment with attachment (SS), but there are sex differences regarding activation (RS). Boys are generally more activated than girls, so sex differences in fathering could also moderate the predictive relationship of the RS.

Even with the small number of participants, strong predictive relations were found in this study between father–child attachment, fathering and children’s socio-emotional development. We are still not sure how much involvement itself is influenced by biology or physiology, and how much by everyday interactions. Perhaps, due to intrinsic sex differences, parents tend to be involved in typical gender-specific ways with their children, but these ways may then be modified by society or the requirements of everyday life. This is clearly a complex matter. However, with this study on fathers, we can no longer ignore the fact that attachment is not only about comfort fostering a sense of security; it is also about opening the child to the outside world. Only the RS was able to predict children’s socio-emotional development, and the RS is designed to assess the father’s tendency to open the child to the outside world (Paquette, 2004). In itself, this result is a big step forward toward achieving a better understanding of the mechanism underlying father–child attachment, as well as of attachment relationships in general. It would be vital from now on to specify the predominant mechanism referred to when studying attachment, either comfort leading to activation (comfort–activation style) or activation leading to comfort (activation–comfort style), and to use the appropriate measures to evaluate it. Every attachment figure may be involved in both comfort and activation, but with a different balance and predominant style. Bourçois (1997) has already found that when parents have different styles, children are more socially competent. This turns out to be especially true when fathers have a ‘specifically paternal’ style, by which the author means that the father is the parent more involved in play, discipline and opening the child to the outside world.

The present study only involved fathers and this is an important limitation, even though the father’s involvement was measured here in comparison to the involvement of a significant other, most often the mother. Still, it would certainly be interesting to repeat this study with both parents simultaneously, to truly grasp fathers’ and mothers’ unique contributions to children’s socio-emotional development. It is important to keep in mind that the purpose of comparing parents or attachment styles is not to emphasise differences but to better understand and appreciate how two parents can respectfully and efficiently complement one other for the greater benefit of their children.



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