

Autonomy and relatedness during the preschool period:
An examination of parent-child interactions within and across cultures

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Thesis submitted in partial fulfillment of the requirements
for the PhD in Psychology

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General Abstract

This thesis explores parents' promotion of both autonomy and relatedness in their interactions with their preschool children. In particular, it examines these behaviours in contexts beyond those that have been the traditional focus of research to date: mothers living in the Western world. To achieve this, a novel coding system was developed for observations of parent-child interactions: the Cross-cultural Observations of Parents Interacting with Children (COPI-C) Coding System. Using the COPI-C, the first study of this thesis explores mothers' autonomy- and relatedness-promoting behaviours from a cross-cultural perspective by comparing samples of Canadian mothers and Singaporean mothers. In contrast, the second study explores autonomy- and relatedness-promoting behaviours from an intra-cultural perspective by comparing samples of Canadian mothers and fathers from the same families. Importantly, in addition to describing cross-sample differences in autonomy- and relatedness-promoting behaviours, both studies also examine the theoretical correlates of these behaviours (i.e., socialization goals, the child-parent attachment relationship, children's socio-emotional functioning) and how context (either culture or gender) might moderate these associations. In Study 1, results identified several differences between Canadian and Singaporean mothers, with Canadian mothers generally displaying greater autonomy-promoting behaviours and Singaporean mothers generally displaying greater relatedness-promoting behaviours. Singaporean mothers tended to endorse greater interdependent socialization goals, but cross-sample differences in socialization goals did not account for cross-sample differences in maternal autonomy- and relatedness-promoting behaviours. Still, several autonomy- and relatedness-promoting behaviours showed differential associations with child outcomes across cultural contexts: some behaviours predicted positive child outcomes in one context, but not the other. In Study 2, results identified several differences

between Canadian mothers' and fathers' autonomy- and relatedness-promoting behaviours. Furthermore, parents' interdependent socialization goals varied as a function of an interaction between parent gender and child gender. Together, the studies presented herein highlight the importance of considering the socio-cultural context in understanding parent-child interactions and their developmental correlates.

Acknowledgements

The completion of a thesis is a challenging undertaking, but ultimately, it is a labour of love. Therefore, I wish to acknowledge the many people who were instrumental in allowing me to pursue my passion for understanding the human mind.

To my research advisor, Dr. Jean-François Bureau: Thank you for being the ideal “academic attachment figure.” I have always felt secure in knowing that you were never too far away – even when you were on the other side of the world. This has enabled me to explore in so many ways, both intellectually and personally. Thank you for your unconditional positive regard, for challenging so many of my schemas, and for always rushing to my defence against Reviewer 2.

To my research co-advisor, Dr. Anne Rifkin-Graboi: Thank you for the infinite opportunities to expand my own knowledge and experiences, and to pursue the research project of my dreams. Thank you for always welcoming me so warmly into your lab and your home – it was heartening to know that I always had a safe place to land.

To my committee members, Dr. Cristina Atance, Dr. Patricia Brosseau-Liard, and Dr. Stuart Hammond: Thank you for your thoughtful comments and for contributing greatly to the improvement of this thesis. Your desire to see me succeed has always been a source of great motivation.

To my parents: Thank you for your tireless dedication to giving me a better life. It was not always apparent to me how supremely you have nurtured my growth and success, but this work that I have been able to pursue emphasizes that there are so many different ways for parents to show love to their children. Only the perspective of maturity and contemplation has

allowed me to fully understand this. My hope is that this thesis honours the challenges and sacrifices you have endured to bring me to this point.

To my beloved partner, Jonathan: Thank you for always reminding me that there is a world outside of academia and for always offering your fresh perspective. Thank you for the opportunity to know another's mind so intimately and deeply, as invasive as I can sometimes be. Most importantly, thank you for giving me the final push I needed to finish this thesis! (I believe I've earned that puppy now...)

To the lifelong friends I made in grad school, Jacky, Kathy, Sinthujaa, and Susanna: Thank you for your comradery and commiseration. As the few people who understand exactly what grad school entails, I am forever grateful for your companionship.

To my lab mates at the CARELab in Ottawa: Thank you for your support and fellowship over the years. Thank you, especially, to Kim and Audrey-Ann, for your energy and expertise in coding the attachment data used in this thesis.

To my lab mates at the NDRC in Singapore: Thank you for embracing me from the moment I landed in your beautiful country, for teaching me about my second home, and for introducing me to kopi-c, the drink for which my coding system has been lovingly named.

To the undergraduate students and interns with whom I had the pleasure of working, Claudia, Martha-Émeline, Timothy, Syaza, and Victoria: Thank you for your dedication and diligence in coding the countless hours of snack interaction recordings.

Finally, to the families who participated in my research: Thank you for contributing your time and energy. This work would not have been possible without your generosity and dedication to the advancement of human knowledge.

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Chapter 1:

General Introduction

In most Western countries, the preschool period marks a particularly important transition period, as children prepare to venture outside the family environment and to form various new social relationships with peers and teachers. Parents, in particular, play an influential role in helping children to navigate this transition period, as they teach children about how to be self-sufficient as individuals, but also about how to interact positively with others and to fit in with their peer group. There remains, however, many unanswered questions regarding the ways in which parents approach these developmental challenges through their interactions with their preschool children, and how variation in these interactions relate to various developmental outcomes. For instance, while some research in the preschool period indicates that mothers' autonomy-promoting beliefs and/or behaviours (i.e., those that affirm the child as individuals, with freedom of choice and agency) are predictive of children's attachment security and positive social adjustment (Joussemet, Koestner, Lokes, & Landry, 2005; Whipple, Bernier, & Mageau, 2010), such work has been limited to the specific case of mothers from a Western cultural context. Given that the Western context is characterized by an emphasis on individualism and personal autonomy, it is important to determine whether mothers' autonomy-promotion is similarly important in contexts that place relatively less emphasis on autonomy and/or relatively more emphasis on other values. Furthermore, even within the individualistic Western context, mothers are often not the sole caregiver in children's lives, thus necessitating the consideration of other important caregiving figures, who may potentially approach their roles as caregivers differently from mothers.

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Background

According to Self-Determination Theory (SDT; Deci & Ryan, 2000), the satisfaction of three major needs is essential to an individual's well-being: competence, autonomy, and relatedness. While the need for competence comprises the need for mastery of one's environment, the need for autonomy comprises the need for agency and self-integration, and the need for relatedness comprises the need to feel connected to others (Allen, Hauser, Eickholt, Bell, & O'Connor, 1994; Deci & Ryan, 2000). Although autonomy and relatedness may seem to be opposing needs, to feel agency (autonomous) does not necessarily imply separateness (or lack of relatedness) from others (Deci & Ryan, 2000; Hodgins, Koestner, & Duncan, 1996). Thus, as Hodgins et al. (1996) describe, autonomy and relatedness are complementary, rather than conflicting needs.

Recognizing the pertinence of autonomy from a developmental perspective, the field of attachment has recently begun to integrate concepts from SDT into its conceptualization of the child-parent relationship. First formulated by John Bowlby (1969/1982), attachment theory posits that an attachment bond forms between a child and an attachment figure in order to promote both protection in times of distress, but also exploration in times of non-distress. Thus, an ideal caregiver alternates between acting as a "haven of safety" and a "secure base" from which to explore. The quality of the attachment relationship, which describes the extent to which a child believes or trusts that the caregiver can effectively meet their needs, however, can vary. Relationships characterized by secure (as opposed to insecure) attachment behaviours are those that enable both effective coping during times of distress and unencumbered exploration of the environment in times of non-distress, and indeed, it is these types of attachment behaviours that have been associated with the most positive child outcomes (Cassidy et al., 1996; Sroufe, 2005).

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As the quality of the attachment relationship is thought to result from the history of interactions between the caregiver and child, much work has focused on identifying individual differences in caregiver behaviour that predict the formation of a secure attachment bond. Although caregiver sensitivity, or the degree to which a caregiver responds promptly and appropriately to a child's needs, has long been thought a major determinant of attachment security (Belsky, Rovine, & Taylor, 1984; DelCarmen, Pedersen, Huffman, & Bryan, 1993), meta-analysis has actually shown that caregiver sensitivity accounts for only a small portion of variance in attachment security (van IJzendoorn & de Wolff, 1997). Thus, there remain other important determinants of attachment security that have yet to be identified.

Noting this limitation, and the fact that the needs of autonomy and relatedness reflect, in many ways, the complementary roles of an attachment figure outlined by attachment theory, Whipple et al. (2010) drew from SDT in order to identify additional predictors of infant-mother attachment. In their study, maternal autonomy-support was associated with observed attachment security. Importantly, this association was found to exist above-and-beyond maternal sensitivity, as traditionally measured, thus suggesting that the addition of SDT to the attachment field may help to build a more comprehensive understanding of the child-parent relationship. Importantly, although conducted with infants, Whipple et al.'s (2010) results integrating SDT with the study of child-parent attachment may be especially relevant to studies during the preschool years, as children become less dependent upon caregivers for the satisfaction of immediate physical needs (i.e., as in infancy) and more dependent upon caregivers to support more abstract needs (e.g., the need for co-constructed play, the need to understand particularly complex aspects of the social world around them). Furthermore, owing to their maturing socio-cognitive and linguistic abilities, preschool children are also in a position to better express more complex needs in order

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to elicit particular responses from their caregivers, and to understand that their caregivers may have intentions or goals different from their own – a phenomenon Bowlby called “the goal-corrected partnership.”

It is crucial to note, however that while the study by Whipple et al. (2010) examined the implications of autonomy-promoting behaviours in a sample of Canadian mothers, it is also important to determine whether these associations are similarly observable in contexts in which autonomy is valued relatively less and/or relatedness is valued relatively more. Furthermore, the authors themselves point out that other caregivers – such as fathers – are crucial to consider. Thus, in an effort to expand upon research that has, to date, focused largely on mothers and children from Western contexts, this thesis explores how parents promote the two fundamental yet complementary needs of autonomy and relatedness in their interactions with their preschool children both cross-culturally and intra-culturally. While the first investigation of this thesis examines mother-child interactions from a cross-cultural perspective by examining mother-child dyads from a relatively individualistic context (Canada) versus a relatively collectivistic context (Singapore), the second investigation explores intra-cultural variation in parents’ autonomy- and relatedness-promoting behaviours by examining mother-child and father-child dyads from within the same cultural context (Canada). In addition to simply describing differences in these behaviours, both investigations also explore how parents’ beliefs predict their autonomy- and/or relatedness-promoting behaviour, and how their autonomy- and/or relatedness-promoting behaviour predict children’s developmental outcomes.

Autonomy and Relatedness Across Cultural Contexts

In cross-cultural research, it has been observed that one of the most meaningful markers of variation among cultures is the extent to which they emphasize individualism or collectivism.

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Generally, individualism describes the prioritization of personal rights and independence among people. In contrast, collectivism describes the prioritization of social harmony and interdependence among people. Examples of prototypically individualistic societies include those found in Western Europe and North America, while examples of prototypically collectivistic societies include those found in East Asia and Africa (Triandis, 2001). Given that cultures vary in how they fundamentally conceptualize the individual's place in society, the study of both autonomy and relatedness, as complementary needs for individual well-being, is especially relevant to cross-cultural research. Furthermore, as culture permeates all aspect of human life, it should be expected that cultural variation in the emphasis of autonomy and relatedness are relevant to the study of child-parent relationships, especially given that parents serve as the major source of learning about the self and others in early life.

Despite increasing efforts to broaden the representativeness of psychological research, samples from prototypically individualistic Western cultures (i.e., English-speaking North America, and Northern and Western Europe) still comprise the bulk of participants in psychological research (Arnett, 2008). It is therefore unsurprising that a child's need for autonomy has been emphasized in research and would be expected to make meaningful contributions to healthy child development. However, Western samples do not represent the world's population; nor, do they even represent the majority of it (Rothbaum & Trommsdorff, 2007). Acknowledging the diversity that exists among the world's cultures, it has been recently argued that the socialization of relatedness may play an equal if not greater role in non-prototypically individualistic cultures (Kagitcibasi, 2011).

Although it is a universal expectation that a parent's primary role is to raise a child to become a well-adjusted contributing member of society, the ways in which parents interact with

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their children are driven by a set of culturally-determined (and therefore variable) beliefs about how an ideal parent should behave. For instance, in prototypically individualistic societies that generally view the individual as relatively distinct from others, a caregiver is regarded as a quasi-equal partner whose role is to facilitate the child's independence, agency, curiosity, and development of a separate and unique self. In contrast, in prototypically collectivistic societies that generally view individuals as interconnected, a caregiver is regarded primarily as an authority figure whose role is to emphasize interdependence, obedience, humility, self-sacrifice, and accommodation to others' needs (Keller et al., 2004). Indeed, cross-cultural studies indicate that caregivers generally behave in ways that are consistent with these contrasting models. It has been observed, for instance, that mothers from individualistic societies are more likely to adopt a distal, face-to-face orientation when interacting with their children, which particularly emphasizes the child's separateness. In contrast, mothers from collectivistic societies are more likely to establish proximal contact with their children through physical touch and control, a mode of interaction that emphasizes relatedness through the blurring of the physical boundary between self and other (Harwood, Schoelmerich, Schulze, & Gonzalez, 1999; Kartner, Keller, & Yovsi, 2010; Rogoff et al., 1993).

While caregiving behaviours can be expected to differ in culturally-relevant ways across contexts, the description of such differences is only a limited first step. It is equally important to examine the correlates of such behaviour. For instance, it is important to determine whether these differences actually have meaningful consequences on children's development. In both the cases of child-parent attachment and children's social adjustment, research on Western samples has implicated parental autonomy-promotion as being predictive of the most optimal child outcomes (Pianta, Nimetz, & Bennett, 1997; Whipple et al., 2010). What remains unclear, however, is

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whether similar associations are observable in cultural contexts that might emphasize autonomy needs less and/or relatedness needs more. Indeed, cross-cultural research suggests that parents may help children to reach universal developmental outcomes via differing pathways, which vary according to what is valued in their local cultural context (Chao, 2001; Halgunseth, Ispa, & Rudy, 2006; Iyengar & Lepper, 1999). Therefore, in examining the links between parents' autonomy- and relatedness-promoting behaviours and children's developmental outcomes, it is important to distinguish between the *form* of a particular behaviour and its resulting *function* (Bornstein, 1995). Specifically, while a single behaviour may manifest itself in different cultural contexts, the kinds of outcomes it predicts may be very different: in one context, it may be adaptive, while in another, it may be maladaptive, or simply inconsequential. Furthermore, the distinction between behavioural form and function necessarily means that it is also possible for children across contexts to achieve similar developmental outcomes (i.e., attachment security and child social adjustment) via differing pathways. With these considerations in mind, the first study of this thesis explores the process of socializing autonomy and relatedness in two differing cultural contexts: one that is relatively individualistic (Canada) and one that is relatively collectivistic (Singapore). This was achieved, in part, through the development and use of a novel observational behaviour coding system, the Cross-cultural Observations of Parents Interacting with their Preschool Children (COPI-C; Quan & Bureau, 2015), which is described in further detail in Chapter 2.

Autonomy and Relatedness Within the Canadian Context: Variation Across Mothers and Fathers

Just as there may be meaningful variation in the manifestation and correlates of mothers' autonomy- and relatedness-promoting behaviours across cultural contexts, there may also be

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meaningful variation in these phenomena across mothers and fathers within the same cultural context. Particularly within industrialized Western nations, the roles of men and women have undergone remarkable change over the last century. Due to wider acceptance of cultural norms regarding equality of the sexes, women have become substantially more involved in the labour force (Bureau of Labor Statistics, 2013; Statistics Canada, 2010), while men are now involved in childrearing more than ever before. Specifically, although mothers remain the primary caregiver in most cases, the amount of time that fathers spend with their children has nearly doubled over the past fifty years (Pleck, 2010). With this rise in father involvement in childrearing, there has been a growing interest and recognition of fathers' influences on child development.

While early research first investigated fathers' involvement in terms of the amount of time spent with children, more recent research has examined qualitative aspects of fathers' childrearing behaviours, particularly from an observational perspective. Such research has shown several differences in the ways that mothers and fathers choose to interact with their children. For instance, it has been noted that mothers tend to prefer distal and object-mediated play, to speak more about internal states (i.e., desires, feelings, cognitive processes; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003), and to adjust their speech to their children's linguistic abilities (McLaughlin, White, McDevitt, & Raskin, 1983; Rondal, 1979). Fathers, on the other hand, tend to prefer more proximal and physically stimulating play (i.e., involving more physical contact such as play fighting; Power & Parke, 1983; Yogman, 1981), to use more directive speech (Leaper, Anderson, & Sanders, 1998), and to place greater demands on their children by asking their children for more clarification and by asking questions that require more complex responses (McLaughlin et al., 1983; Rondal, 1979).

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Functionally, the behaviours expressed preferentially by fathers, some suggest, serve to both scaffold and model more complex sociocognitive and sociolinguistic abilities, thus “bridging” the gap between mothers’ more accommodating style, and the considerably more complex environment of the outside world (Crain-Thoreson, Dahlin, & Powell, 2001). Therefore, some theorists have argued that fathers especially contribute to children’s development of autonomy and exploration by socializing children to face the unfamiliar (Paquette, 2004). They do this by introducing children to more destabilizing scenarios, thereby challenging them to confront novelty, under safe and controlled conditions. Importantly, however, such claims about the father’s role remain theoretical and have not been extensively tested by empirical means. In fact, the little empirical evidence that does exist suggests a more nuanced conceptualization of the role of mothers and fathers. Nonetheless, since facing external challenges and gaining personal autonomy are especially important developmental challenges during the preschool period, any contrasts between mothers and fathers should be especially salient during this period. As such, the second study of this thesis explores how the socialization of autonomy and relatedness may manifest differently in mothers versus fathers.

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Chapter 2:

Development of the Cross-cultural Observation of Parents Interacting with Children

(COPI-C) Coding System

Parent-child interactions differ across cultures in culturally-dependent and meaningful ways. Much of this research, however, has been based on observations of mothers interacting with their infants. Given the major shifts in cognitive, linguistic, and emotional capacities from infancy to the preschool years, the nature of parent-child interactions across even the first few years of life vary greatly. For instance, while infants can vocalize during interactions with a caregiver, preschoolers can make more sophisticated bids for their caregivers' attention. Furthermore, they can better understand and discuss subjective states with their caregivers. Such differences, therefore, expand the range of possible exchanges between caregivers and preschool children. This chapter outlines a novel coding system that was designed for assessing observations of caregiver interactions with children in the preschool period and older: the Cross-cultural Observations of Parents Interacting with Children (COPI-C; Quan & Bureau, 2015). While the information presented in this chapter describes the process and rationale behind development of the coding system, the coding manual containing detailed coding instructions can be found in Appendix A.

Background

Self-Determination Theory posits that autonomy and relatedness are two fundamental human needs (Deci & Ryan, 2000; Ryan & Powelson, 1991). In early life, parent-child interactions may be a major source through which these needs are met in children (Ryan & Powelson, 1991), but they may also comprise a major process by which understanding of these needs are formed for later life. However, there is variation in how much these two needs may be

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emphasized relative to one another in various cultural contexts (Greenfield, Keller, Fuligni, & Maynard, 2003; Kagitcibasi, 2011), or indeed, among parents within any given cultural context. The COPI-C coding system was created in order to assess various aspects of parent-child interactions in the preschool period with a particular focus on how parents demonstrate or emphasize autonomy and relatedness to their children in subtle ways.

The development of the COPI-C was based on several methods of examining parent-child interactions. Most notably, inspiration was drawn from methods employed by Keller and colleagues (Keller, 2003; Keller, Borke, Lamm, Lohaus, & Yovsi, 2010; Keller, Borke, Yovsi, Lohaus, & Jensen, 2005; Keller, Otto, Lamm, Yovsi, & Kartner, 2008; Keller et al., 2004, Keller, Yovsi, & Voelker, 2002), which are based upon their conceptualization of parent-infant interactions across cultures. Our coding system, however, also draws inspiration from various other sources, which are further listed below. As many of these methods were developed for assessing parent interactions with infants, efforts were made to adapt these approaches to the developmental context of the preschool period. For instance, we acknowledge that preschool children have the increasing ability to verbalize much of their needs, thoughts, and feelings, thus allowing them to communicate with their parents in much more complex and sophisticated ways. Consequently, we also acknowledge that preschool children have the ability to take on a relatively more active role in parent-child interactions as compared to non-verbal infants, who may occupy a relatively more passive role.

Content Domains

In order to identify the types of behaviours that would be relevant for inclusion in a coding system on parent-child interactions across culture, we conducted a literature review to identify behaviours that might serve to distinguish parent-child interactions across cultures. In

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reviewing the literature, we noted that research on parent-child interactions often contrasted modes of interaction that were characteristic of prototypically individualistic cultural contexts against modes of interaction that were characteristic of prototypically collectivistic cultural contexts. Very generally, in prototypically individualistic contexts, parents tend to adopt an autonomy-promoting strategy, which conveys to the child that he/she is an individual with agency and is relatively separate from others. On the other hand, in prototypically collectivistic contexts, parents tend to display a relatedness-promoting strategy, which convey to the child that he/she is an individual embedded within a wider social context, wherein the division of self and others is more fluid (Keller et al., 2004). It is important to note that while these two strategies may comprise different sets behaviours, the two strategies are not necessarily in opposition to one another, and the presence of behaviours reflective of one strategy does not preclude the presence of behaviours reflective of the other. Specifically, any one parent may exhibit behaviours that could promote autonomy at one point, and behaviours that could promote relatedness at another. In certain cases, it is also possible for a single behaviour or combination of behaviours to contain elements of both strategies.

In order to further study autonomy- and relatedness-promoting behaviours in caregivers, we identified four aspects of parent-child interactions that may be indicative of the type of strategy or strategies being employed. In a general sense, the selection of each aspect of the parent-child interaction was based around four major themes or questions, which aim to address the “who,” the “what,” the “where,” and the “how” of parent-child interactions. Each theme/question and the behavioural indicators chosen are further elaborated below, and a summary of this information is presented in Table 2.1.

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For each major theme with the exception of the last (internal states), we identified behaviours that may constitute either an autonomy-promoting behaviour or a relatedness-promoting behaviour. It is important to note that while we identify a set of autonomy-promoting behaviours and a set of relatedness-promoting behaviours, the behaviours within each set do not comprise an exhaustive list of behaviours that can be summed to obtain a global composite “autonomy-promoting” or “relatedness-promoting” score. Instead, behaviours are grouped together into these two dimensions for conceptual reasons, based on past literature suggesting that such behaviours may either promote autonomy or relatedness in children. It is important to note that in operationalizing the constructs for this coding system, we adopted a relatively quantitative approach by selecting specific behaviours that could be narrowly defined and discretely identified (see Format & Scoring section below for further details). Descriptions and examples for each autonomy-promoting and relatedness-promoting scale can be respectively found in Tables 2.2 and 2.3.

1) Who: Who is directing the interaction? Whose initiatives does the parent prioritize or encourage? While the parent occupies a privileged position as the adult in any given interaction, the degree to which they choose to exercise their authority in directing the flow of the interaction may vary across both situations and contexts. Some parents may interact with their children in a contingent, turn-taking manner, whereby their behaviours are direct responses to their child’s bids, requests, or directives (Keller, 2011). Parents may also sometimes emphasize their own initiatives or encourage cooperation, compliance, and conformity to social norms. The former pattern of interaction may reflect an autonomy-promoting strategy through its treatment of the child as an equal/semi-equal and active interactive partner whose actions have clear, causal effects on the behaviours of those around him/her (Keller, 2011; Keller, Lohaus,

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Volker, Cappenberg, & Chasiotis, 1999; Keller et al., 2008). In contrast, the latter approach may reflect a relatedness-promoting strategy through treatment of the child as an apprentice who must learn to follow others' initiatives (Keller, 2003; Keller, 2011; Rogoff et al., 1993).

As an indicator of the use of an autonomy-promoting strategy, this aspect of dyadic interactions was operationalized as instances in which the parent complies with a verbal request or directive made by the child, or instances in which the parent affirms the child's attempts at redirecting the flow of the interaction. As an indicator of the use of a relatedness-promoting interaction strategy, this aspect was operationalized as the parent's use of verbal methods of influencing the child's behaviour. These may take the form of giving either orders or instructions (often indicated by the use of imperative tense), or any attempt at otherwise inducing compliance with a parental initiative.

2) What: What kind of content does the parent emphasize during the interaction?

How does the parent demonstrate the relative importance of different aspects of the dyad's shared environment? In interacting with their children, parents may choose to emphasize different aspects of their mutual environment. For instance, parents who value autonomy may choose to draw the child's attention to elements in their immediate physical environment, such as the physical objects and their properties (Keller et al., 2004a; Rabain-Jamain & Sabeau-Jouannet, 1997). This serves to emphasize the extra-dyadic space, shifting the child's attention away from the intra-dyadic relationship and placing an emphasis on non-social objects (Keller et al., 2004b). On the other hand, parents who value relatedness may choose to draw the child's attention to the parent-child relationship, either member of the dyad's relationship with others, or other topics of a social nature such as social roles, norms, or routines (Rothbaum et al., 2000). Discussions of

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such topics reflect a relatedness-promotion given that they serve to emphasize the links between individuals.

This COPI-C examines this aspect of dyadic interactions strictly in terms of the content of dialogue. As an indicator of the use of an autonomy-oriented interaction strategy, this aspect of dyadic interactions was operationalized as instances in which the parent draws the child's attention to physical objects in the immediate shared environment and/or their properties. As an indicator of the use of a relatedness-oriented interaction strategy, this aspect was operationalized as instances in which the parent draws the child's attention towards the dyad itself and their relation with one another, to other social entities and their relations with one another, or to general social norms or principles that should be followed (e.g., sharing with others, respect for or deference to elders, recycling, etc.).

3) Where: At what point(s) of contact does the parent choose to engage the child?

What kind of distance is maintained between the dyad during the interaction? The mode of contact chosen by a parent can convey subtle messages regarding the relation between self and other. For instance, a parent may choose more distal forms of contact, which involve face-to-face contact and the stimulation of the child's visual or auditory senses, and a parent may also choose more proximal forms of contact involving physical proximity and the stimulation of tactile or vestibular senses through touch (Keller, 2011; Keller et al., 2004a; Keller et al., 2002). While engaging the child through more distal forms of contact emphasizes the child's self as relatively more separate from the parent, regular physical contact and/or physical forms of behavioural management on the part of the parent may symbolize that the division between self and others is less separate (Carlson & Harwood, 2003; Keller et al., 2004a; Keller et al., 2002).

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As an indicator of the use of an autonomy-promoting strategy, this aspect of the dyadic interaction was operationalized as the use of face-to-face mutual eye contact between members of the dyad. This is similar to Keller and colleagues' (2002) assessment of mutual eye gaze in infants, although because preschool children have access to more diverse forms of communication, we have expanded the requirement that mutual eye contact be accompanied by vocalization (i.e., talking), non-verbal communication (i.e., a marked, intentional change in facial expression), or a clear attempt at establishing mutual eye contact with the child on the part of the parent. Criteria for classifying mutual eye contact combined with vocalizations were further adapted from Furrow (1984). As an indicator of the use of a relatedness-oriented interaction strategy, this aspect was operationalized as instances of physical touching between members of the dyad, or the use of physical manipulation on the part of the parent as a method of controlling the state or behaviour of the child. This was based both on Keller and colleagues' (Keller et al., 2004a; Keller et al., 2002) description of body contact and body stimulation, as well as Carlson and Harwood's (2003) description of physical control.

4) How: In what ways does the parent emphasize how each member of the dyad is doing by referring to their respective states? A key ability that undergoes significant development during the preschool period is mental state understanding. From the perspective of caregiver-child interactions, the degree to which a caregiver engages in talk about internal states may be an important avenue by which children come to develop their self-concept (Doan & Wang, 2010; Lillard, 1998; Symons, 2004; Taumoepeau, 2015). Because internal states are, by their nature, private and specific to the individual, focusing on internal states may reflect an emphasis on personal autonomy and individuality. Indeed, research indicates that mental state talk tends to be more common among caregivers from relatively more individualistic contexts

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(Doan & Wang, 2010; Lewis, Huang, & Rooksby, 2006; Taumoepeau, 2015). Furthermore, within-culture research also indicates that the tendency to engage in internal state talk is greater among those who identify more strongly with a relatively individualistic ethnic identity than those who identify more strongly with a relatively collectivistic ethnic identity (Taumoepeau, 2015).

At various points in the interaction, parents may reference the internal world of either interaction partner. Sometimes, parents may refer to the child's internal states through emphasizing the needs, desires, thoughts, and preferences of the child. Such a mode of interaction conveys to the child that he/she is a separate entity, with his/her own unique experiences, which are important and worthy of interest, attention, and expression (Keller, 2011). Either alternatively, or in addition, parents may also place focus on their own internal states. On the one hand, an emphasis on the caregiver's internal states may instill in the child a sense of awareness or consideration of others' states, and in particular, those who occupy a higher role or position in the social hierarchy. On the other hand, witnessing a caregiver discuss their own mental states may further model and emphasize the act of expressing one's own internal states, thus emphasizing a norm of expressing one's own individuality. As all internal states are, by their nature, specific to the individual, we considered all references to internal states as an autonomy-promoting behaviour., for the sake of categorization. However, we remain open to the possibility that the referent of a caregiver's internal state talk (i.e., either the child or the caregiver's own) may carry different meaning and therefore have differential effects on the child's development. We therefore chose to distinguish the referents of caregivers' mental state talk in the COPI-C. Solely for this theme, we also did not elaborate a complementary relatedness-promoting behaviour.

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In the COPI-C, an emphasis on internal states in dyadic interactions was strictly defined in terms of the content of dialogue. As an indicator of the use of an autonomy-promoting strategy, this aspect of the interaction was operationalized as the parent's use of mental-state or physical-state terms relating to either the child or the caregiver. Here, mental-state comments fall into the four broad categories defined by Meins & Fernyhough (2010): i) comments on child desire, ii) comments on child's emotions (both positive and negative), iii) comments on child's cognition, and iv) comments on child's intentions or attempts at manipulating the minds of others. Unlike Meins and Fernyhough (2010) criteria, parent's comments on physical states were also considered as they represent an internal state specific to the individual.

Format & Scoring

A major challenge in cross-cultural research is the need to avoid cultural biases and value-laden judgments in the observation and quantification of behaviour. As many psychological instruments have been developed in the West, by predominantly Western or Western-trained researchers, particular biases or cultural norms may, either consciously or unconsciously, be inherent in their design. This risk is especially relevant to those measures that take a relatively macro-approach to behavioural analysis – that is, those that require an observer to make a global, subjective rating, typically on a Likert-style scale with arbitrary anchor points, and this rating is taken to quantify a relatively abstract, higher-order construct. In other words, implicit in the coding process is that coders must make the jump from a collection of specific, micro-behaviours to broader, more abstract (though potentially more intuitively interesting and/or meaningful) macro-level constructs – a jump that often involves the inference of particular intentions, goals, or meaning of behaviours on the part of observers. As Bornstein (1995) points out, however, the form and the function of any given behaviour must be

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differentiated: while the same behaviour may be observed in multiple contexts, its meaning may differ across contexts. Similarly, multiple, differing behaviours may be employed in differing contexts to achieve the same outcome (i.e., function). Thus, it may be questionable to request that an observer infer the meaning, intention, or degree of adaptiveness of behaviours across cultural contexts, when their own frame of reference may differ vastly from both other coders from differing cultural contexts, and/or, indeed, from research participants from differing cultural contexts.

The COPI-C was developed with the above concerns in mind. First, the COPI-C adopts a time-sampling methodology using partial-interval sampling (Ary & Suen, 1983). Specifically, coding involves dividing the interaction into 15-second intervals, and a score of either one or zero is recorded for each interval if a behaviour is either observed or not observed. Importantly, observers are not required to appraise the intensity of a behaviour on a scale with arbitrary anchor points. The system thus yields scores that are a frequency count of intervals (but not necessarily behavioural events) in which a particular behaviour was observed. Furthermore, scores can be analyzed on a true ratio scale, with a meaningful zero value and uniform gradation among values.

In order to avoid the risk of cultural bias and value-dependent judgments, the instrument adopts a relatively micro-analytic approach. Observers are asked to simply identify particular a discrete set of behaviours and to quantify them, without asking them to necessarily interpret their function. Thus, where possible, it does not require a coder to infer deeply as to the intentions or motivations of the parent, nor the meaning of a behaviour to the parent or child. Thus, the content domain of the COPI-C was kept relatively narrow, and it was defined as concretely as possible to: 1) ensure better inter-rater reliability – that multiple coders, particularly from diverse

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cultural contexts, can observe and code the same behaviours – and 2) prevent the rendering of potentially ethnocentric value-judgments to behaviours observed.

While behaviours are organized into two contrasting groups, these groups of behaviours are expected to be orthogonal to one another. That is, a high frequency of presumably autonomy-promoting behaviours does not preclude the observation of a high frequency of presumably relatedness-promoting behaviours. This design permits distinction of parents who exhibit various modes of interaction beyond those that are associated with either a prototypically individualistic or a prototypically collectivistic cultural model.

Pilot Testing

Once the initial list of behaviours, their operationalization, and the scoring format were defined in a coding manual, the primary developer (J. Quan) conducted pilot testing with the system by coding several video recordings of parent-child interactions in both a Canadian and Singaporean context. Within the Canadian contexts, video recordings involving both mothers and fathers were coded. The purpose of the pilot testing was to ascertain whether the behaviours identified could realistically be observed during a five-minute sample of parent-child interactions. The length of intervals (15 seconds) was also examined to determine whether this interval length was not too long so as to degrade the resolution of the instrument, but not too short so as to become too demanding for human coders to apply. Furthermore, this piloting process was used to identify additional examples of behaviours that were not originally included in the coding manual. This was done to ensure that coding instructions were detailed enough to comprehensively identify exemplars for each behaviour of interest.

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Training & Inter-Rater Reliability

To obtain the data that appear in the two studies of the present thesis, all coders underwent extensive training, which was administered by the primary developer of the system. Coders studied the manual and viewed several practice tapes, coding them and discussing them together with the developer. All coders were then separately tested on a set of test tapes, which contained a combination of videos. Coders needed to reach a criterion of “good” inter-rater reliability that was set at an intraclass correlation (ICC) of 0.60 (Hallgren, 2002) with the primary scale developer before proceeding to independent coding. Approximately 20% of independently coded videos were double-coded by at least one other trained coder to establish inter-rater reliability. Intra-class correlations (ICC) greater than or equal to 0.75 were considered excellent, and intra-class correlations greater than 0.60 were considered good (Hallgren, 2012).

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Table 2.1. Themes and Behaviours Identified for the COPI-C

Major Question/Theme	Autonomy-Promoting Behaviours	Relatedness-Promoting Behaviours
Who: Child or parent's initiatives encouraged?	A1. Contingent responding to child initiatives	R1. Promoting parent initiatives/inducing compliance or conformity
What: Attention to physical or social objects?	A2. Orienting child's attention to the immediate physical environment/objects and their properties	R2. Orienting child's attention to the interpersonal/social environment
Where: Distal or proximal contact?	A3. Distal contact; mutual eye contact	R3. Proximal contact; physical touching or control
How: What internal states are emphasized?	A4. References to internal states	

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Table 2.2. Summary of COPI-C Autonomy-Promoting Behaviours

Scale	Description	Examples
1. Affirmation/compliance with child initiatives	P encourages an unprompted initiative expressed by C, or complies with an explicit or overt non-verbal request/instruction/directive given by C	C says, "I want to play with the truck now" and P responds, "Great idea!" C says, "You be the cashier" and P subsequently role-plays the role of the cashier in a pretend shopping scenario
2. Orientation to the physical environment	P actively redirects C's attention to an object in the physical environment, to a new aspect of an object in the physical environment, or invites the child to expand or elaborate upon an object in the physical environment, such that the dyadic interaction is mediated through the object/physical environment	P points to a wall decoration and says, "Look! Isn't that neat?" P asks, "What kind of cookies are those?"
3. Mutual eye contact	P engages in mutual eye contact with C while P is speaking, P communicates with C through marked facial expressions, or P makes an overt attempt at initiating eye contact with C	P looks C in the eyes while P raises their eyebrows to express
4. References to internal states	P refers, unprompted, to either their own or C's subjective states	P asks, "What's your favourite game to play?" (desire/preference) P asks, "Are you having fun?" (positive emotion) P says, "I'm angry because you won't listen to me" (negative emotion) P says, "Do you remember what you did last weekend?" (cognition) P says, "I was trying to play a trick on you!" (attempt at manipulating other) P says, "You must be so hungry!" (physical state)

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Table 2.3. Summary of COPI-C Relatedness-Promoting Behaviours

Scale	Description	Examples
1. Promotion of parental initiatives/inducing compliance or conformity	P gives C a verbal order or instruction, induces child to cooperate or comply with his/her instruction in any way, or advances his/her own agenda for the interaction	P says, "Eat properly please" P says, "You must do as I say" P says, "Let's play with these toys"
2. Orientation to the interpersonal/social environment	P redirects C's attention inwards towards the dyad's relationship with one another, or to other social entities	P asks, "What should we do together?" P says, "Let me help you with that" P asks, "Are you excited to play with *name of research assistant* after this?"
3. Physical touch/behavioural control	P initiates physical contact with C, or uses physical means to direct C's behaviour	P wipes C's mouth with a napkin P picks up C and puts C on lap P takes an object from C that C is holding

Chapter 3:**Correlates of cross-cultural variation in parent-child interactions during the preschool period: The case of Canadian and Singaporean mothers****Abstract**

This study examined mother-child interactions during the preschool period in two differing cultural contexts (Canada and Singapore), with a focus on autonomy- and relatedness-promoting behaviours. In addition to describing the extent to which these behaviours manifest across contexts, this study also examined the theoretical correlates of mothers' autonomy- and relatedness-promoting behaviours across contexts. The aims of this study were: 1) to determine how Canadian and Singaporean mothers differ in their use of autonomy- and relatedness-promoting behaviours in their interactions with their preschool children; 2) to determine whether Canadian and Singaporean mothers differ in their socialization goals and whether these differences account for differences in Canadian and Singaporean mothers' use of autonomy- and relatedness-promoting behaviours; 3) to determine whether autonomy- and/or relatedness-promoting behaviours are associated with child-parent attachment behaviours and children's socio-emotional functioning and whether these associations differ across Canadian and Singaporean contexts; and 4) to determine whether autonomy- and/or relatedness-promoting behaviours mediate any links between socialization goals and child outcomes and whether these effects differ across Canadian and Singaporean contexts. Results indicate that Canadian mothers tended to discuss their own internal states, to affirm/comply with child initiatives, to orient to the physical environment, and to orient to the dyadic social environment more than Singaporean mothers, while Singaporean mothers tended to issue eating- and non-eating-related commands

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and to initiate physical touch/control more than Canadian mothers. In the overall sample, interdependent socialization goals were positively correlated with eating- and non-eating-related commands and physical touch/control, while they were negatively correlated with discussion of maternal internal states, maternal affirmation/compliance with child initiatives, orientation to the physical environment, and orientation to the dyadic social environment. Singaporean mothers endorsed greater interdependent socialization goals than Canadian mothers, but cross-sample differences in socialization goals did not account for cross-sample differences in interaction behaviours. In the overall sample, discussion of maternal internal states negatively predicted avoidant attachment, and both internalizing and externalizing problems, while non-eating-related commands positively predicted externalizing problems. Importantly, there were several differences across samples. Non-eating-related commands negatively predicted avoidant attachment in the Canadian context, but not in the Singaporean context. In contrast, discussing maternal internal states negatively predicted internalizing problems and mutual eye contact negatively predicted avoidant attachment in the Singaporean context, but not in the Canadian context. Finally, we observed one instance in which interaction behaviours mediated the effect of socialization goals on child outcomes in the overall sample: the more mothers endorsed interdependent socialization goals, the less they discussed their own internal states, and, in turn, the more their child displayed avoidant attachment behaviours.

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Culture, as a non-count noun, encompasses the collection of ideas, beliefs, technologies, habits, and practices that is shared by a group of people and that is passed on to succeeding generations through social learning (Heine, 2008). Culture, as a count noun (as in “a culture” or “cultures”), on the other hand, describes any group or groups of people who share and are exposed to the same general ideas, beliefs, technologies, habits, and practices. Cultures around the world and throughout history have long been described in terms of an individualism-collectivism continuum (Hofstede, 2001). Prototypically individualistic cultures tend to value personal achievement, freedom, and responsibility, while prototypically collectivistic cultures tend to value group achievement, cohesion, and social harmony. Examples of prototypically individualistic societies are those currently found in Western Europe and North America, while examples of prototypically collectivistic societies are those currently found in East Asia and Africa (Triandis, 2001).

When discussing the individualism-collectivism construct, however, it is important to note several caveats. First, few cultures can be said to occupy either extreme of the individualism-collectivism continuum; rather, most cultures are situated somewhere in between. Here, every effort is made to avoid the dichotomous labeling of cultures and to instead discuss the extent to which one culture may be either *more* or *less* individualistic or collectivistic relative to another. Second, the individualism-collectivism dimension for comparing cultures does not explain all variation between cultures. Indeed, additional dimensions have also been posited to more fully account for the multi-dimensional variation that exists between cultures (Hofstede, 2001). Third, although individuals who share historical and/or geographic contexts are often said to comprise a culture, this does not neglect the fact that there can be variation within that culture.

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Indeed, within a culture, there can exist many sub-cultures, which can themselves possess unique characteristics and which can intersect in complex ways.

Bearing these caveats in mind, the individualism-collectivism distinction remains a popular and theoretically relevant construct used to describe and compare groups of people. Related to this distinction, theorists have further specified the construct of cultural self-construals, which exist at the individual/psychological level. Specifically, Markus and Kitayama (1991) theorize the existence of an independent self, which views the individual as distinct from others, and an interdependent self, which views the individual as inherently connected and related to others. Both these selves are thought to coexist in complementary fashion in individuals from all societies, but which are developed and expressed to differing degrees depending on the overarching cultural context (either more individualistic or collectivistic). As cultures encompass individuals and individuals comprise cultures, the precise mechanisms by which these levels of classification interact and influence one another is of theoretical importance.

As conceptualized in Bronfenbrenner's Ecological Systems Theory (1979), individual development occurs within several nested environmental contexts or "systems." Culture, as broadly defined, comprises the macrosystem – the most distal environmental context from the individual. But by what specific means does culture, a distal, yet all-encompassing factor exert its influence on individual behaviour and development? As Heine (2008) points out, humans are not born with culture, but rather, they must acquire it through socialization. Particularly in early life, parents and caregivers, who comprise the microsystem, serve as the primary conduits through which the overarching cultural beliefs, expectations and norms are transmitted to the individual. In a direct sense, parents may explicitly transmit to children certain beliefs or norms

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relevant to their culture through didactic teaching. Indirectly, however, parents can also convey, in subtle ways, a rich array of cultural information through their interactions with their children. Given that these implicit ways of transmitting cultural messages are likely to be more common in daily life, we focus on this latter form of socialization in the current investigation.

Parent-Child Interactions Across Cultures

It cannot be overstated that there are a great number of similarities in caregiving behaviour across cultures. In the vast majority of the world's cultures, parents are expected to provide the basic necessities of life, to provide security and protection, to teach important skills, and to interact with children. Still, there has been much work to document the subtle ways in which parents in various cultures interact with their children. Outlined in this section is research pertaining to cross-cultural differences in parent-child interactions, with a focus on parental behaviors. These differences, as Keller (2006) suggests, are reflective of different parenting "ethnotheories," which comprise a system of attitudes, beliefs, and cognitions regarding a prototypical, ideal caregiver that is shaped by the parent's own interactions with their socio-cultural context. Associated with these parenting ethnotheories are particular socialization goals, which define the types of behaviours that parents wish their children to develop and exhibit as members of society.

Indeed, research to date has outlined two contrasting patterns of parent-child interactions behaviour across cultures. The first, characteristic of mothers from more individualistic cultures, emphasizes the promotion of autonomy and involves the use of distal contact, the treatment of children as separate, causal agents, and an orientation towards the physical environment. The second, characteristic of mothers from more collectivistic cultures, emphasizes the promotion of relatedness and involves the use of proximal contact, the treatment of children as connected,

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receptive entities, and an orientation towards the social environment. It is important to note, however, that these two patterns of behaviour, while described in binary terms, are not necessarily mutually exclusive. Mothers from any given culture can and do display behaviours from both dimensions (Keller, 2011); however, cross-cultural differences exist in the relative frequency of each behaviour. It is also noteworthy that while past research has been conducted on samples from a vast array of geographic locations, the majority of observations have been conducted on mothers' interactions with their children during infancy: remarkably fewer studies have been conducted at older ages. As Casuadias and Posada (2013) note, however, cultural differences should become more pronounced as parent-child interactions diverge away from satisfying common physiological needs and as children's emerging representational skills enable them to understand more complex and abstract aspects of their sociocultural environments. Nevertheless, the body of cross-cultural research on infants comprises a key starting point from which the current investigation will build.

Child as distinct, causal entity vs. connected, receptive entity. A frequently discussed marker of sensitive caregiving is a mother's promptness in her responses to her child's bids. While it has been demonstrated that mothers' responses to both infants' vocal and non-vocal expressions are generally contingent on their children's, there exists some variation across cultures (Bornstein, Putnick, Cote, Hayes, & Suwalsky, 2015; Broesch, Rochat, Olah, Broesch, & Henrich, 2015). In a study across 11 communities, for example, Bornstein et al. (2015) found that while most of the mothers observed showed contingency between maternal and infant non-distress vocalizations, mothers from their two African samples did not show a pattern of contingent responding to their infants' vocalizations. Consistent with this finding, temporal analyses of the onset and offset of mother and infant vocalizations show that mothers from an

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urban Western European context are more likely to adopt a turn-taking format, waiting for their infant to vocalize, before responding themselves, while mothers from a rural African context more often overlap their vocalizations with infants', resulting in more synchronous exchanges (Keller, Otto, Lamm, Yovsi, & Kartner, 2008). By adopting a turn-taking pattern of interaction, Keller (2011) suggests that mothers in individualistic contexts are treating their children as active interactive partners whose behaviours directly elicit causal effects on their environments, thus perpetuating the transmission of individualistic values and an independent view of the self. In contrast, greater synchrony in mother-child interactions emphasizes harmony in the dyadic relationship through a symbolic blurring of the distinction between self and other (Keller, 2011) – a key concept underlying collectivistic cultural beliefs.

In addition to socializing their children to be causal agents, mothers from more individualistic contexts have been described as being more likely to place their children in an equal or semi-equal position within the dyad from early on. This notion is supported not only by the adoption of a temporal pattern of turn-taking, but also research that shows that they are more likely to attribute mental states (i.e., feelings and desires) to their non-verbal infants (Keller et al. 2004a; Keller, 2011), and expect their infants to develop an unobservable “psychological life” much earlier (Broesch et al., 2015). Mothers from more individualistic societies have also been found to be more elaborative when discussing memories of past events with their children (Sahin-Acar & Leichtman, 2015; Wang, 2006). By emphasizing internal states, which are inherently private in nature, mothers from more individualistic cultures treat their children as separate entities, with their own unique experiences, which are important and worthy of attention and expression (Kartner, 2015; Keller, 2011).

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In contrast, it has been observed that mothers from collectivistic contexts are more likely to treat their children as an apprentice who must learn to follow parental initiatives (Keller, 2003; Keller, 2011; Rothbaum & Trommsdorff, 2007). For example, mothers from more collectivistic cultural settings are more likely to use regulatory language that either directs or corrects infants' behaviour (Rabain-Jamin & Sabeau-Jouannet, 1997; Tamis-LeMonda, Song, Smith Leavell, Kahana-Kalman, & Yoshikawa, 2012). Furthermore, they are less likely to allow children to ask questions or make decisions during their interactions (Jose, Huntsinger, Huntsinger, & Liaw, 2000). Further supporting this hierarchical orientation, mothers from a more collectivistic context make more frequent references to authority when asked to discuss their general beliefs regarding various caregiving activities (Kartner et al., 2007; Rabain-Jamin, 1989). This style of socialization towards conformity fosters the cooperation and deference valued in more collectivistic contexts (Rabain-Jamin & Sabeau-Jouannet, 1997; Rothbaum & Trommsdorff, 2007).

Orientation towards the physical environment vs. the social/interpersonal environment. Broad cultural differences have also been identified in the targets to which mothers orient their children's attention. Mothers from individualistic contexts, for instance, more often draw their children's attention to elements in their immediate physical environment, such as physical objects and their properties (Bornstein, Miyake, & Tamis-LeMonda, 1985; Fernald & Morikawa, 1993; Keller et al., 2004a; Posada et al., 2002; Rabain-Jamin, 1989; Rabain-Jamin & Sabeau-Jouannet, 1997). Mothers from collectivistic contexts, in contrast, are more likely to draw their children's attention to the child-parent relationship, extra-dyadic individuals, social routines, or general topics of a social nature (Bornstein et al., 1985; Fernald & Morikawa, 1993; Rabain-Jamin, 1989; Rabain-Jamin & Sabeau-Jouannet, 1997; Rothbaum,

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Weisz, Pott, Miyake, & Morelli, 2000). Even when engaged in play with objects, mothers from a more collectivistic context are more likely to use the object to enact other-directed symbolic play (Tamis-LeMonda, Bornstein, Cyphers, Toda, & Ogino, 1992). Furthermore, when interviewed about their general beliefs pertaining to caregiving, mothers from collectivistic cultures are also more likely to discuss the shared bond between mother and child, to refer to the general social context, and to invoke social norms (Kartner et al., 2007; Keller et al., 2004b). Thus, while collectivistic cultures socialize their children to regard themselves in terms of a social context, an emphasis on physical objects and their properties within individualistic cultures serves to foster extra-dyadic attention, shifting the child way from the intra-dyadic space (Keller et al., 2004a).

Proximal vs. distal contact. From the earliest stages of life, parents structure the most basic aspect of a child's physical environment in noticeably differing ways. While uncommon in many individualistic cultures, infants in many parts of the world spend much of their waking hours being carried or strapped to their mother's bodies. Within the specific context of mother-infant play, Keller et al. (2004a) found that the average percentage of time an infant spent in physical contact with the mother was just below 30% among urban European dyads, but nearly 100% among rural African dyads. Mothers from more individualistic contexts, it has been observed, tend to favour distal forms of contact, which involve face-to-face and stimulation of the child's visual and auditory senses (Kartner, Keller, & Yovsi, 2010; Little, Carver, & Legare, 2015). In contrast to these so-called distal forms of contact, mothers from more collectivistic contexts tend to make less direct eye-contact with their infants (Abels et al., 2005), emphasizing more physical closeness and the stimulation of tactile and vestibular sense through touch and motor stimulation (e.g., placement of infant on the lap, manipulation of infants' limbs; Caudill & Weinstein, 1969; Feldman, Masalha, Alony, 2006; Kartner et al., 2008; Keller, 2011; Keller et

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al., 2004a; Keller, Yovsi, & Voelker, 2002; Little et al., 2015). They are also more likely to engage in physical means of behavioural management (e.g., physical restraint; Carlson & Harwood, 2003; Harwood, Schoelmerich, Schulze, & Gonzalez, 1999). Each of these forms of contact serve to convey differing cultural models: while engaging the child through more distal forms of contact emphasizes the child's self as separate from the parent, regular proximal physical contact and physical forms of behavioural management may convey to children that the distinction between self and others is less separate (Carlson & Harwood, 2003; Keller et al., 2004a; Keller et al., 2002).

Going Beyond Infancy

Although there appears to be clear distinctions in how mothers from around the world choose to interact with their children, much of the research to date has focused on infancy. While infancy is a crucial stage of development, research in later stages of development is warranted. In contexts where children attend formal schooling, the preschool period is a time of important social development, when parents prepare children to spend longer amounts of time away from home, among peers and non-family adults. This transition period is therefore characterized by an especially important developmental goal: greater autonomy and independence from caregivers. Considering that autonomy is a major developmental theme in the preschool period, but that the value placed on autonomy and independence varies across cultures, cross-cultural variation of parents' behaviours towards their children may be especially salient during the preschool period. Thus, the current investigation aims to extend past work examining patterns of mother-infant interactions to mothers' interactions with preschoolers.

In extending past work to the preschool period, several important developmental differences should be noted. First, preschool children are generally less physically dependent on

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caregivers for basic physiological needs. Second, preschool children, in comparison to infants, possess more sophisticated verbal skills, which allow for more complex exchanges with caregivers. Third, preschool children begin to possess representational abilities that allow for a more complex understanding of the external world, social relationships, and the self. Together, these developmental achievements should contribute to an even greater cross-cultural divergence in both children's behaviours and caregivers' behaviours. Thus, while the current investigation draws mostly from the infant literature, it is important to adapt assessments of parent-infant interactions to reflect the developmental stage of preschoolers.

Beyond Simple Description

While crucial, descriptions of how caregiving behaviours differ in culturally relevant ways across contexts are only a limited first step. It is also important to establish whether observed differences in caregiving behaviours have meaningful effects on children's development. In other words, what are the consequences of observed differences in child-parent interactions across cultures, if any? Given that the role of a caregiver is, universally, to raise children to become fully functioning, contributing members of their society, it should be expected that any differences in caregiving behaviour across contexts are meant to teach children knowledge, skills, and self-concepts that are considered normative and therefore suited to the conditions of the local cultural milieu. As Bornstein (1995) points out, the form of a behaviour and its function must be differentiated: while one particular behaviour may manifest in multiple contexts, its meaning and what developmental outcomes it leads to may differ across contexts. Similarly, multiple, differing behaviours may be employed in differing contexts to attain universal developmental outcomes.

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As a study by Keller et al. (2004c) suggests, caregiving behaviours informed by cultural beliefs lead to better developmental outcomes because they socialize children to behave in ways that are valued by the wider culture. For example, the authors present evidence showing that proximal parenting in the form of body contact leads to earlier development of compliance, which is valued in more collectivistic cultures. This is thought to be the case because within prototypically collectivistic cultures, often characterized by agrarianism, subsistence living, or contexts with limited resources, children serve a utilitarian function, which ensures economic security for the family unit (Kagitcibasi, 2011). Thus, socializing children to be obedient is both adaptive and valued. In contrast, Keller et al. (2004c) found that distal parenting in the form of object stimulation and mutual gaze led to the development of autonomous self-concept (via mirror self-recognition), which is valued in more individualistic contexts. This is thought to be the case because within individualistic cultures, which tend to be highly industrialized, urban, and affluent societies, separation of the child from the family unit does not endanger its survival (Kagitcibasi, 2011).

While developmental outcomes such as compliance and self-concept are important skills to achieve, they are skills whose inherent value varies across cultural contexts and whose pace and rate of development is therefore adapted to environmental demands. In form-function terminology, the study by Keller et al. (2004c) essentially shows that diverse forms of caregiver behaviour serve diverse functions in terms of child behavioural development. However, what is further implied – though not explicitly demonstrated – is that the ultimate destination of these divergent pathways is similar: each is meant to socialize children to behave in ways that are ultimately adaptive to their local context. In light of this, it may therefore be worthwhile to empirically examine broader developmental outcomes that are commonly valued across a wide

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array of cultural contexts. More specifically, it is crucial to identify what types of caregiver behaviours lead to the best outcomes across contexts. The current investigation proposes two general developmental outcomes that may be considered important in all contexts: 1) that children develop trusting, secure attachment relationships with their caregivers and 2) that children develop to be emotionally and socially well-adjusted individuals.

The child-parent attachment relationship. Attachment theory posits a behavioural system that promotes proximity-seeking to early caregiving figures in order to achieve both physical safety and psychological security. This propensity to form a so-called attachment bond or relationship with a caregiver, Bowlby (1969/1982) proposes, is evolutionarily adaptive as it ensures the survival of offspring in the human species. Within this context, a secure attachment style, one that is characterized by trust in a caregiver, is considered to be optimal because it enables a child to use the caregiver as a haven of safety in times of distress, but also as a secure base from which to explore in times of non-distress. Other styles of attachment have also been described: children who display an insecure-avoidant attachment style ignore their caregiver or actively avoid displaying distress to their caregivers, while insecure-ambivalent children simultaneously seek out their caregiver, but fail to derive comfort from them. From a cross-cultural perspective, it is noteworthy that all three of these major attachment styles have been observed in a range of diverse cultural contexts, lending support to attachment theory as generally applicable to the human species as a whole (van IJzendoorn & Sagi-Schwartz, 2008). While the specific distributions or proportions of the various attachment styles may vary across contexts, van IJzendoorn and Sagi-Schwartz (2008) further note that across studies conducted with non-risk samples in North America, Western Europe, Africa, the Middle East, East Asia, and Southeast Asia, the secure attachment style is consistently observed to be the most common.

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This is further supported by Posada et al. (1995), who found that mothers from a diverse range of communities similarly report the presence of secure base behaviour in their children, and that both mothers and child development experts surveyed from each of four continents reported that an “ideal” child should use the caregiver as a secure base from which to explore their environment. Combined, these observations therefore suggest that the secure attachment style is both universal and normative.

It is important to note, however, that while attachment theory predicts that all children form attachment bonds with caregivers, with a general selection pressure towards the display of secure attachment behaviours, it does not rule out the potential for cultural variation in how caregivers establish such bonds with their children. Attachment theory has long considered caregiver sensitivity, or the degree to which a caregiver promptly and appropriately responds to a child’s bids, as a major predictor of secure attachment behaviour. However, even within the relatively narrow construct of “sensitivity” itself (which meta-analyses have since shown to only predict attachment security modestly; van IJzendoorn & de Wolff, 1997), there exist some cross-cultural differences. For instance, Posada et al. (2002) conducted exploratory factor analyses on a variety of maternal behaviours traditionally thought to comprise sensitive caregiving in two different cultural contexts (the United States and Colombia), and results indicated not only that cross-sample differences existed in the factor structure of sensitivity, but that the association between some dimensions of sensitivity and attachment security also varied across the two contexts. Several researchers point out that caregiver sensitivity – particularly what is considered “appropriate” – depends largely on what is valued in the wider cultural contexts (Broesch et al., 2015; Carlson & Harwood, 2003; Rothbaum et al., 2000). Referring to the example of Japan, Rothbaum et al. (2000) note that Japanese mothers are more likely to anticipate the needs of her

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infant and to take preemptive action to minimize their child's distress without the child having to overtly signal its needs. This manner of interacting with children, the authors suggest, is a form of responsiveness that socializes a certain dependency upon the mother, which differs from the typical Western-style of turn-taking, causal responsiveness that socializes children to autonomously assert their needs in order to elicit a response from their mothers. Nevertheless, Rothbaum et al. (2000) point out that a certain level of dependency within the parent-child relationship is regarded as positive and desirable within a Japanese context. Thus, despite that children generally develop positive relationships with their caregivers universally across cultures, the pathways by which these relationships form may differ depending on the cultural milieu.

Noting the need to identify additional dimensions of caregiving behaviour that predict attachment security, recent work suggests that certain forms of autonomy promotion from mothers also contributes to the quality of the attachment bond. For instance, Whipple, Bernier, and Mageau (2010) have demonstrated that infants display secure attachment behaviour towards their mothers when mothers offered verbal support, took the perspective of her infant, offered her infant choice, and encouraged the infant to take an active role during a problem-solving task. Importantly, however, this study was conducted in a North American context, in which participants were predominantly White, and so it is perhaps unsurprising that autonomy-promoting behaviours contribute to an optimal quality of parent-child relationship. What remains unclear, however, is whether similar associations are observable in cultural contexts that might emphasize autonomy needs less and/or relatedness needs more. Work by Carlson and Harwood (2003), for example, has shown that high amounts of parental control, commonly thought to be antithetical to the formation of secure attachment in Western contexts, actually predicts secure

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attachment in a middle-class Puerto-Rican context. Thus, the current investigation proposes to study the differing pathways by which secure attachment may be achieved across varying cultural contexts by studying both mothers' autonomy- and relatedness-promoting behaviours during the preschool period.

Children's social adjustment. Perhaps the most important developmental outcome across all cultures is that children ultimately develop into fully functioning, productive members of their society. Crucial to this, across all contexts, is a general ability to control one's own emotions, to engage in goal-directed behaviour, and to adaptively navigate a multitude of social relationships. Failure to acquire such skills could result in the manifestation of psychological difficulties and problematic behaviours, which may hamper individual social functioning.

To date, however, much of the scientific understanding of optimal caregiving behaviours for children's positive socio-emotional development has been based on empirical research in Western samples. Cross-cultural research, however, has challenged commonly accepted, yet perhaps over-generalized expectations of what constitutes positive caregiving. For example, although parental control has been shown to be linked with negative outcomes in American children (Pianta, Nimetz, & Bennett, 1997), studies conducted in other contexts have suggested that strict parental control or discipline either does not predict negative functioning, or conversely, predicts positive child functioning (Chao, 2001; Deater-Deckard & Dodge, 1997; Halgunseth, Ispa, & Rudy, 2006). Additionally, experimental work by Iyengar and Lepper (1999) has shown similar, seemingly contradictory, patterns across contexts. Specifically, the authors found that Anglo American children who were given personal choice in a puzzle task showed both more motivation and better performance in the task than when they were told that their mothers had made choices for them. The opposite, however, was true for Asian American

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children: they showed more motivation and better performance when they were told that choices had been made for them by their mothers. Thus, as was suggested previously with regards to the formation of secure attachment relationships, the development of desirable child behavioural outcomes may occur via differing developmental pathways across cultures.

Directly relevant to the current investigation are studies that explicitly examine patterns in caregiver's micro-interaction behaviours as determinants of children's functioning. For instance, while self-regulation is a developmental milestone widely achieved in toddlerhood across cultures, Feldman et al. (2006) showed that the developmental pathways leading to this skill differ across cultures. The authors observed that while the ability to self-regulate was similar across samples of Israeli and Palestinian Arab children, Israeli children scored higher on the "do" component of self-regulation, which involves the mobilization of action, while Palestinian Arab children scored higher on the "don't" component of self-regulation, which involves the ability to inhibit behaviour. Furthermore, they found that each of these skills were differentially associated with culture-specific patterns of parent-child interactions: namely, Israeli children's self-regulation was predicted by parents' social gaze towards the child and indirect teaching strategies, while Palestinian Arab children's self-regulation was predicted by parent-child direct bodily contact and parents' provision of concrete assistance. This contrast, they argue, is reflective of the divergent orientations of relatively individualistic Israeli culture and relatively collectivistic Palestinian culture. Thus, children across contexts achieve universal developmental tasks by following culturally informed developmental pathways. Importantly, Feldman et al.'s (2006) study further suggests that these separate pathways may be guided along the specific dimensions of autonomy and relatedness, and that parent-child interactions may act as an important conduit through which general cultural beliefs from the macrosystem are

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transmitted through the microsystem to influence children's development. It is this theoretical principle that will guide the current investigation.

The Current Investigation

Drawing from cultural pathways model (Keller, 2016), and with an emphasis upon the distinction between behavioural form and function (Bornstein, 1995), the current investigation first proposes to describe the differences in mothers' autonomy- and relatedness-promoting behaviours across two cultural contexts. Recognizing the need to contextualize behaviours by examining both their theoretical correlates within cultures, however, the current investigation further proposes to examine patterns of association between mothers' autonomy- and relatedness-promoting behaviours with mothers' socialization goals and two developmental outcomes: child-mother attachment behaviours and children's social adjustment. In order to further build upon past research, the current investigation focuses upon the preschool period, a period that has been largely understudied in cross-cultural research, but a period during which cultural differences in development are expected to be particularly pronounced (Causadias & Posada, 2013).

Following logic employed by past cross-cultural research in attachment (e.g., Posada et al., 2002), two economically similar, yet culturally disparate settings were chosen to allow for an appropriate cross-cultural comparison: Canada and Singapore. Both of these nations possess British colonial histories, and use English as an official language. Both countries are highly industrialized, with high rates of employment – particularly among women – and are of similar levels of affluence (United Nations Statistics Division, 2014). However, while increasingly multi-ethnic, Canada's population is still predominantly White (~77%; Statistics Canada, 2013), with dominant cultural traditions originating from Western Europe. Singapore's population, on

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the other hand, is comprised predominantly of ethnic Chinese (~74%), with sizable populations of ethnic Malay (~13%), and ethnic Indians (~9%; Department of Statistics Singapore, 2015). Each of these three ethnic groups generally follows a distinct set of cultural traditions, following three distinct religions (Buddhism, Islam, and Hinduism), and speaks, in addition to English, a distinct “mother tongue” (Mandarin, Malay, and Tamil). Importantly, in terms of Hofstede’s index of individualism and collectivism (2001), Canada is ranked among the most individualistic countries (4-5th out of 53 countries and regions), while Singapore is among the most collectivistic countries (39th-41st out of 53 countries and regions). Thus, while similarly matched in many aspects, Canada and Singapore importantly differ on the value placed upon autonomy and relatedness and therefore comprise an ideal cross-cultural comparison.

Research Questions & Hypotheses

Research Question 1: To what extent do Canadian and Singaporean mothers differ in their use of autonomy- and relatedness-promoting behaviours when interacting with their preschool children? Given that Canadian culture is considered relatively more individualistic (Hofstede, 2001), we expected that Canadian mothers would display relatively more autonomy-promoting behaviours than Singaporean mothers. In contrast, as Singaporean culture is considered relatively more collectivistic (Hofstede, 2001), we expected Singaporean mothers to display relatively more relatedness-promoting behaviours than Canadian mothers.

Research Question 2: To what extent are mothers’ independent and interdependent socialization goals associated with mothers’ autonomy- and relatedness-promoting behaviours? To what extent do Canadian and Singaporean mothers differ in their endorsement of independent vs. interdependent socialization goals for their preschool children, and to what extent do these differences in socialization goals account for

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differences in autonomy and relatedness-promoting behaviours across contexts? As caregiving behaviours are thought to be motivated by underlying beliefs or desires to socialize children in a particular way (Keller et al., 2006), we expected that, in general, endorsing more independent socialization goals will predict more autonomy-promoting behaviours, while endorsing more interdependent goals will predict more relatedness-promoting behaviours. Given their distance on Hofstede's index of individualism-collectivism, however, we expected that Canadian parents will endorse relatively more independent socialization goals, while Singaporean parents will endorse relatively more interdependent socialization goals. Assuming that the above two hypotheses were supported, we expected that any cross-sample differences observed in autonomy- and/or relatedness-promoting behaviours (see 1 above) would be explained by differences in the endorsement of independent and/or interdependent socialization goals.

Research Question 3: To what extent do mothers' autonomy- and relatedness-promoting behaviours predict child outcomes (child-parent attachment behaviours and child socio-emotional functioning), and to what extent do these effects differ across contexts? Based on the notion that mothers who behave in ways that are most congruent with the values of their prevailing culture should have children with the most optimal developmental outcomes (Feldman & Masalha, 2010), we expected some divergent patterns of association with attachment quality and child socio-emotional functioning across the two samples. Given that Canadian culture generally values individuals who are independent, we expected that Canadian mothers' autonomy-promoting behaviours would predict children's outcomes. In contrast, among Singaporean mothers, we expected relatedness-promoting behaviours to predict children's outcomes.

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Research Question 4: Assuming that mothers' autonomy- and relatedness-promoting behaviours are predicted by mothers' socialization goals (see 2 above), to what extent do mothers' autonomy- and relatedness-promoting behaviours mediate any potential links between mothers' socialization goals and child outcomes? To what extent do these effects differ across Canadian and Singaporean contexts? We expected that, in general, for those autonomy- and relatedness-promoting behaviours found to be associated with socialization goals and/or child outcomes in 2 and 3 above, autonomy- or relatedness-promoting behaviours would mediate a link between socialization goals and child outcomes. Furthermore, we expected that country would moderate these mediational associations such that the nature of these associations (in either degree or direction) would differ across the Canadian and Singaporean samples. These hypotheses were predicated on the expectation that forms of caregiving most consistent with values of the prevailing culture should act as the conduit by which children achieve optimal developmental outcomes.

Method

Participants

Canadian sample. Mother-child dyads in the Canadian sample were drawn from the preschool phase of a longitudinal study that took place in the Ottawa-Gatineau region of Canada. This longitudinal study aimed to study the effects of child-parent relationships, as well as family dynamics such as sibling relationships, and parents' romantic relationships on children's socio-emotional development. The Canadian sample comprised 112 mother-child dyads, with children ages 3 to 5, who were recruited through newspaper, magazine, and radio advertisements. While not entirely ethnically homogeneous, the vast majority of participants in the Canadian sample (82%) self-identified as White. Among the remainder of the sample, 7% self-identified as Asian,

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5% as Black, 4% as Middle-Eastern, and 1% as Latino/Hispanic. Dyads completed all assessments in either English and/or French.

Singaporean sample. The Singaporean sample were drawn from the Growing Up in Singapore Towards healthy Outcomes (GUSTO) study, a Singaporean community-based, prospective mother-offspring cohort study, which aimed to examine development in Asian children (Soh et al., 2013). Pregnant women were recruited during their first trimester of pregnancy at either of Singapore's two main birthing hospitals (Soh et al, 2013), and various forms of testing (i.e., genetic, medical, neurodevelopmental, behavioural, etc.) were performed on both mothers and children at regular time points (e.g., 6, 18, 24 months). In the present investigation, 136 Singaporean mother-child dyads were randomly selected from among those who attended a laboratory visit when children were approximately 3.5 years old ($N = 483$) and who completed the snack interaction task. The Singaporean sample comprised 68 ethnic Chinese and 68 ethnic Malay mother-child dyads, which comprise two of the three major ethnic groups found in Singapore. Participants in the current investigation completed all assessments in English, Mandarin, and/or Malay.

Procedure

Dyads from both samples underwent two similar behavioural tasks, which were the focus of the current investigation: 1) a modified separation-reunion procedure to assess the quality of the child-parent attachment relationship; 2) a snack interaction to assess various dimensions of parent-child interaction behaviours. Furthermore, mothers from both samples similarly reported on their own socialization goals for their children and their children's socio-emotional adjustment.

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Canadian Site. At the Canadian site ($n = 112$), mothers accompanied their child to a lab visit, which occurred in counter-balanced order with an identical lab visit with the child's father (see Chapter 4). Lab visits occurred approximately six months apart to ensure that children did not recall the details of the first lab visit and lasted approximately two hours each. In addition to the two behavioural tasks relevant to the current investigation, other behavioural assessments not relevant to the current investigation included a playful dyadic interaction, a receptive vocabulary test for children, and an attachment representations task for children. All procedures were approved by the Research Ethics Board of the University of Ottawa (see Appendix B).

Modified separation-reunion procedure. At each lab visit, following a brief two-minute playful interaction, mother-child dyads were video recorded completing a modified separation-reunion procedure designed for preschoolers (Cassidy & Marvin, 1992), which is an observational paradigm that includes periods of both low and high stress to elicit attachment-related interaction behaviour between parents and children (Bretherton, 1992). The modified separation-reunion for preschool children consists of five 5-minute episodes: free-play, first separation, first reunion, second separation, and second reunion. First, during the free-play, dyads are left in the observation room for five minutes, with a selection of various toys (e.g., building blocks, animal figurines, a ball, paper and crayons) and no explicit instructions. After the five-minute free-play, the mother is signaled to leave the room via a knock on the wall, marking the first separation, and the child is left alone in the room for five minutes. After this five-minute first separation, the mother is sent to rejoin the child in the room for five minutes, marking the first reunion. The procedure is then repeated, with the parent leaving the room for five minutes (second separation) and returning to the room for five minutes (second reunion).

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Snack interaction. Immediately following the separation-reunion procedure, the experimenter returned to the room and brought the child a small snack (e.g., a packet of cookies, chewy fruit snacks) and a juicebox (e.g., apple juice). Parents were offered a drink as well, but no further instructions were given. Dyads were left in the room for a minimum of five minutes, and their interaction was video recorded.

Questionnaires. Following the snack interaction, mothers completed a basic demographic questionnaire, along with the Strengths and Difficulties Questionnaire (SDQ), which assesses children's socio-emotional functioning (see below for details). The Parental Expectations for Child's Social Development (PECSO, see Appendix D) was administered either by mail, or at a subsequent home or lab visit to the sample ($n = 69$ respondents) during a subsequent phase of the longitudinal study, roughly four years after the initial lab visit. Although the PECSO questionnaire was administered a few years after other measures, the construct being assessed is expected to be trait-like, remaining relatively stable across time (see Measures below for further explanation). Furthermore, the PECSO was similarly administered after other measures at the Singaporean site.

Singaporean Site. At the Singaporean site ($n = 136$), mothers accompanied their child to a lab visit, where they completed the same two behavioural tasks conducted at the Canadian site. In addition to these two behavioural tasks, children also completed tasks not relevant to the current investigation, which included assessments of child temperament, event-related potential (ERP), heart rate variability, executive functioning, eating behaviour, word learning, receptive vocabulary, number sense, memory, and attention. All procedures were approved by the National Health Group Domain Specific Review Board and the Sing Health Centralized Institutional Review Board (see Appendix B).

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Modified separation-reunion procedure. Approximately one hour into the lab visit (after approximately 45 minutes of dyadic separation), the first reunion was performed. Following a colouring task conducted with an experimenter (to obtain a baseline measure of heart rate for an unrelated study), children were given access to a set of toys (e.g., building blocks, animal figurines) and were left alone briefly by the experimenter. Similar to the Canadian site, mothers were instructed to enter the room, but no specific instructions were given as to what she was expected to do. The mother-child dyad were left in the room for five minutes, at which point the researcher returned, the mother was instructed to leave the room, and the researcher carried on with the next (unrelated) task.

Approximately 40 minutes after the completion of the first reunion, the second reunion was performed in the same room as the first reunion. Following a task that assessed both frustration and behavioural inhibition in the child, the experimenter gave the child access to the same set of toys as in the first reunion and briefly left the child alone in the room again. Mothers were then instructed to return to the room without any specific instructions, as in the first reunion, and they were left to interact for five minutes. Dyads' interactions during both reunions were video recorded.

While the duration of the separations was longer at the Singaporean site than the Canadian site, past evidence indicates that differences in the duration of separations are unlikely to have an impact on the observation of attachment-related behaviour within the preschool period. Moss et al. (2005), for instance, administered one separation-reunion procedure that was relatively shorter (5 minutes) and one separation-reunion procedure that was relatively longer (45 minutes) to the same sample of children, finding relative stability in attachment behaviours across the two procedures within the preschool period. Therefore, the most crucial aspect of the

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separation-reunion procedure for observing attachment behaviour is that it induces a degree of separation-related distress and that it allows observers to analyze children's behaviour upon reunion with their caregiver.

Snack interaction. In between the first and second reunions, children completed a flavour preference task, which involved the taste testing of sandwiches of four flavours, for which children were asked to indicate their preference. Although children completed the flavour preference task in the presence of their mothers, it was at this time that mothers were given a printed sheet of written instructions for the dyadic snack interaction that was to follow (see Appendix C). Once the experimenter completed the flavour preference task with the child, the dyadic snack interaction was conducted. As the dyadic snack interaction at the Singaporean site occurred simultaneously during an eating behaviour task, there were a few procedural differences to the dyadic snack interaction conducted at the Canadian site. The eating behaviour task assessed both the choice and amount of food a child consumed when freely allowed to do so. Mothers were thus instructed, on the printed sheet of written instructions, that they were to refrain from influencing the child's *choice* or *amount* of eating or drinking and to refrain from eating or drinking themselves. Otherwise, however, they were explicitly told that they were free to interact with their children as they normally would. Dyads were left alone in the room for a minimum of five minutes, and their interaction was video recorded. To account for the slight difference in protocol between the Canadian and Singaporean site, we coded for eating-related and non-eating-related commands separately in both samples, which allowed us to determine the extent to which this difference influenced Singaporean mothers' prescriptive behaviour.

Questionnaires. Mothers completed a general demographic questionnaire during their second trimester of pregnancy. The Child Behaviour Checklist (CBCL) was mailed to mothers

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when children were 3-years-old. The Parental Expectations for Child's Social Development (PECSO, see Appendix D) was administered at a lab visit to the sample ($n = 82$ respondents) during a subsequent phase of the longitudinal study, when children were approximately 6 years of age. Again, although the PECSO questionnaire was administered a few years after other measures, the construct being assessed is expected to be trait-like, remaining relatively stable across time (see Measures below for further justification). Furthermore, the PECSO was similarly administered after other measures and at a similar age as the Canadian site.

Measures

Cross-cultural Observations of Parents Interacting with Children (COPI-C). The COPI-C (Quan & Bureau, 2015) was used to assess mothers' autonomy- and relatedness-promoting behaviours during the snack interaction. Drawing inspiration by methods used by Keller et al. (2004c) to assess mother-infant interactions across cultures, the COPI-C is a coding system intended for the observation of dyadic interactions involving older children, particularly preschoolers. The system uses a time-sampling approach to assess maternal behaviours that are presumed to be autonomy- and relatedness-promoting. For the current investigation, 5-minute-long samples of video data from the snack interaction were divided into 15-second intervals, during which coders determined the presence or absence of each behaviour of interest. Maternal behaviours belonging to the autonomy-promoting dimension include: references to child internal states, references to maternal internal states, maternal affirmation or compliance with child initiatives, orienting child's attention to the physical environment, and mutual eye contact. Maternal behaviours belonging to the relatedness-promoting dimension include: encouraging child compliance with parental initiatives, orientation towards the social environment (either dyadic or extra-dyadic), and initiation of physical touch/control. Each behaviour, with the

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exception of mutual eye contact, receives a score from 0-20, based on the number of 15-second intervals in which the behaviour was observed. Mutual eye contact scores, in contrast, range from 0 to 1, representing the proportion of intervals in which mutual eye contact occurred as a proportion of intervals in which the dyad's eye gaze could be ascertained. Detailed information regarding the COPI-C coding system, including a detailed description of each behavioural dimension assessed, as well as the coding methodology, can be found in Chapter 2 and Appendix A.

Coding of the COPI-C across the two sites was coordinated by one criterion coder who trained and managed a team of one Canadian coder and two Singaporean coders. Once coders achieved an acceptable level of inter-rater reliability with the criterion coder, they coded cases independently, with approximately 20% of cases in each sample double-coded. The inter-rater reliability for Canadian cases ranged from .68 to .97, and the inter-rater reliability for Singaporean cases ranged from .58 to .94. All intraclass correlations were within acceptable levels, with all except one being either excellent ($ICC \geq .75$) or good ($ICC \geq .60$; Cicchetti, 1994).

Parental Expectations of Children's Social Development (PECSO). The PECSO was used to assess mothers' self-reported socialization goals for their children. The PECSO is a self-report questionnaire that was adapted specifically for this investigation from the Self-Concept Scale (SCS; Singelis 1994). The SCS is both a valid and reliable (Singelis, 1994) measure of the relative strength of an individual's interdependent vs. independent self-construals, which are individual-level constructs closely associated with the collectivistic vs. individualistic constructs used to describe cultures as a whole. For example, the independent scale includes items such as "I enjoy being unique and different from others in many respects," while the interdependent

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scale includes items such as “I will sacrifice my self-interest for the benefit of the group I am in.”

In the adapted PECSD, however, respondents are asked not to report on traits about themselves, but the respondent's intentions/desires for the development of an independent and/or interdependent self-construal in their child instead. Specifically, in the adapted PECSD, respondents are first told to think about the type of person they want their child to become or develop into. Then, each item begins with the stem “I want my son/daughter to become a person who...” followed by either an independent item (e.g., “...enjoys being unique and different from others in many respects”) or an interdependent item (e.g., “... sacrifices his/her own self-interest for the group he/she is in”), which was taken verbatim from the SCS. Like the SCS, the PECSD is comprised of 24 items: 12 items each for the independent and interdependent scales. Scores are summed for each scale separately and each scale is expected to be orthogonal from the other, just as in the original SCS (Singelis, 1994). As the SCS was originally developed to be a measure of personality (which is expected to be relatively stable over time), scores from the PECSD are also expected to measure a trait-like construct that should remain relatively consistent within a caregiver across time. Indeed, in order to reinforce this aim, instructions for respondents and question stems were specifically written to iterate a long, broad, yet unspecified time frame regarding the development.

Preschool Attachment Rating Scale (PARS). The PARS (Moss, Lecompte, & Bureau, 2015) were used to assess video recorded observations of attachment behaviour during the two reunion episodes of the separation-reunion procedure. Trained coders blind to other study data rated attachment on six scales: secure (B), insecure-avoidant (A), insecure-ambivalent (C), disorganized (D), controlling-caregiving (CC), and controlling-punitive (CP). Given the typical distribution of attachment classification in normative samples (van IJzendoorn, Schuengel, &

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Bakermans-Kranenburg, 1999) and the sample size of the current study, we used the PARS to increase statistical power as it assigns continuous scores to each child for all six attachment classifications on a scale of 1-9. The psychometric properties of the PARS have been supported by a recent validation study (Deneault, Bureau, Yurkowski, & Moss, 2019). For the purposes of the current study, we used scores only from the secure, avoidant, ambivalent, and disorganized scales, as controlling-caregiving and controlling-punitive behaviours were relatively rare: 60% of the sample showed no evidence of caregiving behaviours, and 82% of the total sample showed no evidence of punitive behaviours. Coding of the PARS across the two sites was coordinated by one criterion coder who trained and managed a team of two Canadian coders and two Singaporean coders. Once coders at each site achieved an acceptable level of inter-rater reliability with the criterion coder, they coded cases independently, with 20% of cases in each sample double-coded. The inter-rater reliability for Canadian cases was excellent, with intraclass correlations ranging from .92 to .96. Similarly, the inter-rater reliability for Singaporean cases was also excellent, with intraclass correlations ranging from .78 to .94.

Strengths & Difficulties Questionnaire (SDQ) for Ages 4 to 10. The SDQ (Goodman, 1997) was used to assess children's socio-emotional functioning in the Canadian sample. The SDQ is a 25-item self-report measure, which includes scales that assess emotional problems, conduct problems, hyperactivity, peer problems, and prosocial behaviour. Importantly, the emotional problems and peer problems scales can be summed to yield an internalizing problems score and the conduct problems and hyperactivity scales can be summed to yield an externalizing problems score. There has been strong empirical support for the psychometric properties of the SDQ (Goodman & Scott, 1999; Stone, Otten, Engels, Vermulst, & Janssens, 2010), and importantly, empirical research (Goodman & Scott, 1999) has shown a high correlation between

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the SDQ and the Child Behaviour Checklist (CBCL; Achenbach & Rescorla, 2000), which is the measure that was used to assess child socio-emotional functioning used for the Singaporean sample (see below).

Child Behavior Checklist (CBCL) for Ages 1 ½ to 5. The CBCL (Achenbach & Rescorla, 2000) was used to assess children's socio-emotional functioning in the Singaporean sample. The CBCL is a 100-item self-report measure, which includes scales that measure emotional reactivity, anxious/depressed symptoms, somatic complaints, withdrawal, attention problems, aggressive behaviour, sleep problems, and other problems. Similar to the SDQ, scales on the CBCL can be summed to produce an internalizing problems score (emotional reactivity, anxious/depressed symptoms, somatic complaints, and withdrawal subscales) and externalizing problems score (attention problems and aggressive behaviour).

Statistical Analyses

We applied routine data cleaning procedures: screening for univariate outliers, skew, univariate non-normality, bivariate non-linearity, heteroscedasticity, bivariate outliers, and bivariate non-normality. We then used chi-square, t-tests, and correlation analyses to determine whether child age, child gender, or maternal education differed across samples and the extent to which they were related to any of the outcome variables of interest (i.e., attachment scales, internalizing and externalizing scales). Finally, to address the primary research questions, we applied the following analyses:

Research Question 1: To what extent do Canadian and Singaporean mothers differ in their use of autonomy- and relatedness-promoting behaviours when interacting with their preschool children? General linear models were conducted on COPI-C scores to

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determine whether Canadian and Singaporean mothers differed in their use of autonomy- and relatedness-promoting behaviours.

Research Question 2: To what extent are mothers' independent and interdependent socialization goals associated with mothers' autonomy- and relatedness-promoting behaviours? To what extent do Canadian and Singaporean mothers differ in their endorsement of independent vs. interdependent socialization goals for their preschool children, and to what extent do these differences in socialization goals account for differences in autonomy and relatedness-promoting behaviours across contexts? We conducted correlations to examine the association between COPI-C scores for autonomy- and relatedness-promoting behaviours and PECSD independent and interdependent scores. General linear models were then conducted on the PECSD independent and interdependent scores to determine whether Canadian and Singaporean mothers differed in their endorsement of independent and interdependent socialization goals.

Research Question 3: To what extent do mothers' autonomy- and relatedness-promoting behaviours predict child outcomes (child-parent attachment behaviour and child socio-emotional functioning), and to what extent do these effects differ across contexts? We conducted multivariate general linear models to examine the association between COPI-C autonomy- and relatedness-promoting behaviours and attachment scales. We conducted a univariate general linear model to examine the association between COPI-C autonomy- and relatedness-promoting behaviours and internalizing/externalizing scores. Because internalizing/externalizing problems were measured using differing measures with differing scales across samples, SDQ and CBCL scores were standardized within samples for this set of analyses. Finally, in order to decrease both the sheer number of analyses and the number of

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interaction terms in each analysis, we conducted partial correlations between each COPI-C behaviour and each outcome variable separately in each country sample. Then, using a Fisher's z-transformation (Kenett, Huang, Vodenska, Havlin, & Stanley, 2014), we compared corresponding correlations across the two samples to identify those that were significantly different (with a critical value of $z = \pm 1.96$), thereby suggesting a potential moderating influence of country. We then conducted univariate general linear models with these COPI-C/outcome combinations only, to determine whether there was a significant interaction between country and COPI-C behaviours on child outcomes. Any significant interactions were then probed by re-running the analysis in each sample separately

Research Question 4: Assuming that mothers' autonomy- and relatedness-promoting behaviours are predicted by mothers' socialization goals (see Research Question 2 above), to what extent do mothers' autonomy- and relatedness-promoting behaviours mediate any potential links between mothers' socialization goals and child outcomes? To what extent do these effects differ across Canadian and Singaporean contexts? For those COPI-C behaviours found to be associated with socialization goals (in Research Question 2 above) and a child outcome variable (in Research Question 3 above), we conducted mediation analyses with bootstrapping (Hayes, 2018) to determine whether COPI-C mediated any potential links between PECS socialization goals and child outcomes. For those COPI-C behaviours found to mediate an indirect effect of PECS socialization goals on child outcomes, we further conducted a moderated mediation analysis with bootstrapping (Hayes, 2018) to determine whether these mediational associations differed across Canadian and Singaporean contexts.

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Results**Descriptive Statistics & Covariates**

Table 3.1 displays the descriptive statistics for all study variables of interest separately for Canadian and Singaporean samples. For the purposes of analyses, we applied a square-root transformation to the following maternal interaction behaviours in order to address skewness: references to maternal internal states, compliance to child initiatives, orientation to physical environment, eating- and non-eating-related commands, references to dyadic and non-dyadic social environment, and parental touch/control.

Table 3.2 displays the sociodemographic variables for Canadian and Singaporean samples. As indicated by cross-sample analyses, child age, child gender, and maternal education significantly differed across the Canadian and Singaporean samples. Among these variables, only child age and child gender were associated with one or more outcome variables: child age was correlated with secure ($r = .17, p = .009$) and avoidant ($r = -.16, p = .014$) attachment scales, while externalizing problems differed significantly by child gender ($t(236) = 2.38, p = .018$). We therefore controlled for child age and child gender in all analyses in which country was a point of focus. For any analyses involving compliance with child initiatives, we also controlled for the number of child initiatives (see Appendix A for coding criteria).

Research Question 1: To what extent do Canadian and Singaporean mothers differ in their use of autonomy- and relatedness-promoting behaviours when interacting with their preschool children?

Table 3.3 displays the results of a series of univariate of general linear models for the effect of country on each COPI-C variable, controlling for the effects of child age and child gender. Canadian mothers were more likely to refer to their own internal states ($p < .001$), to

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comply with their children's initiatives ($p < .001$), to orient their children to the physical environment ($p < .001$), and to discuss the dyadic social environment ($p < .001$). Singaporean mothers, on the other hand, were more likely to issue both eating-related commands ($p < .001$) and non-eating-related commands ($p < .001$), and to initiate physical touch/control of their children ($p < .001$). Because Singaporean mothers issued significantly more eating-related commands, despite being explicitly instructed not to, we continued to include this variable in all subsequent analyses, as the difference in instructions did not appear to have nullified the expected difference. Canadian and Singaporean mothers did not differ in their references to children's internal states ($p = .091$), their use of mutual eye contact ($p = .751$), or their discussion of the non-dyadic social environment ($p = .265$).

Research Question 2: To what extent are mothers' independent and interdependent socialization goals associated with mothers' autonomy- and relatedness-promoting behaviours? To what extent do Canadian and Singaporean mothers differ in their endorsement of independent vs. interdependent socialization goals for their preschool children? To what extent do differences in socialization goals account for differences in autonomy and relatedness-promoting behaviours?

Table 3.4 displays the correlation between maternal interaction behaviours and mother-reported socialization goals across the combined sample. Across the entire sample, mother-reported independent socialization goals were not correlated with any maternal interaction behaviours. Mother-reported interdependent socialization goals, however, were negatively correlated with references to maternal internal states ($r = -.19, p = .020$), maternal compliance with child initiatives ($r = -.24, p = .003$), orientation to the physical environment ($r = -.17, p = .043$), and orientation to the dyadic social environment ($r = -.28, p = .011$). Mother-reported

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interdependent socialization goals were positively correlated with maternal eating-related commands ($r = .39, p < .001$), non-eating-related commands ($r = .28, p = .011$), and mother-initiated physical touch/control ($r = .29, p < .001$).

Table 3.5 displays the mean scores on the interdependence and independence socialization goals sub-scales from the PECS-D by country, controlling for child age and child gender. While Canadian and Singaporean mothers did not differ in their endorsement of independence socialization goals ($p = .488$), Singaporean mothers endorsed interdependent socialization goals significantly more strongly than Canadian mothers ($p < .001$).

Table 3.6 displays the indirect effect of country on maternal interaction behaviours through interdependent socialization goals. Results indicated that interdependent socialization goals did not significantly account for the cross-sample differences in references to maternal internal states, compliance with child initiatives, orientation to the physical environment, eating-related commands, non-eating related-commands, orientation to the social dyadic environment, nor physical touch/control (all 95% CIs include 0).

Research Question 3: To what extent do mothers' autonomy- and relatedness-promoting behaviours predict child outcomes, and to what extent do these effects differ across contexts?

Table 3.7 displays the results of the multivariate general linear model showing the effect of maternal interaction variables on the set of attachment scales in the combined sample. Among the maternal interaction variables, only references to maternal internal states (Wilks' $\lambda = 0.93$, $F(4,230) = 4.07, p = .003$) had a significant multivariate effect on the set of attachment scales in the overall combined sample. When examining univariate effects, references to maternal internal

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states were significant negatively associated with avoidant attachment scores ($F(1,233) = 13.57$, $p < .001$; $\beta = -0.58$)

Table 3.8 displays the results of the univariate general linear models showing the effect of maternal interaction variables on internalizing and externalizing problems in the combined sample. Children's internalizing problems were negatively predicted by maternal references to both children's internal states ($F(1,225) = 4.32$, $B = -0.05$, $p = .039$) and their own internal states ($F(1,225) = 3.94$, $B = -0.19$, $p = .048$). Children's externalizing problems were negatively predicted by maternal references to their own internal states ($F(1,226) = 4.87$, $B = -0.22$, $p = .027$) and positively predicted by maternal issuing of non-eating-related commands ($F(1,226) = 4.00$, $B = 0.17$, $p = .047$).

In order to identify maternal interaction behaviours that may have a differential effect on child outcomes across cultures and thus reduce the number of analyses, we conducted a preliminary procedure of selecting candidate maternal interaction behaviours. First, as a preliminary step, we generated partial correlations between each maternal interaction behaviour and child outcome. Using Fisher's z-transformation, we then compared corresponding partial correlations across the two countries to identify those that were significantly different from one another ($z > 1.96$, $p < .05$). Only four maternal interaction behaviour-child outcome combinations showed significantly different correlations across the two countries: maternal internal states with internalizing problems, mutual eye contact with both avoidant and disorganized attachment, and non-eating-related commands with avoidant attachment. For full results from the preliminary selection procedure, see Tables E.1-3 in Appendix E.

Table 3.9 displays the result of the four univariate general linear models that were conducted to examine the moderating effect of country on the association between the four

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aforementioned maternal interaction behaviours and outcomes. First, country significantly moderated the association between maternal internal states and internalizing problems ($F(1,231) = 4.74, p = .031$), such that maternal internal states negatively predicted internalizing problems among Singaporean dyads ($B = -0.45, SE = 0.12, p < .001$), but not Canadian dyads ($B = -0.01, SE = 0.16, p = .937$). Second, country significantly moderated the association between mutual eye contact and avoidant attachment ($F(1,239) = 6.21, p = .013$), such that mutual eye contact negatively predicted avoidant attachment among Singaporean dyads ($B = -1.84, SE = 0.77, p = .019$), but not Canadian dyads ($B = 0.67, SE = 0.56, p = .229$). Third, country significantly moderated the association between mutual eye contact and disorganized attachment ($F(1,239) = 4.93, p = .027$), although mutual eye contact did not significantly predict disorganized attachment in either Canadian dyads ($B = 1.14, SE = 0.67, p = .093$), nor Singaporean dyads ($B = -1.04, SE = 0.68, p = .127$). Finally, country significantly moderated the association between non-eating-related commands and avoidant attachment ($F(1,239) = 3.97, p = .047$), such that non-eating-related commands negatively predicted avoidant attachment among Canadian dyads ($B = -0.37, SE = 0.15, p = .019$), but not Singaporean dyads ($B = 0.23, SE = 0.20, p = .253$).

Research Question 4: Assuming that mothers' interaction behaviours are predicted by mothers' socialization goals (see 2 above), do mothers' interaction behaviours mediate any potential links between mothers' socialization goals and child outcomes? To what extent do these effects differ across Canadian and Singaporean contexts?

Among the maternal interaction behaviours, references to maternal internal states, compliance with child initiatives, orientation to physical environment, eating- and non-eating-related commands, orientation to dyadic social environment, and parent-initiated touch/control showed a significant association with mothers' interdependent socialization goals (see Research

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Question 2 above). Among these, only references to maternal internal states was significantly associated with one or more outcome variables (avoidant attachment; see Research Question 3 above). We therefore conducted a mediation model to determine whether there were any indirect effects of interdependent socialization goals, through references to maternal internal states, on avoidant attachment. Figure 3.1 displays the results, which indicate that a weaker endorsement of interdependent socialization goals was associated with greater references to maternal internal states. This, in turn, was associated with lower avoidant attachment scores. The indirect effect of interdependent socialization goals, through references to maternal internal states, on avoidant attachment was statistically significant ($B = 0.11$, $SE = 0.06$, $95\% CI = 0.01-0.24$).

While these results apply to the overall sample of all mother-child dyads, we then determined whether the nature of this potential mediational effect was moderated (i.e., differed) across the two countries. The index of moderated mediation indicated that the mediation effect did not differ by country (index of moderated mediation = 0.07 , $SE = 0.07$, $95\% CI = -0.03-0.23$).

Discussion

This study sought to address several questions regarding mother-child interactions across cultural contexts during the preschool period. Specifically, we first sought to compare and describe the differences in autonomy- and relatedness-promoting behaviours across two cultural contexts: Canada and Singapore. Second, we sought to determine the correlates of such behaviours across the two contexts: namely, whether particular beliefs about children's socialization underlie these interaction behaviours and whether the effects of these interaction behaviours had differing impacts on child-parent attachment quality and child socio-emotional functioning across cultures.

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Description of Autonomy- and Relatedness-Promoting Behaviours Across Cultural Contexts

In the present study, Canadian mothers displayed greater autonomy-promoting behaviours by referring to their own internal states, complying with their children's initiatives, and orienting their children to the physical environment more than Singaporean mothers. In contrast, Singaporean mothers displayed greater relatedness-promoting behaviours by issuing more commands, and initiating more physical touch/control than Canadian mothers. Interestingly, Canadian mothers also referenced the dyadic social environment more than Singaporean mothers – a behaviour initially considered to be relatedness-promoting. Considering this in the context of results for other maternal interaction behaviours, however, we believe more frequent discussion of the dyadic social environment might reflect a more egalitarian approach to parent-child interactions, in which Canadian mothers were more likely to represent the snack time as a period of mutual interaction, as opposed to one focused solely on the child. In other words, we believe this greater emphasis on the dyadic social environment suggests that Canadian mothers were more likely to converse with their child as they might with a peer (e.g., friend, equal partner), as opposed to a subordinate. This is supported by the fact that Canadian mothers were observed to have discussed their own internal states (but not their child's) relatively more than Singaporean mothers and that, as a result, there was also a smaller differential between references to child vs. self among Canadian mothers. In the context of this higher likelihood to include the self during a child-centric interaction, we believe our measure of orientation to the dyadic social environment is reflective of a similar underlying perception of the parent-child relationship as being more egalitarian. In sum, these results are therefore consistent with literature comparing parent-child relationships across cultural contexts during the infancy and

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toddlerhood period (Bornstein et al., 1985; Broesch et al., 2015; Caudill & Weinstein, 1969; Feldman et al., 2006; Fernald & Morikawa, 1993; Kartner et al., 2008; Keller et al., 2002; Keller et al., 2004a; Keller et al., 2004b; Little et al., 2015; Posada et al., 2002; Rabain-Jamin, 1989; Rabain-Jamin & Sabeau-Jouannet, 1997; Rogoff et al., 1993).

Consistent with our expectations, interdependent socialization goals predicted several relatedness-promoting behaviours (namely, issuing commands and initiating physical touch/control), suggesting that, overall, mothers who value concepts such as obedience and deference to authority tend to behave in ways that embody these values. Interestingly, interdependent socialization goals were also negatively associated with several autonomy-promoting behaviours (namely, references to maternal internal states, maternal compliance to child initiatives and orientation to physical environment). Interdependent socialization goals were also negatively correlated with orientation to the dyadic social environment, which supports our argument that this behaviour may in fact reflect a relatively more egalitarian orientation towards the parent-child relationship that is characteristic of the relatively more individualistic Canadian context. In contrast to the interdependent scale, the independent socialization goals scale did not seem to correlate with any of the observed behaviours. Examining the individual items from the independent socialization scale, it is apparent that while the scale included items about assertiveness and individuality, it also included items that were perhaps less related. For example, there were items that referred to the desire to foster creativity and valuing good health, which are less obviously associated with the concept of independence.

Because Canadian and Singaporean mothers differed in their endorsement of interdependent socialization goals and that all interaction behaviours that correlated with interdependent socialization goals also differed across contexts, we expected that differences in

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socialization goals might account for differences in interaction behaviours. However, mediation analyses did not support this conclusion. While it is possible that these two patterns of results are merely coincidental, it is important to note that the correlation between interdependent socialization goals and maternal interaction behaviours were weak-to-moderate (Cohen, 1992), thus suggesting that there is a high degree of variance in interaction behaviours not accounted for by the socialization goals pertaining to independence and interdependence that were measured in the current study. It is also (and simultaneously) possible that these mediation analyses were limited in power due to the amount of missing data on maternal socialization goals (approximately 39% across the entire sample). Had data been available on socialization goals for the entire sample, this hypothesis might have been supported.

Consequences of Autonomy- and Relatedness-Promoting Behaviours Across Contexts

In the combined sample, mothers who discussed their own internal states tended to have children who were less avoidant and had both fewer internalizing problems and externalizing problems. Furthermore, references to children's internal states negatively predicted internalizing problems. This is generally consistent with past research indicating that internal state talk, in general, plays a key role in the development of positive attachment behaviours (Becker Razuri et al., 2017; Mcquaid, Bigelow, McLaughlin, & MacLean, 2007; Meins et al., 2012) and socioemotional functioning (Carr, Slade, Yuill, Sullivan, & Ruffman, 2018) because it signals that a caregiver is actively representing a child's internal world and can therefore respond in an appropriate and coherent manner. Across the combined sample, we also found that mothers who issued fewer non-eating related commands had children with fewer externalizing problems. This could be explained in one of two ways: either mothers who are more structured/prescriptive elicit more acting out in children, or children who tend to act out elicit more structured/prescriptive

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behaviours from their mothers. While it is likely that this reciprocal relationship exists, the fact that we coded only for instances in which mothers proactively and independently issued commands regulating children's behaviour (that is, not in response to any apparent behaviour in the child) suggests that perhaps the former explanation has been observed.

When the moderating effect of cultural context was considered, we found that three behaviours had differential effects on children's outcomes across contexts. Greater mutual eye contact seemed to be favourable for Singaporean children, as it was negatively associated with avoidant attachment. This suggests that while mutual eye contact occurred among Singaporean and Canadian dyads at similar frequencies, it may carry a different meaning in a Singaporean context. As established by a comparison of interaction behaviours across the two contexts, Canadian mothers tended to engage with their children in a more egalitarian manner, making use of various verbal means of connecting with their children. Singaporean mothers, on the hand, were relatively more hierarchical and physical, and were relatively more prescriptive when they engaged in verbal exchange. Thus, while not more frequent in the Singaporean setting, it is possible that eye contact carries greater weight in communication and conveying emotional exchange between dyads in the Singaporean setting. Indeed, research on emotion recognition across cultures indicates that East Asian adults are more likely to focus on the eyes when interpreting emotions in facial expressions, while European North Americans adults are more likely to use cues from the mouth (Yuki, Maddux, & Masuda, 2006). While the current study sought to quantify mutual eye contact as a proxy measure of face-to-face interaction with direct eye gaze, a phenomenon more common among mother-infant dyads in individualistic contexts (Kartner, Keller, & Yovsi, 2010; Little, Carver, & Legare, 2015), it is important to note that we did not code for face-to-face orientation, per se. Rather, we coded for instances in which mothers

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either spoke or conveyed a marked facial expression while engaged in mutual eye contact with the child (regardless of orientation or directness of eye gaze). It is also important to note that developmental period in the current study might account for why our results are in contrast to Abels (2006). During the preschool period, unlike in infancy, body orientation may be less important to the dyadic exchange than the specific emotions or thoughts that can be conveyed verbally and facially during the preschool period. In other words, while body orientation early on in infancy may be important in establishing the role of self relative to others, facial cues might become more important to modulating the specific and subtle aspects of a dyadic exchange in later developmental periods.

Non-eating related commands seemed to be predictive of less avoidant attachment only in Canada. While this result seems counter-intuitive, given that control, in an individualistic context was expected to be detrimental to Canadian children's development, we note the low frequency with which non-eating-related commands were observed in the Canadian sample. We therefore believe that being a relatively more prescriptive mother, in a context that is, on average, not very prescriptive, might be reflective of a mother who is simply more engaged in her interactions with her child. These children, in turn, are those more likely to reciprocate such engagement with their parents during the separation-reunion procedure. In a Singaporean context, on the other hand, where a high level of parental prescriptiveness is both expected and observed, it may be that parental prescriptiveness is perceived as the norm and therefore inconsequential on the degree to which children view their mother as being emotionally available.

Finally, the association between mothers' references to their own internal states and children's internalizing problems differed across cultural contexts, with references to maternal internal states predicting fewer internalizing problems in Singaporeans, but not Canadians. This

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is largely consistent with the notion that, in addition to the benefits of discussing children's internal states, the discussion of others' internal states might help Singaporean children to adapt in a relatively more collectivistic and hierarchical environment. The current results emphasize the particular importance of attending to the internal states of close in-group members in positions of authority, which is consistent with past research indicating that such figures are particularly important to children's motivation and competence in navigating challenges (Iyengar & Lepper, 1999). Canadian children, on the other hand, although exposed relatively more frequently to references to their mothers' internal states, do not seem to benefit from this, further underlining the importance of focusing on one's own internal states, rather than those of others in an individualistic context.

While data for maternal socialization goals was not available for the entire sample, we identified one instance in which maternal beliefs, maternal behaviour, and child outcomes were connected. Through a mediational model, we found that mothers who had a stronger desire for their children to be deferent to others and obedient to authority were less likely to discuss their internal states with their children. This, in turn was associated with children who tended to avoid their mothers during the separation-reunion procedure. We believe that this set of results suggests a pathway by which a mother's specific beliefs about how her child should obey and defer to others (particularly authority figures) might lead her to be less concerned with sharing her own internal states with her child. This might, in turn, establish a general climate of less emotional openness, availability, and intimacy in the child-caregiver relationship, which manifests as the child's failure to approach the caregiver and to express distress when faced with an emotionally challenging situation. While this specific result was not necessarily predicted, it is consistent with separate lines of research indicating that holding childrearing beliefs

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emphasizing familial interdependence is associated with less parental self-disclosure (Barry, Bernard, & Beitel, 2009) and that caregivers of insecurely attached dyads are less likely to openly communicate about subjective states such as emotions (Pauli-Pott & Mertsacker, 2009). Although we found that context did not moderate any of these mediational associations (i.e., that the nature or strength of the mediations did not differ by country), we again cannot rule out that these null results were due to a limited sample size.

Limitations & Future Directions

In the current study, we chose to examine Canadian and Singaporean contexts because of their similarity on various indicators (e.g., industrialization) but their divergence on one key dimension: individualism versus collectivism. While we found that Canadian and Singaporean mothers differed in a manner that was largely coherent with variation across this dimension, we note that this two-group comparative design, while common in cross-cultural psychology, can over-emphasize a binary perspective on cross-cultural variations in behaviour (Norenzayan & Heine, 2005). Therefore, we cannot rule out the possibility that behaviours did not differ across samples because of variation along a separate, unidentified dimension. We tried to mitigate this possibility by identifying a theoretically viable variable – socialization goals, which make up parental ethnotheories – to verify that variations in behaviour were tied to variation in maternal beliefs. Indeed, we found that maternal socialization goals, which also differed across the two samples, were correlated with the maternal interaction behaviours that we observed. Still, the study of additional cultural contexts, found at various points on the individualism-collectivism spectrum, would have helped to further mitigate a categorical view of maternal behaviours across cultures and lend further support for the link between macrosystem-level cultural values and parent-child in the microsystem. It is important to note, however, that cross-cultural studies can

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be resource-intensive and thus depend on the balancing of both theoretical and practical limitations.

While the five-minute snack interaction that we observed in the present study provided a relatively naturalistic situation in which to observe parent-child interactions, there were some limitations associated with our methodology. First, the specific instructions given to mothers differed slightly between the two study sites, with Singaporean mothers being told explicitly not to influence the choice and amount of the child's eating. It is possible that this difference may have contributed to differences in mothers' prescriptive behaviours. To address this issue, we coded for eating and non-eating related commands separately, and we found that despite being primed to be less prescriptive of children's eating-related behaviour, Singaporean mothers unexpectedly made more eating-related commands than Canadian mothers, a pattern that was similarly observed for non-eating related commands. This raises the prospect that, given no restrictions, Singaporean mothers could have imposed even more on their children's behaviours. Future attempts at replication of the present study should therefore attempt to maintain as high a degree of equivalence among the research sites as possible. Second, while maternal references to internal states were among the most commonly identified predictors of children's outcomes in the present study, the rate of maternal internal state talk was relatively low. Had we adopted a more structured situation that was designed to elicit spontaneous internal state talk (e.g., book reading, emotion discussion, or joint reminiscing about past experiences), we could have analyzed the effects of different internal state categories (i.e., desires/beliefs, thoughts/cognitions, emotions, intentions). In the present study, we collapsed references to all internal states and so it was impossible to distinguish what types of internal states are most predictive of children's socio-emotional functioning across cultures. Other research indicates,

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however, that different cultures might prioritize different types of internal states (Taumoepeau, 2015). Still, the snack interaction was effective in that it allowed us to distinguish the effects of maternal internal state talk on children's socio-emotional functioning specifically based on its referent, a theoretically relevant distinction given the differential emphasis placed on self versus others across cultures. Finally, a note of caution should be added to the generalizability of results that were generated from the snack interaction. Although it comprised a relatively naturalistic situation, it was not necessarily representative of all situations in the daily lives of caregivers and children. Therefore, replication using observations of other daily situations such as a playful interaction or a didactic interaction would be beneficial.

We also note several issues related to the PECSD. As we have discussed, the independent socialization goals subscale of the PECSD contained items that lacked face validity, and may, as a result have influenced our ability to identify associations between maternal interaction behaviours and independent socialization goals. We also lacked power in analyses involving maternal socialization goals because of missing data. We therefore propose that future research would benefit from a revision of the PECSD and administering all measures to a larger sample. One potential avenue for revision, in addition to dropping non-face valid items, would be to better distinguish the nuanced nature of parents' socialization goals. The current version of the PECSD is formulated to ascertain the extent to which mothers want their children to display a particular behaviour, but it does not explicitly distinguish the degree to which responses reflect a desire based on the internalization of values/norms of their cultural context (which is what we assumed), versus a desire based on what is perceived as lacking in their child (Heine, 2008). One way to circumvent this limitation would be to obtain truly prospective measures of mothers' socialization goals and approach to caregiving before extensive exposure to their children and

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their individual characteristics (e.g., prenatally among expecting parents). This would provide more confidence that the questionnaire is assessing an individual's caregiving ethnotheories, independent of their actual experience with caregiving. Another solution would be a two-step approach in which a parent is asked to report the extent to which their child actually displays a behaviour versus the extent to which the parent is satisfied with this current state. This approach would allow researchers to establish the extent to which particular behaviours, on average, are displayed within a cultural context, as well as how a particular context, on average, would ideally want children to behave.

This study comprised the first use of a novel measure, which was developed for the purposes of this study. While some of our hypotheses and results were strongly rooted in theory supported by past research, other hypotheses were more exploratory in nature due to both the novelty of the COPI-C instrument and a dearth of past research. As a result, we conducted several analyses, and while we made every attempt to examine only associations between variables that appeared to be most promising, we cannot ignore the possibility that some of statistically significant results presented in this study – particularly those that were just below the alpha of .05 – may represent Type I errors. Therefore, we advise caution when interpreting results, particularly those pertaining to Research Questions 3 and 4, and we note that further attempts at replication of our results are warranted.

Finally, while the current study adopted a relatively etic approach by identifying child development outcomes that were presumed to be objectively universal across cultures, we note that child-caregiver attachment or socio-emotional functioning are hardly comprehensive indicators of child development. Although these are important, there is a host of other domains of positive child development, including cognitive development, academic achievement, and

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prosocial or moral development. It is likely that cross-cultural studies examining the effects of autonomy- and relatedness-promoting behaviours would uncover a greater range of effects that are culture-specific. We also note that while the manifestation of particular child outcome behaviours (e.g., avoidant behaviour or externalizing behaviours) might be consistently observed and quantified across cultural contexts, the meaning or significance of such behaviours might themselves vary across cultural contexts. For example, as Olson, Lansford, Evans, Blumstein, and Ip (2019) note, parents' beliefs about the origins, nature, and consequences of negative behaviour differ across contexts. Indeed, when asked to freely define maladaptive behaviour in children, Japanese mothers were much less likely than American mothers to include aggression and disruptive child behaviours as developmentally undesirable behaviours for preschool children (Olson, Kashiwagi, & Crystal, 2001). Instead, Japanese mothers most commonly emphasized a lack of social sensitivity and a lack of cooperation as negative child attributes. These findings suggest that caregivers from diverse contexts may hold conceptualizations of child development that do not necessarily fall neatly into the classic internalizing/externalizing typology that has been the focus of much research in the West. Thus, future studies could adopt a more emic approach by asking parents to generate their own definitions of ideal child development (Olson et al., 2019). This would result in a more nuanced understanding of optimal child development, which could then be used to complement or even inform research designs such as the one adopted in the present study.

Conclusion

The present study presented a cross-cultural examination of mother-child interactions across two cultural contexts. Noting that much work in this area has focused on infants, we sought to adapt methods to the preschool period, with a consideration for the developmental

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hallmarks of this period, namely increased verbal, cognitive, and social capabilities in children. We also aimed to go beyond the process of simple description of such behaviours by examining their theoretical correlates: the macrosystem beliefs that may inform or organize these microsystem behaviours, and the consequences of such microsystem behaviours on children's development across cultural contexts. In general, we were able to identify several meaningful commonalities and differences across cultural contexts in both the manifestation of autonomy- and relatedness-promoting behaviours, as well as their correlates. These include the seemingly common importance of internal state talk, with a nuanced understanding that the referents of such internal states might vary according to differing views about the role of self versus other across cultural contexts. In sum, the present study contributes to the growing body of knowledge actively addressing historical emphasis in developmental psychology on Western contexts (Henrich, Heine, Norenzayan, 2010; Nielsen & Haun, 2016). By actively comparing and contrasting Canadian and Singaporean contexts, we have aimed to provide a more fulsome understanding of parent-child interactions across cultures.

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Tables & Figures

Table 3.1. Raw Means of Study Variables

COPI-C	Canada			Singapore		
	<i>n</i>	<i>M</i> (SD)	min.-max.	<i>n</i>	<i>M</i> (SD)	min.-max.
<i>Autonomy-Promoting Behaviours</i>						
Child Internal States	112	4.49 (2.51)	0-13	136	5.51 (3.60)	0-15
Maternal Internal States	112	2.18 (1.55)	0-7	136	1.00 (1.24)	0-6
Child Initiatives	112	2.61 (1.75)	0-9	136	1.74 (1.75)	0-8
Maternal Affirmation/Compliance	112	1.85 (1.52)	0-7	136	0.90 (1.20)	0-6
Physical Environment	112	6.23 (2.74)	0-15	136	5.06 (3.63)	0-17
Mutual Eye Contact	112	0.41 (0.21)	0-0.93	136	0.41 (0.23)	0-0.90
<i>Relatedness-Promoting Behaviours</i>						
Eating-Related Commands	112	0.74 (1.18)	0-6	136	5.04 (3.85)	0-18
Non-Eating-Related Commands	112	2.39 (1.97)	0-11	136	5.01 (3.30)	0-15
Dyadic Social Environment	112	3.33 (1.95)	0-11	136	0.96 (1.32)	0-7
Non-Dyadic Social Environment	112	1.91 (1.83)	0-9	136	1.74 (2.06)	0-10
Parent-Initiated Touch/Control	112	2.10 (2.43)	0-14	136	5.82 (4.34)	0-18
<i>PECS</i>						
PECS	<i>n</i>	<i>M</i> (SD)	Min.-Max.	<i>n</i>	<i>M</i> (SD)	Min.-Max.
Independent Goals	69	5.70 (0.56)	4.25-6.75	82	5.77 (0.69)	3.50-7.00
Interdependent Goals	69	4.53 (0.71)	2.92-6.00	82	5.52 (0.77)	3.67-7.00
<i>PARS</i>						
PARS	<i>n</i>	<i>M</i> (SD)	Min.-Max.	<i>n</i>	<i>M</i> (SD)	Min.-Max.
Secure	110	5.54 (1.79)	1-8	135	5.23 (1.92)	1-9
Avoidant	110	2.05 (1.24)	1-6	135	2.99 (2.03)	1-8
Ambivalent	110	2.66 (1.68)	1-8	135	2.64 (1.98)	1-8
Disorganized	110	1.75 (1.52)	1-7	135	1.78 (1.74)	1-8
<i>SDQ (Canada)/CBCL (Singapore)</i>						
SDQ (Canada)/CBCL (Singapore)	<i>n</i>	<i>M</i> (SD)	Min.-Max.	<i>n</i>	<i>M</i> (SD)	Min.-Max.
Internalizing Problems	109	2.65 (2.03)	0-8	128	10.88 (7.86)	0-32
Externalizing Problems	110	4.79 (2.92)	0-13	128	13.11 (8.54)	0-36

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Table 3.2. Descriptive Statistics for Potential Covariates by Country Sample

	Canada (<i>n</i> = 112)	Singapore (<i>n</i> = 136)	Comparison
<i>M</i> Age of Child (SD)	49.81 (9.11)	41.35 (0.98)	$t(246) = 10.76, p < .001$
Child Gender	42.9% male 57.1% female	58.1% male 41.9% female	$\chi^2_1 = 5.70, p = .021$
Maternal Education	8% secondary 17% college 75% university	6.4% primary 27.2% secondary 39.2% college 27.2% university	$\chi^2_3 = 56.41, p < .001$

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Table 3.3. Comparison of Interaction Behaviours (COPI-C) Across Countries

COPI-C	Canada	Singapore	Effect of country	
	<i>M</i> (SE)	<i>M</i> (SE)	<i>F</i> (1,244)	<i>p</i>
<i>Autonomy-Promoting Behaviours</i>				
Child Internal States	4.59 (0.34)	5.42 (0.30)	2.88	.091
Maternal Internal States	1.28 (0.07)	0.77 (0.06)	24.46	< .001
Child Initiatives	1.52 (0.08)	1.03 (0.07)	18.11	< .001
Maternal Affirmation/ Compliance ^a	1.03 (0.05)	0.76 (0.05)	12.64	< .001
Physical Environment	2.13 (0.08)	1.30 (0.08)	45.92	< .001
Mutual Eye Contact	0.42 (0.02)	0.40 (0.02)	0.10	.751
<i>Relatedness-Promoting Behaviours</i>				
Eating-Related Commands	0.58 (0.09)	1.96 (0.08)	99.86	< .001
Non-Eating-Related Commands	1.38 (0.09)	2.02 (0.08)	24.66	< .001
Dyadic Social Environment	1.76 (0.07)	0.64 (0.06)	114.95	< .001
Non-Dyadic Social Environment	1.15 (0.9)	1.01 (0.08)	1.25	.265
Mother-Initiated Touch/Control	1.22 (0.10)	2.17 (0.09)	42.86	< .001

Note. All variables were root transformed, except Child Internal States and Mutual Eye Contact.

Note. Means are estimated marginal means, controlling for child age and child gender.

^acontrolling for Child Initiatives

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Table 3.4. Correlations Between Interaction Behaviours (COPI-C) and Mother-Reported Socialization Goals (PECSD)

COPI-C	PECSD	
	Independent Goals	Interdependent Goals
<i>Autonomy-Promoting Behaviours</i>		
Child Internal States	.02	.07
Maternal Internal States	.01	-.19*
Child Initiatives	.13	-.07
Maternal Affirmation/ Compliance ^a	-.02	-.30*
Physical Environment	.01	-.17*
Mutual Eye Contact	.15	.05
<i>Relatedness-Promoting Behaviours</i>		
Eating-Related Commands	.02	.39**
Non-Eating-Related Commands	.07	.28**
Dyadic Social Environment	-.02	-.28**
Non-Dyadic Social Environment	.03	.04
Mother-Initiated Touch/Control	-.07	.29**

^acontrolling for Child Initiatives

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

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Table 3.5. Mother-Reported Socialization Goals (PECSO) by Country

PECSO	Canada	Singapore	Effect of Country	
	M (SE)	M (SE)	<i>F</i> (1,147)	<i>p</i>
Independent Goals	5.68 (0.09)	5.79 (0.08)	0.67	.413
Interdependent Goals	4.51 (0.10)	5.53 (0.09)	49.28	< .001

Note. Effects while controlling for child age and gender.

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Table 3.6. Indirect Effect of Country on Interaction Behaviours Through Maternal Interdependent Socialization Goals

COPI-C (Outcome)	Indirect Effect of Country Through Interdependent Socialization Goals	
	B (SE)	95% CI
Maternal Internal States	-0.62 (0.37)	-1.33, 0.11
Maternal Affirmation/Compliance ^a	-0.09 (0.06)	-0.21, 0.01
Physical Environment	0.02 (0.03)	-0.03, 0.07
Eating-Related Commands	0.09 (0.09)	-0.09, 0.28
Non-Eating Related Commands	0.07 (0.09)	-0.12, 0.25
Dyadic Social Environment	0.03 (0.09)	-0.13, 0.21
Mother-Initiated Touch/Control	-0.03 (0.11)	-0.25, 0.18

Note. Effects controlling for child age and gender.

^acontrolling for Child Initiatives

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Table 3.7. Effect of Maternal Interaction Behaviours (COPI-C) on Attachment Behaviours (PARS)

Predictor	Multivariate effects			Univariate effects	
	Wilks' λ	$F(4,230)$	p	B (SE)	p
Intercept	0.25	174.31	<.001		
Child Internal States	1.00	0.31	.870		
Maternal Internal States	0.93	4.07	.003	secure: 0.22 (0.18) avoidant: -0.58 (0.16) ambivalent: -0.01 (0.18) disorganized: 0.12 (0.16)	.211 .000 .972 .443
Child Initiatives	0.97	1.82	.126		
Maternal Affirmation/ Compliance ^a	0.98	1.03	.395		
Physical Environment	0.98	1.09	.362		
Mutual Eye Contact	0.96	2.40	.051		
Eating-Related Commands	0.98	0.96	.433		
Non-Eating-Related Commands	0.99	0.83	.509		
Dyadic Social Environment	0.99	0.83	.509		
Non-Dyadic Social Environment	0.99	0.32	.864		
Mother-Initiated Touch/Control	0.99	0.60	.660		

^acontrolling for Child Initiatives

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Table 3.8. Effect of Interaction Behaviours (COPI-C) on Internalizing and Externalizing Problems (SDQ/CBCL)

Predictor	Internalizing Problems		Externalizing Problems	
	B (SE)	<i>p</i>	B (SE)	<i>p</i>
Intercept	0.18 (0.28)	.517	0.01 (0.28)	.967
Child Internal States	-0.05 (0.02)	.039	-0.02 (0.02)	.325
Maternal Internal States	-0.19 (0.10)	.048	-0.22 (0.10)	.027
Child Initiatives	0.04 (0.14)	.790	-0.03 (0.14)	.824
Maternal Affirmation/Compliance	-0.15 (0.14)	.278	-0.06 (0.14)	.698
Physical Environment	-0.14 (0.26)	.597	0.02 (0.26)	.944
Mutual Eye Contact	0.01 (0.30)	.984	-0.07 (0.30)	.806
Eating-Related Commands	0.05 (0.07)	.481	-0.05 (0.07)	.526
Non-Eating-Related Commands	-0.08 (0.08)	.347	0.17 (0.09)	.047
Dyadic Social Environment	0.30 (0.19)	.107	0.17 (0.19)	.364
Non-Dyadic Social Environment	0.08 (0.18)	.671	-0.04 (0.18)	.835
Mother-Initiated Touch/Control	0.13 (0.07)	.078	0.01 (0.07)	.858

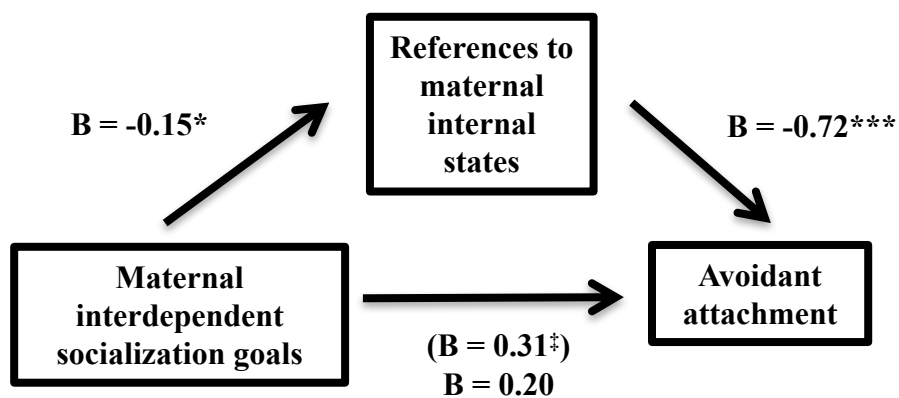
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Table 3.9. Interactive Effects of Country and Maternal Interaction Behaviours (COPI-C) on Child Outcomes

COPI-C	Outcome	Country x Behaviour		Probe: Canada		Probe: Singapore	
		<i>F</i>	<i>p</i>	B (SE)	<i>p</i>	B (SE)	<i>p</i>
Maternal Internal States	Internalizing problems	4.74	.031	-0.01 (0.16)	.937	-0.45 (0.12)	< .001
Mutual Eye Contact	Avoidant attachment	6.21	.013	0.67 (0.56)	.229	-1.84 (.077)	.019
Mutual Eye Contact	Disorganized attachment	4.93	.027	1.14 (0.67)	.093	-1.04 (0.68)	.127
Non-Eating-Related Commands	Avoidant attachment	3.97	.047	-0.37 (0.15)	.019	0.23 (0.20)	.253

Note. Effects are controlling for child age and gender.

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Indirect effect: $B = 0.11$, $SE = 0.06$, $95\% CI = 0.01-0.24$

Figure 3.1. Mediation model of maternal interdependent socialization goals on avoidant attachment, through references to maternal internal states.

$\ddagger p < .10$; $*p < .05$; $*** p < .001$

Chapter 4:**Correlates of intra-cultural variation in parent-child interactions during the preschool period: The case of Canadian mothers and fathers****Abstract**

This study examined variation in parents' autonomy- and relatedness-promoting behaviours in a Canadian cultural context through the comparison of mother-child and father-child interactions during the preschool period. In addition to describing differences in these behaviours across Canadian mothers and fathers from the same families, this study also examined the potential theoretical correlates of Canadian mothers' and fathers' autonomy- and relatedness-promoting behaviours. The primary aims of this study were: 1) to determine how Canadian mothers and fathers, within families, resemble and differ from one another in their use of various autonomy- and relatedness-promoting behaviours in their interactions with their preschool children; 2) to determine how Canadian mothers and fathers, within families, resemble and differ from one another in their endorsement of independent and interdependent socialization goals and how these predict their autonomy- and relatedness-promoting behaviours; and 3) to determine whether autonomy- and/or relatedness-promoting behaviours from Canadian mothers and fathers contribute to children's outcomes. Where possible, we also explored the influence of child gender. Within families, mothers' and fathers' tendency to issue verbal commands was positively correlated, while their tendency to orient to the non-dyadic social environment was negatively correlated. Mothers tended to engage in mutual eye contact, to orient their children to the non-dyadic social environment, and to touch or physically control their children more than fathers, while fathers tended to orient their children to the physical environment more than

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mothers. Within families, mothers' and fathers' endorsement of both independent and interdependent socialization goals were positively correlated. Parents tended to endorse greater interdependent socialization goals when their participating child was a boy versus a girl, but this effect was specifically driven by mothers. Parent-child interaction behaviours were not associated with parent-reported socialization goals, nor child outcomes.

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Over the last century, the roles of men and women in Western societies have undergone remarkable change. Due to wider acceptance of cultural norms regarding equality of the genders, women have become substantially more involved in the labour force and activities outside the home, while men have become more involved in domestic and childrearing activities. Although mothers remain the primary caregiver in the majority of cases, fathers are now involved in childrearing more than ever before. For instance, the amount of time that fathers spend with their children has nearly doubled over the past fifty years (Pleck, 2010). Indeed, while fathers had previously spent less than half the amount of time as mothers did with children, this disparity has shrunk to between 67 and 87% (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). With this rise in father involvement in the childrearing domain, there has been a growing interest and recognition of fathers' influences on child development. Research has demonstrated, for instance, that fathers have an important role in shaping their children's cognitive, language, and social development (Magill-Evans & Harrison, 2001; McWayne, Downer, Campos, & Harris, 2013). The current role of fathers in Western societies is therefore regarded as a meaningful contributor to children's development, and this is expected to be increasingly so as gender roles in caregiving continue to evolve.

Despite shifts in the division of labour in Western society, modern gender roles still reflect long-held essentialist beliefs about men and women. Specifically, such beliefs continue to reflect classic gender norms that characterize the ideal woman as being compassionate, sensitive to the needs of others, and affectionate towards children. Men on the other hand, are expected to be independent, individualistic, and self-sufficient (Auster & Ohm, 2000). As a result, the role of mothers in Western society has long centered upon the provision of nurturance and protection, while such responsibilities in fathers have been viewed as secondary to the roles of breadwinner

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and playmate (Lamb, 2000). Owing to the fact that mothers and fathers tend to be associated with differing domains of caregiving, some theorists have posited that mothers and fathers emphasize differentiated aspects of their children's development. Paquette (2004), for example, has suggested that fathers especially emphasize the development of autonomy and exploration by socializing children to face challenges in the external world. Fathers do so, according to Paquette, by exposing children to more destabilizing or activating scenarios, thereby challenging them to confront novelty, under safe and controlled conditions. Similarly, others have posited that fathers act as the "bridge" across the gap between the comfortable, familiar presence of mothers, and the considerably more complex environment of the outside world (Crain-Thoreson, Dahlin, & Powell, 2001). Indeed, some research comparing father-child and mother-child interactions seem to support the notion that fathers emphasize the development of autonomy in children. For instance, it has been observed that fathers are more likely to position themselves behind their children, inducing them to confront the external world more (as cited in Paquette, 2004). Furthermore, when speaking to their children, fathers are more likely to verbally encourage agency by demonstrating contingent responsiveness, while mothers are more likely to encourage communion (Berghout Austin & Braeger, 1990).

While there may be some evidence that suggests fathers adopt more of a prominent role in socializing children's autonomy, more recent findings challenge such a binary conception of mothers and fathers. First, in direct comparisons of mothers and fathers, several researchers have failed to show a significant difference in the degree to which mothers and fathers activate children – a role hypothesized to foster autonomy in children and to fall under the special purview of fathers (Majdandzic, de Vente, & Bogels, 2016; Paquette & Bigras, 2010). Other observational research comparing mothers and fathers also challenges the notion that the role of

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socializing of autonomy belongs solely to fathers. For instance, while fathers are more likely to stand behind children, mothers are more likely to maintain face-to-face contact (as cited in Paquette, 2004), and mothers tend to prefer distal, didactic, and object-mediated play, over more proximal and physically stimulating play, which is a style preferred by fathers (Power & Parke, 1983; Schoppe-Sullivan, Kotila, Jia, Lang, & Bower, 2013; Yogman, 1981). Interestingly, both the maintenance of face-to-face contact and object-mediated play have been construed as means of socializing an autonomous conception of self in their own right (Keller et al., 2004a). In contrast, a proximal play style has been characterized by some as demonstrating connectedness through the physical blurring of the distinction between self and other (Keller et al., 2004a; Keller, Yovsi, & Voelker, 2002) and has shown links with children's obedience across diverse contexts, including a prototypically individualistic Western cultural context (Keller et al., 2004b). Other evidence also challenges the notion that fathers and mothers take on the differentiated tasks of promoting children's autonomy and relatedness. Mothers, for example, are more likely to speak about internal states (i.e., desires, feelings, cognitive processes; Fivush, Brotman, Buckner, & Goodman, 2000; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003), which is a behaviour known to predict children's differentiation of self from others (Ruffman, Slade, & Crowe, 2002). On the other hand, fathers are more likely to use imperatives with children (Leaper, Anderson, & Sanders, 1998), which presumably means they impose more of their own initiatives upon children's behaviour. While these differences might seem in conflict with other literature suggesting that fathers specialize in autonomy-promotion (e.g., Berghout Austin & Braeger, 1990), this duality of simultaneously promoting autonomy and relatedness is indicative of the complex constellation of behaviours that both mothers and fathers might display in their interactions with children.

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Indeed, several authors have recently argued against the unidimensional conceptualization of fathers and mothers (Cabrera, Fitzgerald, Bradley & Roggman, 2014; Fagan, Day, Lamb, & Cabrera, 2014; Lamb & Tamis-LeMonda, 2004; Newland, Freeman & Coyl, 2011; Schoppe-Sullivan & Fagan, 2020; Tamis-LeMonda, 2004). Instead, they advocate for a multidimensional conceptualization, noting that mothers and fathers, for the most part, resemble one another more than they differ. Considering the collection of observational research comparing mothers and fathers, both parents appear to preferentially engage in ways that address the needs of both autonomy and relatedness, but perhaps in morphologically different ways. In the present study, we adopt a more nuanced approach, not striving simply to determine whether it is fathers or mothers that are more concerned about fostering autonomy in their children, but rather, to determine the ways in which mothers and fathers approach common developmental needs such as autonomy and relatedness in differing, but potentially complementary fashion.

The Child-Mother and Child-Father Attachment Relationship

In the context of opposite-gender two-parent families, children readily form attachment relationships with both their mothers and fathers, and these relationships have important implications for individual development across the lifespan. Early researchers hypothesized that an important predictor of attachment security was the degree to which a caregiver responded sensitively (i.e., warmly, promptly, and appropriately) to a child's bids. However, meta-analyses (Lucassen et al., 2011; van IJzendoorn & de Wolff, 1997) have shown that the strength of this relationship is rather modest ($r = .24$ for mothers and $r = .13$ for fathers in infancy). While acknowledging the possibility that maternal and paternal sensitivity may show differing patterns of association with child-parent attachment depending on the developmental period, with associations in fathers being stronger in the preschool period compared to infancy (Brown,

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Mangelsdorf, & Neff, 2012), these findings indicate that there are many other predictors of attachment that have yet to be studied.

In an attempt to go beyond traditional maternal sensitivity to improve the prediction of attachment security, some researchers have drawn inspiration from Self-Determination Theory, which proposes autonomy as an important human need that caregivers have a role in satisfying in early life. In their study of mother-infant dyads, Whipple, Bernier, and Mageau (2010) found that mothers' observed autonomy-support was associated with attachment security, above-and-beyond their sensitivity. However, the authors did not examine similar associations in the father-child relationship, noting, themselves, the need to do so in future work. Thus, this study aims to contribute to this line of thinking by examining whether both autonomy- and relatedness-promotion in fathers predicts attachment security, alongside similar associations in mothers.

Given that fathers have been found to interact with children in noticeably (though perhaps subtly) different ways, it is possible that the quality of child-father attachment is predicted by different autonomy-promoting (and, indeed, relatedness-promoting) behaviours than those expressed by mothers. For example, Kerns and Barth (1995) found that while the degree to which fathers used directives with children predicted child-father attachment security, this was not the case for mothers. As noted by Cabrera et al. (2014), it is possible that particular behaviours do not carry the same meaning in the context of mother-child versus father-child relationships. Thus, this investigation aims to examine various indices of both autonomy- and relatedness-promoting behaviours as potential predictors of attachment quality to both mothers and fathers, while acknowledging that the formation of these relationships may occur via differing developmental pathways.

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Mothers' and Fathers' Influence on Children's Socio-Emotional Development

As mentioned previously, fathers exert an influence on various aspects of children's socio-emotional development. Interestingly, however, the developmental domains in which mothers and fathers exert their influence appear also to be somewhat differentiated. Indeed, research suggests that fathers may exert influence on children's development particularly in the social domain. For instance, in direct comparisons of mothers and fathers, fathering behaviours have been shown to uniquely predict children's social skills and the quality of children's relationships with both friends and siblings (Lieberman, Doyle, Markiewicz, 1999; NICHD Early Child Care Research Network, 2004; Parke et al., 2004; Volling & Belsky, 1992). Similarly, the influence of fathers has also been uniquely linked to children's externalizing problems and conduct problems (Bureau et al., 2017; DeKlyen, Speltz, & Greenberg, 1998; Sturgess, Dunn, & Davies, 2001). As DeKlyen et al. (1998) suggest, the link between fathering behaviour and behavioural problems in particular may be attributed to fathers' preference for horizontal interactions, through which fathers teach children how to get along with peers, demonstrate turn-taking, and model acceptable forms of competition and tension reduction between equals.

It should be noted, however, that although fathers' behaviours predict children's externalizing problems, the influence of fathers is likely not isolated to the social domain. Indeed, as the development of children's maladaptive behaviours often occur in conjunction with one another, research has also shown that fathers' behaviours predict a wide array of developmental outcomes, including internalizing problems (Bogels & Phares, 2006; Mattanah, 2001) and, at a basic cognitive level, children's executive functioning (Meuwissen & Carlson, 2015), which is thought to underlie maladaptive behaviour across several domains.

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Although the aforementioned studies suggest that fathers play a unique role in shaping children's socio-emotional development, those most relevant to the current investigation are those that directly implicate fathers' autonomy-promotion as particularly relevant to child outcomes. In the case of Mattanah (2001) and Meuwissen and Carlson (2015), the role of autonomy-support was found to predict developmental outcomes over-and-above other aspects of positive parenting that have long been the focus of study. Furthermore, in the large-scale study conducted by the NICHD Early Child Care Research Network (2004), it was fathers' support for their children's autonomy that showed contributions to children's social skills, over-and-above that of mothers. Thus, just as mothers and fathers' autonomy-promotion (and perhaps relatedness-promotion) appear to differentially predict the child-parent attachment relationships, their behaviours may also differentially influence children's social adjustment.

Mothers' and Fathers' Behaviours as a Function of Child Gender

While there may be differences in parent-child relationships by parent gender, there is evidence to suggest that child gender may also influence parents' modes of interaction. For example, it has been established that parents expect girls to display more prosocial and affiliative behaviours, while they expect boys to be assertive (Hastings, Utendale, & Sullivan, 2007). As a result, parents treat boys and girls in different ways, which include talking to girls more about their emotions than boys (Kuebli & Fivush, 1992), using more "other-oriented" reasoning in response to aggression in girls (Smetana, 1989), and responding in a more authoritarian manner with boys (Smith, Brooks-Gunn, 1997). Importantly, however, many of these conclusions do not distinguish the degree to which parent gender and child gender interact. There is some evidence to suggest that mothers and fathers treat sons versus daughters differently. For instance, Endendijk et al. (2017) have noted that mothers tend to use more physical control strategies in

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response to undesirable behaviour from boys versus girls, while fathers did not differentiate among boys versus girls. Other research, however, suggests that it is fathers who are more likely to treat their sons and daughters differently (Berghout Austin & Braeger, 1990; Lytton & Romney, 1991), and yet still other research suggests that caregiving differences between mothers and fathers are independent of child gender (Hallers-Haalboom et al., 2014). While some of these conflicting findings may be related to differences in gender-related attitudes across time, there is a paucity of modern research considering the interaction between parent gender and child gender. Moreover, what little evidence that does exist remains equivocal.

The Current Investigation

While the previous study sought to empirically elucidate differences in the manifestation and correlates of mothers' autonomy- and relatedness-promoting behaviours across cultures, this study sought to draw an intra-cultural comparison of Canadian mothers and fathers from within the same two-parent families. In response to recent calls from authors (Fagan et al., 2014) to adopt a multidimensional conceptualization of mothers and fathers, we used the Cross-cultural Observations of Parents Interacting with Children Coding System (COPI-C; Quan & Bureau, 2015) to examine the multitude of ways that parents can embody autonomy and relatedness. The preschool period was similarly examined in this study, as the preschool period is a time during which the role of fathers is particularly important. Indeed, it is during this period that fathers become more actively involved in their children's lives, as childrearing centers less on satisfying physiological needs such as feeding, diapering, and bathing – tasks that have long fallen under the purview of mothers (Black, Dubowitz, & Starr, 1999; Woodworth, Belsky, Crnic, 1996). This developmental shift in early childhood is coupled with greater mobility, improved cognitive and communication skills, and a marked salience of play, a form of interaction in which fathers

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are more likely to engage (Lamb & Lewis, 2004; McBride & Mills, 1993). The preschool period is also characterized by a growing need for autonomy in the child, which stems from the aforementioned physical and cognitive abilities that emerge, as well as the expansion of children's social networks (Cicchetti et al., 1990). Given that autonomy is a central developmental task during the preschool years, and given that fathers' influence may be especially influential on children's development during this time, it is possible that fathers' interactions with preschool children show attention to such goals. Despite this, there is currently a lack of research on how fathers may specifically approach this task, in comparison to mothers. Furthermore, although it has been long established that child gender may be the basis for variation in parent-child interactions, there is a paucity of research examining how these differences manifest within families across mothers and fathers.

Research Questions & Hypotheses

Research Question 1: To what extent do Canadian mothers and fathers within the same family resemble/differ from one another in their display of autonomy- and relatedness-promoting behaviours? To what extent do differences vary by child gender?

While we expected some degree of similarity within families, we also expected that mothers and fathers might display differing types of autonomy- and relatedness-promoting behaviours. In the event that parent gender differences were found, we expected mothers to discuss internal states more, to be more oriented to the physical environment, to maintain more mutual eye contact, and to discuss the interpersonal/social environment more than fathers. In contrast, fathers were expected to affirm their children's initiatives, to give more directives to children, and to engage in more physical contact with their children than mothers. Due to a lack of conclusive literature on how parent gender and child gender might interact, particularly on the specific topic of

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parental autonomy- and relatedness-promoting behaviours, our analyses concerning child gender were exploratory.

Research Question 2: To what extent do Canadian mothers and fathers within the same family resemble/differ from one another in their endorsement of independent and interdependent socialization goals for their preschool children? To what extent do differences vary by child gender? To what extent are mothers' and fathers' socialization goals related to their autonomy- and relatedness-promoting behaviour? Within families, we expected some degree of similarity in mothers' and fathers' endorsement of both independent and interdependent socialization goals. As mothers and fathers were expected to promote both autonomy and relatedness in varying ways with their children (see Research Question 1 above), we did not expect differences in overall socialization goals based solely on parent gender. Instead, we expected potential differences to emerge based on child gender. Given traditional gender norms dictating that men should value independence and self-sufficiency relatively more than women and that women should value social connections relatively more than men (Auster & Ohm, 2000), we expected parents to endorse relatively more independent socialization goals for boys and relatively more interdependent socialization goals for girls. While we considered the possibility that parent and child gender may interact, our analyses examining this interaction were exploratory. Regarding the association between socialization goals and observed behaviour, we further expected that each parent's endorsement of independent socialization goals would predict their autonomy-promoting behaviours, while each parent's endorsement of interdependent goals would predict their relatedness-promoting behaviours.

Research Question 3: To what extent do Canadian mothers and fathers' autonomy- and relatedness-promoting behaviours predict child-parent attachment and socio-

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emotional functioning? Assuming mothers' and fathers' socialization goals predict their autonomy- and relatedness-promoting behaviours, to what extent do mothers and fathers' autonomy- and/or relatedness-promoting behaviours mediate the link between their socialization goals and child outcomes?

Based on evidence suggesting that different aspects of mothers' versus fathers' behaviours may contribute to the same developmental outcomes in children (e.g., Kerns & Barth, 1995; Grossmann et al., 2002), we expected that different aspects of mothers' versus fathers' autonomy- and relatedness-promoting behaviours would predict child-parent attachment behaviours and child socio-emotional functioning. Due to a lack of literature comparing the specific autonomy- and relatedness-promoting behaviours assessed in the current study across mothers and fathers, however, our hypotheses for this research question remained exploratory. Furthermore, we expected that for any autonomy- and relatedness-promoting behaviours found to be associated with socialization goals and/or child outcomes, such behaviours would mediate a link between socialization goals and child outcomes.

Method

Participants

Participants were drawn from the preschool phase of the longitudinal study from the Canadian site described in Chapter 3. Of the 112 mothers described in Chapter 3, 75 had corresponding data for fathers who completed identical laboratory visits. While not entirely ethnically homogeneous, the vast majority of mothers in the sample (89.3%) self-identified as White/Caucasian, with 8% self-identifying as Asian, 1.3% as Black, and 1.3% as mixed race. Similarly, 93.3% of fathers in the sample self-identified as White/Caucasian, with 4% self-identifying as Asian, 1.3% as Black, and 1.3% identifying no ethnicity. Mothers reported an

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average of 16.15 years of education ($SD= 1.78$), while fathers reported an average of 16.20 years of education ($SD = 2.73$). Dyads completed all assessments in either English or French.

Procedure

Mother-child and father-child dyads completed identical laboratory visits, which occurred in counter-balanced order and an average of 5.6 months apart ($SD = 1.17$) to ensure that children did not recall the details of the first lab visit. All procedures are described in detail in Chapter 3.

Measures

Similar to the previous study, the Cross-cultural Observations of Parents Interacting with Children Coding System (COPI-C; Quan & Bureau, 2015) was used to assess various dimensions of parents' autonomy- and relatedness-promoting behaviours during the snack interaction; the Preschool Attachment Rating Scales (PARS; Moss, Lecompte, & Bureau, 2015) was used to assess the quality of child-parent attachment during the modified separation-reunion procedure; the Parental Expectations for Children's Social Development Questionnaire (PECSD; adapted from Singelis, 1994) was used to assess parents' self-reported socialization goals; and the SDQ was used to assess parents' report of children's socio-emotional functioning. Further details regarding all measures used in this study are found in Chapter 3. In the current study, data on socialization goals from both mothers and fathers was available for 54 families. Furthermore, to mitigate either the over- or under-reporting of children's socioemotional problems associated with individual reporters, we averaged mothers' and fathers' SDQ scores for each child (Alakortes et al., 2017).

Statistical Analyses

Data underwent routine data cleaning procedures (i.e., missing data analysis, screening for univariate outliers, skew, univariate non-normality, bivariate non-linearity,

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heteroscedasticity, bivariate outliers, and bivariate non-normality). To explore the potential inclusion of covariates, t-tests were used to determine whether child age and parental education differed across mothers and fathers. If these differed, correlations were used to determine the extent to which they were related to any of the outcome variables of interest (i.e., attachment scales, internalizing and externalizing scales). Then, to address the primary research questions, we applied analyses as described below.

Research Question 1: Mothers' and fathers' autonomy- and relatedness promoting behaviours. Correlations were conducted on COPI-C scores between mothers and fathers of the same children to determine how they resemble one another in their autonomy- and relatedness-promoting behaviours. To determine the extent to which they differ in their interaction behaviours, we conducted repeated-measures general linear models with parent gender as a within-subjects variable and child gender as a between-subjects variable. We also tested the interaction between parent gender and child gender.

Research Question 2: Mothers' and fathers' socialization goals. Correlations were conducted on PECSD subscales between mothers and fathers of the same children to determine how they resemble one another in their socialization goals. To determine whether Canadian mothers and fathers differ in their socialization goals, we conducted repeated-measures general linear models with parent gender as a within-subjects variable and child gender as a between-subjects variable. We also tested the interaction between parent gender and child gender. To determine whether mothers' and fathers' socialization goals were associated with their autonomy- and relatedness-promoting behaviours, we conducted correlations between each PECSD scale and each COPI-C behaviour for each parent.

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Research Question 3: Mothers' and fathers' autonomy- and relatedness-promoting behaviours and child outcomes. Multivariate general linear models were conducted to determine whether mothers' and fathers' autonomy- and relatedness-promoting scores predict child attachment scores (secure, avoidant, ambivalent, disorganized). Univariate general linear models were conducted to determine whether mothers' and fathers' autonomy- and relatedness-promoting behaviours predicted socio-emotional functioning (internalizing, externalizing problems). Given the sample size and number of predictors, it was not feasible to examine the interaction between parents' interaction behaviours and child gender on children's outcomes. In the event that any autonomy- or relatedness-promoting behaviours were found to predict child outcomes, we also planned to conduct mediation analyses with bootstrapping (Hayes, 2013) to determine whether these behaviours mediate any association between mothers' and fathers' socialization goals and children's outcomes

Results

Descriptive Statistics & Covariates

Table 4.1 displays the descriptive statistics for all study variables of interest. For the purposes of analyses, we applied a square-root transformation to the following interaction behaviours in order to address skewness: references to parental internal states, compliance with child initiatives, commands, references to dyadic and non-dyadic social environment, and parental touch/control. As we employed a within-family research design, with mothers and fathers completing all measures in counter-balanced order, child age at assessment for mother and father data did not differ significantly ($t(74) = 1.71, p = .091$). Parental education also did not differ significantly across mothers and fathers ($t(74) = -0.17, p = .865$). Therefore, no covariates were retained in our primary analyses.

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Research Question 1: Mothers' and Fathers' Autonomy- and Relatedness-Promoting Behaviours

Table 4.2 displays the correlations among corresponding COPI-C interaction behaviours between mothers and fathers. Within families, mothers' and fathers' issuing of commands were positively correlated ($r = .40, p < .001$), while mothers' and fathers' orientation to the non-dyadic social environment were negatively correlated ($r = -.24, p = .037$).

Table 4.3 displays the effect of parent gender, child gender, and the interaction of parent and child gender on each COPI-C behaviour. Mothers and fathers significantly differed on four behaviours. Mothers displayed higher rates of mutual eye contact ($F(1,73) = 5.04, p = .028$), orienting to the non-dyadic social environment ($F(1,73) = 10.86, p = .002$), and physical touch/control ($F(1,73) = 4.45, p = .038$) compared to fathers. In contrast, fathers displayed higher rates of orienting to the physical environment than mothers ($F(1,73) = 11.73, p = .001$). There were no effects of child gender on COPI-C behaviours, nor interaction effects of parent gender by child gender on any COPI-C behaviours.

Research Question 2: Mothers' and Fathers' Socialization Goals

Within families, mothers' and fathers' scores were significantly correlated for both independent ($r = .36, p = .009$) and interdependent ($r = .44, p = .001$) socialization goals.

Table 4.4 displays the effect of parent gender, child gender, and the interaction of parent and child gender on each PECSD socialization goals subscale. None of these variables predicted independent socialization scores. However, across families, parents tended to endorse higher interdependent socialization goals for boys than girls ($F(1,52) = 4.33, p = .042$). In addition, there was a significant parent-by-child gender interaction for interdependent socialization goals ($F(1, 52) = 4.10, p = .048$). Figure 4.1 displays the mean endorsement of interdependent goals by

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parent and child gender. The child gender effect seemed to hold true only among mothers, with mothers of boys endorsing a significantly greater desire for interdependence in their sons compared to mothers of girls ($t(52) = 2.96, p = .005$), and a marginally greater desire for interdependence in their sons compared to their partners, the fathers of boys ($t(25) = 1.99, p = .058$). Fathers of boys versus girls, on the other hand, did not differ in their desire for interdependence ($t(52) = 0.67, p = .506$). Finally, mothers of girls, compared to their partners, the fathers of girls, also did not significantly differ in their endorsement of socialization goals ($t(27) = 0.78, p = .441$).

Table 4.5 displays correlations between mothers' and fathers' self-reported socialization goals and their interaction behaviours. There were no significant correlations between either of the socialization goals subscales and any COPI-C behaviours for either mothers or fathers.

Research Question 3: Mothers' and Fathers' Autonomy- and Relatedness-Promoting Behaviours and Child Outcomes

Table 4.6 displays the multivariate effect of mothers' interaction behaviours on child-mother attachment behaviour and the multivariate effect of fathers' interaction behaviours on child-father attachment behaviour. There were no significant associations for either mothers or fathers.

Table 4.7 displays the effect of mothers' and fathers' interaction behaviours on children's internalizing and externalizing problems. There were no significant associations between either mothers' or fathers' interaction behaviours on children's internalizing and externalizing problems.

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Discussion

Overall, this study aimed to understand both the manifestation and correlates of mothers' and fathers' autonomy- and relatedness-promoting behaviours. Specifically, we first examined the similarities and differences in the display of these behaviours across mothers and fathers from the same families. Second, we examined whether particular beliefs about children's socialization underlie these interaction behaviours. Finally, we examined whether parents' interaction behaviours had any detectable association with children's attachment behaviours and socio-emotional functioning. Overall, we observed evidence that supported some of our hypotheses.

Mothers' and Fathers' Autonomy- and Relatedness-Promoting Behaviours

Within families, mothers' and fathers' tendency to issue verbal commands to regulate their children's behaviour were positively correlated. These results suggest that parents are likely to agree on certain aspects of caregiving, particularly those related to control and authority, and can display similar patterns of behaviour during identical situations, even when spaced up to six months apart. Given that parents had an established history of co-parenting together by the preschool years, this similarity may be reflective of the potential influence that parents have on one another's behaviour over time (Cabrera et al., 2014). Interestingly, mothers' and fathers' tendency to reference the non-dyadic social environment (i.e., other people, social norms) were negatively correlated. Considering that mothers, in general, were also observed to display this behaviour more than fathers, this pattern of results seems to suggest that this behaviour may be a specialized behaviour among mothers, specifically. Importantly, this set of findings is in opposition to suggestions made by some researchers (Crain-Thoreson et al., 2001; Paquette, 2004) that it is fathers who are concerned with socializing children to the external world beyond

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the dyad. Still, given the small-to-medium magnitude of the negative correlation between mothers and fathers, this result stands to benefit from replication.

Despite particular patterns of correspondence between parents, we also identified several differences across mothers and fathers. On average, mothers were more likely to engage in mutual eye contact, to orient children to the non-dyadic social environment, and to engage in physical touch/control than fathers. Fathers, on the other hand, were more likely to orient children to the physical environment. Findings regarding eye contact and the social environment are largely consistent with our expectations based on past research, which indicates that mothers tend to be more likely to engage in both social and didactic activities (Berghout Austin et al., 1990; Schoppe-Sullivan et al., 2013). Indeed, the finding that mothers were more likely than fathers to discuss the non-dyadic environment and that this behaviour is negatively correlated across the two parents suggests that, within families, mothers may specialize in this behaviour. Our findings related to the physical environment and physical touch, on the other hand, did not seem consistent with our initial expectations that mothers would engage in more object-mediated interactions and fathers would engage in more physical touch. The setting and parameters of the interaction, however, may explain the differences observed. While the research on which we based our initial hypotheses had indicated that mothers tend to prefer object-mediated interactions and fathers tend to prefer physical, rough-and-tumble interactions in a play context (Power & Parke, 1983; Schoppe-Sullivan et al., 2013; Yogman, 1981), we note that the interactions we observed occurred during a relatively unstructured snack time. Although parents had access to toys and were free to choose to play with their children, an examination of the breakdown of physical environment-mediated interactions into toy vs. non-toy-related events suggests that parents rarely accessed the toys during the interaction and instead were nearly three

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times more likely to orient children to other aspects of the physical space such as the snack and the room itself. In light of this, we suspect that the majority of parents – mothers and fathers alike – spent the allotted time administering the snack to their child while conversing with them at the table (and not, in contrast, playing substantially with the toys that were accessible). Our results regarding physical environment versus physical touch are therefore suggestive of a gendered pattern of behaviour in an eating context, specifically, and is perhaps not generalizable to an explicit play context, which may elicit differing patterns of interaction. This gendered pattern of interaction in an eating context is one in which mothers were more inclined to adopt a traditional caregiving role by engaging in more physical behaviours such as feeding, grooming, and affection, while discussing social themes. Fathers, on the other hand, were less likely to engage in such “intimate” behaviours and instead chose to focus on the snack and physical space as a topic of conversation. In sum, our findings are consistent with studies on the gendered nature of parent-child interactions, but they also emphasize the need to distinguish the diverse contexts in which parent-child interactions occur (i.e., exclusively caregiving, exclusively play, or a mix of both) and that differences between mothers and fathers might be situation-dependent.

Mothers’ and Fathers’ Socialization Goals

While parents tended to agree on both independent and interdependent socialization goals within families, we observed one notable difference in interdependent socialization goals based on child gender. Overall, parents tended to endorse greater interdependent socialization goals for boys, and this effect was driven by the mothers of boys, who tended to endorse interdependent socialization goals more strongly than mothers of girls. Given that traditional gender norms dictate that girls and women are expected to be more obedient and affiliative (i.e., interdependent), while boys are expected to be more assertive and dominant (i.e., independent),

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this result was unexpected. Referring to our discussion of socialization goals in Chapter 3, however, the results again raise questions about the nature of the PECS questionnaires. Although the questionnaire was intended to gauge parents' desire for how they would ideally want their children to behave, the questionnaire does not distinguish to what extent a parent's desires are informed or influenced by the current state of their child. In other words, it is possible that a stronger endorsement of particular socialization goals might reflect the ideal child, as dictated by the wider socio-cultural context, but it might also reflect the extent to which a parent feels that their child is lacking in a particular domain. In light of this, we consider the possibility that mothers of boys are most likely to endorse interdependent socialization goals precisely because they feel the need to counter traditional expectations that boys be assertive at the expense of being affiliative and to foster this latter quality, which may be perceived as lacking in men (see Cross & Madison, 1997 for a review). In this case, mothers of boys are perhaps the most likely to be aware of the gendered nature of social roles (and their consequences) and are therefore most likely to be concerned about correcting for wider systemic pressures related to gender roles in their parenting of boys. This may especially be the case as gender norms – particularly the “toxic” nature of masculinity imposed upon boys and men – are beginning to be challenged within modern Western cultural discourse (Banet-Wesnet & Miltner, 2016).

Autonomy- and Relatedness-Promoting Behaviours and Child Outcomes

The present study did not find any associations between mothers' and fathers' autonomy- and relatedness-promoting behaviours and their socialization goals, nor children's developmental outcomes (i.e., attachment behaviour and socio-emotional functioning). This is in contradiction to part of the results in Study 1, in which we detected several associations. This may be attributable to several factors. First, the sample of mothers in the present study was smaller than

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the one in Study 1 (indeed, it was a subset of it). We were limited in our sample size because we included only families for which data were available for both mother and fathers, thus allowing us to examine within-family similarities and differences based on parental gender. Moreover, we did not receive responses from all participants on the PECSD, which was collected at a later time point, thus limiting our sample size further for analyses involving socialization goals. In addition to these limitations to statistical power, we do not rule out the same possibility that we raised in Study 1 that there may not exist great overlap between socialization goals, assessed by the PECSD, and the behaviours assessed by the COPI-C, which were presumed to reflect parents' autonomy- and relatedness-promoting behaviours. As suggested in Study 1, the lack of convergence may be due to a lack of validity of the PECSD (particularly the independent goals scale) in measuring the prototypical construct of independence, separate from constructs such as creativity and health, for example, which were also assessed by the PECSD. There was also a sizeable time span that elapsed between observations of parent-child interactions and socialization goals, which means other sources of variance over the course of development could have obscured or negated potential relations between micro-level interaction behaviours and macro-level socialization goals measured several years apart. Although we tried to account for this time difference by assessing a relatively trait-like aspect of socialization goals, we cannot rule out that parents' perceptions and priorities may have shifted over this duration. In the case of parental interaction behaviours and child outcomes, we believe differences in the level of assessment may account for our null results. Considering we chose to focus on a relatively narrow set of specifically defined behaviours (partly due to the labour intensity associated with micro coding), it is possible that these behaviours might have had only a small effect on child outcomes, which were undetectable due to limitations in statistical power. Similarly, while we

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probed interactions between parent gender and child gender for other research questions, this approach was not justified for examining child outcomes. Therefore, we cannot rule out the possibility that particular effects of mother and/or father interaction behaviours may only be observable when the moderating effect of child gender is taken into account.

Limitations & Future Directions

The greatest challenge encountered in the present study was insufficient statistical power due to a combination of a small sample size and missing data. These issues were the result of a culmination of factors, which included challenges associated with recruiting mother and father participants from intact families, the labour-intensity of using multiple observational methods of behavioural assessment, and maintaining participation rates across a wide time gap. Despite these challenges, however, we found some evidence suggesting that mothers and fathers approach a similar task in slightly differing ways. We therefore recommend that future research continue to apply observational methods, given the rich amount of information that they yield, upon larger samples and in a greater variety of settings. In the current study, we examined parent-child interactions during a relatively unstructured, naturalistic setting meant to evoke an everyday interaction in families (having a snack). This, however, is only one context in which parents and children interact. For instance, parents engage in both structured and unstructured instances of play with their child, they engage in bouts of explicit teaching and instruction with their child, and most importantly, they engage in interactions with other family members (e.g., the other parent, siblings) present. All of these situations offer opportunities for researchers to observe differences (and similarities) between mothers and fathers. Indeed, in the latter case, observations of interactions among multiple family members would allow researchers to understand the multiple, simultaneous, and reciprocal effects that each family member has on

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other family members. Still, the current study presents a key contribution in that it studied within-family variation during a naturalistic situation, with the expectation that mothers and fathers would display behaviours and modes of interaction to which they were most inclined. Furthermore, we were also careful to isolate behaviours emitted spontaneously by parents to rule out that differences were due to children behaving differently with their mothers versus their fathers.

While we aimed to conduct an intra-cultural study of mothers and fathers, we hasten to note that the participants, though generally representative of their region, were mostly European Canadians of relatively high socioeconomic status, compared to the national average. In addition, participants came from intact families headed by heterosexual parents. We therefore caution against generalizing our results to all Canadian families and we encourage further research with a more diverse sample, which may yield differing results. Based on results from Study 1, for instance, we could expect that a more ethnically and culturally diverse sample might show differing patterns of association among study variables. Furthermore, research indicates that even within a culture, the value placed upon independence versus interdependence by parents can vary as a function of socioeconomic status (Weininger & Lareau, 2009). Finally, given the growing diversity in family configurations among the Canadian population, future studies should consider the case of blended families, families headed by LGBT parents, and/or single-parent families. All of these cases present differing contexts and lived realities laden with cultural meaning, which may affect how parents interact with children. Thus, inclusion of a greater diversity of families in terms of ethnicity, culture, socioeconomic status, and configuration might add further depth to our understanding of parent-child interactions in a Canadian context.

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Conclusion

The current study sought to address a dearth of research on the correlates of autonomy- and relatedness-promoting behaviours in Canadian parents of preschoolers. Despite encountering many of the common challenges associated with studying mothers and fathers, we were able to examine the ways in which parents were similar and different in their behaviours and beliefs about autonomy and relatedness in children using a multi-method, multi-informant design. Generally, within families, Canadian mothers and fathers tended to resemble one another in their explicit socialization goals. However, they also displayed several gender-based differences including their tendency to orient children towards the physical or social environment and their tendency to engage their children in eye contact and physical touch/control. Interestingly, when we considered the effect of child gender, we found that mothers' beliefs about interdependence tended to differ depending on child gender. In sum, the current study contributes to the growing body of knowledge on both parent gender differences and child gender differences, serving as a preliminary exploration of themes presented in Study 1 from an intra-cultural perspective.

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Tables & Figures

Table 4.1. Raw Means of Study Variables

COPI-C	Mothers			Fathers		
	<i>n</i>	<i>M</i> (SD)	min.-max.	<i>n</i>	<i>M</i> (SD)	min.-max.
<i>Autonomy-Promoting Behaviours</i>						
Child Internal States	75	4.29 (2.50)	0-11	75	4.45 (2.38)	0-11
Parental Internal States	75	2.13 (1.51)	0-7	75	2.17 (1.91)	0-8
Child Initiatives	75	3.07 (2.04)	0-9	75	3.09 (1.98)	0-9
Parental Affirmation/Compliance	75	2.29 (1.79)	0-8	75	2.24 (1.78)	0-8
Physical Environment	75	5.61 (2.68)	0-11	75	7.20 (3.29)	1-15
Mutual Eye Contact	75	0.42 (0.22)	0-0.93	75	0.34 (0.22)	0-0.95
<i>Relatedness-Promoting Behaviours</i>						
Commands	75	3.12 (2.42)	0-11	75	2.56 (2.09)	0-9
Dyadic Social Environment	75	3.21 (1.79)	0-9	75	3.03 (2.07)	0-9
Non-Dyadic Social Environment	75	1.93 (1.99)	0-9	75	1.03 (1.40)	0-7
Parent-Initiated Touch/Control	75	2.00 (2.34)	0-14	75	1.28 (1.45)	0-8
PECS-D						
Independent Goals	56	4.58 (0.70)	4.50-6.75	54	4.56 (0.68)	4.00-7.00
Interdependent Goals	56	5.66 (0.55)	2.92-5.92	55	5.71 (0.57)	2.92-6.08
PARS						
Secure	75	5.69 (1.68)	1-8	75	5.53 (1.76)	2-8
Avoidant	75	2.10 (1.24)	1-6	75	2.51 (1.49)	1-7
Ambivalent	75	2.53 (1.46)	1-6	75	2.52 (1.60)	1-7
Disorganized	75	1.81 (1.65)	1-7	75	1.63 (1.39)	1-7
SDQ						
Internalizing	75	2.80 (2.32)	0-10	72	2.94 (2.09)	0-7
Externalizing	73	4.40 (2.75)	0-13	74	5.46 (3.39)	0-15

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Table 4.2. Correlations Between Mothers' and Fathers' Interaction Behaviours (COPI-C)

COPI-C	<i>r</i>
<i>Autonomy-Promoting Behaviours</i>	
Child Internal States	.15
Parental Internal States	.15
Child Initiatives	.10
Parental Affirmation/Compliance ^a	.05
Physical Environment	.08
Mutual Eye Contact	.10
<i>Relatedness-Promoting Behaviours</i>	
Commands	.40***
Dyadic Social Environment	.01
Non-Dyadic Social Environment	-.24*
Parent-Initiated Touch/Control	.03

^acontrolling for Child Initiatives

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

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Table 4.3. Effect of Parent Gender and Child Gender on Interaction Behaviours (COPI-C)

COPI-C	Predictor	<i>F</i> (1,73)	<i>p</i>	Probe
Child Internal States	Parent Gender	0.15	.695	
	Child Gender	0.29	.592	
	Parent*Child Gender	0.15	.695	
Parental Internal States	Parent Gender	0.46	.501	
	Child Gender	0.10	.752	
	Parent*Child Gender	0.09	.765	
Child Initiatives	Parent Gender	0.00	.963	
	Child Gender	0.49	.488	
	Parent*Child Gender	0.05	.821	
Parental Affirmation/ Compliance ^a	Parent Gender	0.11	.739	
	Child Gender	2.45	.122	
	Parent*Child Gender	1.29	.259	
Physical Environment	Parent Gender	11.73	.001	$M_M = 5.62 < M_F = 7.24$
	Child Gender	0.93	.338	
	Parent*Child Gender	0.64	.427	
Mutual Eye Contact	Parent Gender	5.04	.028	$M_M = 0.42 > M_F = 0.34$
	Child Gender	0.17	.686	
	Parent*Child Gender	0.06	.811	
Commands	Parent Gender	2.17	.145	
	Child Gender	1.12	.293	
	Parent*Child Gender	3.74	.057	
Dyadic Social Environment	Parent Gender	0.73	.396	
	Child Gender	1.27	.264	
	Parent*Child Gender	.05	.818	
Non-Dyadic Social Environment	Parent Gender	10.86	.002	$M_m = 1.15 > M_F = 0.69$
	Child Gender	0.85	.358	
	Parent*Child Gender	2.83	.097	
Parent-Initiated Touch/Control	Parent Gender	4.45	.038	$M_m = 1.14 > M_F = 0.87$
	Child Gender	0.01	.943	
	Parent*Child Gender	0.04	.836	

^acontrolling for Child Initiatives

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Table 4.4. Effect of Parent Gender and Child Gender on Parental Socialization Goals (PECSG)

PECSG	Predictor	<i>F</i>	<i>df</i>	<i>p</i>	Probe
Independent Goals	Parent Gender	0.02	1,51	.888	
	Child Gender	0.34		.561	
	Parent*Child Gender	0.31		.581	
Interdependent Goals	Parent Gender	1.00	1,52	.322	
	Child Gender	4.33		.042	$M_B = 4.74 > M_G = 4.43$
	Parent*Child Gender	4.10		.048	(see Figure 1)

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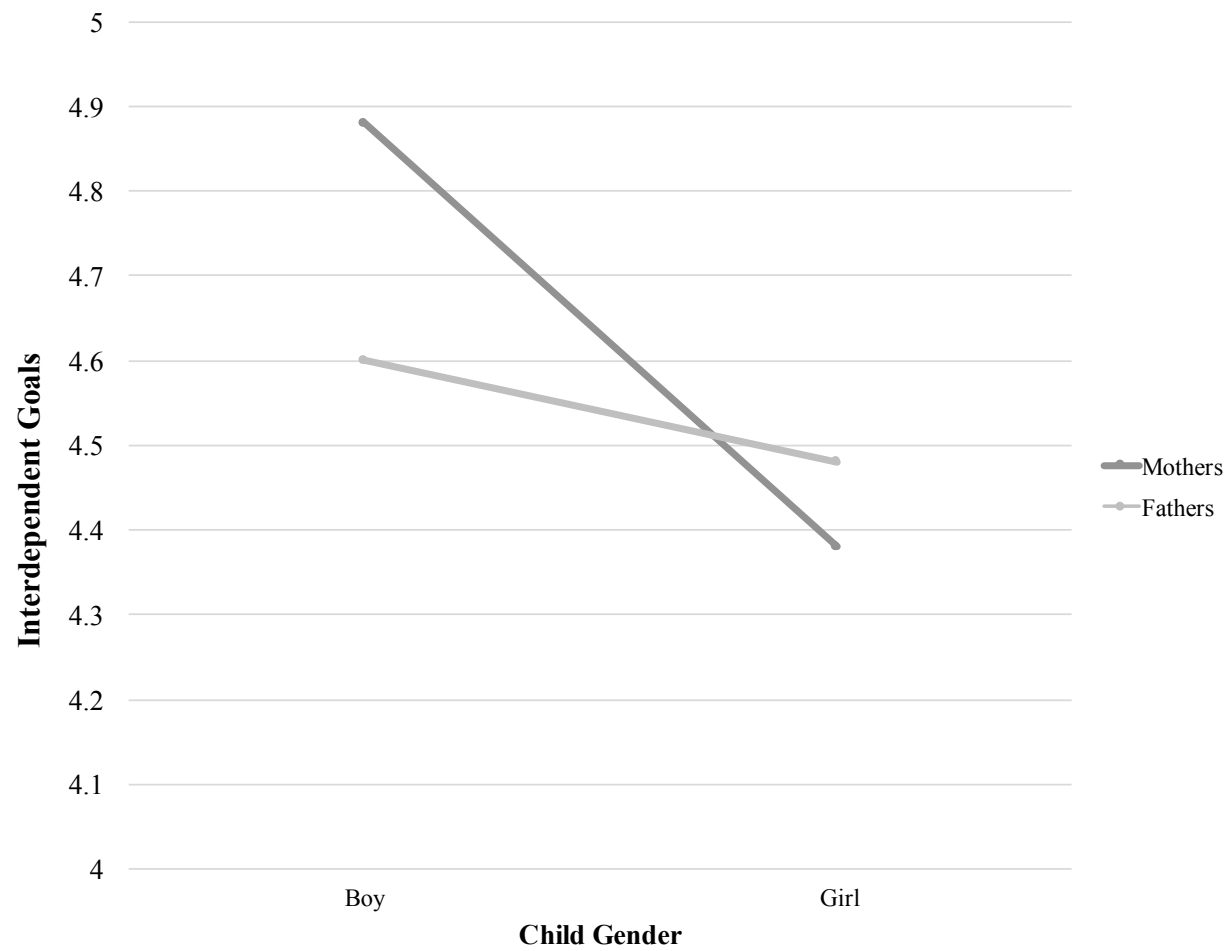


Figure 4.1. Mean endorsement of interdependent goals by parent and child gender.

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Table 4.5. Correlations Between Mothers' and Fathers' Socialization Goals (PECS D) and Interaction Behaviours (COPI-C)

COPI-C	PECS D			
	Mothers		Fathers	
	Ind. (<i>n</i> = 56)	Inter. (<i>n</i> = 56)	Ind. (<i>n</i> = 54)	Inter. (<i>n</i> = 55)
<i>Autonomy-Promoting Behaviours</i>				
Child Internal States	-.04	-.11	.03	.01
Parental Internal States	-.07	-.03	-.07	-.16
Child Initiatives	.00	.02	.22	.18
Parental Affirmation/Compliance ^a	.21	-.10	.00	-.07
Physical Environment	.02	-.17	-.03	.02
Mutual Eye Contact	.15	.01	-.08	-.21
<i>Relatedness-Promoting Behaviours</i>				
Commands	.17	.02	.16	-.07
Dyadic Social Environment	.10	-.06	.19	.05
Non-Dyadic Social Environment	.03	.01	.13	-.06
Physical Touch/Control	-.16	-.17	.21	-.16

^acontrolling for Child Initiatives

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Table 4.6. Multivariate Effect of Mothers' and Fathers' Interaction Behaviours (COPI-C) on Child Attachment Behaviour (PARS)

Predictor	Mother			Father		
	Wilks' λ	$F(4,61)$	p	Wilks' λ	$F(4,61)$	p
Child Internal States	0.98	0.29	.885	0.94	1.02	.406
Parental Internal States	0.97	0.53	.715	0.94	0.94	.446
Child Initiatives	0.95	0.75	.563	0.96	0.64	.634
Parental Affirmation/Compliance	0.98	0.30	.876	0.96	0.73	.577
Physical Environment	0.97	0.53	.714	0.87	2.37	.062
Mutual Eye Contact	0.96	0.59	.669	0.96	0.63	.641
Commands	0.96	0.69	.602	0.95	0.77	.551
Dyadic Social Environment	0.91	1.51	.211	0.97	0.53	.713
Non-Dyadic Social Environment	0.91	1.51	.211	0.94	1.02	.403
Parent-Initiated Touch/Control	0.95	0.90	.472	0.96	0.64	.637

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Table 4.7. Effects of Mothers' and Fathers' Interaction Behaviours (COPI-C) on Child Internalizing and Externalizing Problems (SDQ)

Internalizing Problems				
Predictor	Mothers		Fathers	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Child Internal States	1.05	.310	0.00	.997
Parental Internal States	0.01	.908	1.07	.304
Child Initiatives	0.61	.438	0.36	.549
Parental Affirmation/Compliance	1.84	.180	1.68	.200
Physical Environment	0.05	.819	1.98	.164
Mutual Eye Contact	1.19	.279	0.49	.485
Commands	0.10	.757	0.98	.326
Dyadic Social Environment	0.13	.725	0.11	.744
Non-Dyadic Social Environment	0.03	.873	1.42	.238
Parent-Initiated Touch/Control	0.08	.785	0.63	.432
Externalizing Problems				
Predictor	Mothers		Fathers	
	<i>F</i>	<i>p</i>	<i>F</i>	<i>p</i>
Child Internal States	0.38	.542	0.01	.927
Parental Internal States	0.44	.509	0.07	.788
Child Initiatives	0.57	.452	0.15	.704
Parental Affirmation/Compliance	0.51	.476	1.71	.195
Physical Environment	1.37	.246	0.16	.691
Mutual Eye Contact	0.11	.747	0.95	.334
Commands	1.20	.277	0.00	.960
Dyadic Social Environment	2.49	.119	0.04	.838
Non-Dyadic Social Environment	0.02	.898	1.65	.204
Parent-Initiated Touch/Control	0.27	.605	2.46	.122

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Chapter 5:

General Discussion

Summary of Major Research Aims

Self-Determination Theory (SDT; Deci & Ryan, 2000) identifies both autonomy and relatedness as important human needs. Despite this, much research, conducted by Western researchers, on Western participants (mostly mothers), has emphasized the importance of autonomy in understanding parent-child relationships. The current thesis sought to understand the connection between socio-cultural context and both autonomy and relatedness in parent-child relationships. To this end, we developed a novel observational coding instrument to assess autonomy and relatedness-promoting behaviours in parent-child interactions. As we had a particular interest in how socio-cultural context moderates these behaviours, we adopted a relatively micro-approach to behavioural observation. This methodology allowed us to quantify a particular set of pre-defined behaviours, while avoiding the necessity to make global value-laden judgments about parental behaviour, thus ensuring applicability across diverse contexts. We also drew upon a wealth of research, conducted mostly on parent-infant interactions across and within cultures, to formulate a coding system adapted to the preschool period, a time during which children's abilities (i.e., cognitive, linguistic, emotional) become more complex and children's social sphere expands appreciably. The resulting instrument, the Cross-cultural Observations of Parents Interacting with Children (COPI-C; Quan & Bureau, 2015) coding system, served as the centrepiece of two distinct studies described in the present thesis.

In the first study, we examined a multi-national sample of Canadian and Singaporean mothers to understand autonomy- and relatedness-promoting behaviours from a cross-cultural perspective. In the second study, we narrowed our focus onto the Canadian cultural context by

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examining autonomy- and relatedness-promoting behaviours among Canadian mothers and fathers from within the same family. In each study, we adopted an approach that helped us to “unpack” the phenomenon of autonomy- and relatedness-promoting behaviours in parent-child interactions during the preschool period. Such an approach entailed not only studying the manifestation of these behaviours, but also their theoretical antecedents and sequelae (Heine, 2008). First, we examined how these behaviours manifested themselves across contexts using our novel instrument. Second, we examined how these behaviours were related to parents’ beliefs regarding the socialization of children in order to understand how parents’ beliefs regarding caregiving influenced their observed behaviours. Third, we examined how autonomy- and relatedness-promoting behaviours were related to children’s attachment behaviour and socio-emotional functioning to understand how variation across contexts leads to meaningful developmental outcomes. Where applicable, we also examined how the constellation of these three factors were related. This approach allowed us to adopt an etic approach to understanding human development, and it allowed us to distinguish between behavioural form and function (Bornstein, 1995) across diverse contexts.

Key Findings

In Study 1, we found that Canadian and Singaporeans displayed differing patterns of autonomy- and relatedness-promoting behaviours. As expected, Canadian mothers displayed greater instances of autonomy-promoting behaviour, discussing their own internal states, complying with their child’s initiatives, orienting to the physical environment, and orienting to the dyadic social environment more often than Singaporean mothers. In contrast, Singaporean mothers displayed greater instances of relatedness-promoting behaviours, issuing verbal commands and initiating physical touch/control of their children more than Canadian mothers.

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Consistent with these observed differences, Singaporean mothers were stronger than Canadian mothers in their endorsement of interdependent socialization goals, which were associated with all autonomy- and relatedness-promoting behaviours that were found to differ between the two countries. Across the two countries combined, references to maternal internal states negatively predicted avoidant attachment and internalizing and externalizing problems in children, while issuing verbal commands positively predicted externalizing problems. When taking context into account, however, several autonomy- and relatedness-promoting behaviours showed differential associations with child outcomes within the two countries. Notably, mothers' verbal commands seemed to be associated with less avoidant attachment behaviour only in a Canadian context, while maintaining mutual eye contact was associated with less avoidant attachment behaviour and references to maternal internal states were associated with fewer internalizing problems only in a Singaporean context. Finally, we identified one instance in which maternal behaviours mediated the effect of socialization goals on child outcome across the entire sample: the more mothers endorsed interdependent socialization goals, the less likely they were to discuss their own internal states, which in turn was associated with greater display of avoidant attachment in their children.

In Study 2, we found that within families, Canadian mothers and fathers tended to be similarly likely to issue verbal commands with their children, and they tended to resemble one another in their endorsement of both independent and interdependent socialization goals. Despite these similarities, Canadian mothers and fathers also displayed differing modes of interaction. Canadian mothers were more likely to engage in mutual eye contact, to discuss the non-dyadic social environment, and to physically touch/control their child, while Canadian fathers were more likely to orient to the physical environment. While parents' autonomy- and relatedness-

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promoting behaviours did not differ by child gender, parents tended to endorse stronger interdependent socialization goals for boys versus girls, which was an effect driven specifically by mothers.

Implications

Although the two studies featured in the present thesis differed in their scope, their results are nonetheless complementary. First, both comprise the first documented use of the COPI-C, with results lending support to its use for gleaning rich behavioural information from diverse contexts. More importantly, however, from a theoretical perspective, both studies addressed the fundamental question of how different groups of individuals, exposed to differing sets of cultural information, tend to embody, display, and transmit this information in their interactions with children. We included, as a basis of comparison, the North American mother, perhaps the most well understood of all kinds of parents, and contrasted this group with parents from two groups from differing contexts: Southeast Asian mothers and North American fathers. While the cross-cultural nature of Study 1 may implicate a more salient comparison of socio-cultural context, it is important to note that the intra-cultural nature of Study 2, similarly examines a difference in context: one based on gender. That is, just as Canadian and Singaporean mothers' interactions with their children are informed by a differing array of cultural information, beliefs, and experiences, so too do Canadian mothers and fathers by token of the differing roles ascribed to them by modern Western culture. This latter point is one that is often overlooked considering that sociocultural context is often an invisible factor in traditional psychology studies, the majority of which is conducted in homogenously Western samples.

Taken together, the results from this thesis add to our existing knowledge by challenging existing assumptions regarding parent-child interactions and demonstrating the need for

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representativeness in research on parent-child relationships. Too often, mother-child relationships are treated as synonymous with parent-child relationships, without consideration for the specific conditions associated with this role. Results from Study 1 reinforce concerns that Henrich et al. (2010) have raised about the overemphasis of Western contexts in understanding psychological phenomena to the point that such narrow and unrepresentative contexts are equated with the universal human context. Furthermore, when culture is acknowledged, it is often relegated to a simple footnote. We argue that the wider socio-cultural context, which comprises the all-encompassing macrosystem in Bronfenbrenner's Ecological Systems model of human development (1979), must always be considered as a distal explanatory factor for individual differences in developmental processes.

In the specific case of Study 1, we addressed fundamental questions such as, "How does a typical parent behave?" "What does a parent perceive to be an ideal child?" and "What parental behaviours are associated with positive developmental outcomes in children?" Our results suggest that these questions can be answered differently, depending on the population under study. Therefore, it is crucial for researchers to consider the generalizability of their findings, particularly when they are generated from Western populations, which comprise a very small and unusual subset of the human species (Henrich et al., 2010). Specifically, our findings suggest that mothers from differing cultural contexts may emphasize differing socialization goals, with Southeast Asian mothers desiring more interdependence and behaving in ways that embody a relatively greater emphasis on physical proximity and both verbal and physical structure. Therefore, these behaviours, which are less commonly valued and displayed in a Western context, may in fact be normative. Furthermore, our findings indicate that what is thought to be detrimental to children's development in Western contexts – such as high amounts of verbal

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structure may have no effect on children in a Southeast Asian context. This is consistent with literature indicating that a “one-size-fits-all” approach to understanding parent-child interactions is far too limited and that it is crucial to distinguish behavioural form from function (Bornstein 1995). Moreover, from a practical standpoint, it is crucial that clinicians be mindful of these differences when developing and applying behavioural interventions for parents from diverse populations. Such considerations would lead to more culturally competent and responsive clinical interventions that are adapted to the specific beliefs, goals, and behaviours of their clients, which are shaped by the norms of the greater socio-cultural context (Hall, Ibaraki, Huang, Marti, & Stice, 2016; Pumariega, Rogers, Rothe, 2005; Whaley & Davis, 2007). This consideration is especially important as the world becomes more globalized, as many societies become more ethno-culturally heterogeneous, and as various societies continue their efforts of indigenization (Gray & Coates, 2010).

Our findings from Study 2 also speak to persisting assumptions about parent-child relationships, albeit to perhaps a more nuanced extent. Importantly, our results are consistent with modern theorists who argue for a multidimensional approach to understanding mothers and fathers (Cabrera et al., 2014; Fagan et al., 2014) in which the construct of mothering and fathering are not conceptually different. Notably, this position does not assert that mothers and fathers cannot display important differences, but rather, that from a methodological perspective, measures applied to each parent should not be qualitatively different. In Study 2, we demonstrated that by adopting a multidimensional approach, in which autonomy and relatedness were assessed by a multitude of identical indicators across both parents, mothers and fathers tended to display both autonomy and relatedness-promoting behaviours. In other words, mothers and fathers’ roles were not distinctly binary. These results are in opposition to the position of

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many early fathering theorists who emphasized the qualitatively different roles occupied by fathers (see Fagan et al., 2014 for a review). In recent years, this view of fathering has generally been considered oversimplified and empirical evidence has found many of the proposed differences over-stated (Fagan et al., 2014). Although we observed several differences in Canadian mothers' and fathers' autonomy- and relatedness-promoting behaviours, we also noted that they failed to differ on the majority of indicators, even being notably convergent in some cases. In sum, as the field of fathering merges with mainstream parenting research, our findings reinforce the call for a more nuanced, multidimensional conceptualization of mothers and fathers recently advanced by several theorists (Fagan et al., 2014; Cabrera et al., 2014). Practically speaking, this means that clinicians working with opposite-sex two-parent families should be mindful to assess both mothers and fathers on a variety of indicators and dimensions, while keeping in mind that parents, regardless of gender, are likely to hold similar views and approaches to parenting. As gender roles remain at the forefront of modern Western social discourse and the role of mothers and fathers converge as a result of the gender equality movement (Fagan et al., 2014), this is even more likely to be the case.

Limitations & Future Directions

We wish to discuss two limitations of the current thesis: one that is related to methodology, and a second that is related to theoretical scope. Methodologically, the current thesis involved the use of several new instruments. While we have already discussed the limitations associated with the Parental Expectations for Children's Social Development (PECSO) Questionnaire at length in Chapters 3 and 4, here, we wish to elaborate upon the COPI-C instrument. As the centrepiece of this thesis, the COPI-C was used for the very first time to generate data on parents' interaction behaviours, which were assessed at a micro-level to ensure

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usability across diverse contexts. However, by applying this instrument in this thesis, we identified a few limitations in the design of the COPI-C. First, in our efforts to assess several aspects of autonomy and relatedness-promoting behaviours while simultaneously maintaining feasibility, we were not able to generate finer-grained data regarding each behaviour. For example, when we assessed physical touch/control, we did not distinguish between affectionate touch, instrumental touch, and physical control. Each of these types of physical touch might carry different meanings, which can vary across contexts (Cekaite, 2016). Furthermore, when we coded verbal commands, the current system did not distinguish the specific approach or strategy employed for inducing child compliance (e.g., by appealing to internal states, absolute authority, social norms, etc.). Some of this information was coded along separate scales within the instrument, but the specific configuration of how these behaviours might have been combined or co-occurred was not explicitly assessed. Finally, although we assessed dyadic interactions involving one parent and one child throughout this thesis, the COPI-C focused almost exclusively on the behaviours spontaneously and independently generated by parents. In trying to isolate the influence of parents' behaviour on children's developmental outcomes, however, we were unable to examine how children directly responded to their parents' autonomy- and relatedness-promoting behaviours. For instance, while we noted that Singaporean mothers were more likely to use both verbal and physical means of structuring their children's behaviour than Canadian mothers, who were, in turn, more likely to do so than Canadian fathers, we were not able to conclude how children's responses to these behaviours differed across contexts. While we can only speculate that Singaporean children might respond with more compliance than Canadian children (Chernyak, Kang, & Kushnir, 2019) and that Canadian children (particularly boys) might comply more with their fathers than with their mothers (Power, McGrath, Hughes,

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& Manire, 1994), these hypotheses remain beyond the scope of the current investigations. Still, coding for this information would have added further detail in understanding how children perceive parents' autonomy- and relatedness-promoting behaviours across contexts.

A major focus on the investigations presented herein examined the link between socio-cultural context and children's development via parent-child interactions. However, notably absent in these discussions are another factor which encompasses and therefore influences the socio-cultural context: the historical context. Importantly, the two studies within this thesis represent only a snapshot of parent-child interactions in two cultures at a singular point in time. In our discussion of Study 2, we made peripheral allusions to the historical context: namely that considerable changes in Canadian society in recent decades, which mirror a long-acknowledged trend in Western culture, have transformed gender roles and the division of labour between men and women within families. While theorists suggest a convergence in the roles of mothers and fathers over time (Fagan et al., 2014), our data do not speak directly to this pattern, nor how these changes have influenced mothers' and fathers' autonomy- and relatedness-promoting behaviours over time. Furthermore, we wish to note that our findings from Study 1 are limited in accounting for historical shifts in Singaporean society, which has changed considerably in recent decades. These include dramatic shifts in socioeconomic conditions and increases material affluence (Baum, 1999), which have contributed to changes in Singaporean family dynamics within a relatively short period of time (Chang, Wong, & Koh, 2003; Quek, Knudson-Martin, Opren, & Victor, 2011; Quek, 2014; Teo, Graham, Yeoh, & Levy, 2003). These include a shift towards nuclear family compositions, a changing role of grandparents, and changes in family living arrangements (Mehta & Thang, 2006; Teo et al., 2003). With major sociodemographic changes such as these, Greenfield's theory of social change posits that social values should shift

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in the direction of individualism and that developmental pathways should follow (2009).

However, researchers studying the Singaporean context have noted a hybridity in Singaporean culture, in which individualistic values are being added, while collectivistic values are being maintained (Ang & Stratton, 1995; Chang, 2003; Chang et al., 2003; Quek et al., 2011). Whether wider, ongoing transformations in Singaporean culture will follow the trajectory proposed by social change theory and observed in other countries is a major question for future research.

In sum, while we have referenced Bronfenbrenner's Ecological Systems model of human development (1979), which aptly conceptualizes how the socio-cultural context (the macrosystem) influences lower level systems such as parental beliefs and behaviours (the microsystem), we have not yet discussed how the chronosystem intersects with this process. Indeed, we must further consider the temporal context in which this process is embedded and unfolding. As cultural norms continue to change in both Canada and Singapore, we challenge other researchers of caregivers' interaction styles to consider their positionality, not only within socio-cultural context, but also within historical context. Consideration for how social norms have changed across time are crucial in the interpretation of future empirical results, especially when they are compared to results generated from other points in history. Importantly, when there are incongruences between research studies, we argue that results may not necessarily point to an overall failure to replicate due to either methodological or theoretical flaws, but rather, they may point to actual changes in context, attitudes, and behaviour over time. Ideally, use of diachronic designs (i.e., cross-temporal comparisons) to uncover cohort/generation effects (Greenfield, 2018), should also be paired with classic longitudinal designs that would allow us to understand both the influence of time on inter-individual developmental differences across generations, as well as intra-individual differences across developmental periods.

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Conclusion

This thesis involved the development and application of the Cross-cultural Observations of Parents Interacting with Children (COPI-C; Quan & Bureau, 2015), a novel micro-level observational coding instrument for examining parents' autonomy- and relatedness-promoting behaviours in their interactions with their preschool children. By drawing comparisons between Canadian mothers and Singaporean mothers in Study 1, we identified how these behaviours vary across cultural contexts. Furthermore, we were able to link these differences to variation in parents' socialization goals, as well as children's developmental outcomes. By contrasting mothers and fathers in Study 2, we further examined parents' autonomy- and relatedness-promoting behaviours and how they vary as a function of both parent and child gender within a modern Canadian context. Taken together, the findings of this thesis contribute to our knowledge of autonomy and relatedness in parent-child interactions across diverse contexts. Still, we have proposed several avenues for future research, with the hope that developmental psychologists may ascertain a more comprehensive understanding of parent-child interactions by considering the influences of the wider socio-cultural context.

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Appendix A:**Cross-Cultural Observations of Parents Interacting with Children (COPI-C):
Coding Manual**

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v. December 2015

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Cross-Cultural Observations of Parents Interacting with Children (COPI-C):
Coding Manual

General Coding Procedure

1. Scan the video for the moment that the researcher leaves the dyad alone in the room and record this as the start time of the interaction.
2. Watch the entire interaction once from the time the researcher leaves the dyad alone until the researcher returns and terminates the snack interaction. There is no need to take notes – watch the interaction simply to familiarize yourself first with the overall interaction.
3. Beginning with the start time, divide the interaction into 15-second intervals and record the start and end time for each interval in the coding spreadsheet.

If, at any moment, a researcher enters the room, or if one or both members of the dyad leave the room (e.g., to use the washroom), calculation of the time interval should:

- Be calculated up to the moment that the researcher enters or the dyad leaves the room AND then calculation of the remainder of that interval resumes when the dyadic interaction resumes
- e.g., the interval begins at 13:00, interaction is interrupted at 13:10 and resumes at 13:50; coding for this interval will occur for 13:00-13:10 and then 13:50-13:55 (15-seconds total)

Note: if a dyadic interaction is deemed generally *codeable* from first viewing, this step may be done as you perform step 4. A dyadic interaction should be deemed *codeable* if, after applying the above criteria for interruptions, there is a minimum of twenty 15-second intervals of interaction (totaling 5-minutes of interaction).

4. Begin watching the interaction at the start, and applying the coding criteria given below, taking note of any behaviours that are relevant. Record a “1” to indicate the presence of this behaviour in the appropriate cell under the time interval within which the behaviour was observed. If a single behaviour spans two time intervals (e.g., an extended discussion of a social norm), a “1” indicating presence of this behaviour should be placed in **both time intervals**. The rationale behind this coding decision reflects a scenario in which the same code for a given time interval could be replicated if a coder were to select any given time interval and coded it independently of all other time intervals. Thus, each time interval represents a single, discrete sample of behaviour, and the set of time intervals which comprise the entire interaction represents multiple, discrete samples of behaviour. However, it should be noted that if a single sentence or phrase is deemed to be coded and it spans two time intervals, a “1” should be recorded under the time interval in which the “key word” is uttered (e.g., the mental/physical state term in cases fitting A4, the word which renders the phrase a command or instruction in the case of R1, etc.).

Notes should also be taken below each time interval to indicate what specific behaviour was observed for a given dimension. If it is not obvious why a particular behaviour was coded (i.e., a

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particular behaviour was deemed to fit within a particular dimension, but it is not obvious why), a brief explanation should also be recorded for why the behaviour might be deemed relevant.

If the dyad speaks in a language other than English or French, and this language is understood by the coder, the verbalization should be translated as accurately as possible into English or French under the appropriate time interval. If this language is not understood by the coder, it must be noted that a verbalization occurred in a different language, and the intervals in which these verbalizations occurred must be listed in the coding spreadsheet, so that a translation may be obtained in the future.

Note: It may be easier to code certain dimensions (e.g., dimensions pertaining to verbal content) during one's first thorough viewing of the interaction. Then, one may code for the remaining dimensions (e.g., eye contact, physical touch) during a second thorough viewing of the interaction.

5. Once one or more thorough viewings of the interaction are completed and all dimensions have been coded properly, watch the interaction one last time. This time, as each time interval begins, take note of what behaviours have been coded for that interval, ensure these were coded in the correct time interval, and ensure that no potentially relevant behaviours were missed.

Coding Criteria (next page)

Below are the coding criteria to be applied. Each dimension possesses a general description of the sets of behaviours to be coded within that dimension. Also provided are some prototypical, as well as some potentially non-prototypical examples of behaviours that should also be coded. Finally, there are also a series of additional notes that clarify potential ambiguities that may arise. Please note that these criteria are not meant to be an exhaustive list of codeable behaviours.

This manual is a working document and is subject to modification at any time.

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Autonomy-Promoting Behaviours**A1. Affirmation/compliance with child initiative**

Coding for this scale must be done in a two-step process.

1. Did child express an initiative?

To be coded 1 if:

Child independently expresses an explicit verbal OR an overt non-verbal command/directive/request.

Examples:

- Child asks parent to hand him/her an item
- Child silently extends package of cookies out to parent, with the clear intention of requesting help from parent to open it

OR

Child verbally expresses an intention or desire regarding what child or dyad should do.

Examples:

- Child says, "I don't want to eat anymore."
- Child tells parent that child is the cashier and parent is the customer
- Child says, "I'm hungry; can we go have lunch after this?"

All behaviours coded in this step must be further identified as being either an instance of the child inducing the parent to eat/drink, or not. Inducement of parent to eat/drink must be explicitly verbal or overtly non-verbal commands/directives/requests that the parent eat the snack (e.g., "Here, eat this."), or a verbal expression of the child's desire for the parent to eat the snack (e.g., "Here, I want you to eat this.")). Simple offers of food/drink posed in the form of an open-ended question should not be considered a child initiative (e.g., "Do you want to eat some?")

Note. The request must come from and be initiated spontaneously by the child. If, for example, the parent asks the child what he/she wants or gives the child a forced-choice and the child makes replies and/or makes a choice, this should **not** be coded here.

2. Did parent comply or affirm the initiative?

To be coded 1 if:

Parent complies with the explicit verbal OR an overt non-verbal command/directive/request initiated independently by the child (as identified in step 1 above).

Examples:

- Child tells parent to hand him/her an item **and parent complies**

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- Child silently extends package of cookies out to parent, with the clear intention of requesting help from parent to open it, **and parent takes the package and opens it for child**

OR

Parent verbally affirms the verbal expression given by the child regarding child's own intentions or desires about what child or dyad should do (as identified in step 1 above).

Examples:

- Child says, "I don't want to eat anymore," **and parent replies by saying, "That's fine."**
- Child tells parent that child is the cashier and parent is the customer, **and parent replies by saying, "Okay, sounds good!"**
- Child says, "I'm hungry; can we go have lunch after this?", **and parent replies by saying, "That's a great idea."**

All behaviours coded in this step must be further identified as being either an instance of the parent complying with a child offer of food/drink or not, based on the criteria described above.

Note: The child's initiative typically (but not always) appears to have the intent of guiding the interaction in a different direction from where it is currently going (e.g., Parent suggests they place the cup to side of the table; child interjects and says he/she wants it placed somewhere else; parent says "okay" and either leaves it or moves it to where child wants it).

A2. Attention to the physical environment

To be coded 1 if:

Parent actively redirects the child's attention a) to an object in their immediate physical environment, b) to a new aspect of an object in their immediate physical environment, or c) invites the child to expand or elaborate upon an object in their immediate physical environment, such that the interaction between parent and child is mediated through the object. A further distinction must be made regarding whether it is either i) a toy or ii) a non-toy object.

Examples:

- Parent picks up a dinosaur toy and says, "Look! It's a t-rex!"
- Parent points to the cup and says, "That's your cup right there."
- Parent says, "Look how big the room is!"
- Parent asks child what flavour the juice is

Note: The child's attention must be brought to an object **by the parent**. If the parent simply discusses or orients his/her attention to an object that the child has already shifted his/her attention to on his/her own, this should **not** be coded here.

Note. This should be distinguished from passive mentioning of an object in the physical environment. For example, if parent simply mentions, "I'll put it back in our bag," this should not be coded here. However, if parent says, "Isn't this bag nice?", this should be coded here

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because it invites the child to expand upon an object in the physical environment, and thus, the object becomes a mediator of the interaction between parent and child.

Note: If parent asks about objects in the physical environment using mental-state terms (i.e., asking about what child thinks or feels about the taste of the juice), this set of behaviours is to be coded both here and A4.

Note: If the parent asks the child whether two animal toys can be friends and the intention is to establish whether two animals will eat each other, then this is a test of child knowledge about animal facts. This should be coded here in A3. But if the animals are friends and carry out a social exchange, then this is a reference to the social relations among social entities and should be coded in R3 below.

A3. Distal contact

Coding for this scale must be done in a two-step process.

1. Is the time interval codeable?

To be coded 0 if:

a) The direction/target of the parent and/or child's gaze *cannot* be unambiguously determined for the *entirety* of the time interval (i.e., you cannot reasonably identify where the parent is looking for the whole time interval).

Examples:

Parent's face is out of the frame for the entire 15 seconds (but see **Note** below for exceptions)

Parent is facing the child, but parent's back is turned to the camera for the entire 15 seconds

OR

b) The direction/target of the parent or child's gaze *cannot* be unambiguously determined for a portion of the time interval, AND for the remaining portion of the time interval during which the direction of the parent and child's gaze *can* be unambiguously determined, none of the behaviours listed under 2) below are observed.

Examples:

Parent's face is out of the frame for 5 seconds, but parent re-enters the frame for the remaining 10 seconds AND during these 10 seconds, parent does not make eye contact while talking with the child (or any other behaviour listed in step 2 below)

To be coded 1 if:

a) The direction/target of the parent and child's gaze *can* be unambiguously determined over the entirety of the time interval (i.e., you can reasonably identify where the parent is looking for the whole time interval)

Examples:

Parent's face is in the frame for the entire 15 seconds

Parent looks down at a book for the entire 15 seconds (even though his/her eyes cannot be seen)

OR

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b) Any of the behaviours under 2) below are observed at any point during the interval, regardless of whether the direction of the parent and/or child's gaze can be unambiguously determined over the entirety of the time interval.

Examples:

Parent's face is out of the frame for 10 seconds, but he/she re-enters the frame for the remaining 5 seconds, and during these 5 seconds, he/she makes eye contact while talking with the child once

Note: Decisions regarding codeability of a time interval does not depend strictly on whether the parent and the child's eyes/face can be seen. For example, if the parent's head does not appear within the frame, but the child is hiding under the table or has his/her back turned to the parent for the entirety of the time interval and it is clear that there is no reasonable way that the parent could have engaged in face-to-face contact, this time interval should be deemed codeable. Another example: if a parent has his/her head bowed such that his/her eyes are not observable for the entire time interval, this time interval is also considered codeable because the direction/object of the parent's gaze can still be unambiguously determined (i.e., you can say with reasonable certainty where the parent was looking during this time interval).

2. Did distal contact occur?

This should be left blank for time intervals deemed uncodeable according to step 1 above

To be coded 1 if:

Parent engages in mutual eye contact with the child at any point while parent is speaking.

Parent engages in mutual eye contact with the child and communicates non-verbally through a marked and intentional change in facial expression.

Examples:

- Parent and child are engaged in mutual eye contact and parent raises his/her eyebrows in an exaggerated manner as if to convey a message

Parent engages in an obvious attempt at establishing eye contact with the child.

Examples:

- Parent repositions him/herself to try to catch the gaze of the child

A4. References to internal states

To be coded 1 if:

Parent makes verbal statements regarding either the child or the parent's a) desires/preferences, b) feelings (positive or negative), c) cognitions, d) intentions/attempts at manipulating the mental states of others, or e) physical state. This may include instances in which the parent makes indirect references to the child's state, or attempts to gauge the child's state by asking them to express their thoughts, desires, feelings, preferences, needs etc.

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

a) Examples (desires/preferences):

- Parent says, “Do you **like** the juice?”
- Parent says, “Which type of snack do you **prefer**?”
- Parent says, “Mmm. I **like** apple juice!”
- Parent says, “I **want** another cookie.”

b) Examples (emotions):

- Parent says, “You’re **happy** about it, aren’t you?” (positive)
- Parent says, “Are you **having fun**?!” (positive)
- Parent says, “Are you **bored** of this?” (negative)
- Parent says, “Aw, I know it’s **not easy** (for you).” (in response to the child struggling with something, an attempt acknowledging that the child is experiencing negative emotion; negative)
- Parent says, “I **love** what you’ve built!” (positive)
- Parent says, “Daddy is **sad** because you won’t listen to me.” (negative)
- Parent says, “Mommy is very tired of being here.” (Note: not a reference to parent’s physical state, but an expression of frustration; an emotional reaction to the current situation; to be coded as negative; see below for further clarification)

Note: Similar to Meins and Fernyhough’s (2010) criteria, comments containing “funny/amusing” should only be coded (usually under positive emotion) if it pertains to the child finding something funny or amusing (e.g., Parent says, “You find that funny, don’t you?”). If parent uses these words in reference to anything other than the child’s amusement, this should **not** be coded here (e.g., Parent says, “Oh, that’s funny!” in reference to an object falling off the table).

c) Examples (cognitions):

- Parent says, “What do you **think** (research assistant) is doing?”
- Parent says, “Do you **remember** the last time we came here?”
- Parent says, “I **wonder** what (research assistant) is doing.”
- Parent says, “I don’t **remember** ever coming here before.”
- Parent says, “I **thought** you were full.”

Note: Instances such as parent saying, “You **know** what would be a good idea?” should not be coded because here, the use of the mental state term “know” is part of a figure of speech that is not about the child’s mental state, per se. Similarly, instances such as parent saying, “I **know**!” in response to something the child says should **not be coded** because here, the use of the mental state term “know” is part of a figure of speech that does not emphasize the parent’s mental state, per se, but rather is a simple acknowledgment of the child’s vocalization. In certain cases, however, this type of response may represent an affirmation of a child initiative (e.g., C: “Daddy, it’s your turn to have some water!” P: “I **know**!”) and should therefore be coded under A1.

Note: If parent uses “thought” but only in the context of trying to clarify something that might have happened in the interaction or something that child might have said, this should not be coded here because it does not truly reflect an instance of parent differentiating his/her own mental state from child’s (e.g., Parent says, “But I thought you said ‘no’.”).

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

d) Examples (intentions/attempts at manipulating others' mental states):

- Parent says, "You're **trying to** open the box, aren't you?"
- Parent says, "You're **teasing** me!"
- Parent says, "Did you just **trick** Mommy?"
- Parent says, "Mummy's **trying to** get the straw out."
- Parent says, "Mummy's just **teasing** you."
- Parent says, "Daddy was **playing a trick** on you."

Note: Parents' comments on the child's intentions using the terms "going to" should **not** be coded here (e.g., "What are you going to do?"). Comments on the child's intentions using the terms "trying to" should be coded here, but only if it refers to the child's intention to accomplish a specific goal (e.g., "What are you trying to do?" – not to be coded vs. "Are you trying to put the straw in the juicebox?" – to be coded).

e) Examples (physical state):

- Child yawns and Parent says, "Are you tired?"
- Parent says, "Wow! You're hungry, aren't you?"
- Parent says, "I'm feeling so **sleepy** today!"
- Parent says, "Daddy's **thirsty**."
-

Note: Similar to Meins and Fernyhough's (2010) criteria, parents' comments on the child's physical state (tired, hungry, etc.) should be coded only when the comment is made in the absence of an explicit verbal cue from the child. Thus, the comment must not simply be a repetition of a physical-state term used by the child, and it must be either unprompted, or must follow a non-verbal cue from the child, which did not have the explicit intention of directly communicating the physical state (e.g., a yawn).

General notes:

Note: Following Meins and Fernyhough's (2010) criteria, parents' comments on what the child *perceives* (seeing, looking, hearing, listening, touching) should **not** be coded here.

Note: If parent uses a child-related mental state term in the context of simply repeating a mental-state term that the child had just used to describe themselves (e.g., C: "I don't know why it's like that." P: "Why don't you know?"), this should **not** be coded here. The parents' use of a mental-state term must be made spontaneously by the parent first and must be in the absence of an overt declaration from the child.

Note: A single verbalization from the parent can be coded in multiple categories. For example, "Your sister has been crying a lot these days; I know it's not easy (for you)." "I know it's not easy (for you)" is an implicit acknowledgement of the child's feelings (to be coded in A4), while "Your sister has been crying a lot these days" is a reference to a social object (to be coded in R3).

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

Relatedness-Promoting BehavioursR1. Promotion of parent initiatives

To be coded 1 if:

Parent gives a verbal order or instruction to the child, induces child to cooperate or comply with his/her instruction in any way, or advances his/her own agenda for the interaction. All instances coded under R1 must be further distinguished as being either a) related to child's eating/drinking or b) not related to child's eating/drinking. Eating-related commands, initiatives, instructions, etc. must pertain to influencing the choice or the amount of the child's eating/drinking. All other commands, initiatives, instructions, etc. should be coded as not related to child's eating/drinking.

Examples:

- Parent says, "Go on, eat some more." (eating/drinking-related)
- Parent says, "Drink your juice." (eating/drinking-related)
- Parent says, "Hold it (cup/juice box) properly." (not influencing type or amount of food/drink being consumed by child; therefore, not eating/drinking-related)
- Parent says, "Sit down, please." (not eating-related)
- Parent says, "You must do as Mommy says." (potentially eating-related or not eating-related, depending on context)
- Parent says, "If you're a good boy/girl, you will listen (to me)." (potentially eating-related or not eating-related, depending on context)
- Parent picks up the cash register and says, "Let's play shopping!" (not eating-related)

Note: These instances can often be identified by child-directed use of verbs in the imperative tense. However, certain uses of the imperative tense may not necessarily indicate a demand or order. For example, if the parent says, "**Look** at that! Isn't that neat?", the use of "**look**" here is a figure of speech, which has the intention of conveying the fact that the parent has just taken notice of something and would like the child to reorient his/her attention to it (potentially codeable under A2).

Note: The parent's attempt to induce cooperation or compliance from the child must be explicit. Subtle attempts at manipulating or coaxing child behaviour (in which child retains freedom to do as he/she wants) should not be coded here (e.g., Parent says, "Don't you want to eat some...?")

Note: If parent gives the child a choice among options but induces the child to choose using mental-state language (i.e., offers a closed-choice vs. an open-choice; e.g., "you can pick either X or Y; which do you **want**?"), this set of behaviours is to be coded both here and in A1.

Note. If parent induces compliance from child by invoking a social norm (e.g., Parent says, "You must do as Mommy says because *children must listen to their parents.*"), it should be coded both here and in R2 below.

Note. In the rare case in which a parent raises his/her hand to threaten corporal punishment of the child (for misbehaving or failing to comply), this should be coded here.

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

R2. Attention to interpersonal/social environment

To be coded 1 if:

Parent redirects the child's attention inwards towards the dyad and their relation with one another. Parent might emphasize some aspect of the dyadic relationship through description or evaluation, or may simply make reference to the fact that there is some affiliation between them.

Examples:

- Parent says, "We've been given 5 minutes to spend in the room together. What should we do?"
- Parent says, "After this, we're going to go home and play some games."
- Parent says, "I can help you with that."
- Parent raises juicebox and says, "Cheers!"

Parent redirects the child's attention to other social entities, the relations among other social entities, or the relation between either member of the dyad and other social entities. Social entities are typically human beings, and discussion of the social relations among these entities can include describing what their relation is (nature) or how their relation is (quality). Social entities can also be objects treated as humans (i.e., a doll that is being treated as human).

Examples:

- Parent asks, "So what other activities have you been doing with (research assistant?)"
- Parent says, "Don't you think (research assistant) is nice?"
- Parent says, "Our new friend, (research assistant), is going to be very happy if you eat your snack."
- Parent asks, "What do you think (the other parent who is not present) is doing right now?"
- Child is cradling a doll and parent asks, "Do you love your baby?"

Parent redirects the child's attention to social norms and/or emphasizes the importance of following them.

Examples:

- Parent says, "So what should we (one) do with the garbage after we're (one is) done with it?" (to be coded as non-dyad)
- Parent says, "It would be very nice to say 'thank you' to (research assistant) later for bringing you this snack." (to be coded as non-dyad)

General notes:

Note: Any of the above behaviours must spontaneously originate from the parent. Instances in which the parent discusses the interpersonal or social environment because the child has first redirected the dyad's attention to that subject should **not** be coded here.

Note: If parent asks about social relations using mental state terms (e.g., asking about what child **thinks** or **feels** about the research assistant), this set of behaviours is to be coded both here and in A4.

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

Note. If parent invokes a social norm in order to induce compliance from the child (e.g., Parent says, “You must do as Mommy says because *children must listen to their parents.*”), it should be coded both here (as non-dyad because the norm is phrased as a general principle that governs everyone) and in R1 above.

Note. In the case of an extended discussion about either the dyadic relationship, a non-dyadic entity, or social norm, this should be coded for every instance in which the parent directs the discussion to a new aspect of the dyadic relationship, non-dyadic entity, or social norm (e.g., Parent asks child about his/her friend Johnny’s favourite food in interval 1, then parent asks what the child and his/her friend Johnny did today in interval 2).

R3. Proximal contact/physical control

To be coded 1 if:

Parent and child are physically touching during the specified time interval.

Examples:

- Child sits in parent’s lap
- Parent pats child on the head
- Parent wipes child’s mouth with a napkin

Parent takes physical control of the child’s behaviour at any point during the specified time interval.

Examples:

- Parent pulls child’s chair closer while child is seated in it
- Parent removes juice box or drinking cup from child’s hands
- Parent feeds or helps to feed the child

All codes under R3 must be further distinguished as being either a) parent-initiated or b) child-initiated. The initiator of the touch can be identified through verbal initiations (e.g., parent says, “Wanna come sit in my lap?” and child comes), or non-verbal initiations (one member of the dyad gestures for the other to come over). Physical control is, by definition, parent-initiated and should therefore be coded as such.

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

Appendix B:
Institutional Review Board Approval



Université d'Ottawa University of Ottawa

Service de subventions de recherche et déontologie Research Grants and Ethics Services

Le 11 février 2008

Jean-François Bureau
École de psychologie
Université d'Ottawa
[Redacted]

Objet : Validation of the Preschool Attachment Coding System: Associations with naturalistic observations (Dossier # 11-07-03)

Cher Monsieur Bureau,

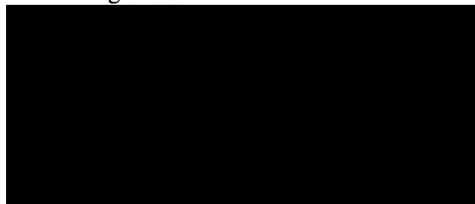
Le Comité d'éthique de la recherche en Sciences Sociales et Humanités de l'Université d'Ottawa (CER en SSH) a examiné votre demande d'approbation et y a accordé une catégorie 1a (approbation). Vous trouverez donc ci-joint le certificat d'approbation déontologique pour votre projet de recherche.

Au cours de votre étude, toute modification au protocole ou aux formulaires ne peut être introduite sans l'approbation préalable écrite du CÉR. Vous devez aussi aviser le CÉR dans les plus brefs délais de tout événement ou expérience indésirables vécus par les participants.

Cette attestation d'approbation déontologique est valide jusqu'au 10 février 2009. Veuillez soumettre un rapport annuel à la Responsable de l'éthique en recherche en février 2009 pour soit fermer le dossier ou faire demande d'extension. Ce rapport se trouve à l'adresse suivante : http://www.ssr.uottawa.ca/deontologie/application_dwn_f.asp.

Si vous avez des questions, n'hésitez pas à me contacter au poste 1787.

Veillez agréer mes sentiments les meilleurs.



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<http://www.uottawa.ca/services/research/rge/index.html>

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD



Université d'Ottawa University of Ottawa

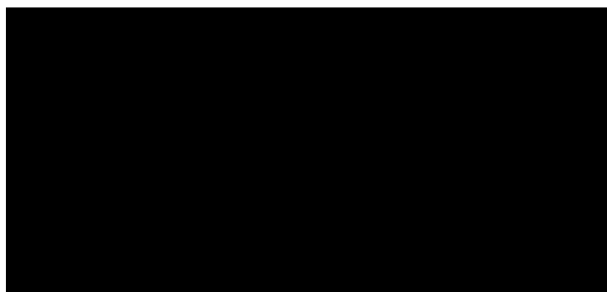
Service de subventions de recherche et déontologie Research Grants and Ethics Services

**COMITÉ D'ÉTHIQUE DE LA RECHERCHE
EN SCIENCES SOCIALES ET HUMANITÉS**

ATTESTATION D'APPROBATION DÉONTOLOGIQUE

La présente attestation certifie que le Comité d'éthique de la recherche en Sciences Sociales et Humanités de l'Université d'Ottawa a examiné la demande d'approbation déontologique pour le projet intitulé **Validation of the Preschool Attachment Coding System: Associations with naturalistic observations (Dossier # 11-07-03)**, présenté par Jean-François Bureau de l'École de psychologie. Le Comité d'éthique a déterminé que la demande respectait les principes déontologiques établis par l'Énoncé de politique des trois conseils et par les règles de procédure des Comités d'éthique de l'Université d'Ottawa et a donc accordé une catégorie 1a (approbation) à ce projet.

La présente attestation est valide pour un an à partir de la date indiquée ci-dessous.



11 février 2008
Date

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

File Number: 11-07-03B

Date (mm/dd/yyyy): 06/13/2013



Université d'Ottawa **University of Ottawa**
 Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Ethics Approval Notice
Social Science and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Jean-François	Bureau	Social Sciences / Psychology	Principal Investigator
Celia	Hsiao	Health Sciences / Others	Co-investigator
Marie-France	Lafontaine	Social Sciences / Psychology	Co-investigator
Ellen	Moss	Social Sciences / Psychology	Co-investigator

File Number: 11-07-03B**Type of Project:** Professor**Title:** Longitudinal Exploration of Family Systems Dynamic and Child Social Adaptation in Middle Childhood: The Role of Father-Child, Mother-Child, Siblings, and Parents Relationships

Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
06/13/2013	06/12/2014	Ia

(Ia: Approval, Ib: Approval for initial stage only)**Special Conditions / Comments:**

N/A

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

File Number: H05-14-05

Date (mm/dd/yyyy): 07/28/2014



Université d'Ottawa **University of Ottawa**
 Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Ethics Approval Notice
Health Sciences and Science REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Jean-François	Bureau	Social Sciences / Psychology	Principal Investigator
Marie-France	Lafontaine	Social Sciences / Psychology	Co-investigator
Celia	Hsiao	Health Sciences / Others	Co-investigator
Ellen	Moss	Social Sciences / Psychology	Co-investigator

File Number: H05-14-05**Type of Project:** Professor**Title:** Longitudinal Exploration of Family Systems Dynamic and Child Social Adaptation in Middle Childhood: The Role of Father-Child, Mother-Child, Siblings, and Parents Relationships

Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
07/28/2014	07/27/2015	Ia

Special Conditions / Comments:

N/A

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

Numéro de dossier: H05-14-05



Date (mm/jj/aaaa): 05/26/2015

Université d'Ottawa **University of Ottawa**
 Bureau d'éthique et d'intégrité de la recherche Office of Research Ethics and Integrity

Certificat d'approbation déontologique**CÉR Sciences et science de la santé****Chercheur principal / Superviseur / Co-chercheur(s) / Étudiant(s)**

<u>Prénom</u>	<u>Nom de famille</u>	<u>Affiliation</u>	<u>Rôle</u>
Jean-François	Bureau	Sciences sociales / Psychologie	Chercheur principal
Celia	Hsiao	Sciences de la santé / Autres	Co-chercheur
Marie-France	Lafontaine	Sciences sociales / Psychologie	Co-chercheur
Ellen	Moss	Sciences sociales / Psychologie	Co-chercheur

Numéro du dossier: H05-14-05**Type du projet:** Professeur**Titre:** Longitudinal Exploration of Family Systems Dynamic and Child Social Adaptation in Middle Childhood: The Role of Father-Child, Mother-Child, Siblings, and Parents Relationships

Date de renouvellement (mm/jj/aaaa)	Date d'expiration (mm/jj/aaaa)	Approbation
07/28/2015	07/27/2016	Ia

(Ia: Approbation complète, Ib: Autorisation préliminaire de libération de fonds de recherche)**Conditions Spéciales / Commentaires:**

N/A

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 RCB No. 200002150H

NHG DSRB Ref: 2009/00021

28 November 2013

Prof Saw Seang Mei
 Department of Epidemiology and Public Health
 NUS - Yong Loo Lin School of Medicine

Dear Prof Saw

NHG DOMAIN SPECIFIC REVIEW BOARD (DSRB) APPROVAL OF AMENDMENT

STUDY TITLE: GUSTO - Growing Up in Singapore Towards healthy Outcomes

Sub study – Birth Parameters, early life course factors and association with myopia in young children [Gusto-Eye]

We are pleased to inform you that the NHG Domain Specific Review Board has reviewed and approved the amendments submitted for the application as titled above.

The documents reviewed are:

- a) NHG DSRB Study Amendment ID: **2009/00021-AMD0016**
- b) NHG DSRB Application Form: **Version No. 17**
- c) Neurocognitive Function in Children - Participant Information Sheet and Consent Form (NUHS): **Version 1.5 dated 27/11/2013**
- d) School Readiness Test- Participant Information Sheet and Consent Form: **Version 1.0 dated 27/11/2013**
- e) Gusto 4 to 9 years follow up- Participant Information Sheet and Consent Form: **Version 1.0 dated 22/10/2013**
- f) School Readiness Test Brochure: **Version 1.0 dated 29/08/2013**
- g) Gusto 4 to 9 years follow up Brochure : **Version 1.0 dated 09/09/2013**
- h) Life Experiences Survey: **Version 1.0 dated 29/08/2013**
- i) Child Behavior Checklist : **Version 1.0 dated 29/08/2013**
- j) 48 Months School Readiness Test Protocol : **Version 1.0 dated 24/10/2013**

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

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Sub study – Birth Parameters, early life course factors and association with myopia in young children
[Gusto-Eye]

- k) Participant Information Sheet and Consent Form: **Version No. 1.1 dated 26/08/2013**
- l) Gusto 36 Months Eye Measurements: **Version No. 1.0 dated 03/09/2013**

The NHG DSRB approves the change of Principal Investigator to the following:

- a) A/Prof Lee Yung Seng, Paediatrics, National University Hospital

The NHG DSRB approves the addition of the following Co-Investigator:

- b) Prof Saw Seang Mei, National University Singapore- Saw Swee Hock School of Public Health

Yours Sincerely

A/Prof Low Yin Peng
Chairman
NHG Domain Specific Review Board D

Cc. Institutional Representative, NUS-YLL SoM
Departmental Representative of Epidemiology and Public Health, NUS-YLL SoM

(This is an electronic-generated letter. No signature is required.)

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD



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RCB No. 200002150H

NHG DSRB Ref: **2014/00414**

01 March 2016

A/Prof Lynette Shek
Department of Paediatrics
National University Hospital

Dear A/Prof Shek

NHG DOMAIN SPECIFIC REVIEW BOARD (DSRB) APPROVAL OF AMENDMENT

STUDY TITLE: Growing Up in Singapore Towards healthy Outcomes (GUSTO), follow-up from 4 to 9 years: Neurocognitive Function in Children

We are pleased to inform you that the NHG Domain Specific Review Board has reviewed and approved the amendments submitted for the application as titled above.

The documents reviewed are:

- 1) NHG DSRB Study Amendment ID: **2014/00414-AMD0002**
- 2) NHG DSRB Application Form: **Version No. 3**
- 3) Saliva Collection Protocol: Version 1.0 dated 23 September 2015
- 4) Berkeley Puppet Interview Protocol: Version 1.0 dated 06 October 2015
- 5) Non-Compliance Task (Dart Game): Version 1.0 dated 01 September 2015
- 6) Food Portion Size & Intake Protocol: Version 1.0 dated 17 October 2015
- 7) Impossibly Perfect Circles Protocol: Version 1.0 dated 26 August 2015
- 8) Rewards Task Protocol: Version 1.2 dated 14 January 2016
- 9) Alabama Parenting Questionnaire: Version 1.0 dated 16 August 2015
- 10) Family Assessment Device: Version 1.0 dated 16 August 2015
- 11) ICU Parent Preschool: Version 1.0 dated 16 August 2015
- 12) Pain Screening Questionnaire: Version 2.0 dated 19 May 2015
- 13) PSI Short Form: Version 1.0 dated 16 August 2015
- 14) SPSRQ-C Questionnaire: Version 1.0 dated 16 August 2015
- 15) Parental Expectations for Child's Social Development: Version 1.0 dated 28 November 2015
- 16) Child Eating Behaviour Questionnaire: Version 1.0 dated 20 July 2015
- 17) Child Feeding Questionnaire: Version 1.0 dated 20 July 2015

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

- 18) The Three-Factor Eating Questionnaire: Version 1.0 dated 20 July 2015
- 19) Shipley-2 Profile Sheet Copyright 2009 by Western Psychological Services
- 20) (6 Years Old) Case Report Form: Version 1.2 dated 17 December 2015
- 21) 6Y Parent Report Form: Version 1.0 dated 26 October 2015
- 22) Theory of Mind Protocol: Version 1.0 dated 22 October 2015
- 23) Adult Attachment Interview Protocol
- 24) Nutrition (Child): Version 1.0 dated 09 November 2015
- 25) Primary Caregiver Questionnaire (6 years): Version 1.0 dated 05 October 2015
- 26) Hair Sample Protocol (6 years): Version 1.0 dated 06 November 2015
- 27) Scoring Form (6 years): Version 1.4 dated 03 February 2016
- 28) Patient Information Sheet: Version 1.2 dated 02 February 2016
- 29) Reunion Protocol: Version 1.0 dated 26 October 2015
- 30) Cambridge Neuropsychological Test Automated Battery (CANTAB): Version 1 dated 18 November 2015
- 31) Behavioural Rating Inventory for Children (BRIC): Version 3 dated 14 September 2015
- 32) Caregiver's Food Recall (Year 6)
- 33) Child's Food Recall (Year 6)

The NHG DSRB acknowledges the receipt of the following documents:

- 1) Patient Information Sheet (Simplified Chinese): Version 1.2 dated 02 February 2016

Please ensure that the translations are an accurate reflection of the original content approved by NHG DSRB.

Kindly note that the NHG DSRB accepts the authenticity of the translations based on the translation certificates, if any, provided by the Principal Investigator. Consequently, it is the responsibility of the Principal Investigator to ensure that the translations are an accurate reflection of the original approved content.

The NHG DSRB approves the change of Principal Investigator to the following:

- a) A/Prof Lynette Shek, Department of Paediatrics, National University Hospital

The NHG DSRB approves the removal of the following Co-Investigator:

- a) Michael J Meaney, Singapore Institute of Clinical Science, Agency for Science Technology and Research (A*star)

The NHG DSRB approves the addition of the following Co-Investigator:

- a) Anne Elise Rifkin-Graboi, Neurodevelopment Research Centre, Singapore Institute for Clinical Sciences, Agency for Science Technology and Research (A*star)

The NHG DSRB acknowledges the removal of the following Study Administrator:

- a) Ong Min Yee, Agency for Science Technology and Research (A*star)

The NHG DSRB acknowledges the addition of the following Study Administrator:

- a) Ranjani Nadarajan, Agency for Science Technology and Research (A*star)

The NHG DSRB operates in accordance to the ICH GCP, Singapore Guideline for Good Clinical Practice and all applicable laws and regulations.

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

Yours Sincerely

A/Prof Chng Wee Joo
Chairman
NHG Domain Specific Review Board B2

Cc: Institutional Representative, NUH
c/o Research Office, NUH
Departmental Representative of Paediatrics, NUH

(This is an electronic-generated letter. No signature is required.)



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CIRB Ref: **2009/280/D**

26 December 2013

A/Prof Fabian Yap
Department of Endocrinology
KK Women's and Children's Hospital

Dear A/Prof Yap

APPROVAL OF AMENDMENTS

Study Title: GUSTO - Growing Up in Singapore Towards Healthy Outcomes

We are pleased to inform you that the SingHealth Centralised Institutional Review Board D has reviewed and approved the amendments submitted for the above research project to be conducted in KK Women's and Children's Hospital.

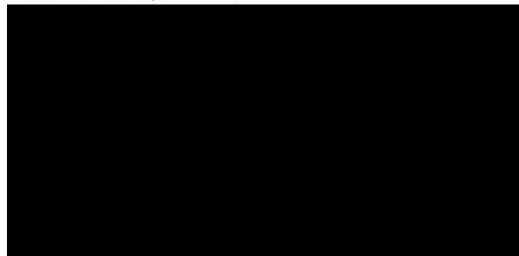
The documents reviewed are:

- a) Amendment Summary
- b) School Readiness Test Participant Information Sheet: Version 1.1 dated 05 November 2013 (KKH)
- c) Neurocognitive Function in Children – Participant Information Sheet: Version 1.4 dated 15 November 2013 (KKH)

The SingHealth Centralised IRB operates in accordance with the ICH/ Singapore Guideline for Good Clinical Practices, and with the applicable regulatory requirement(s).

Approval of this amendment is valid from **26 December 2013 to 01 March 2014**. If the study will continue beyond the expiration date, please submit a renewal request at least one month prior to the expiration date to allow the CIRB sufficient time to review and approve the request.

Yours sincerely,



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National Cancer Centre Singapore • National Dental Centre Singapore • National Heart Centre Singapore • National Neuroscience Institute • Singapore National Eye Centre
SingHealth Polyclinics • Bright Vision Hospital

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD



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CIRB Ref: **2009/280/D**

07 April 2016

A/Prof Fabian Yap
 Department of Endocrinology
 KK Women's and Children's Hospital

Dear A/Prof Yap

SINGHEALTH CENTRALISED INSTITUTIONAL REVIEW BOARD (CIRB) APPROVAL OF AMENDMENT

Protocol Title: Developmental Pathways to Metabolic Disease - Growing Up in Singapore Towards healthy Outcomes (GUSTO)

We are pleased to inform you that the SingHealth CIRB D has reviewed and approved the amendments submitted for the above research project.

The documents reviewed are:

- 1) Amendment Summary dated 15 March 2016
- 2) GUSTO follow up 4 to 9 years Participant Information Sheet and Informed Consent Form: Version 2.3 KKH dated 15 March 2016

Questionnaires

- 3) 54 Month Mother and Child Sleep diaries: Version 1.0 dated 20140610
- 4) Year 6 Primary Caregiver Qnn (PCQ): Version 1.0 dated 20151005
- 5) Inventory of Callous-Unemotional traits (ICU)-Parent: Version 1.0 dated 20150816
- 6) Alabama Parenting Questionnaire (APQ): Version 1.0 dated 20150816
- 7) Parenting Stress Index (PSI) - Short Form: Version 1.0 dated 20150816
- 8) Sensitivity to Rewards/Punishment Q (SPSRQ-C): Version 1.0 dated 20150816
- 9) Child Food Allergy Preference Checklist: Version 1.0 dated 20151109
- 10) Child Eating Behaviour Questionnaire (CEBQ): Version 1.0 dated 20150720
- 11) Child Feeding Questionnaire (CFQ): Version 1.0 dated 20150720
- 12) The Three Factor Eating Questionnaire (TFEQ): Version 1.0 dated 20150720
- 13) Family Assessment Device (FAD): Version 1.0 dated 20150816
- 14) Pain Screener ECOHIS (Mother & Child): Version 2.0 dated 20150519
- 15) Parental Expectations of Child's Social Development: Version 1.0 dated 20151129
- 16) Shipley 2 Vocabulary Form 2009
- 17) Year 6 Parent Report Form: Version 1.0 dated 20151026
- 18) Behavioural Rating Inventory for Children (BRIC) Evaluation: Version 3 dated 20150914

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- 19) Year 6 Caregiver Food Recall: Version 1.0 dated 20151104
- 20) Year 6 Child Food Recall: Version 1.0 dated 20151104
- 21) Calendar 2016: Version 1.0 dated 20151125
- 22) 6 Year Birthday Card: Version 1.0 dated 20151117
- 23) Letter for Participants Retention: Version 1.0 dated 20160126
- 24) Year 6 Report: Version 1.0 dated 20160316
- 25) Year 6 Feedback Form: Version 1.0 dated 20160307
- 26) Year 6 Mother Questionnaire: Version 1.1 dated 20151022
- 27) Year 6 Child Questionnaire: Version 1.1 dated 20151022
- 28) Main Caregiver FFQ Version: 2 dated Feb 2016
- 29) Year 6.5 Caregiver's Feeding Style Questionnaire (CFSQ): Version 1.0 dated 13012016

Case Report Forms

- 30) CRF Year 6 Mother BOD POD CRF: Version 1.0 dated 20151016
- 31) CRF Year 6 Mother QMR CRF: Version 1.0 dated 20160301
- 32) Year 6 Child QMR CRF: Version 1.0 dated 20151207
- 33) CRF Year 6 Child BOD POD CRF: Version 1.0 dated 20150915
- 34) Year 5-6 Maternal Blood Collection Screening Form & CRF: Version 2.0 dated 20151105
- 35) Year 6 Child Blood Collection Screening Form: Version 1.0 dated 20151202
- 36) 6 Years Old Child CRF: Version 1.4 dated 20160314
- 37) 6 Years Old Scoring Form: Version 1.5 dated 20160307
- 38) Year 6.5 Child CRF: Version 1.0 dated 20160302

The SingHealth CIRB acknowledges receipt of the following documents:

- 39) GUSTO follow up 4 to 9 years Participant Information Sheet and Informed Consent Form: Version 2.3 KKH dated 15 March 2016 (Chinese)
- 40) GUSTO follow up 4 to 9 years Participant Information Sheet and Informed Consent Form: Version 2.3 KKH dated 15 March 2016 (Malay)
- 41) GUSTO follow up 4 to 9 years Participant Information Sheet and Informed Consent Form: Version 2.3 KKH dated 15 March 2016 (Tamil)

Questionnaires

- 42) SCID interview Non patient Edition Jan 2010: Version 1.1 dated 20150209 (Chinese and Malay)
- 43) C-DISC Protocol: Version 1.0 dated 20140619 (Chinese and Malay)
- 44) Lay Theories Measure - Bobby's Questions: Version 1.0 dated 20140623 (Chinese and Malay)
- 45) 54 Month Mother and Child Sleep Diaries: Version 1.0 dated 20140610 (Chinese and Malay)
- 46) Year 6 Primary Caregiver Qnn (PCQ) : Version 1.0 dated 20151005 (Chinese, Malay and Tamil)
- 47) Inventory of Callous-Unemotional traits (ICU)-Parent: Version 1.0 dated 20150816 (Chinese, Malay and Tamil)
- 48) Alabama Parenting Questionnaire (APQ): Version 1.0 dated 20150816 (Chinese, Malay and Tamil)
- 49) Parenting Stress Index (PSI) - Short Form: Version 1.0 dated 20150816 (Chinese, Malay and Tamil)
- 50) Sensitivity to Rewards/Punishment Q (SPSRQ-C): Version 1.0 dated 20150816 (Chinese, Malay and Tamil)
- 51) Family Assessment Device (FAD): Version 1.0 dated 20150816 (Chinese, Malay and Tamil)

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

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- 52) Pain Screener ECOHIS (Mother & Child): Version 2.0 dated 20150519 (Chinese, Malay and Tamil)
- 53) Parental Expectations of Child's Social Development: Version 1.0 dated 20151129 (Chinese, Malay and Tamil)
- 54) Year 5.5 Accelerometer Instructions: Version 2.0 dated 20150909 (Chinese, Malay and Tamil)
- 55) Year 6 Invitation Letter: Version 1.0 dated 20150930 (with DXA) (Chinese)
- 56) Year 6 Mother Questionnaire: Version 1.1 dated 20151022 (Chinese, Malay and Tamil)
- 57) Year 6 Child Questionnaire: Version 1.1 dated 20151022 (Chinese, Malay and Tamil)
- 58) Year 6 Child Pubertal Questionnaire: Version 1.0 dated 20150930 (Chinese, Malay and Tamil)
- 59) Year 6 Child Eye Questionnaire: Version 1.0 dated 20150922 (Chinese and Tamil)
- 60) Main Caregiver FFQ: Version 2 dated Feb 2016 (Chinese)
- 61) Year 6.5 Caregiver's Feeding Style Questionnaire (CFSQ) : Version 1.0 dated 13012016 (Chinese)

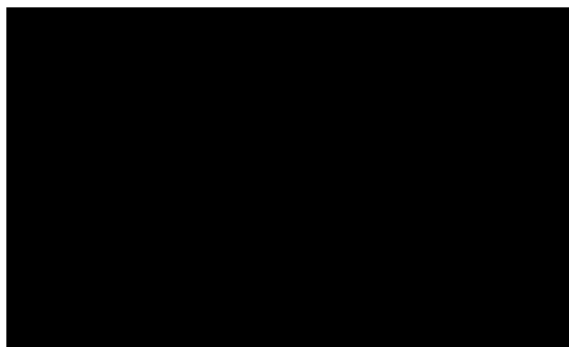
Please ensure that the translations are an accurate reflection of the original content approved by SingHealth CIRB.

Kindly note that the SingHealth CIRB accepts the authenticity of the translations based on the translation certificates, if any, provided by the Principal Investigator. Consequently, it is the responsibility of the Principal Investigator to ensure that the translations are an accurate reflection of the original approved content.

The SingHealth CIRB operates in accordance with the ICH/ Singapore Guideline for Good Clinical Practices, and with the applicable regulatory requirement(s).

Approval of this amendment is valid from **07 April 2016 to 14 January 2017**. If the study will continue beyond the expiration date, please submit a renewal request at least two months prior to the expiration date to allow the SingHealth CIRB sufficient time to review and approve the request.

Yours sincerely,



Appendix C: 点心环节指示(“Snack” Instructions)

我们想了解您孩子对这些小点心的感觉

We are interested in what your child thinks of these snacks.

1. 品尝 Tasting

我们将让您的孩子从各个不同口味的小点心品尝一小口。

请您**不要**向您孩子评论我们所给的食物，也**勿**鼓励他们多吃。

我们想观察他们最自然，独立的反应。

如果您的孩子主动转向您评论食物，您可给予适当的微笑及回应。

有一位研究员将全程陪伴您和孩子。

We will let them take a bite from snacks of different flavours. Please DO NOT comment on the food or ENCOURAGE them to eat. We would like to see what they do on their own.

If your child turns to you to talk about the food first, you may acknowledge by smiling or give a short reply. The experimenter will be with you and your child.

2. 小点心 Snack

我们之后再让您的孩子随意的品尝各个不同口味的小点心。

请您让您的孩子自由的选择他/她所想要品尝的点心，也请任由他/她吃所想要的份量。

我们想了解您孩子对这些小点心的感觉，所以请您**务必别**尝试我们给您孩子的点心。如果您也想要一份，请让我们知道，我们可另外替您准备。

We will then let your child eat any of the snacks. Please allow your child to make his/her own choices in terms of what he/she eats, and let him/her eat as much or as little as he/she wants. We are trying to find out what your child thinks about the snacks, so we ask that you please not eat any of your child's snacks. If you would like a snack, we would be happy to provide you with one later.

请您记得这些指示。在您孩子享用点心期间，您还是可如平时用餐时，与您孩子如常地互动。这时，我们的研究员将不与您们同在房里。

Bearing these instructions in mind, you are free to talk or interact with your child like you usually would during meal times. The experimenter will not be in the room.

谢谢您的合作

Thank you for your cooperation!

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Appendix D:
Parental Expectations for Child's Social Development Questionnaire (male version)

In your role as a parent, please think about the kind of person you want your son to become or develop into. Then, please read the statements below carefully, and respond by circling the number that best reflects your thoughts or feelings.

I want my son to become a person who...	Strongly Disagree						Strongly Agree
1. has respect for the authority figures with whom he interacts.	1	2	3	4	5	6	7
2. says "No" directly, rather than risk being misunderstood.	1	2	3	4	5	6	7
3. maintains harmony with his group.	1	2	3	4	5	6	7
4. feels comfortable speaking up during class.	1	2	3	4	5	6	7
5. bases his happiness on the happiness of those around him.	1	2	3	4	5	6	7
6. has a lively imagination.	1	2	3	4	5	6	7
7. offers his seat in a bus to his teacher or professor.	1	2	3	4	5	6	7
8. feels comfortable being singled out for praise or rewards.	1	2	3	4	5	6	7
9. respects people who are modest about themselves.	1	2	3	4	5	6	7
10. is the same person at home and at school.	1	2	3	4	5	6	7
11. sacrifices his self-interest for the benefit of the group he is in.	1	2	3	4	5	6	7
12. considers the ability to take care of himself a primary concern.	1	2	3	4	5	6	7
13. feels that his relationships with others are more important than his own accomplishments.	1	2	3	4	5	6	7
14. acts the same way no matter who he is with.	1	2	3	4	5	6	7
15. takes into consideration my advice when making education/career plans.	1	2	3	4	5	6	7
16. feels comfortable using someone's given name (not surname) soon after meeting them, even when they are much older than he is.	1	2	3	4	5	6	7
17. respects decisions made by the group.	1	2	3	4	5	6	7

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18. is direct and forthright when dealing with people he has just met.	1	2	3	4	5	6	7
19. stays in a group if he is needed, even when he is not happy with the group.	1	2	3	4	5	6	7
20. enjoys being unique and different from others in many respects.	1	2	3	4	5	6	7
21. feels responsible if his brother or sister fails.	1	2	3	4	5	6	7
22. develops his own personal identity independent of others.	1	2	3	4	5	6	7
23. avoids an argument, even if he strongly disagrees with group members.	1	2	3	4	5	6	7
24. values being in good health above everything.	1	2	3	4	5	6	7

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**Appendix E:
Supplementary Tables**

Table E.1. Partial Correlations Between Interaction Behaviours (COPI-C) and Child Outcomes: Canadian Sample

COPI-C	Attachment Behaviour				Socio-Emotional Functioning	
	Sec.	Avoid.	Ambiv.	Disorg.	Internal.	External.
<i>Autonomy-Promoting Behaviours</i>						
Child Internal States	-.07	.00	.08	.16	-.07	-.05
Maternal Internal States	.04	-.14	-.07	.09	-.01	-.05
Maternal Affirmation/Compliance ¹	.08	-.08	-.14	.00	-.20*	-.01
Physical Environment	-.02	-.04	.03	-.02	-.09	-.05
Mutual Eye Contact	.06	.12	-.23*	.16	.09	-.04
<i>Relatedness-Promoting Behaviours</i>						
Eating-Related Commands	.02	.08	-.05	-.14	.06	-.01
Non-Eating-Related Commands	.08	-.23*	.15	-.15	-.01	.18
Dyadic Social Environment	-.10	.11	-.01	.08	.01	.01
Non-Dyadic Social Environment	.04	-.07	.07	-.10	-.03	-.08
Mother-Initiated Touch/Control	-.04	.04	-.01	.02	.09	.07

*p < .05

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Table E.2. Partial Correlations Between Interaction Behaviours (COPI-C) and Child Outcomes: Singaporean Sample

COPI-C	Attachment Behaviour				Socio-Emotional Functioning	
	Sec.	Avoid.	Ambiv.	Disorg.	Internal.	External.
<i>Autonomy-Promoting Behaviours</i>						
Child Internal States	.08	.03	-.13	-.08	-.14	-.10
Maternal Internal States	.11	-.25**	.05	.02	-.31**	-.23*
Maternal Affirmation/Compliance ¹	.08	-.12	-.04	.02	-.04	-.08
Physical Environment	.06	-.15	-.02	-.21*	.06	.07
Mutual Eye Contact	.30***	-.20*	-.09	-.13	-.12	-.07
<i>Relatedness-Promoting Behaviours</i>						
Eating-Related Commands	.07	.05	-.14	.00	.05	-.04
Non-Eating-Related Commands	-.14	.10	-.01	.10	-.08	.03
Dyadic Social Environment	-.01	.03	-.04	-.15	.10	.11
Non-Dyadic Social Environment	.10	-.21*	.00	-.18*	.00	.03
Mother-Initiated Touch/Control	-.14	.08	.00	.07	.13	-.01

*p < .05; ***p < .001

AUTONOMY & RELATEDNESS IN THE PRESCHOOL PERIOD

Table E.3. Comparison of Partial Correlations Between Interaction Behaviours (COPI-C) and Child Outcomes Across Canadian and Singaporean Samples (z-Scores)

COPI-C	Attachment Behaviour				Socio-Emotional Functioning	
	Sec.	Avoid.	Ambiv.	Disorg.	Internal.	External.
<i>Autonomy-Promoting Behaviours</i>						
Child Internal States	-1.20	-0.22	1.54	1.87	0.51	0.32
Maternal Internal States	-0.56	0.92	-0.91	0.55	2.30*	1.39
Maternal Affirmation/Compliance ¹	0.01	0.30	-0.75	-0.13	-1.25	0.47
Physical Environment	-0.58	0.83	0.38	1.52	-1.11	-0.89
Mutual Eye Contact	-1.91	2.49**	-1.05	2.29*	1.58	0.22
<i>Relatedness-Promoting Behaviours</i>						
Eating-Related Commands	-0.42	0.25	0.71	-1.12	0.12	0.21
Non-Eating-Related Commands	1.67	-2.53**	1.22	-1.93	0.55	1.12
Dyadic Social Environment	-0.68	0.63	0.28	1.73	-0.68	-0.75
Non-Dyadic Social Environment	-0.42	1.16	0.55	0.61	-0.20	-0.81
Mother-Initiated Touch/Control	0.76	-0.31	-0.07	-0.39	-0.27	0.57

*p < .05; **p < .01