

CULTURAL INFLUENCES ON ATTACHMENT BEHAVIOURS

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Dedication

This project would not have been completed without the support of my family. Therefore, I dedicate this to my parents who inspire me with their lifelong learning, to my sons who remind me to enjoy and treasure every day, and to my husband whose love and support has helped me through all of this work. Thank you to all of you.

Abstract

In attachment research, there has been some debate about whether the hypotheses of attachment theory concerning infant secure-base behavior, maternal sensitivity and the future competence of secure and insecure infants are culturally accurate (Carlson & Harwood, 2003; Harwood, 2006; Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000). Proponents of attachment theory claim that maternal care that is sensitive and responsive to the needs of the infant promotes secure-base (i.e., proximity-seeking or exploratory) behaviors resulting in secure parent-infant attachment and lifelong benefits (Carlson & Harwood; Rothbaum et al.). However, culturally appropriate parent and infant behaviors in different ethnic contexts may not correspond to these hypotheses that are based on Euro-Western principles and assessments. In addition, classifications of attachment types may not describe or represent the distributions of secure or insecure infants in all contexts. It was concluded through a literature review of 20 published studies (1988 to 2008) that attachment theory is essentially universal with culturally specific expressions of infant and maternal behaviors related to specific societal values and beliefs. More research is needed to determine the validity of the attachment hypotheses in diverse cultures.

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CULTURAL INFLUENCES ON ATTACHMENT BEHAVIOURS

Chapter I: Introduction

Attachment theory proposes a healthy relationship that occurs between a primary caregiver (usually the mother) and an infant can result in a secure and safe haven for the infant, thereby forming a close bond between the parent and child (Ainsworth & Bell, 1970; Bowlby, 1969, 1988; Stayton, Ainsworth, & Main, 1973). Primary caregivers and infants in all cultures engage in behaviors related to attachment, but there is considerable debate as to whether classical attachment theory—based largely on research in Euro-Western populations (e.g., Caucasian Americans and Europeans with Western European ancestry)—is reflected consistently in all cultures (Cains & Combs-Orme, 2005; Carlson & Harwood, 2003, Crittenden, 2000; Rothbaum, Rosen, Ujii, & Uchida, 2002; Rothbaum, Weisz, Pott, Miyake & Morelli, 2000).

To assess whether the main hypotheses of attachment theory adequately reflect attachment behaviors in all cultures, this final project presented a literature review that attempted to answer the following four questions:

1. How are the hypotheses of attachment theory addressed in cross-cultural attachment research and do they adequately and universally predict secure and insecure infant attachment in the studies reviewed?
2. Are the assessments used in attachment research valid in all cultures?
3. Are the descriptions of infant and care-giving behaviors related to secure and insecure attachment patterns similar across diverse cultures?

4. What parenting practices related to secure parent-infant attachment are recommended in attachment theory and are these practices culturally appropriate in all contexts?

This final project reviewed 20 cross-cultural attachment research studies carried out in Euro-Western and non-Western contexts over the past 20 years that focused on how the hypotheses of attachment theory regarding universality, infant secure-base behavior, maternal sensitivity and future developmental competence (i.e., infant cognitive and social-emotional development) are represented in diverse cultures. The primary objective of this final project was to identify the similarities and differences between the accepted descriptions of infant and caregiver behaviors in the classical attachment theory and the descriptions found in studies of diverse cultures in cross-cultural attachment research. This comparison was used to provide evidence that attachment theory is not universally manifested in all contexts and highlights the need for practitioners to take a broader view of attachment until more culturally sensitive research is available.

The Debate Over Attachment Theory and Culture

Attachment research primarily involves the assessment of mother-infant attachment bonds using two methods: the Strange Situation Procedure (SSP) devised by Ainsworth (Ainsworth & Bell, 1970; Ainsworth, Blehar, Waters, & Wall, 1978; Stayton et al., 1973) and the Attachment Q-sort (AQS) (Vaughn & Waters, 1990; Waters & Deane, 1985). Early North American attachment studies of these assessments and subsequent meta-analyses from other countries (Ainsworth et al.; Main & Solomon, 1990; van IJzendoorn & Kroonenberg, 1988; van IJzendoorn & Sagi, 1999; van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004; Vaughn &

Waters; Waters & Deane) have resulted in established security rates that many attachment researchers consider as normative measures or global standards (Posada, Gao, Wu, Posada, Tascon, Schoelmerich, et al., 1995; van IJzendoorn & Kroonenberg; van IJzendoorn & Sagi; Vaughn, Strayer, Jacques, Trudel, & Seifer, 1991). However, cross-cultural research on attachment over the past few decades has shown variations of security rates in different ethnic cultural contexts (Bakermans-Kranenburg, van IJzendoorn, & Kroonenberg, 2004; Mizuta, Zahn-Waxler, Cole, & Hiruma, 1996; Sagi, Lamb, Lewkowicz, Shoham, Dvir, & Estes, 1985; Sagi, van IJzendoorn, Aviezer, Donnell, et al., 1995; Sagi, van IJzendoorn, & Koren-Karie, 1991).

Secure infant attachment is consistently found to be the most prevalent attachment pattern in environments with few risk factors (e.g., poverty, low maternal age and education level, family conflict, maternal psychopathology) affecting the parent-infant relationship and is considered the preferred type of attachment since it is associated with positive socio-emotional and developmental outcomes (Ainsworth et al., 1978; Crittenden, 2000; Porges, 2003; Schore, 2001; van IJzendoorn & Kroonenberg, 1988). Insecure attachment typically occurs in the parent-infant relationship when the presence of risk factors promotes caregiver behaviors of insensitivity and poor responsiveness to the infant's cues, which results in the infant developing maladaptive behaviors that limit the development of secure attachment (Ainsworth et al.; Belsky & Fearon, 2002; Bowlby, 1988; Crittenden). However, studies of diverse populations that differ from those in the original attachment studies (Ainsworth et al.; Main & Solomon, 1990; Waters & Deane, 1985) have shown variations in the distributions of insecure attachment rates, which may

indicate positively adaptive maternal and infant behaviors in that context (Carlson & Harwood, 2003; Harwood, 2006; Rothbaum et al., 2000).

The universality hypothesis of attachment theory suggests that attachment security patterns are consistent across all cultures with the secure type being the superior, preferred type of attachment and insecure types being the deviant or non-preferred types that occur in the presence of multiple risk factors in the environment (Bowlby, 1969, 1988; van IJzendoorn & Kroonenberg, 1988; van IJzendoorn & Sagi, 1999, 2001). Conversely, some researchers who propose a more culturally sensitive version of attachment theory suggest that some insecure attachment behaviors may be positively adaptive responses to specific contextual and cultural antecedents in the same way that secure attachment behaviors are contextually adaptive (Crittenden, 2000; Rothbaum et al., 2000; Posada et al., 2004; True, Pisani, & Oumar, 2001). Both views emphasize the importance of sensitive care from the primary caregiver and the existence of specific infant secure-base (i.e., exploratory and proximity-seeking) behaviors, but disagree as to how these behaviors are measured and interpreted in relation to culture.

Kuhn (1970), in his discussion of the nature of scientific paradigms and their changes, highlighted the importance of considering counter-argument examples when investigating and understanding a theory. Researchers who defend the universality of attachment theory and those who question its validity in all societies point to examples that emphasize their opposing views. These counter-argument examples are the basis for investigation in this project.

Project Value

In addition to highlighting the need for a closer look at how attachment relationships are assessed in diverse cultures, this project is valuable for several reasons. First, this topic is relevant to infant mental health professionals working with parents and caregivers of infants who want to know what care-giving and infant behaviors to support and encourage in diverse cultural contexts (Brynelsen, 2007; Greenspan, 1992; Infant Mental Health Promotion Project [IMP], 2002; Zeanah, Larrieu, & Zeanah Jr., 2000). These professionals provide programs (e.g., counseling, family support, parent education, childcare) for families with children under the age of three from many cultures and contexts, and promote care-giving practices that encourage positive parent-infant relationships (Barrera & Corso, 2003; Brynelsen; Garcia Coll & Meyer, 1993; Gilkerson & Stott, 2000; IMP; Ontai, Mastergeorge, & Families with Young Children Workgroup, n.d; Recchia & Williams, 2006; Shirilla & Weatherston, 2001).

Second, this literature review addresses the ethical importance for counselors to adopt a culturally inclusive set of attitudes, knowledge and skills when promoting culturally appropriate attachment-based parenting behaviors (i.e., best practices) in research and intervention (Arthur & Collins, 2005; Bowlby, 1988; Gilkerson & Stott, 2000; Greenspan, 1992; Zeanah et al., 2000). It is essential that infant mental health professionals provide culturally sensitive services by learning how different care-giving practices fit into the cultural contexts that they work in (Barrera & Corso, 2003; Shirilla & Weatherston, 2001). Promoting practices based on one culture (usually the Euro-Western culture) may lead to under- or over-referrals based on diagnoses of insecure attachment (British Columbia Ministry of Children and Family Development [BC

MCFD], 2003; Restoule, 1997). Unless certain cultural issues are better understood, infant mental health professionals in Canada risk under-serving populations that have different cultural backgrounds (BC MCFD), over-identifying parents as having poor attachment relationships with their children (Restoule), falsely referring families for intervention for insecure attachment and/or castigating them for their cultural beliefs and practices (Berg, 2003; Melendez, 2005; Rameka, 2003; Yeo, 2003).

Finally, this literature review of published studies is valuable because it represents an in-depth investigation of cross-cultural attachment research that focused on all of the available peer-reviewed studies and not only studies that supported one or another viewpoint. This criterion has not been applied to similar reviews of this subject (van IJzendoorn & Kroonenberg, 1988; Crittenden, 2000; Rothbaum et al., 2000).

The remainder of this report is structured as follows: Chapter II provides a discussion of theoretical foundations of cross-cultural attachment research; Chapter III describes the procedures used in this final project; Chapter IV provides a review of 20 studies according to the populations represented and the four attachment hypotheses; and Chapter V presents a discussion of the implications on attachment research, the limitations of this project and recommendations for future research and intervention.

Chapter II: Theoretical Foundations

This study investigates cross-cultural research in attachment to determine whether the original hypotheses of attachment theory have been adequately defined and applied to diverse populations. This chapter describes attachment theory, attachment assessment methods, and the literature on cross-cultural attachment research. Since this final project is based on attachment theory in different parenting cultures, it is important to understand how attachment theory is adapted from different theories, ethological evidence and empirical research and how cultural similarities and differences are represented.

Attachment Theory

Based on his work as a pediatrician and as a psychoanalyst, Bowlby (1969) developed attachment theory from psychoanalytic and ethological bases. Ainsworth (Ainsworth, 1961, 1967; Ainsworth et al., 1978; Ainsworth & Bowlby, 1991; Bretherton & Main, 2000) completed field research in Uganda and the United States, and developed methodology and classification systems based on attachment theory. Modern attachment theory is based on these foundations established by Bowlby (1969, 1988) and Ainsworth (Ainsworth, 1961, 1967; Ainsworth et al.; Ainsworth & Bowlby).

Bowlby (1969, 1988) described attachment as the essential relationship that keeps the primary caregiver in close proximity to the infant and, conversely, the infant seeking the attention of the caregiver when he or she is feeling distressed. He stated, “The child’s attachment behavior is activated especially by pain, fatigue, and anything frightening, and also by the mother being or appearing to be inaccessible” (Bowlby, 1988, p. 3). Once the attachment system is activated, the infant seeks out the caregiver or signals the caregiver that comfort or protection is needed. Bowlby (1988) focused on the “function and

organization of emotional bonds” (p. 162) between parent and infant for the purpose of protection and comfort of the infant (George & Solomon, 1999; Main, 1999; Porges, 2003, 2007; Schore, 2003b). The regulating mechanism of secure attachment ensures the infant is comforted and returned to pre-stressed levels quickly so that important exploration and learning can occur (Porges, 2003, 2007). Attachment security that an infant develops with his or her primary attachment figure depends on the type of care that the infant receives and influences future childhood and adulthood interpersonal relationships (Hamilton, 2000; Lewis, Fiering, & Rosenthal, 2000; Main; Waters, Hamilton, & Weinfield, 2000; Weinfield, Whaley, & Egeland, 2004), and cognitive, social and emotional growth in childhood and adulthood (Belsky & Fearon, 2002; Porges; Schore).

As Bowlby’s student (Ainsworth, 1967, Ainsworth & Bowlby, 1991; Bretherton & Main, 2000), Ainsworth studied mother-infant dyads beginning in 1954 in Uganda and in 1961 in Baltimore. In her extensive field research, Ainsworth (1961, 1967, Ainsworth et al.) investigated how attachment develops, what factors facilitate or delay this development, and what the criteria were for determining whether attachment has formed—questions that are still being looked at today. She identified the concepts of secure and insecure infant attachment, and maternal sensitivity through observations of infant secure-base behaviors and maternal behaviors in home observations and in her Strange Situation Procedure (SSP) involving repeated separations and reunions between mother and infant (Ainsworth & Bell, 1970; Ainsworth et al.). The infant secure-base behaviors included proximity-seeking (e.g., crawling and walking towards, wanting to be held) and proximity-enhancing behaviors (e.g., crying, reaching out, snuggling) towards

caregivers. Caregiver behaviors associated with the infants' secure or insecure behaviors included indications of sensitivity and responsiveness to infants' signals.

Conducting research in Uganda, Ainsworth (1961, 1967) identified three patterns of attachment behavior in infants according to the strength and quality of the relationship to their mothers: secure, insecure and non-attached. She concluded that secure attachment required "much physical contact, much interaction between the infant and his mother, much social stimulation, prompt gratification of creature-comfort, lack of confinement, and freedom to explore the world" (Ainsworth, 1967, p. 330). Later, the category of non-attached was omitted and insecure attachment was separated into insecure-avoidant and insecure-resistant/ambivalent attachment. These classifications are still used today and known as Type B (secure), Type A (insecure-avoidant) and Type C (insecure-ambivalent/resistant) (Ainsworth et al., 1978; Main & Solomon, 1990). In addition to these attachment types, Main and Solomon described a fourth category of Type D (insecure-disorganized) attachment, which is associated with an infant's disorganization of adaptive strategies to seek comfort and security as a result of care by primary caregivers who portray frightened or frightening behaviors towards their infants due to the caregiver's experience of unresolved loss or trauma.

Attachment Theory Hypotheses

Four general hypotheses of attachment theory have been recognized in research (Rothbaum et al., 2000; van IJzendoorn & Sagi, 1999): the universality hypothesis, the infant secure-base behavior hypothesis, the maternal sensitivity hypothesis, and the future (developmental and social) competence hypothesis.

Universality versus cultural specificity. There are three basic assumptions regarding universality in attachment. First, it is assumed all infants form attachments (secure or insecure) to their primary caregivers, even in the presence of developmental delays (Benoit, Madigan, Lecce, Shea, & Goldberg, 2001; Rutgers, van IJzendoorn, Bakermans-Kranenburg, & Swinkels, 2007), autism (Rutgers et al.), neglect or abuse (Lyons-Ruth & Jacobvitz, 1999), or parental psychopathology (Bradley, 2000; Bowlby, 1988; Diego, Field, & Hernandez-Reif, 2005; Hossain, Field, Gonzales, Malphurs, & Del Valle, 1994; Schore, 2003a). Therefore, this hypothesis is generally accepted as proven.

The second assumption is that there are predictable or universal antecedents and consequences for secure parent-infant attachment (Crittenden, 2000; Rothbaum et al., 2000). This assumption relates to two other attachment hypotheses, maternal sensitivity and future competence, which are discussed later in detail. There is debate about what contexts are necessary antecedents for secure infant attachment to form (Crittenden; De Wolff & van IJzendoorn, 1997; Rothbaum et al.) and what constitutes competence in later development. Even though attachment research has identified environmental factors and future effects that correlate with secure and insecure attachment, there is no consensus on which factors are the most important and how they correlate with the distributions of attachment classifications in different cultures (Crittenden, 2000; De Wolff & van IJzendoorn; Rothbaum et al.).

The third assumption of the universality hypothesis is that there is a predictable 'global' or 'standard' distribution of secure and insecure attachments (Bakermans-Kranenburg et al., 2004; Main, 1999). This assumption is one of the most contested aspects of the cross-cultural attachment debate (Chao, 2001; Claussen & Crittenden,

2000; Crittenden, 2000; Gjerde, 2001; Harwood, Schoelmerich, & Schulze, 2000; Kondo-Ikemura, 2001; Posada & Jacobs, 2001; Rothbaum et al., 2000, 2001; Rothbaum, Kakinuma, Nagaoka, & Azuma, 2007; van IJzendoorn & Sagi, 1999, 2001). Bakermans-Kranenburg et al. defined the two camps in this debate: those that believe that there are no between-group differences in the development of attachment when influencing risk factors are considered (e.g., low-income, poverty effects, stressful environments), and those who believe differences between groups are related to risk factors and “adaptive responses to the demands of the cultural environment” (p. 419). Difficulty in defining culture and concerns regarding measurement bias are addressed below.

The assumed global or standard distribution of the four attachment classifications is based on Ainsworth et al.’s (1978) original SSP studies and attachment classifications, and is generally measured as 67% Type B (secure), 21% Type A (insecure-avoidant), and 12% Type C (insecure-resistant/ambivalent). When the disorganized category was added (Main & Solomon, 1990), the accepted rates became approximately 63% Type B (secure), 14% Type A (insecure-avoidant), 9% Type C (insecure-ambivalent/resistant) and 14% Type D (insecure-disorganized) (Main & Solomon, 1990; van IJzendoorn et al., 1999). Meta-analyses of attachment studies in several different countries, conducted by van IJzendoorn and colleagues (van IJzendoorn & Kroonenberg, 1988; van IJzendoorn et al.), reported global evidence for these patterns of attachment types when the samples were combined, though they indicate variations from these distributions among the samples. They also found that there were as many within- as between-country differences in the distributions of attachment types (van IJzendoorn & Kroonenberg). These results were believed to reflect the universal view that the attachment distribution rates in Euro-

Western (European and North American), middle-class families (a heterogeneous group) is the ideal to which other samples' distributions should be compared (Behrens, Hesse, & Main, 2007; van IJzendoorn & Sagi, 1999; Vaughn et al., 1991). The divergent findings in non-Western populations were attributed to unidentified methodological problems or risk factors that may have influenced the results. This justification, however, did not explain the samples in van IJzendoorn and Kroonenberg's 1988 study in which higher rates of secure attachment than averages of the Euro-Western were found in these combined studies. Risk and protective factors are believed to influence attachment distribution rates that differ from the Euro-Western rates, but these are poorly understood (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2005; Belsky, 2002; Main, 1999). In short, researchers have assumed a universal distribution of four types of behavior, but the evidence to support this assumption appears to be invalid.

Risk factors and protective factors influence the environment and care in which the infant is raised (Axe, 2007; National Institute of Child Health and Human Development [NICHD], 2006; Schore, 2003a, 2003b). Risk factors impede the development of secure attachment between infants and their primary caregivers. These risk factors can include innate factors of the infant (e.g. difficult temperament, regulatory problems, prematurity, low birth weight) (Porges, 2003; Schore 2001, 2003a, 2003b), but they mainly include environmental risk factors (e.g. family dysfunction, poverty, adolescent parent, poor quality of child care, undesirable neighbourhood location) and care-giving factors (maternal depression, poor maternal prenatal health, negative parental attitude, parental psychopathology and inconsistency of parenting) (Axe, Belsky & Fearon, 2002; Human Resources Development Canada, 1996; NICHD; Porges, 2003;

Schore, 2001). Belsky and Fearon (2002) also identified ethnic minority status as a risk factor for the development of insecure attachment due to the connection of poverty with minority status in the United States (NICHD), but Barrera and Corso (2003) cautioned that ethnicity is not something that should be targeted to be changed or improved, as with other risk factors.

Protective factors are those that increase the chance of an infant developing healthy social and emotional attachment with a primary caregiver and promote the development of resilience and coping strategies that help to ameliorate the effects of risk factors (Bradley, 2000; Karr-Morse & Wiley, 1997; Schore, 2003b). Protective factors related to attachment security have not been studied as much as risk factors, but they may include consistent and sensitive care-giving by at least one primary caregiver, opportunities for exploration and learning, and parental support (Greenspan, 2002; Waddell, McEwan, Shepherd, Afford, & Hua, 2005).

By way of summary, several researchers (Cains & Combs-Orme, 2005; Morelli & Tronick, 1991; Posada et al., 1995; Rothbaum et al., 2000, 2007) found that cultural values and goals as well as contextual differences influence attachment antecedents (i.e., maternal sensitivity) and consequences (i.e., future competence), and that the current methods to measure attachment are not appropriately representative in all cultures. More culturally sensitive methods of researching attachment in different cultures are needed to test the assumption that there are three (or four) patterns of attachment and the assumption that only Type B (secure) attachment is ideal. There may be situations in which the insecure attachment patterns are adaptive and considered acceptable in that culture (Crittenden, 2000; Takahashi, 1990; True et al., 2001).

Secure-base behavior hypothesis. A second hypothesis of attachment hypothesis is the secure-base hypothesis, which suggests that an infant is more likely to explore his or her environment when he or she feels “sufficiently protected and comforted by their mother’s presence” (Rothbaum et al., 2000, p. 1095). This protection and attention from the primary caregiver constitutes a “secure base” (Bowlby, 1988, p. 11) that provides a haven when stressed by environmental or internal threats to the infant’s survival. The function of an infant’s secure-base attachment behavior is to “protect the infant and optimize opportunities for learning about the environment and the value of close relationships” (Posada & Jacobs, 2001, p. 821). The concept of an attachment figure—the primary caregiver to whom the child signals and/or retreats to when stressed—is central to this hypothesis, as is the capacity of this figure to serve as a secure base (Bowlby; Rothbaum et al.). When the attachment figure is unable to provide a secure base, the infant develops strategies to deal with his or her elevated levels of stress that appear maladaptive to developing relationships.

The assumption is that secure-base behaviors exist in opposition to exploration behaviors and independence learned from exploration is the future goal of attachment (Ainsworth et al., 1978; Bowlby, 1988). Independent or autonomous societies, including the Euro-Western ethnic culture, focus on the benefits of infant exploration in attachment, which promotes the development of self-sufficiency, self-expression and choice (Ontai et al., n.d.; Raeff, 2006; Rothbaum et al., 2007; Valentin, 2005; Weisner, 2005; Yeo, 2003). However, some cultures that promote social harmony among members do not promote exploration and independence in their infants in the way that is hypothesized in attachment theory (Cajete, 2000; Mizuta et al., 1996; Ontai et al.; Posada, Jacobs,

Richmond, Carbonell, Alzate, Bustamante et al., 2002; Raeff; Rothbaum et al.; Vaughn, Coppola, Verissimo, Monteiro, Santos, Posada et al., 2007; Weisner; Yeo). Rather, infants in these cultures may be classified as insecurely attached since caregivers may encourage exploration at different intensities and timeframes than is expected in attachment theory (Jackson, 1986, 1993; Rothbaum et al.; Takahashi, Ohara, Antonucci, & Akiyama, 2002; Yeo). The question is whether care-giving that limits or controls exploration is normative, adaptive and secure in collectivist cultures, which include Japanese (Takahashi, 1990; Takahashi et al.), other Asian (Zevalkink et al., 1999), Central American (Carlson & Harwood, 2003) and aboriginal (Cajete; Yeo) cultures.

A second assumption with the secure-base hypothesis is that the Type B (secure) attachment classification is the most adaptive and that it is connected with the most optimal care-giving practices, and the insecure attachment types are maladaptive in all contexts (van IJzendoorn & Kroonenberg, 1988; van IJzendoorn et al., 2004). Morelli and Tronick (1991) suggested that attachment strategies are flexible depending on the individual's needs, environmental conditions and cultural milieu. They proposed that, "there is no best prototypical caretaking strategy or pattern of development, although there are certainly underlying universal constraints" (Morelli & Tronick, p. 42). Ainsworth et al. (1978) also stated that "implicit in ethological attachment theory is that differences in early social experience will lead to differences in the development and organization of attachment behavior and hence in the nature of attachment relationships themselves" (p. 95). However, there is no consensus on how attachment patterns differ according to cultural context.

Maternal sensitivity hypothesis. Attachment theory emphasizes the importance of sensitive and responsive care-giving or maternal behaviors in the development of secure attachment (Ainsworth, 1967; Ainsworth et al., 1978; Bowlby, 1969, 1988; Stayton et al., 1973; Main, 1999). Sensitive care-giving occurs when an infant's signals are perceived and interpreted and the primary caregiver responds appropriately (Ainsworth; Bowlby, 1988; Claussen & Crittenden, 2000; Mills-Koonce et al., 2007). A caregiver's inability to respond sensitively is associated with insecure attachment and, ultimately, poor health and developmental outcomes (Axe, 2007; Claussen & Crittenden, 2000; De Wolff & van IJzendoorn, 1997; Lewis, 2000; NICHD, 2006).

Many researchers (e.g., Bakermans-Kranenburg et al., 2004; Bowlby, 1969, 1988; Gjerde, 2001) have suggested that the maternal sensitivity behaviors identified by Ainsworth et al. (1978) are universal. However, Rothbaum et al. (2000) questioned whether maternal sensitivity is universal and pointed to "fundamental cultural differences in parental sensitivity" (p. 1094) in cross-cultural attachment studies (Miyake, Chen, & Campos, 1985; Mizuta et al., 1996; Takahashi, 1986). As well, only moderate correlations between infant attachment security and maternal sensitivity have been found in meta-analytical studies conducted by De Wolff and van IJzendoorn (1997) and van IJzendoorn and Sagi (1999) who suggested that many care-giving behaviors resulting in insecure attachment may actually be based on culturally appropriate parental goals.

Maternal sensitivity is usually defined by Ainsworth's (as cited in Waters, n.d.) Maternal Sensitivity Scales (AMSS). The AMSS identifies specific classifications of caregiver behaviors associated with each of the infant attachment classifications, including responsiveness to infant signals, physical care-giving after infant secure-base

behaviors are exhibited, and degree of comfort with physical contact with the infant (Ainsworth et al., 1978; Waters, n.d.). However, Rothbaum et al. (2000) and others (Carlson & Harwood, 2003; Jackson, 1993; Mizuta et al., 1996; Nakagawa, Lamb, & Miyake, 1992; Valenzuela, 1997) asserted that these behavioral patterns are based on the values of Euro-Western societal behavioral norms, which reflect the values of autonomy and independence. Rothbaum et al. stated that, “what constitutes sensitive, responsive care-giving is likely to reflect indigenous values and goals, which are apt to differ from one society to the next” (p. 1096). There is also surprisingly little evidence that maternal sensitivity is a major antecedent or predictor of attachment security as it is defined by the AMSS or related scales (Claussen & Crittenden, 2000; De Wolff & van IJzendoorn, 1997). Therefore, accepted measures of maternal sensitivity may not accurately represent the care-giving antecedents to attachment that occur in all situations or cultures (Atkinson et al., 2005; Beckwith, Cohen, & Hamilton, 1999; Morelli & Tronick, 1991). These behaviors may be better understood by understanding the goals and beliefs behind the care-giving behaviors related to future competence.

Future competence hypothesis. The last of the four main attachment hypotheses, the future competence hypothesis, suggests that developmental and social competence in childhood and adulthood is directly related to an infant’s attachment security that develops within the first years of life – that competence is a consequence of attachment (Bradley, 2000; Morelli & Tronick, 1991; Rothbaum et al., 2000). Securely attached children are assumed to be more “autonomous, more likely to persist in problem solving, have higher self-esteem and ego resilience, and engage in more versatile and positive exploration than do their insecure counterparts” (Rothbaum et al., p. 1097) and they are

expected to explore more and express themselves “candidly, directly and spontaneously” (Rothbaum et al., p. 12). Conversely, insecurely attached children are expected to be less competent in cognitive and social development due to their anxious attachment with their primary attachment figure (Bowlby, 1988; Crittenden, 2000; Rothbaum et al.). Since secure attachment is usually accepted as being related to competent development in childhood and adulthood unless influenced by adverse life events (Waters, Hamilton, et al., 2000; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000; Weinfield et al., 2004), some (e.g., Rothbaum et al., Morelli & Tronick) question whether insecure attachment results in incompetent or unsuccessful children and adults in all cultures.

There are three implicit assumptions in this hypothesis related to self-expression and adult competence. First, securely attached infants are assumed to be both emotionally expressive and socially communicative (Bowlby, 1988; Rothbaum et al., 2000). However, Bowlby’s assertion that emotional self-expression is related to competence does not take into account cultures that do not promote independent or individual expression in their infants, children or adults (Rothbaum et al.). For example, parents in the Japanese (Behrens, 2004; Yamaguchi, 2004) or Aboriginal (Cajete, 2000; Restoule, 1997; Yeo, 2003) ethnic cultures may actively encourage infants and children to conceal their emotions in order to keep in harmony with those around them (Barrera & Corso, 2003; Behrens; Berg, 2003; Bloom & Masataka, 1996; Bornstein & Cote, 2001; Bornstein, Cote, & Venuti, 2001; Carlson & Harwood, 2003).

Second, the association between attachment and sociability, including open communication (e.g., greeting, eye contact, face-to-face interactions) with familiar and unfamiliar people, may not be appropriate in some cultures where, for example, eye

contact with elders is a sign of disrespect, as in Aboriginal (Cajete, 2000; Yeo, 2003) and African (True et al., 2001) societies.

Third, secure attachment in infancy is related to competence in adulthood, but there are conflicting opinions about how closely these two factors are related. Waters, Merrick, et al. (2000) and Weinfield et al. (2004) compared attachment styles beginning in infancy and then several years later in early adulthood in an effort to determine the continuity of attachment styles over time. Waters et al. (2000) found that attachment styles remain relatively constant except for changes in security related to the effects of “negative life events” (p. 685). In contrast, Weinfield et al. found that attachment style in adulthood may or may not be related to the style at infancy because of the interplay of other personal and environmental factors. Insecure attachment at infancy may act as a risk or vulnerability factor in later development (Axe, 2007, Belsky & Fearon, 2002; NICHD, 2006), but it is not yet clear how attachment is related to future competence.

One specific area of parental beliefs that is very important to attachment theory is how societies negotiate the conflicting needs of the individual versus the group (Harwood, 2006; Harwood, Handwerker, Schoelmerich, & Leyendecker, 2001). It is seen as the conflict between individualism (i.e., egocentrism, independence) and collectivism (i.e., sociocentrism, interdependence) (Cajete, 2000; Carlson & Harwood, 2003; Harwood et al.; Takahashi et al., 2002) and was previously mentioned in the section on infant secure-base behavior. It is universal to all societies that an individual lives in relation to other members of the group (Harwood; Raeff, 2006; Weisner, 2005), but how the society views the responsibilities and future competence of the individual determines which societal belief is more important.

Attachment theory is often criticized for being a theory of independence (Crittenden, 2000; Harwood, 2006; Rothbaum et al., 2000). It emphasizes exploration (in opposition to proximity-seeking), self-reliance and the future goal of separation and autonomy, whereas caregivers in collectivist societies may have different parenting goals. The primary goals behind parenting behaviors are safety, health and survival (Crittenden). Understanding the cultural meanings of these primary goals and how they relate to social competence and acceptance in society will help to understand the parenting practices that relate to individualist and collectivist societies.

Cross-cultural Attachment Research

In 1969, Bowlby pointed out that there were few cultural studies available on parenting. Ainsworth's Ugandan and Baltimore studies (as cited in Ainsworth, 1961, 1967; Ainsworth et al., 1978; Stayton et al., 1973) were among the first to document the cross-cultural "speed, frequency, and form of social responses a mother tends to show her baby" (Ainsworth et al., p. 315). Attachment research was not only some of the first parent-infant research, but also among the first cross-cultural research in psychology (Bowlby, 1969; Fitzgerald, 2006). This section will explain some of the methods and paradigms that are used in cross-cultural attachment research, as well as the problems that are encountered when trying to adapt methods to diverse societies.

Attachment Assessments

Assessment in attachment research with caregivers and infants usually involves one of two methods: the Strange Situation Procedure (SSP) (Ainsworth & Bell, 1970; Ainsworth et al., 1978; Stayton et al., 1973) or the Attachment Q-sort (AQS) (Vaughn & Waters, 1990; Waters & Deane, 1985). These methods seek to investigate the quality of

the attachment relationship between the primary caregiver and infant (Fitzgerald, 2006). These attachment assessments are designed to (a) measure attachment with a balance between quantitative and qualitative information; (b) refer to specific behaviors that are operationally defined; (c) take the context of the behavior into account; (d) include and evaluate information from the affective, cognitive and behavioral domains; (e) measure adaptiveness as well as behavior change, and (f) discriminate between attachment and non-attachment behaviors (Fitzgerald; Waters & Deane). However, a major disadvantage of these assessments is that they may not adequately assess attachment in diverse cultural contexts. Some of these assumptions and criticisms of attachment assessments are presented in the following sections.

The Strange Situation Procedure. Ainsworth developed the Strange Situation Procedure (SSP) (Ainsworth et al., 1978; Ainsworth & Bell, 1970; Stayton et al., 1973) and corresponding attachment classifications from her work with American dyads. In this procedure, the caregiver and infant are observed through a series of separations and reunions in a laboratory setting (with a laboratory assistant ‘stranger’ entering and being left alone with the infant during some of the episodes). The mother, who leaves and returns twice, is instructed to comfort her infant as needed during the procedure. Both infant secure-base and maternal sensitivity behaviors are observed during the parent-infant reunion episodes to examine patterns that indicate infant attachment type and level of maternal sensitivity. In her explanation of the influences of care-giving, Ainsworth (1977) cautioned that “different infant-care practices and patterns of maternal behavior have a differential effect in shaping the nature of the infant-mother relationship” (p. 64) and she suggested the focus should be on the infant-caregiver interaction behaviors in

home settings and not classifications of attachment types, per se (Bretherton & Main, 2000). Nonetheless, this procedure has been used in many cross-cultural attachment research studies, resulting in several criticisms of its use in non-Western contexts.

The SSP is based on three assumptions: (a) the separation of the primary caregiver from the child is stressful for the child and this stress “reduces play and exploration and increases the child’s search for relief” (Grossman, Grossman, Huber, & Wartner, 1981, p. 163); (b) the child’s stress evokes secure-base behaviors (e.g., proximity, eye contact, bodily contact) which can be relieved after reunion with the attachment figure and; (c) insecurity and stress continue to occur if the attachment figure does not accept, notice and/or respond to the attachment behaviors of the infant (Ainsworth et al., 1978).

The criticisms of the use of the SSP in attachment research are many. First, it was designed for use in a small age range (12 to 18 months) for children, and repeated assessments need to be spaced to prevent carryover effects (Ainsworth et al., 1978; Waters & Deane, 1985). Second, the laboratory procedure does not provide information about developmental stages or the attachment control system (i.e., the interplay between exploration and proximity-seeking) or the dyadic aspect of attachment (Nakagawa, Lamb, et al., 1992). Third, procedurally, it is expensive to administer and score, scoring is difficult to learn and instruction needs to be taught by experienced scorers (Posada et al., 1995; Waters & Deane). Fourth, the scoring system itself is a taxonomic system that does not have a quantitative or scale measure (Ainsworth et al.). It also requires large samples to get enough subjects into each category in the prescribed distributions (Vaughn & Waters, 1990). Lastly, in cross-cultural research the SSP classifications may not be

validated on non-Western and diverse populations (Grossman et al., 1981; Jackson, 1986; Jackson, 1993; Morelli & Tronick, 1991; Posada et al., 2004; Rothbaum et al., 2000, 2007) and the laboratory methodology may not be appropriate for all cultures (Takahashi, 1986; Kermoian & Leiderman, 1986; Vaughn & Waters). In fact, in early years, Ainsworth (1977) cautioned against the use of non-validated measures, including the SSP, and recommended more cross-cultural attachment research to show the influence of attachment on future relationships and how social behavior develops within one society in comparison to other societies.

Ainsworth et al. (1978) later allowed for some variations in the presentations of the SSP reunion and separations episodes to accommodate individual parent-infant pairs from diverse cultures that find the stress induction too high to adequately assess the interplay of attachment and exploratory behavior. However, alterations of the SSP may affect its reliability in cross-cultural comparisons (Jackson, 1993; Takahashi, 1986; van IJzendoorn & Kroonenberg, 1988). Difficulty in applying this procedure to diverse populations and contexts was one of the reasons why Waters and Deane (1985) developed their own attachment assessment tool, the AQS.

The Attachment Q-sort. The Attachment Q-sort (AQS) is a q-sort methodology used to gain a quantitative measure of infant attachment security (Waters & Deane, 1986; Vaughn & Waters, 1990). The AQS requires a trained researcher and/or study participant to sort 75, 90 or 100 cards describing both secure and insecure behaviors into characteristics that are most and least like the identified (or an ideal) child (Vaughn & Waters). The characterizations are then compared to the characterization of the ideally attached infant or child to reach a quantitative measure of attachment security—the

criterion security score (i.e., the higher the numerical comparison to the ideal of 1.0, the more secure the child or population). For a population study, the criterion scores for all participants are averaged resulting in mean criterion score for that sample, which would include scores of securely and insecurely attached infants. The assumption is that lower mean criterion security score indicate fewer securely attached infants. The attachment characteristics can be categorized into clusters relating to attachment/exploration, differential responsiveness to parents, affectivity, social interaction, object manipulation, independence/dependency, social perceptiveness, and endurance/resiliency and can also be used to classify infants and young children into secure, anxious, avoidant and resistant attachment types related to attachment characteristics (Vaughn & Waters).

Van IJzendoorn et al. (2004) found that the observer-rated AQS was more reliable than the caregiver-rated AQS. They also emphasize that among individual children or single groups “there is no natural cutoff point dividing secure from insecure children” (p. 1189). The mean criterion security score of 0.32 was established for middle-class, Euro-Western groups by Vaughn and Waters (1990) and validated by van IJzendoorn et al. (2004). This score is used as the accepted normative comparison for other studies (Cassibba, Coppola, & Bruno, 2003; Pierrehumbert, Muhlemann, Antonietti, & Sieye, 1995; Rutgers et al., 2007; Vaughn et al., 2007; Vaughn & Waters; Vereijken, Hanta, & Van Lieshout, 1997) and it is desirable for research in which quantitative analysis of the relative strength of attachment in individuals or groups is important (Vaughn et al., 1991; Vaughn & Waters, 1990). The assumption is that samples with scores lower than 0.32 contain fewer infants with secure attachment as compared with the Euro-western middle-class normative population and higher scores indicate more infants with secure

attachment in the sample, suggesting better conditions for secure attachment in that population.

The advantages of the AQS over the SSP are that the AQS can be used for a broader age range, the attachment constructs are well-defined, the individual characteristics of the AQS descriptions can be compared, it is based on naturalistic observations by either the caregivers or trained observers, it does not require a laboratory, and it can be used in cultures in which separation between dyads is uncommon (Bakermans-Kranenburg et al., 2004; Vaughn & Waters, 1990).

Waters and Vaughn (1990) pointed to the limitations of the AQS methodology: (a) the SSP and AQS scores of secure and insecure classifications do not overlap consistently, (b) the AQS does not replicate intensive and longitudinal observations of parents and infants, (c) and neither system adequately describes all of the behaviors that occur in the parent-infant attachment interactions. In addition, the comparison of the mean criterion security scores does not give much information about the characterization of attachment in a sample or between samples (van IJzendoorn et al., 2004). Finally, that the AQS is based on descriptions of Euro-Western infants and covers the same behavioral content as Ainsworth et al.'s (1978) SSP makes some researchers question whether the attachment descriptions fit infants from non-Western populations (Easterbrooks & Graham, 1999; Posada et al., 1995; Sagi et al., 1995).

In summary, while both of these attachment assessments may be reliable for the populations for which they were designed and validated (van IJzendoorn et al., 1999, 2004; van IJzendoorn & Kroonenberg, 1988), they have significant limitations for use in

non-Western populations (Nakagawa, Teti, & Lamb, 1992; Posada et al., 2002, 2004; Rothbaum et al., 2000, 2004).

Defining Culture

Any cross-cultural research must grapple with a modern notion of “culture.” The terms race, culture and ethnicity are often used interchangeably, but they are separate concepts defined and influenced by political, historical and socio-economic factors of that society (Arthur & Collins, 2005; Carlson & Harwood, 2003; Pedersen, 1995). Culture can be very difficult to define and describe, especially determining what parameters are used to include and exclude members (Carlson & Harwood). For example, it is common practice in psychological and anthropological research to regard the North American Caucasian population as one distinct culture even though it is a heterogeneous group. Additionally, Euro-Western (e.g., Caucasian European or American), middle-class families are often considered the norm in comparison with other families (Barrera, 2003; Cains & Combs-Orme, 2005; Crittenden, 2000; Rameka, 2003). People in non-Western cultures that resemble this norm are often considered better than their in-group comparisons and those that are not comparable may be blamed for their differences without regard for cultural values that may explain these differences.

While Euro-Western researchers, which make up the majority of attachment researchers (Tomlinson & Swartz, 2003), may not intend to be biased against non-Western groups in attempting to understand diverse cultures, biases can occur in research. A power differential may occur in which researchers, with different levels of socio-economic status, industrial development and even religious or political affiliation from the participants they are studying, assume a position of privilege and paternalism over

their study group (Pedersen, 1995; Rameka, 2003). Unless researchers understand their own Euro-Western culture and how it influences their behavior and worldviews, they risk prejudice in their work (Barrera & Corso, 2003; Collins & Arthur, 2005; Pedersen).

The present author of this final project suggests that cross-cultural attachment studies require an understanding of and sensitivity to choosing a definition of the culture and identifying attributes important for attachment – something lacking from most of the previous attachment studies and especially the meta-studies. Researchers need to be alert for their own biases, especially when attempting to define universal behaviors. Such research should involve anthropologists who specialize in supporting this type of research to reduce biases.

Relevant Paradigms for Attachment Research

Attachment research is based on either an etic, positivist paradigm (Crittenden, 2000; Ponterotto, 2005; van IJzendoorn & Sagi, 1999; Yeo, 2003) or an emic and constructivist paradigm (Carlson & Harwood, 2003; Harwood, 2006; Jackson, 1993; Posada et al., 2002) when investigating diverse cultures.

The etic paradigm is evident when researchers apply theories or methods, often based on the values and beliefs of their own culture, to other cultural groups in search for “universal laws and behaviors that transcend nations and cultures and apply to all humans” (Ponterotto, 2005, p. 128). For example, in much of cross-cultural attachment research, quantifiable variations in accepted distributions of attachment classifications are seen as “deviating” (van IJzendoorn & Sagi, 1999, p. 714) from the assumed norm even though these deviations may contain valuable information related to how attachment is viewed and operates in the non-Western context.

With an etic research approach, standardized procedures are used which allows for the comparison of controlled variables to observe correlations and trends between constructs, such as attachment security and maternal sensitivity (Fitzgerald, 2006; Miyake et al., 1985; Takahashi, 1990). Some of the common difficulties with etic methodology are the assumption of a normative Euro-Western perspective (Arthur & Collins, 2005; Garcia Coll & Meyer, 1993) and the use of methodologies validated on only one population, as in the case of both the SSP and AQS attachment tools.

The etic paradigm in attachment research also maintains the positivist view about development and diversity in which childhood development progresses in linear predetermined stages from deficiency to mastery in a normal universal progression, and progresses toward independence and competence (Rameka, 2003). This view is based on a power differential where children are needy and parents provide the necessary environmental conditions for growth (Ainsworth, 1967; Bowlby, 1969, 1988; Rameka). Another viewpoint, put forth by some non-Western societies, see infants as immediately “immensely powerful, rich and complete” (Rameka, p. 4) with much to teach parents and society (Cajete, 2000; Yeo, 2003). Fitzgerald (2006) identified in etic research that there is a “tendency to under-represent diversity...in planned comparisons across cultural groups” (p. 614) and to try to fit diverse data into a universal framework rather than develop a framework that fits all of the data.

In contrast, an emic research paradigm focuses on the “conceptions and classifications of pertinent phenomena from the point of view of members of the culture” (Jackson, 1993, p. 87). Emic research focuses its attention on the context of values and orientations of the sample that influence observed behaviors. Qualitative analyses, often

part of an emic approach, describe and interpret participants' experiences, contexts, language, and psychology (Ponterotto, 2005) "to contribute to a process of revision and enrichment of understanding" (Elliott, Fischer, & Rennie, 1999, p. 216) rather than proving or disproving a hypothesis.

In general, the universality hypothesis of attachment theory follows the etic, positivist viewpoint that purports "the secure attachment pattern is the primary strategy for adapting to a social environment that is basically supportive of the infant, and ... insecure strategies should be considered as secondary, in that they constitute deviating but adaptive patterns provoked by less supportive contexts" (van IJzendoorn & Sagi, 1999, p. 714). Indeed, several attachment researchers pointed to Ainsworth's (1967) preliminary attachment study in Uganda as proof of its potential universality application across cultures (Posada et al., 2002; van IJzendoorn & Sagi) even though Ainsworth (1967) herself cautioned against this type of hasty assumption based on few studies. She stated, "In the present state of our knowledge, it is wiser to explore qualitative differences, and their correlates and antecedents, than to attempt premature quantifications of strength of attachment" (Ainsworth, 1970, p. 65). Unfortunately, many attachment researchers looking at diverse contexts have not heeded her warning and the research done in the past few decades has been mainly based on quantitative differences (van IJzendoorn et al., 1999, 2004; van IJzendoorn & Kroonenberg, 1988). As shown in the following chapter, this etic approach has led to a broad application of western values and goals to diverse cultures with studies claiming a universality of behavior that shields several important lessons for researchers and practitioners. Fortunately, there appears to be a paradigm shift underway, as more researchers are recognizing the limitations of

earlier studies and are consciously moving to a more emic and culturally sensitive approach.

Chapter III: Procedures

In the present literature review, 20 research studies published over the past 20 years on attachment and culture were identified using several search methods and criteria for selection. These studies were analyzed to identify whether there is evidence to support the accepted hypotheses of attachment theory when applied to diverse cultural populations. This chapter describes the process by which the studies were identified and analyzed.

From August 2007 to March 2008, online abstract search engines accessed through the University of Calgary and University of Lethbridge libraries were examined to find relevant research studies between 1988 and 2008 for this literature review. This time period was chosen to coincide with the publication of the influential book, *A Secure Base: Parent-child Attachment and Healthy Human Development* by Bowlby in 1988.

The following online search engines were used to locate studies: Psychology and Behavioral Sciences Collection, PsycINFO and Child Development & Adolescent Studies. The terms searched for included, “attachment” and “culture,” and one or more of the terms “infant,” “parenting,” “infant mental health,” and/or “sensitivity.” As well, other relevant studies were identified within the reference lists of found studies. Therefore, even though great care was taken to find all of the studies on attachment and culture in infancy, there may be other studies that were not found using the search engines or reference list reviews.

Further criteria for including a cross-cultural attachment study in this review was that the study had to (a) measure attachment security rates for a specific cultural group in comparison to Euro-Western attachment security rates (i.e., accepted norms), (b) refer to

sensitivity and/or secure base behaviors in relation to cultural values and beliefs, (c) use either the Strange Situation Procedure (SSP) (Ainsworth & Bell, 1970, Ainsworth et al., 1978; Stayton et al., 1973), Attachment Q-sort (AQS) (Vaughn & Waters, 1990; Waters & Deane, 1985) or a modified method of either of these to maintain the continuity of assessment methodology and comparison, and (d) be an “ex post facto design” (Leedy & Ormond, 2005, p. 108) of existing conditions and their effects, and not an intervention study to show how an attachment intervention with the parent and/or child changed the attachment security rating of the child.

Only peer-reviewed studies were chosen for this project because of the scrutiny used for journal publication that ensures a certain level of acceptability and accessibility. No dissertations, unpublished manuscripts, book chapters or conference proceedings were included in the 20 reviewed studies of project. Attachment studies that were not translated into English were also not used. Meta-studies and commentaries were not included in the reviewed studies in this project, but were used as supplemental information about the issues being discussed. Follow-up studies using the same sample group were indicated as such. For example, Valenzuela (1990, 1997) used the same sample in two studies; therefore the second study was selected for review, since it addressed more of the criteria. In addition, Nakagawa, Lamb, et al. (1992) used the same sample as Takahashi (1990) so was not included in this project, but referred to when necessary. In addition, studies that only assessed the attachment security of non-parental caregivers were not included. These excluded studies and articles, however, were still used as background information to corroborate information in the literature review. This

final project was a literature review only and as such did not include any human subjects: hence, an ethics review was not necessary.

Once the 20 studies were identified, they were analyzed according to sample groups studied, methodologies, and themes in the results. The sample groups were examined for cultural specificity (i.e., socio-economic status or ethnicity relating to place of origin and/or immigrant acculturation), and information on how maternal and infant behaviors compared to Euro-Western observations. The results were thematically organized into information related to the four attachment hypotheses and cross-cultural theories.

This review is more thematic than statistical, since the studies in this project do not all use the same methodology or look at the same phenomenon and many use measures and analyses that were modified for the specific study or ethnic population which makes comparisons difficult (Broussard, 1998; Jackson, 1993; Mizuta et al., 1996; True et al., 2001). The resulting information about infant and maternal behaviors in cross-cultural contexts was summarized.

Chapter IV: Literature Review of 20 Attachment Studies

This chapter contains a detailed review of the themes and outcomes from the 20 cross-cultural attachment studies (see Appendix A). This review is focused on the following questions:

1. What cultures are represented in attachment research and how are they defined?
2. How do distributions of attachment classifications compare to Euro-Western rates?
3. Are descriptions of infant and care-giving behaviors related to secure and insecure attachment patterns similar across diverse cultures?

In each of these 20 studies, the researchers investigated one or more of the attachment hypotheses using either the SSP (Ainsworth & Bell, 1970, Ainsworth et al., 1978; Stayton et al., 1973) or the AQS (Vaughn & Waters, 1990; Waters & Deane, 1985) assessment procedures. While these studies do not provide a global representation, they included 2882 participants in 18 countries and define the state of practice regarding how culture is represented in attachment research, how attachment methods are used in diverse populations, and how the results are related to the four hypotheses of attachment theory.

Group Characteristics Comparisons

The main distinguishing factors of the sample groups are country-of-origin and socio-economic status. Differences in attachment distribution rates from the accepted normative rates are found among the studies related to these two cultural characteristics.

Country-of-origin Status

The cultures identified in this project (see Appendix B) are identified mainly by country-of-origin, but also by immigrant status (Fracasso, Busch-Rossnagel, & Fisher, 1994; Leyendecker, Lamb, Fracasso, Schoelmerich, & Larson, 1997; Takahashi, 1990). Within these groups there may be different ethnic, religious or other cultural groups represented, but these factors were not usually identified, except in the cases of the Dogon-Malian (True et al., 2001) and Sundanese-Indonesian (Zevalkink et al., 1999) samples.

Generally, the samples represent large ethnic groups (see Appendix B) including: the Euro-Western middle-class (see Table B1: Bakermans-Kranenburg et al., 2004; Carlson & Harwood, 2003; Leyendecker et al., 1997; Posada et al., 1995, 2002; Vaughn et al., 1991, 2007), African-American (see Table B2: Bakermans-Kranenburg et al.; Broussard, 1998; Easterbrooks & Graham, 1999; Jackson, 1993; Vaughn et al., 2007), Latino-American (see Table B3: Carlson & Harwood; Fracasso et al., 1994), immigrants to the United States (see Table B4: Leyendecker et al.; Nakagawa, Teti, et al., 1992), Latino (see Table B5: Carlson & Harwood; Fracasso et al.; Leyendecker et al.; Posada et al., 1995, 2002; Posada, Carbonell, Alzate, & Plata, 2004; Valenzuela, 1997; Vaughn et al., 2007), Asian (see Table B6: Nakagawa, Teti, et al., 1992; Posada et al., 1995; Takahashi, 1990; Vereijken et al., 1997; Zevalkink et al., 1999) and African groups (see Table B7: Minde, Minde, & Vogel, 2006; Tomlinson, Cooper, & Murray, 2005; True et al., 2001). Each of these groups represents broad populations, but each group may also represent many smaller ethnic cultures as well. Conclusions on attachment security ratings for the country-of-origin groups are limited in determining how each of these

groups compares to the Euro-Western norm due to the small sizes of the samples and small number of studies in each grouping (see Appendix B). More information about general values and belief systems identified in this review is discussed in the following sections of this chapter on attachment hypotheses.

Socio-economic Status

Lower socio-economic status (SES) has been associated with a higher rate of insecure attachment due to the presence of risk factors associated with poverty that negatively influence the parent-infant relationship (Belsky & Fearon, 2002; van IJzendoorn & Kroonenberg, 1988; van IJzendoorn & Sagi, 1999; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). In most studies, it was identified that samples were from either middle-class/middle-income or low-income households, defined by several methods including: (a) identifying the relative income levels of samples within a study, (b) selecting group members that fit the desired income level using population statistics and/or (c) using a measurement of SES, such as the average income to needs ratio (Belsky & Fearon). With these different methods, it is difficult to determine if the middle-income and low-income groups are comparable between samples. However, the main focus of this section is the assumption that low-income is associated with more risk factors and, presumably, more attachment insecurity. Table C1 in Appendix C shows the attachment rates of the 20 middle-income and 12 low-income samples in the 20 studies of this project with the two types of attachment classifications represented.

While differences in methodology, modifications of the assessments and small sample sizes limit the generalizability from the conclusions about distributions of

attachment security and risk factors associated with SES, there appear to be patterns that show differences between the expected distributions of secure and insecure attachment and the distributions seen in these studies.

Secure attachment among middle- and low-income groups. Of the 32 samples (both middle- and low-income) reviewed in this project, 19 (Leyendecker et al., 1997; Minde et al., 2006; Nakagawa et al., 1992; Posada et al., 1995, 2002, 2004; Takahashi, 1990; Tomlinson et al., 2005; True et al., 2001; Vaughn, et al., 1991, 2007) identified secure attachment rates at or above the accepted normative distribution and/or security criterion scores (see Table C2 in Appendix C). Five other samples (Bakermans-Kranenburg et al., 2004; Carlson & Harwood, 2003; Zevalkink et al., 1999) identified rates of attachment security slightly below the accepted normative rates.

Second, while the rates of secure attachment would appear to be lower for low-income samples and higher for the middle-income samples (and the accepted normative rates), the overlap between the groups is large. In other words, some middle-income samples have low rates of secure attachment (Bakermans-Kranenburg et al., 2004; Carlson & Harwood, 2003) and some low-income samples identified high rates (Minde et al., 2006; Tomlinson et al., 2005; True et al., 2001). Use of statistical methods to compare the samples is precluded due to modifications of methodology and scoring within the studies.

Third, except for slightly lower rates in mixed-income samples (Bakermans-Kranenburg et al., 2004; Carlson & Harwood, 2003), the middle-income, Euro-American samples (Leyendecker et al., 1997; Posada et al., 1995, 2002; Vaughn et al., 1991, 2007) (see Table B1 in Appendix B), conformed to the accepted normative rates for secure

attachment which are validated on this population (see Table C2 in Appendix C). These results provide additional evidence for the validation of these attachment assessments for the Euro-Western population.

Fourth, only one research sample identified attachment security rates significantly below 50% of the sample. The African-American infants of adolescent mothers (Broussard, 1998) were only 11% Type B (secure). Other researchers (e.g., Axe, 2007; Belsky & Fearon, 2002; van IJzendoorn et al., 1999, 2004) suggested that, in order for a culture to survive, the attachment rates need to be above 50%, but the implications of this theory have not been tested. However, the results of the studies in this project support the assumption of the universality hypothesis that secure attachment is the most prevalent of attachment types.

Fifth, for studies using the AQS assessment method, two samples representing a range of socio-economic levels had mean security criterion scores of 0.30 (Bakermans-Kranenburg et al., 2004; Posada et al., 1995), or slightly lower than the accepted normative rate of 0.32 (see Table C2 in Appendix C). All of the other middle-class samples had scores above 0.32, and all except one of the low-income samples (Minde et al., 2006) was below this score.

Finally, although the rates of secure attachment are similar in most cases to the accepted Euro-Western rates, there is not enough data to confirm that attachment security is consistently high in middle-income contexts or consistently low in low-income contexts. There may be other factors unrelated to income level that affect attachment rates—including cultural variations—but there is no specific evidence for such findings.

Using middle-class samples as the normative standard allows for comparisons to be drawn between groups, but problems occur with the assumption that the middle-class of one group is similar in characteristics with the middle-class of another group. Vaughn et al. (2007) suggested that middle-class participants are selected as “convenience samples” (p. 67) since they are often more accessible to researchers in public venues (e.g., public health facilities, doctor’s offices, community programs) than upper or lower class participants (Tomlinson et al., 2005) and may be more amenable to research since they are more cooperative and are, presumably, under less stress than low-income families.

In lesser developed countries, families may be regarded as middle-income, but are affected by lower standards of living than the Euro-Western norm, which influence their ability to care for their children due to the risk factors and stress caused by living conditions (Belsky & Fearon, 2002; Scheper-Hughes, 1985). Therefore, studies that compare groups based on their middle-class standings may not appreciate the variables that differ between the samples, resulting in flawed studies.

Insecure attachment among middle-income groups. While there is some evidence that suggests rates of secure attachment in middle-income samples are similar to those found in original and validation studies (Table 3), there is less evidence that the rates of the various types of insecure attachment are similar in diverse cultures to the accepted normative rates. Figure 1 shows the three middle-income samples (Carlson & Harwood, 2003; Leyendecker et al., 1997) assessed using the ABCD method (Main & Solomon, 1990) and the one using the ABC method (Ainsworth et al., 1978; Takahashi, 1990).

(Note: In all of the following figures, the hatched bars indicate accepted normative rates from the original or validation studies).

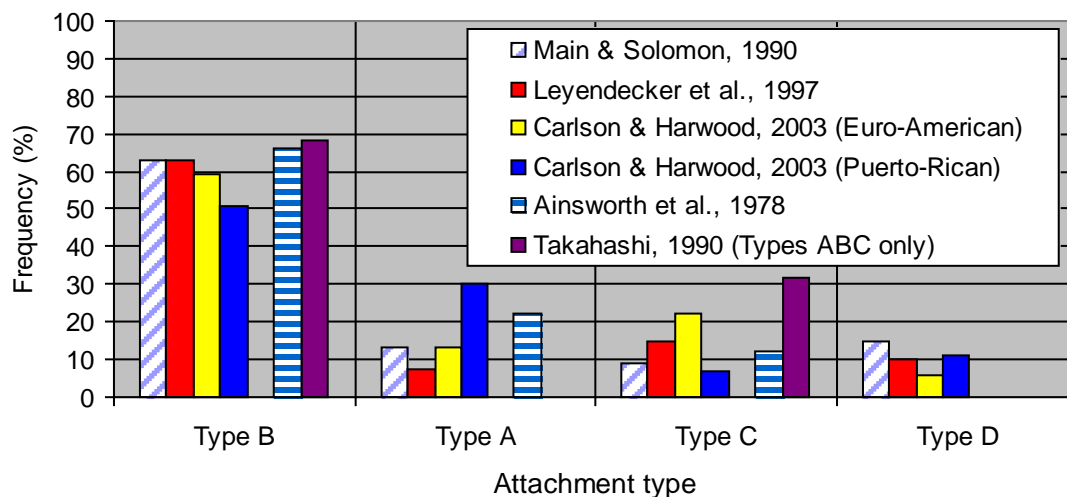


Figure 1. Comparison of distributions of attachment types in middle-income samples.

Figure 1 shows that, except for the Puerto-Rican sample (Carlson & Harwood, 2003), the rates of secure attachment for the middle-class studies differ by less than 8%; however, the rates for insecure attachment types are quite variable. The validation studies (van IJzendoorn et al., 1999, 2004; van IJzendoorn & Kroonenberg, 1988) that investigated samples from diverse populations also indicated variability in rates of insecure attachment, but they did not specify why this variability existed except as related to unidentified risk factors.

To summarize, the studies with middle-class samples using either assessment method provide evidence for the prevalence of secure attachment. However, sample and methodological biases are recognized. The studies also show considerable variation in the rates of insecure attachment classifications that are not explored in the literature.

Insecure attachment among low-income groups. The low-income samples also indicate variability in the insecure attachment classification distributions as seen in Figure 2 for studies using the ABC method (Ainsworth et al., 1978) and in Figure 3 for the ABCD method (Main & Solomon, 1990).

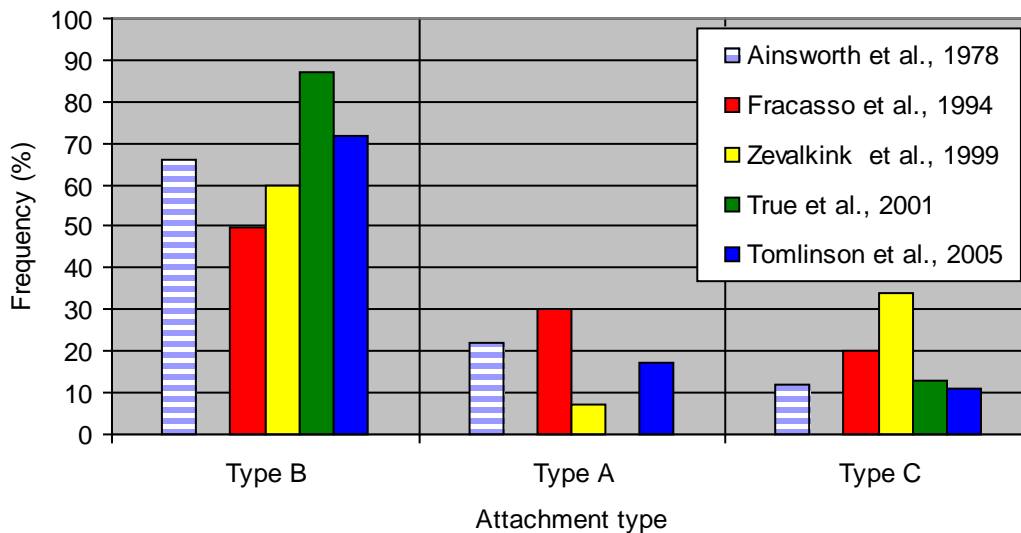


Figure 2. Comparison of distributions of attachment types in low-income samples assessed using the ABC method (Ainsworth et al., 1978).

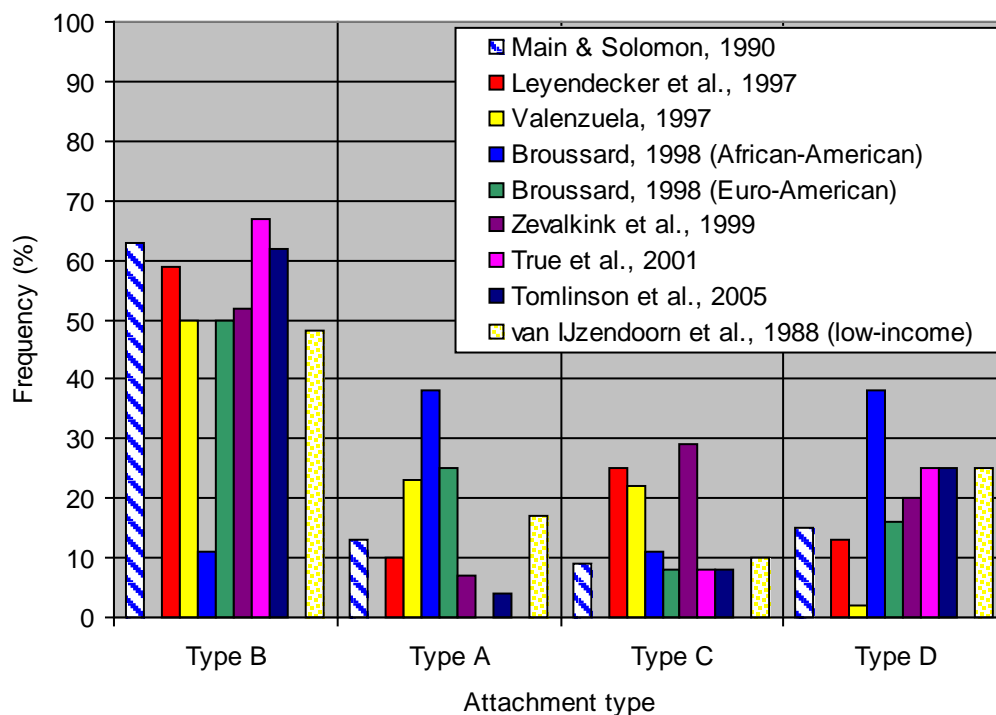


Figure 3. Comparison of distributions of attachment types for low-income samples assessed using the ABCD method (Main & Solomon, 1990).

Figures 2 and 3 show that no low-income samples conform to the accepted normative rates for secure or insecure attachment types. In some cases, the individual studies indicated possible reasons for the variability, which are presented in this chapter in the section on attachment types

In summary, to conclude remarks about SES level and attachment, among these 20 studies, there is evidence to support the suggestion that secure attachment is prevalent in most contexts and that higher levels of secure attachment are associated with middle-class contexts, but not in all cases. These higher rates of secure attachment may be associated with fewer risk factors affecting the infant-mother attachment relationship, but there are also high rates of secure attachment among some low-income samples with

presumably more risk factors associated with poverty. While the studies would seem to indicate (but not explain) the relatively consistent levels of secure attachment in almost all groups, the wide variability in levels of each type of insecure attachment suggests that no universality claim can be made for the system as a whole.

Attachment Hypotheses in Cross-cultural Studies

Rothbaum et al. (2000) suggested providing counter-argument examples to the accepted attachment theory hypotheses highlights the “cultural relativity” (p. 546) of attachment theory. Kuhn (1970) also suggested that consideration of extraneous examples can help to refine or reorganize theories. The discussion above indicates that there is reasonable evidence in support of some aspects of the attachment hypothesis, as well as several examples of deviations and variations from the accepted attachment classifications. The following sections outline the assumptions presented in Chapter II for each of the four hypotheses of infant secure base behavior, maternal sensitivity, future competence and universality, and describe the attachment patterns of infants and caregivers that are compared to the established Euro-Western patterns in greater detail.

Infant Secure-base Behavior

The secure-base hypothesis of attachment theory requires that when infants perceive danger they will retreat to or signal for the presence of their attachment figure in order to gain protection and comfort, and when they feel sufficiently secure they will venture out to explore their environment (Bowlby, 1969, 1988; Crittenden, 2000; Posada & Jacobs, 2001). The two assumptions of this hypothesis are that infant secure-base behaviors exist in opposition to exploration behaviors, suggesting that exploration/independence is the goal of the secure infant (Ainsworth et al., 1978;

Bowlby, 1988). The second assumption is that insecure attachment is maladaptive in all contexts (van IJzendoorn & Kroonenberg, 1988; van IJzendoorn et al., 2004). These assumptions are investigated in the context of the data, observations and conclusions of the studies related to each attachment type below (see Appendix D). In general, infants classified as one of these attachment types showed a preponderance of the typical characteristic behaviors, but there were patterns of differences noted for the diverse groups studied.

Type B (secure) infant attachment. Ainsworth et al. (1978) and Waters and Deane (1985) identified clusters of secure infant attachment behaviors including: differential responsiveness to the primary caregiver, affectivity, social interaction, object manipulation, independence/dependency, social perceptiveness, endurance/resiliency and attachment/exploration. These clusters, along with physical contact with the mother since it was mentioned in several studies, are used here to identify patterns of behaviors related to these clusters of secure behaviors that differ in some way from the accepted definitions that were observed in the samples of securely attached infants.

Regarding differential responsiveness to parents, Ainsworth et al. (1978) identified that secure infants would show more interest in their mothers than they would towards strangers (i.e., differential responsiveness), but may engage with strangers (see Appendix D).

Secure Japanese infants in the study by Takahashi (1990), who were cared for mainly by their mothers, showed more extreme reactions to strangers and increased responsiveness to their mothers when strangers were present compared to Euro-Western infants (Ainsworth et al., 1978; Takahashi, 1990). At reunions, most secure Japanese

infants contacted their mothers within 15 seconds, which is a shorter time period than usually observed in this procedure (Ainsworth et al.).

In comparison, Jackson (1993) reported that African-American infants, in a modified separation-reunion procedure with two attachment figures (the mother and another caregiver), were not more responsive to one figure over the other, used both as secure bases from which to explore and were also sociable and engaged in play with the stranger. Jackson attributed this lack of differential responsiveness to the mother to multiple-care-giving, which predisposes the infant to experience less stress in the separation procedure since he or she is used to separations and reunions with the mother and other attachment figures in the course of the care-giving experience.

Yeo (2003), in a commentary on attachment of Australian Aboriginal infants, asserted that infants in multiple-care-giving communities may access comfort and feeding from several women, and that the concept of 'mother' applies to the group of caregivers and not one person. On the other hand, Japanese infants are cared for mainly by their mothers and may find strangers and separation from their mothers quite upsetting resulting in more approaching and signalling behaviors (Takahashi, 1986, 1990; Miyake et al., 1985). These differences in responsiveness among secure infants suggest that some infants show different patterns of responsiveness while still maintaining the secure classification.

Ainsworth et al. (1978) and Waters and Deane (1985) described secure infants as moderately emotionally expressive (i.e., affectivity) at separations and reunions with their attachment figures. Expressions of emotion may be negative (e.g., crying) or positive (e.g., smiling), but generally are used as greetings or signals to gain the mothers'

attention or as an expression of their emotional state. Secure Japanese infants (Nakagawa, Teti, et al., 1992; Takahashi, 1990) were observed to cry immediately after their mothers left the room, cried more when left alone or at the end of episodes and were generally described as being negatively emotionally expressive. Heightened emotional expressiveness is usually typical of Type C (insecure-ambivalent/resistant) attachment and atypical of Type A (insecure-avoidant) attachment. Consequently, 30% of the infants in Takahashi were Type C (insecure-ambivalent/resistant) and none were avoidant. These results were considered as representing not infant temperament, but rather care-giving experience (Nakagawa, Teti, et al.; Takahashi; Vereijken et al., 1997). These results suggest that secure infants in some cultures may be more emotionally expressive than infants from Euro-Western cultures.

Social interaction in the SSP is gauged by the level of engagement the infant has with the stranger in the procedure (Ainsworth et al., 1978). Secure infants should interact more with their mothers than the strangers. Social interaction is not necessarily sociability, but comfort or familiarity being in the presence of other people in a stressful situation due to the regulating effect of the attachment relationship with the mother or other primary attachment figure. Overly social behavior towards the stranger and avoidance of the mother is seen as an indication of insecure-avoidant attachment, while heightened distress at being left alone with the stranger may indicate insecure-resistant/ambivalent attachment (see Appendix D).

Jackson (1993) found that the secure African-American infants in her study were more sociable with the strangers in the modified separation-reunion procedure (i.e., two attachment figures) than expected in the SSP. She suggested that these infants were used

to being introduced to new people in their multiple-care-giving environment so the stranger was not fear-inducing. Takahashi (1990) showed that secure Japanese infants were very reluctant to engage with the stranger. As preschoolers, these same secure infants were found to be socially competent in peer relationships, while the preschoolers identified as insecure as infants were not as socially competent.

Using the AQS, Posada et al. (1995) identified that social interaction with adults was a positive behavioral trait of a secure Columbian infant. American, Chinese and Columbian mothers also identified readiness to interact as a positive trait.

Several authors (e.g., Bowlby, 1988; Rothbaum et al., 2007; Takahashi et al., 2002) suggest that social interaction skills, such as greeting strangers or other adults, approaching or playing with others or being comforted by others, are associated with exploration and independence in attachment theory. Some researchers whose studies were reviewed in this final project suggested that cultures that promote independence encourage infants to be more interactive with others, express themselves to others more (True et al., 2001) and be comfortable in the presence of other caregivers, family members, acquaintances and strangers (Jackson, 1993). Other researchers found that cultures that promote interdependence and social harmony may also promote these behaviors (Posada et al., 2004; Valenzuela, 1997; Zevalkink et al., 1999), but they may limit these behaviors using more maternal or caregiver physical interventions and emotional expressiveness (Fracasso et al., 1994; Posada et al., 2002, 2004), or they may only allow these behaviors when infants are older (Takahashi, 1990).

These results suggest that there are variations in how secure infants react in social situations, possibly based on their care-giving experiences. Some researchers have

suggested that certain social behaviors typically taught in independent societies associated with secure attachment, including face-to-face interaction (Carlson & Harwood, 2003; Tomlinson et al., 2005), greeting elders and interacting with strangers (Takahashi, 1990; True et al., 2001) may not be appropriate in some cultures, while in other cultures social interaction is encouraged (Jackson, 1993; Posada et al., 2004; Valenzuela, 1997). These results suggest that social interaction skills displayed by infants may be affected by cultural care-giving practices that influence how infants interact with strangers.

The secure base behavior clusters of object manipulation and attachment/exploration (Waters & Deane, 1985) are combined for this review since object manipulation is an indicator of exploratory behavior. Only one study (e.g., Takahashi, 1990) indicated that secure and insecure Japanese infants did not explore or manipulate any toys when with the mother or when left alone. Lack of exploration has been observed as a pattern of behavior among Japanese infants (Ainsworth et al., 1978; Miyake et al., 1986; Takahashi, 1986) and could suggest that exploration behavior is a cultural variation in infant secure-base behavior.

Several studies indicated differences in the degree that secure infants engaged in physical contact with their mothers or other attachment figures (Posada et al., 1995; Takahashi, 1990; Tomlinson et al., 2005; True et al., 2001; Vereijken et al., 1997). While some physical contact between infants and caregivers is beneficial, Ainsworth et al. (1978) reported that increased time holding the infant was associated with Type C (insecure-ambivalent/resistant) attachment when combined with maternal ignoring, inept holding and holding while doing routine tasks. Therefore, the amount of time being held

and responsiveness of the caregiver to the infant's needs during physical contact influences attachment security (Ainsworth et al.).

Takahashi (1990) observed that Japanese mothers and infants were almost always in contact in the SSP even when mothers were told not to approach their infants at reunion. Even so, the infants would come to them within 15 seconds of reunion. Moreover, in studies of African (Tomlinson et al., 2005; True et al., 2001) and Malian (Zevalkink et al., 1999) infants, secure infants showed higher rates of physical contact (e.g., breastfeeding on demand, co-sleeping) with mothers than Euro-Western accepted levels even if teaching or social care came from another caregiver. Breastfeeding was, therefore, added by Tomlinson et al. and True et al. as an acceptable example of physical contact. In her original studies, Ainsworth (1967, Ainsworth et al.) did not include breastfeeding as physical contact, but emphasized its importance to attachment.

These results suggest that, among infants with secure attachment, the level of physical contact between and infant and attachment figure may vary and high levels of physical contact may not necessarily be associated with insecure attachment.

In summary, Type B (secure) infants' behavioral patterns in these 20 studies show that even though the secure form of attachment is prevalent in most groups and the identifying characteristics are consistent; there may be behavioral differences among the groups of secure infants from diverse populations that may relate to cultural differences. These results further suggest that trends in the specific behaviors represented by the behavioral scales within each attachment classification should be investigated rather than just comparing attachment classification rates. In other words, there should be more

qualitative comparisons rather than just categorical or quantitative comparisons for both the secure and insecure attachment patterns.

Type A (insecure-avoidant) attachment. Avoidant infant attachment is characterized by less proximity or contact by the infant towards the caregiver at reunion, less interest in being held and/or resistance at being put down, equal engagement with the stranger as with the caregiver, and lack of distress at being separated from the mother or being left alone compared to the secure infant (Ainsworth et al., 1978) (see Appendix D). Avoidant attachment is associated with maternal rejection of the infant, lack of maternal warmth and negative emotional expressiveness. However, differences in patterns of Type A (insecure-avoidant) attachment across the ethnic cultures in this project point to more complicated relationships between parents and infants that may or may not relate to maternal rejection, expressiveness or warmth.

Type A (insecure-avoidant) accepted normative rates are 13% for studies using the ABCD method (Main & Solomon, 1990; van IJzendoorn et al., 1999) and 22% for studies using the ABC method (Ainsworth et al., 1978; van IJzendoorn & Kroonenberg, 1988) for middle-class, non-clinical groups (see Table C2). Only the Euro-American sample of Carlson and Harwood (2003) is comparable to 13% (using the ABCD method), while the same cultural group studied by Leyendecker et al. (1997) is lower than this range (7.5%). However, the Takahashi (1990) study found no Japanese infants with avoidant attachment (see Figure 1), but Carlson and Harwood found almost one third of the Puerto-Rican group was insecure-avoidant.

High rates of insecure-avoidant attachment are found in three samples of African-American infants (Bakermans-Kranenburg et al., 2004; Broussard, 1998; Jackson, 1993)

and two samples of Puerto-Rican infants (Carlson & Harwood, 2003; Fracasso et al., 1994). As Bakermans-Kranenburg et al. noted, in comparison to the Euro-American sample, African-American infants are described as generally less compliant, more social to strangers, and used transitional objects less—all indications of avoidant-attachment (see Appendix D).

Jackson (1986, 1993) described African-American infants as more sociable and avoidant of the mother and that many African-American infants are commonly separated from their mother and introduced to strangers, which may affect how they react to the mother at reunions. The infant may appear avoidant and insecurely attached to the primary caregiver, but in actuality, has learned not to become upset at the separation/reunion of the mother due to the constant presence of attentive caregivers. Therefore, the classification of an infant in this culture with avoidant attachment may be in error due to their experience of lower levels of stress in the procedure and less exhibition of secure-base behaviors. Incidentally, Ainsworth and Bell (1978) and Barnett, Kidwell and Ho Leung (1998), established that more than one-quarter of the middle-income, African-American children were classified as Type A (insecure-avoidant).

Crittenden and Claussen (2000) suggested that there may be two types of care-giving that result in Type A (insecure-avoidant) attachment. One involves ignoring the infant's signals even when danger is present which causes the infant to hide their feelings and find another protector or comforter (i.e., the stranger). The other care-giving strategy involves intervening when the infant is hurt or in danger, but otherwise ignoring "unnecessary negative affect" (p. 236) in situations where they believe the infant is safe, such as in the SSP situation. In this case, the infants learn to ignore feelings of stress and

self-regulate because the mother does not respond or appear anxious, but otherwise these infants become quite independent, learn to suppress their emotions and rely on others to determine emotional states—a potentially positively adaptive process in some societies (Behrens, 2004; Crittenden, 2000; Miyake et al., 1985; Yeo, 2003). A thorough investigation of avoidant attachment behavior needs to be carried out to determine how avoidant strategies may be adaptive for the infant.

Low rates of Type A (insecure-avoidant) attachment were identified among Japanese (Takahashi, 1990), Central American (Leyendecker et al., 1997), Indonesian (Zevalkink et al., 1999), Malian (True et al., 2001), and South African (Tomlinson et al., 2005) samples. These ethnic cultures have been associated with interdependent societal values (Leyendecker et al.; Nakagawa, Teti, et al., 1992; Zevalkink et al.), which are associated with more maternal intrusiveness and over-involvement (i.e., control) resulting in resistant (i.e., Type C) infant behaviors. For example, many Japanese studies have shown almost no avoidant infant behavior (e.g., Nakagawa, Lamb, et al., 1992; Nakagawa, Teti et al.; Rothbaum et al., 2007; Rothbaum, Weisz, Pott, Kazuo, & Morelli, 2001; Takahashi, 1986, 1990) and they are said to be culturally interdependent in parenting practices (Bornstein & Cote, 2001; Gjerde, 2001; Mizuta et al., 1996; Nakagawa, Lamb, et al.; Takahashi).

Japanese researchers (Takahashi, 1990), whose culture focuses on harmony in interpersonal interactions, were surprised upon observing avoidant infant behaviors in American videotapes of parent-infant dyads. Avoidance in Japanese society is seen as impolite and early avoidant behaviors are counteracted by maternal contact-maintaining behaviors (Mizuta et al., 1996; Takahashi, 1986, 1990). Harmony is a goal of early

development and "children are carefully socialized not to direct avoidant behaviors toward others, because avoidance can mean the break of previous connections" (Takahashi, 1990, p. 28); thus, 12-month-old infants would have experience with their mother's expecting close physical contact and not allowing avoidant behaviors. In addition, Japanese mothers use more close physical interaction with their infants and children, which encourages the infants to be more proximity-seeking and contact-maintaining than Euro-Western infants (Takahashi, 1990).

In the African studies, True et al. (2001) also did not identify any infants with Type A (insecure-avoidant) attachment (even using both classification systems), and Tomlinson et al. (2005) had 4% with the ABC system (Ainsworth et al., 1978) and 17% with the ABCD system (Main & Solomon, 1990). The findings from both of these studies suggest that avoidance exists in conflict with the close physical contact, breastfeeding on demand and connected risk of malnutrition for the infants in these impoverished contexts. In the severely impoverished environments of Africa, for instance, it is suggested that avoidant infant strategies could lead to malnutrition and infant death; therefore, secure or even disorganized strategies would be more beneficial than either avoidant or resistant behavior patterns (Crittenden & Claussen, 2000; Minde et al., 2006; Tomlinson et al.; True et al.).

Higher rates of Type A (insecure-avoidant) attachment is seen among Indonesian infants in impoverished contexts whose mothers are less involved in parenting (Zevalkink et al., 1999) and among under-weight infants in Chile (Valenzuela, 1997) when other variables, except for maternal care, are controlled. These results suggest that avoidant

attachment patterns are unhealthy for infants in impoverished contexts in which food may be contingent on contact with the mother.

Low rates of Type A (insecure-avoidant) attachment in the Japanese studies are also associated with high levels of physical contact (e.g., carrying, co-sleeping), but not specifically with breastfeeding on demand or the risk of malnutrition. True et al. (2001) suggested that avoidance may be a difficult strategy when breastfeeding is associated with attachment and survival as it was in the African studies (Tomlinson et al., 2005, True et al.) and the Indonesian study (Zevalkink et al., 1999). Avoidance may actually be an uncommon strategy in poor contexts and may be more common in Euro-Western societies where care-giving involves less physical contact and a lower risk of malnutrition.

In summary, several researchers have suggested that avoidant strategies may be positively adaptive for infants in multiple care-giving contexts in that they encourage social interactions in which where caregivers ignore all but the most important bids for attention, but maladaptive in other contexts, especially those where avoidance reduces access to care or nutrition.

Type C (Insecure-ambivalent/resistant) attachment. Previous researchers (e.g., Nakagawa, Lamb, et al., 1992; Rothbaum et al., 2001, 2007; Takahashi, 1986) highlighted the high rates of Type C (insecure-ambivalent/resistant) attachment found among Japanese infants as a prime example of the cross-cultural variability of attachment classifications. Similar findings were observed in this final project by Takahashi (1990), who showed that 30% of the infants had Type C (insecure-ambivalent/resistant) attachment (with no avoidant attachment). However, the other four studies with Japanese

samples in this final project (Nakagawa, Teti, et al., 1992; Posada et al., 1995; Takahashi, 1990; Vereijken et al., 1997) did not use the SSP classifications.

Other studies reviewed in this final project showed variations in Type C (insecure-ambivalent/resistant) attachment rates as compared to the Euro-Western accepted normative rates (see Table C2). The rates of ambivalent/resistant attachment among Euro-Western middle-class samples (Carlson & Harwood, 2003; Leyendecker et al., 1997) were significantly above the accepted normative rates and high levels were also identified in the Central American (Fracasso et al., 1994; Leyendecker et al.), Chilean (Valenzuela, 1997), and Indonesian (Zevalkink et al., 1999) samples.

In their meta-analytic study of cross-cultural attachment research, van IJzendoorn & Kroonenberg (1988) found a higher rate of Type C (insecure-ambivalent/resistant) attachment among non-Western, middle-class samples (as compared to the distributions by Ainsworth et al. [1978] and the averaged rates in their study), but did not indicate why this might be the case. Takahashi (1990) and other researchers (e.g., Nakagawa, Lamb, et al., 1992; Nakagawa, Teti, et al., 1992; Rothbaum et al., 2000, 2001, 2007) pointed to the stress of the procedure, the context and care-giving of the infant, and the differences between independent and interdependent societies as influences on high rates of Type C (insecure-ambivalent/resistant) attachment among some groups of infants.

Takahashi (1990) and others (Miyake et al., 1996; Takahashi, 1986) suggested that the main reason there are high rates of Type C (insecure-ambivalent/resistant) attachment in Japanese samples is that the context of the SSP assessment does not fit with the Japanese model of care-giving and is too stressful for the infants and mothers.

Takahashi (1990) later modified the procedure by: (a) investigating only the attachment

results up to the first reunion (i.e., before the child is left alone), (b) using a modified procedure in the home and (c) repeating the original procedure at 23 months. He found comparable results to Euro-Western rates (as cited in Ainsworth et al., 1978). Takahashi (1990) suggested that high rates of Type C (insecure-ambivalent/resistant) attachment among Japanese samples is due to the Japanese infant's extreme aversion to and stress at being left alone and separated from the mother. Separation from the mother during caregiving is not common practice in a large proportion of Japanese society (Mizuta et al., 1996; Sagi et al., 1991, Takahashi, 1986, 1990).

The mothers of infants with Type C (insecure-ambivalent/resistant) attachment have been characterized as intrusive, overwhelming, highly emotional and engage in increased holding, but at the same time may be less sensitively responsive to the infants and ignore their cues or signals, which appears as rejection to the infant (Ainsworth et al., 1978; Crittenden & Claussen, 2000; Stayton et al., 1973; Waters, n.d.). This type of close physical contact and yet removed emotional distance between the infant and caregiver can produce conflicted behaviors in infants seen as ambivalent and resistant towards the primary caregiver. Ambivalent/resistant infants react with much distress at both separation and reunion and have difficulty being consoled. That is, infants appear to want and resist contact with their attachment figures, and they engage less with strangers and explore little compared to secure infants (see Appendix D).

Takahashi (1986) found that Japanese infants were more fearful than Euro-Western infants which relates to lack of exploration, higher levels of contact needed with mother and more emotional expressiveness—behaviors relate to Type C (insecure-

ambivalent/resistant) attachment. Nakagawa, Teti, et al. (1992) also found that infants with Type C attachment touched their mothers more than secure infants.

Compared to American parenting practices, many Japanese mothers do not leave their infants with others, including fathers and grandparents. Mothers engage in co-sleeping, co-bathing and frequent carrying (Takahashi, 1986). While for Euro-Western infants, learning to cope with stress of being alone and separate from the primary caregiver is a developmental and societal goal (e.g., sleeping alone, playing alone, being left in another's care) (Bowlby, 1969, 1988; Behrens, 2004), in Japan parenting practices promote dependence and social harmony related to the indigenous concept of *amae*, a close, indulgent relationship between two people (Behrens; Behrens et al., 2007; Gjerde, 2001; LeVine, 2001; Mizuta et al., 1996; Nakagawa, Lamb et al., 1992; Rothbaum et al., 2004, 2007; Vereijken et al., 1997).

Behrens (2004) suggested that there are two types of *amae* in Japanese parent-infant relationships related to secure and insecure attachment patterns, but both are classified as Type C (insecure-ambivalent/resistant) attachment. Affective *amae* involves mutual enjoyment and close contact with mothers who are also sensitively responsive to their infants needs. This sensitive responsiveness differs from the Euro-Western view of mothers' responding to infant's signals, since Japanese mothers, and mothers in other ethnic cultures (Yeo, 2003; Zevalkink et al., 1999) anticipate their infant's needs and they try to meet them before the infant signals distress. Manipulative *amae*, on the other hand, also involves much close contact and intrusiveness, but mainly in mothers' attempts to meet the emotional needs of the mother and not the infant. It is this type of *amae* that is

more maladaptive in Japanese society and, thus, may lead to more insecure attachment (Behrens, 2004; Watanabe, 1987).

In this final project, high rates of Type C (insecure-ambivalent/resistant) attachment was also seen in the Latino samples from Puerto-Rico and the Dominican Republic (Fracasso et al., 1994), and other Central American countries (Leyendecker et al., 1997), but not in the Puerto-Rican sample of Carlson and Harwood (2003). Some of the maternal behaviors associated with Type C (insecure-avoidant) attachment are also associated with an interdependent and collectivist society that promotes high levels of physical contact and control of the infant's behavior (i.e., intrusiveness) to instill values of responsibility to others, obedience and respect of elders (Miyake et al., 1985; Nakagawa, Lamb, et al., 1992; Takahashi, 1986, 1990; Zevalkink et al., 1999). For example, some Japanese (Miyake et al., 1985; Nakagawa, Lamb, et al., 1992; Takahashi, 1986, 1990), Indonesian (Zevalkink et al., 1999), Latino (Carlson & Harwood, 2003; Fracasso et al., 1994; Posada et al., 2002, 2004) and Aboriginal (Cajete, 2000; Yeo, 2003) ethnic cultures promote infant carrying, co-sleeping, co-bathing, breastfeeding on demand, anticipating the infant's needs and controlling emotional expressiveness. Caregivers may actively discourage exploration in infancy due to the dangers of the environment and to keep the infants close for protection and feeding. In many cases, other caregivers contribute to keeping the infants occupied (Kermoian & Leiderman, 1986; True et al., 2001; Zevalkink et al.). These behaviors may result in infants exhibiting less exploration and more ambivalent/resistant behaviors (Yeo, 2003), as seen in many of these studies. However, other studies of societies that included collectivist care-giving practices (Kermoian & Leiderman; Tomlinson et al., 2005; True et al.) did not show high levels of Type C

(insecure-ambivalent/resistant) infant attachment, even when the Type D (insecure-disorganized) category was used (Tomlinson et al.).

Zevalkink et al. (1999) found that Indonesian mothers gave more emotional support, structure and limit setting to their secure infants, but that the insecure (mostly Type C) infants received more rejecting and hostile interventions and less emotional support as expected in the theory (Bowlby, 1969, 1988; Ainsworth et al., 1978).

Therefore, it may be that negative physical contact and control is what creates insecure attachment in collectivist contexts, not all contact and control, per se. Zevalkink et al.

also found that these types of negative maternal interventions were found among the poorest families and with mothers who carried their infants the most, which correlates with the findings of Ainsworth et al. who showed that high levels of holding by the mothers correlated with Type C (insecure-ambivalent/resistant) infant attachment.

Insecure/resistant attachment was also associated with hostile and intrusive play, and lack of involvement in health care, similar to findings by Valenzuela (1999) for mothers of under-weight Chilean infants.

In summary, in addition to the risk factors of low-income contexts, there appear to be specific negative maternal behaviors associated with Type C (insecure-ambivalent/resistant) infant attachment —inept handling, extended holding without sensitive care-giving, hostile and rejecting interventions—that may be maladaptive in any context. However, in some contexts more holding, keeping infants close and discouraging exploration may be positively adaptive in contexts that promote a close physical relationship between infants and their primary caregivers.

Type D (insecure-disorganized) attachment. While all of the middle-class samples in this project that used the ABCD (Main & Solomon, 1990) attachment classification system showed rates of Type D (insecure-disorganized) attachment below the Euro-Western rates (Main & Solomon; van IJzendoorn et al., 1999), there was wide variation in the rates of disorganized attachment among low-income groups (see Table C1, Figure 2 and 3). There was also an association observed in some studies between disorganized and secure attachment.

Main and Solomon (1990) originally described an infant with Type D (insecure-disorganized) attachment as having odd and disoriented behaviors (see Appendix D) due to the behavioral adaptation to the frightened and frightening behaviors the primary caregiver displays towards the infant due to the adult's unresolved experiences of loss and trauma. Disorganized attachment has been associated with poor developmental and social outcomes (Bakermans-Kranenburg et al., 2005; Benoit et al., 2001; Lyons-Ruth & Jacobvitz, 1999; van IJzendoorn et al., 1999), though this finding has been debated (Belsky & Fearon, 2003).

Among the low-income samples, the African samples (Tomlinson et al., 2005; True et al., 2001) had rates of disorganized attachment as high as found among low-income Euro-Western studies (van IJzendoorn et al., 1999), but they also had high rates of secure attachment (see Figure 3 and Table B7). Among Broussard's (1998) two low-income samples, the African-American participants had the lowest level of secure attachment (11%) and the highest disorganized attachment (38%), while the Euro-American sample showed only slightly higher rates of disorganized attachment (16%) than the middle-class Euro-Western rates (Main & Solomon, 1990). In comparison, the

Chilean sample (Valenzuela, 1997) showed a very low rate of disorganized attachment (2%) compared to the other low-income and middle-income samples and Euro-Western rates (see Tables C1 and C2.).

Secure and disorganized attachment was linked in three studies in this project (Table 2). Several Indonesian infants (Zevalkink et al., 1999), South African infants (Tomlinson et al., 2005) and Malian infants (True et al., 2001) who were classified as secure with the ABC system (Ainsworth et al., 1978) were also classified as Type D (insecure-disorganized) with the ABCD system (Main & Solomon, 1990). Raeff (2006) suggested that disorganized attachment patterns may exist in relation to secure, adaptive strategies when the infant's care may be both comforting and fear inducing, due to the mother's struggle between reacting to her aversive environment and experiences, and providing her infant consistent and nurturing care. Further, Tomlinson et al. suggested that "despite adverse living conditions, mothers of the secure child were able to create a sufficiently good personal environment for the healthy emotional development of their children" (p. 1051) and that there may be protective factors at play among caregivers in impoverished situations that mediate the effects of the extreme risks. Crittenden (2000) also states that the disorganized child's "best self-protective strategy is to attend closely to the changes in parents' state" (p. 235), which may include care-giving behaviors that "teach children fear, distrust, inhibition, and/or compulsive behavior very early in life" (p. 245) in order to adapt to the dangerous context in which the infant lives.

In some extremely impoverished contexts, then, it appears as though disorganized attachment may actually be more adaptive than other forms of insecure attachment when there are periods of care-giving that promotes secure attachment (Belsky & Fearon, 2002;

Crittenden, 2000; Minde et al., 2006; Raeff, 2006; True et al., 2001). For example, Leyendecker et al. (1997) found that Central American infants who were classified with Type D (insecure-disorganized) attachment had mothers who were more involved than mothers of secure infants, whereas their sample of Euro-American indicated that mothers with infants who had Type D (insecure-disorganized) attachment were less involved than mothers of secure infants. Involvement was measured by the frequency that maternal behaviors would occur that preceded infant behaviors (i.e., antecedents). These results suggest that the Central American mothers attempted to compensate for their disorganizing care by spending more time with their infants. For Chilean mothers, failure to provide adequate physical and sensitively responsive care was also associated with Type D (insecure-disorganized) infant attachment (Valenzuela, 1997). As well, Broussard (1998) found that 32% of infants under 14 months and 64% of infants over 14 months in both the African-American and Euro-American samples had Type D (insecure-disorganized) attachment, which suggests that more disorganized attachment may develop over time in adverse conditions, such as this low-income, adolescent parenting environment.

Even though there is little information on disorganized attachment among non-Western cultural groups (van IJzendoorn et al., 1999), the information in this project suggests that there are associations between secure and disorganized attachment that may not be represented in the Euro-Western model. However, there is evidence that there is an association between disorganized attachment and high-risk contexts, regardless of the cultural context.

In summary of the section on infant secure-base behavior, the studies in this project show several examples that oppose the Euro-Western model. There is evidence that secure infant attachment is the most adaptive and prevalent form of attachment, but there is some evidence that it is not the only positively adaptive form of attachment. The data suggest weaker than advertised correlations. The variability among the rates of insecure classifications in diverse contexts suggests that a closer look at infant behaviors in non-Western contexts is needed. The following section looks at the maternal behaviors in diverse contexts that affect attachment security.

Maternal Sensitivity

The two assumptions of the hypothesis of maternal sensitivity are that sensitive and responsive care-giving is one of the main antecedents of infant attachment security (Ainsworth, 1967; Ainsworth et al., 1978; Bowlby, 1969, 1988; Tracy & Ainsworth, 1981) and that sensitive behaviors are consistent across cultures (De Wolff & van IJzendoorn, 1997). The main difference seen in maternal sensitivity between the Euro-Western and non-Western studies in this project is related to maternal control.

Maternal control. Maternal control is associated with the cooperation versus interfering scale of the AMSS (Waters, n.d.), and this term refers to whether the caregiver interrupts and directs the infants actions (i.e., interfering) or allows the infant to control his or her own actions (i.e., cooperation). Maternal control is also related to caregiver intrusiveness, low emotional availability and rejection (Ainsworth et al., 1978; Carlson & Harwood, 2003) and is assessed by certain types of controlling behaviors towards the infant (e.g., holding, moving, confining, restricting, removing objects, forcing, instructing, directing) and frequency of occurrences of controlling behaviors. The over-

controlling caregiver does not respect the infant as an autonomous person, which may result in Type C (insecure-ambivalent/resistant) attachment (Ainsworth et al.). The under-involved caregiver, for instance, is not available to meet the infant's needs, which may result in Type A (insecure-avoidant) attachment. Higher levels of maternal control are also associated with interdependent societal values in which the needs of the group outweigh the needs of the individual (Carlson & Harwood, 2003; Takahashi, 1990; Tomlinson et al., 2005). Children in this type of society are taught early by strict control and discipline to conform to societal standards around behavior, respect and deference to others. In this final project, several studies found that high levels of maternal control are not necessarily correlated with insecure attachment.

Several studies (Carlson & Harwood, 2003; Valenzuela, 1997; Zevalkink et al., 1999) found that high rates of maternal control were not related to insecure attachment. Carlson and Harwood found the highest ratings of maternal control in the Puerto-Rican group were associated with Type B (secure) attachment, while the Euro-American infants showed predictable Type A (insecure-avoidant) attachment with controlling mothers. Maternal control was also not related to maternal insensitivity, high levels of emotional expressiveness or infant social-emotional incompetence. Zevalkink et al. found maternal control was associated with more emotional support and limit-setting (i.e., discipline) leading to secure attachment. Valenzuela did not find an association between insecure attachment and control in play activities, however, and she suggested that mother-infant play was not common among this impoverished group where infant obedience and compliance are preferred behaviors associated with more maternal control.

Carlson and Harwood (2003) investigated the relationship between culture and maternal control between the Puerto-Rican and Euro-American groups, specifically with behaviors related to teaching and feeding (i.e., where more control is needed) versus more open-ended behaviors of play and bathing. They found that when Puerto-Rican mothers were observed at home when their infants were 8 months old, for the infants who were later identified as securely attached, their mothers had higher rates of physical control in feeding/teaching behaviors and less physical control in open-ended behaviors. However, high levels of control in goal-oriented tasks (e.g., feeding, teaching) for Euro-American mothers were associated with avoidant attachment. Therefore, it is a possibility that in the Puerto-Rican society primary caregivers engage in higher levels of physical control, but they also provide sensitive care that leads to secure attachment.

Carlson and Harwood (2003) suggested that interdependent care-giving practices of “persistent physical control and strong limitations on infant’s behavior” (p. 56) may not be seen as interfering in some contexts, such as the Latino or other interdependent cultures, but may be important in raising a respectful child who is “attentive, calm, and well-behaved” (p. 67), especially when combined with warmth and responsiveness. Japanese mothers, as well, “prefer to anticipate their infant’s needs by relying on situational cues” (Rothbaum et al., p. 1096), thereby avoiding stress, and helping them to regulate. These maternal behaviors promote dependence and more physical contact. Conversely, Euro-Western parents, according to the AMSS (as cited in Tracy & Ainsworth, 1981; Waters, n.d.), prefer to direct the infant’s attention to objects and exploration, respond after the infant’s signals, use more eye contact and signalling than physical contact, and promote more exploration and independence in motor behaviors.

Some studies did show that high levels of maternal control are associated with insecure attachment. In two immigrant cultures to the United States, for example, it was found that Japanese (Takahashi, 1990) and Central American (Leyendecker et al., 1997) mothers of insecure infants tended to be over-involved with their infants, which suggests a high level of control or interference. Fracasso et al. (1994) found a high level of maternal control in the Central American sample was associated with insecure attachment, especially among infant males related to maternal holding behaviors (e.g., being held during routines, increased time being held, inept holding) and with females related to frequency and types of interventions (e.g., increased interactions and abrupt pickups). However, increased parental control including, holding infants longer and intervening more often was related to secure attachment in this Latino group. These findings oppose the assumption by Ainsworth et al. (1978) that longer holding is related to insecure attachment.

Further, these results suggest that maternal (or caregiver) control, which is typically associated with Type A (insecure-avoidant) attachment in attachment theory (Ainsworth et al., 1978), may be adaptive in cultural contexts that are more interdependent and teach social harmony through controlling infants' behaviors and using more direct teaching rather than encouraging exploration.

Rothbaum et al. (2000) suggested that one hypothesis of maternal sensitivity is based on the independent value system that promotes autonomy and exploratory behaviors in infants. In this system, a sensitive caregiver waits for the infant's signal and is sensitive to what the infant needs, is accepting of the infant's will or temperament, is accessible to the infant while he or she explores the environment, and cooperates with the

infant according to his or her autonomous preferences. This author (Rothbaum et al.) and others (e.g., Behrens, 2004; Fang, 2005; Jackson, 1986, 1993; Kermoian & Leiderman, 1986; Melendez, 2005; Rothbaum et al. 2000, 2007; Takahashi, 1990) suggest that in an interdependent and collectivist society, the sensitive mother in may (a) anticipate the infant's needs rather than wait for signals, (b) teach and try to make the infant conform to acceptable expressions of emotions and behaviors so that he or she is accepted in the community, (c) provide external regulation (e.g., soothing, anticipating needs) so that the infant does not have to signal or experience distress and (d) limit exploratory behavior using physical contact and control. Further, Claussen and Crittenden (2000) suggest that sensitivity may relate more to the skill of reading infants' signals, responding to the needs of the infant (i.e., whether or not it is the want of the infant), determining the function of the desired behavior in the societal context, and deciding whether or not it is appropriate for the age and stage of the child. These skills are also related to the goals and values of the parents and culture.

Future Competence

Future competence refers to the effects that infant attachment patterns have on the infant's ability to develop socially, emotionally and cognitively as children and adults in the context that they live (Barnett et al., 1998; Behrens et al., 2007; Bradley, 2000; Crittenden, 2000; Rothbaum et al., 2007; van IJzendoorn & Sagi, 1999). This context refers to the parenting environment that is influenced by the values and goals of the culture and society in which parent and infants live. Some of the studies (e.g., Jackson, 1993; Posada et al., 1995; Vaughn et al., 2007; Vereijken et al., 1997) reviewed in this final project provide information on societal values related to secure attachment by

asking parents and indigenous observers about the ideally secure infant or child and what characteristics are necessary for a child in that culture to be successful and competent.

Accordingly, the main characteristics identified as related to future competence were: (a) self-expression and social interaction, and (b) autonomy and independence.

Self-expression and social interaction. The assumption in attachment theory is that the ability to express one's self openly (i.e., self-expression) and honestly is important for a person's well-being, whether child or adult (Bowlby, 1988; Rothbaum et al., 2000). As well, infants should be taught to be sociable with others, including strangers, in order to learn how to communicate effectively (i.e. social interaction).

Jackson (1993) and Posada et al. (1995) identified that social interaction of infants towards strangers was encouraged in African-American (Jackson) and Columbian, American and Chinese groups (Posada et al.). However, Columbian (Posada et al., 2002), Chilean (Valenzuela, 1997) and Indonesian (Zevalkink et al., 1999) groups expressed that social interaction was discouraged through physical interventions and caregiver emotional expressiveness.

Among Japanese mothers (Posada et al., 1995) and observers (Vereijken et al., 1997) self-expression was not described as being a socially desirable characteristic in the ideal child. However, Vereijken et al. found that the ideal Japanese infant is "demanding and impatient" (p. 448), though "not lighthearted, not playful and easily distracted...but seems not unhappy when playing alone" (p. 448). These findings are in contrast to the results of the Posada et al. (2002) study in which American and Columbian mothers associated a positive emotional tone with infant secure attachment when they characterized the ideal infant. These latter results suggest that the assumption that secure

infants will be more self-expressive and sociable is not appropriate or valued in some cultures.

Autonomy and independence. In attachment theory, the interaction between exploration and secure base behavior leads to autonomy and individuation from the primary caregiver (Bowlby, 1988). Though there were little direct data referring to autonomy/independence in these studies, other researchers indicated that security is not always related to the value of independence.

For example, Posada et al. (1995) found that in the Columbian culture mothers characterized the ideal infant as enjoying physical closeness and being comfortable interacting with other adults. Vaughn et al. (2007) specifically chose two Latino groups (Columbian and Portuguese) typical of interdependent/collectivist value systems to compare to a Euro-American group with values of independence and autonomy. They found that only the Columbian mothers associated dependency with attachment security.

While few studies identified values associated with future competence related to attachment, those that did highlighted the importance of looking beyond attachment rates and behaviors into how attachment is viewed in the society (e.g., Jackson, 1993; Posada et al., 1995; Vaughn et al., 2007; Vereijken et al., 1997). These values are important for the future success of the infant, family and community. However, this success may look different than that described in the attachment theory. Future competence may not always be related to self-expression, social interaction, autonomy or independence, but to social cohesion and harmony, and respect and responsibility towards others.

Universality Versus Cultural Specificity

This discussion of universality versus cultural specificity of attachment theory is presented last to summarize the findings of the other hypotheses. The four assumptions of the universality hypothesis of attachment theory include: (a) all infants form attachments to primary caregivers, (b) the function of attachment is survival of the individual and the group, (c) secure and insecure parent-infant attachment has predictable antecedents and consequences, and (d) there are predictable distributions of secure and insecure attachment in all contexts (Bakermans-Kranenburg et al., 2004; Main, 1999; van IJzendoorn & Kroonenberg, 1988; van IJzendoorn et al., 2004).

In this final project, the literature review provided supporting evidence that suggests all of the infants form attachments (secure and insecure) to the primary caregivers, presumably to ensure the survival of the infant in the family and environmental context. However, there were questions raised about whether the infant behaviors, antecedents (i.e., maternal behaviors) and consequences (future competence) were predictable since they appeared to vary somewhat according to the context and value systems. As well, the attachment classifications and security ratings were not always predictable according to the accepted normative Euro-Western rates (Ainsworth et al., 1978; Main & Solomon, 1990; van IJzendoorn et al., 1999, 2004; van IJzendoorn & Kroonenberg, 1988; Vaughn & Waters, 1990).

The debate over whether the hypotheses of attachment theory can be universally applied to all cultures has not been conclusively shown in the present literature review. Nevertheless, the fact that all of the infants formed attachments, secure and insecure, to the primary caregivers who were assessed with them suggests that the formation of

attachment is universal. However, the universality of the secure and insecure infant secure-base behaviors and maternal sensitivity behaviors, as defined by the SSP and AQS, continues to be questioned and investigated. These counter-argument examples or “divergent findings” (van IJzendoorn, 1990, ¶ 1) cannot disprove the hypotheses of attachment or prove cultural specificity because there are too few studies and several methodological limitations, but they do present a compelling argument against the universality hypothesis.

Attachment Assessments

The examples of etic, emic and derived-etic research paradigms in this project highlight the array of possibilities in cross-cultural attachment research. Each paradigm provides valuable information about maternal and infant behaviors in diverse contexts, but the main drawbacks for the etic-based methods are possible biases of the researchers and theories that assume there are Euro-Western norms that can be applied to all cultures.

Some researchers challenge implicit assumptions identified in the SSP method of analysis. For example, some researchers studies find that: (a) not all infants have experienced separations from their primary caregiver prior to the procedure (Takahashi, 1990); (b) some infants will experience extreme stress in reaction to the toy-filled laboratory (Takahashi; Zevalkink et al., 1999), while other infants will not experience enough stress to activate the attachment system (Jackson, 1993); (c) the mother may not be the only secure base for the infant (Jackson, 1993; True et al., 2001); and (d) infant’s secure base behaviors may not be evident between 12 and 18 months of age (Takahashi; Zevalkink et al.). Similar problems were identified with the AQS, which included the emphasis of a Euro-Western basis (Easterbrooks & Graham, 1999) and the quantitative

versus qualitative representation of infant attachment (Posada et al., 1995; Vaughn et al.; Vaughn & Waters). Posada et al. (1995) found, using the AQS, that although infants were quite similar to each other, their “the absolute levels of similarity both within and across cultures were rather low” (p. 39), which may suggest that the categories for identifying similar behaviors are related to cultural differences that are identified as anomalies using these methods, as presented here.

Some studies showed adaptations to the assessment procedures. Three studies (Takahashi, 1990; Valenzuela, 1997; Zevalkink et al., 1999) presented the SSP at an older age than recommended (i.e., 18 months or older) to account for less experience with separation between mothers and infants in those cultures, and found that these later attachment rates were more comparable to the accepted normative rates (as cited in Ainsworth et al., 1978; van IJzendoorn & Kroonenberg, 1988). These results suggest that infants in some cultures may develop attachment behaviors later than seen in Euro-Western infants, which are also similar to the findings in studies conducted by Behrens (2004) and Mizuta et al. (1996).

Researchers that acknowledge that their cultural beliefs may differ from the studied group and use validated measures adapted to the specific cultural contexts, may be using a “derived etic” (Harwood, 2006, p. 126) paradigm for research. A derived-etic research methodology was observed in 11 of the 20 studies reviewed in this final project. Some researchers modified existing assessments for the new context (Broussard, 1998; Carson & Harwood, 2003; Easterbrooks & Graham, 1999; Fracasso et al., 1994; Jackson, 1993; Leyendecker et al., 1997; Tomlinson et al., 2005; True et al., 2001; Valenzuela, 1997; Vaughn et al., 2007; Zevalkink et al., 1999) or devised other methods that fit the

context better than other validated measures (Leyendecker et al.; Carlson & Harwood; Minde et al., 2006; Posada et al., 2004; True et al.; Vaughn et al.). The Weigh-in Procedure in Minde et al. (2006) used during infant health checks is an example of modifying a method to fit the context of the culture and community being studied and Jackson (1990) included two attachment figures in her SSP modification.

Researchers in six studies reviewed in this final project (Minde et al., 2006; Jackson, 1993; Posada et al., 1995, 2002, 2004; Vereijken et al., 1997) describe their research as using an emic paradigm. The studies conducted by Posada and colleagues (Posada et al., 1995, 2002, 2004) provide an example of the maturation of cultural sensitivity in which a positive progression was derived from etic to emic methods. Posada et al. (1995) first used the standardized AQS to measure attachment security in several cross-cultural samples. Then Posada et al. (2002) used a modified Q-sort approach and, finally, naturalistic observations with thematic analyses in Posada et al. (2004). The Secure Base Stories method by Vaughn et al. (2007) is another attempt to look at the shared experiences of care-giving within a culture.

In summary, the fixation on standard procedures has led to a reduction of good observation and description in attachment research, and more recent studies in diverse cultures have returned to Ainsworth's (1967) original field methods with much richer and more informative data in terms of understanding maternal and infant behaviors.

Limitations

The objective of this final project is to provide a literature review of some of the available peer-reviewed cross-cultural attachment studies. A review of additional unpublished and non-reviewed papers (that provide additional anecdotes and data) is

outside the scope of this final project, but would be useful for deeper study into attachment and culture. As well, the absence of statistical comparison of the studies limits the generalizability of this final project and its ability to compare attachment distributions and security scores across studies.

Conclusions reached in the present project are in part limited by the following factors inherent in the attachment behavior literature. First, attachment literature is dominated by the framework set out by Bowlby (1969, 1988) and Ainsworth (1967; Ainsworth et al., 1978) that is based on assumptions that are strongly Euro-centered and do not take into account the diversity of culture. Several studies have tried to shoehorn divergent infant behaviors into the assessments and classifications systems (e.g., Bakermans-Kranenburg et al., 2004; Broussard, 1998; Easterbrook & Graham, 1999; Fracasso et al., 1994; Leyendecker et al., 1997; Posada et al., 1995; Valenzuela, 1997; Vaughn et al., 1991; Zevalkink et al., 1999), which have influenced some of these observations and interpretations.

Second, current literature suffers from the use of three competing classification systems. The use of the ABC (Ainsworth et al., 1978), ABCD (Main & Solomon, 1990) and AQS systems makes comparisons of various studies limited. While much of the research purports to be objective, there is a high level of subjectivity in the studies, and methods seem to be adapted (consciously or unconsciously) to fit different researchers and different cultures.

Third, there has been a focus on attempting to prove a universality of attachment theory, whereas, observations clearly indicate culture-specific behaviors and norms that

often do not conform to western values systems. In short, current studies may be more useful for understanding differences rather than proving similarities or universal truths.

Finally, the evolution of attachment behavior has not been fully investigated. Many discussions of the biological or cultural basis of attachment theory, and especially discussions of the goal of secure attachment or universality of attachment behaviors, is implicitly grounded in group selection theory, which has fallen from favour in the evolutionary biology and genetics fields in favour of kin selection or gene selection (Maynard Smith, 1989). The field of attachment research lacks a firm grounding in anthropology and evolutionary theory, and the positive role of mixed behaviors within diverse populations.

Summary

This chapter reviews the attachment literature with regards to cultures surveyed, the rates of attachment compared to western norms, and the variations in care-giving behavior across cultures relative to attachment theory.

The 20 studies focused on a variety of cultures, largely based on country-of-origin, with sub-classifications into middle-income and low-income groups. While far from comprehensive and far from even providing a statistically valid sample, the large number of people and diverse groups represented in these studies do allow for some useful synthesis and conclusions to be drawn. The diversity of samples represented by these studies shows variations in the presentation of secure and insecure attachment behaviors, and counter-argument examples to be raised and evaluated, thereby allowing some of the traditional assumptions based on the initial studies Euro-Western cultures to be challenged.

The rate of secure attachment in almost all cultures studied was similar. It is not clear why the rates are similar or why secure attachment is the most prevalent behavioral profile. It is possible that secure attachment has an evolutionary basis, or at least consistency in how the processes of securely formed infant-mother attachment are assessed. However, the rates for the various types of insecure attachment vary widely from culture to culture. This variation can be largely explained (at least in hindsight) by developing a deeper understanding of cultural differences, and risk and protective factors. The effects of attachment rates on long-term outcomes for individuals are less clear, however. In some cases, it would seem that some insecure attachments are actually positively adaptive in some cultures (e.g., Minde et al., 2006; Tomlinson et al., 2005, True et al., 2001). Thus, while there may be a case for universality of rates of secure attachment, insecure attachment does not have the same consistency.

Lastly, for attachment theory to claim to be universal and applicable to all cultures, it needs to be able to explain all of the counter-argument examples with credible “ad hoc modifications” (Kuhn, 1970, p. 78) to the theory. Attachment theory does not adequately explain the differences in infant and care-giving behaviors seen in diverse cultures. For example, early researchers (e.g., Ainsworth et al., 1978; Bowlby, 1969, 1988; Waters, n.d.) suggest that maternal sensitivity is a major antecedent to forming secure infant attachment bonds, and that maternal control and interference is associated with insecure attachment. However, researchers in this final project associated maternal control with secure attachment (e.g., Carlson & Harwood, 2003; Takahashi, 1999; Tomlinson et al., 2005; Valenzuela, 1997; Zevalkink et al., 1999). Therefore, these conflicting results suggest that care-giving practices associated with secure attachment

may not be universal, and they may be contextually and culturally defined according to the needs and values of the community.

Chapter V: Implications for Attachment Research, Training and Intervention

This final project identified many counter-argument examples to established hypotheses of attachment theory as well as supporting evidence to challenge some of its basic assumptions. While this final project was focused on reviewing the effect of culture on attachment behavior, its findings have broader implications for further attachment research, training and intervention.

The secure-base attachment behaviors in infants documented in the studies of this final project provide information about infant behaviors in other cultures. Accordingly, these results do not suggest that characteristic behaviors be attributed to certain ethnic cultures because there are too few samples to make assumptions about any cultures represented here. However, training of infant mental health professionals needs to create awareness that there are infant behaviors (e.g., exploration, physical contact, expressiveness), care-giving behaviors (e.g., holding, control, warmth, breastfeeding on demand, co-sleeping) and care-giving contexts (e.g., multiple-care-giving, independent and interdependent societies) that may relate to differences in security as well as culture. Using traditional models of attachment classifications within the context of values and beliefs may help professionals understand cultural and environmental influences.

Attachment Research Recommendations

In undertaking attachment studies with people and populations, it is recommended that researchers balance the benefits of the research with the harms that may result as a consequence (Fisher, Hoagwood, Boyce, Duster, Frank, Grisso et al., 2002; Restoule, 1997) and examine the scientific merit of the study to determine whether there are any benefits to the group of the particular study (Fisher et al.). Following these

recommendations will help reduce potential negative impacts on the groups being studied.

Regarding the design of future studies, it is recommended that researchers (a) learn about the history of research with the specific group(s) being studied to determine if the members of the group have been fairly and accurately represented; (b) understand the “scientific, social, and political factors governing definitions of race, ethnicity, and culture” (Fisher et al., 2002, p. 1026); (c) consider within-group differences as well as between-group differences (Arredondo, 1999); (d) gain skills in choosing, administering and interpreting appropriate assessment instruments and methods for this cultural group (Arredondo; Harwood, 2006; True et al., 2001); (e) gain awareness of the beliefs, attitudes and biases of one’s own culture (Arredondo; Arthur & Collins, 2005; Yeo, 2003); (f) gather more data in naturalistic settings and access indigenous participants to help interpret the results in the context of the culture (Garcia Coll & Meyer, 1993; Main, 1999); and (g) seek to understand the circumstances and history of the lives of the participants apart from the demographic and research-specific questions that need to be answered (Harwood; Posada et al., 1995; Yeo). Unless these practices are implemented, researchers risk further stigmatizing and exploiting children, families and societies in the name of research.

Specifically, attachment research needs to change so that it is more culturally sensitive. Toward this end, it is recommended that researchers (a) focus on the functional aspects of infant and caregiver behaviors rather than just identification and/or classification (Rothbaum et al., 2000; Sagi, 1990); (b) consider the reasons for differences between the ideal infant attachment behaviors and actual behaviors; (c)

establish relationships with parents and indigenous experts and ask about caregiver-infant relationships in their society (Gerlach, 2007; True et al., 2001); (d) define the specific culture(s) being studied; (e) examine local knowledge, customs and beliefs about care-giving and infancy (True et al.); (f) connect attachment research to other fields, including attention and memory, cognition, linguistics, neuropsychology, anthropology and temperament (Main, 1999; Porges, 2007), and; (g) assess the infant's relationship with all caregivers and not just the mother (Ainsworth, 1977) to determine the extent to which attachment figures are interchangeable (Ainsworth; Berg, 2003; Posada et al., 1995; Rothbaum et al.).

Current attachment research is essentially focused on the past (i.e., antecedents), present (i.e., infant behaviors) and future (i.e., competence) of the caregiver-infant relationship to determine which processes and factors influence security. Even if the antecedents are correlated with infant behavior, such as maternal sensitivity, there is no assurance that there is any causation involved. That is, we cannot be sure that parental beliefs directly affect care-giving behavior and subsequent development (Lightfoot & Valsiner, 1992). As well, just as culture is dynamic and changing, so are the contexts that families are in, which affect the parents' care-giving strategies and may affect the parent-infant relationship (Rothbaum et al., 2000). Each of these research areas needs to be integrated into discussion about attachment research, training and intervention.

Attachment Training and Intervention in Infant Mental Health

Bakermans-Kranenburg, van IJzendoorn and Juffer (2005) reviewed 15 attachment interventions with parents and infants, but none mentioned any cultural considerations. Current interventions, if they are based on the attachment assumptions

reviewed earlier, may not be appropriate for caregivers from diverse backgrounds. For example, interventions that promote encouraging exploration by ‘following the lead’ of the infant, using face-to-face contact (Blehar et al., 1977; Carlson & Harwood, 2003) or limiting parental control, may not be appropriate for parents who control their infants’ behavior or discourage direct eye contact to encourage interdependence and social harmony.

Culturally sensitive use of attachment theory in intervention and training requires, first, that professionals consider their own cultural influences, values and beliefs. Melendez (2005) suggested that professionals who are part of the dominant Euro-Western culture should be careful when giving advice concerning the care-giving practices of sleeping, feeding and soothing since these practices are ingrained with cultural values, as reviewed in some of the studies presented earlier (Carlson & Harwood, 2003; Takahashi, 1990; Tomlinson et al., 2005; True et al., 2001; Zevalkink et al., 1999). Professionals should acknowledge that the care-giving practices that they encourage may be part of the Euro-Western normative culture; thus, they should ask caregivers about their beliefs around these practices to gain a sense of commonality and shared problem-solving that fits more closely with their clients’ beliefs and values (Barrera & Corso, 2002; Shirilla & Weatherston, 2000). Whenever possible, infant mental health professionals should discuss and learn about diverse care-giving practices with people from other cultures to find out more about the meanings and values behind the behaviors, and also to be able to respond more sensitively to caregivers from different cultures than theirs, since many people “cling to practices” (Melendez, p. 142) as a way to preserve their connections with their past experiences and culture. Melendez noted:

Cultural sensitivity does not entail an encyclopedic knowledge about different practices, but a genuine attempt to understand the others' beliefs ... the role they play, not only in their understanding of adequate parenting but also in relation to the way to raise a child who will embody and perpetuate those traits they consider necessary in a well-adjusted adult. (p. 142)

It is only through ongoing discussions with caregivers and experts in attachment and infant mental health that professionals (i.e., researchers and practitioners) will begin to understand the breadth of the attachment processes in all cultures and value systems and determine what behaviors and practices are beneficial and harmful.

Conclusion

Waters and Cummings (2000), commenting about the future of attachment research, emphasize that cross-cultural research is an exciting and relatively new field of study. They also suggest that some researchers assume that Bowlby's (1969, 1988) original theory and Ainsworth's (Ainsworth et al., 1978) classification systems based on are facts rather than merely theories, both of which have not been adequately researched across all cultures. Many assumptions are made about how caregiver-infant attachment should look and behave, but attachment theory actually suggests: (a) that the strange situation is not valid in every culture (Ainsworth et al.; Waters & Cummings); (b) that infants can have attachments to more than one caregiver (Kermoian & Leiderman, 1986; Jackson, 1983, 1990; Morelli & Tronick, 1991; Sagi, 1990); (c) that sensitive care-giving can differ according to contexts (Ainsworth et al.; Jackson, 1990); and even (d) that attachment relationships may not be a priority in the society when circumstances may not

be available that allow caregivers to encourage and maintain secure infant attachment in some contexts (Ainsworth, 1967; Kermoian & Leiderman).

In order to find more information about attachment in all cultures, studies need to examine these assumptions and compare them to the actual behaviors of caregiver-infant relationships—rework the theory to fit the data rather than try to fit the behaviors into the theory. This final project has been an attempt use attachment theory hypotheses and assumptions as a template to focus more on the actual attachment behaviors that are observed; hence, it presented counter-argument examples that should be considered to encourage future attachment research.

As Kuhn (1970) suggested, the evolution of a theory involves intensive fact-gathering, defining terms, developing hypotheses and then beginning this process again as new facts emerge. Theories should not be static; rather, they should involve reworking and discarding old beliefs that do not explain all of the phenomena and anomalies so that the “failure of existing rules is the prelude to a search for new ones” (p. 68). Tensions can occur when theories are contested by some and defended by others, but “when the transition is complete, the profession will have changed its view of the field, its methods, and its goals” (p. 85). These final comments reflect the hope of the present author and future of cross-cultural attachment research.

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Appendix A

Twenty Cross-cultural Attachment Studies: 1988 to 2008

Study	Group(s)	n (dyads)	Assessment	Age of infant (mos.)
(Takahashi, 1990)	Japanese	60	SSP ^{ab}	12
(Vaughn et al., 1991)	French-Canadian	55	AQS ^c	24, 36
	Euro-American	46	AQS	24, 36
(Nakagawa, Teti, et al., 1992)	Japanese	53	AQS	15 - 53
(Jackson, 1993)	African-American	37	SSP ^b	12
(Fracasso et al., 1994)	Puerto-Rican	23	SSP	13
	Dominican	26	SSP	13
(Posada et al., 1995)	Chinese	41	AQS	13 - 44
	Columbian	31	AQS	30 - 55
	German	31	AQS	12 - 36
(Posada et al., 1995) cont.	Israeli	30	AQS	12
	Japanese	29	AQS	12
	Norwegian	20	AQS	36
	Euro-American	45	AQS	34 - 45
(Leyendecker et al., 1997)	Central American	39	SSP	4, 8, 12 ^b
	Euro- American	40	SSP	4, 8, 12
(Valenzuela, 1997)	Chilean	85	SSP	7 - 21 ^b
(Vereijken et al., 1997)	Japanese	48	AQS	23 - 38

Study (infant)	Group(s)	n (dyads)	Assessment	Age
(Broussard, 1998)	African-American	26	SSP ^b	12 – 19 ^b
	Euro-American	12	SSP ^b	12 - 19
(Zevalkink et al., 1999)	Indonesian	46	SSP	12 – 30 ^b
(Easterbrooks & Graham, 1999)	Euro-American	112	AQS	11 – 20
(True et al., 2001)	Malian (African)	27	SSP ^b	10 – 12 ^b
(Posada et al., 2002)	Columbian	61	AQS	8 - 19
	Euro- American	60	SSP/AQS	12
(Carlson & Harwood, 2003)	Puerto-Rican	28	SSP	12
	Euro-American	32	SSP	12
(Posada et al., 2004)	Columbian	30	AQS	6 - 15
(Bakermans-Kranenburg et al., 2004)	African-American	142	AQS	24
	Euro-American	1002	AQS	24
(Tomlinson et al., 2005)	South African	147	SSP ^b	18
(Minde et al., 2006)	South African	46	AQS	18 - 40
(Vaughn et al., 2007)	Columbian	25	AQS	36
	Portuguese	58	AQS	30 - 35
	Euro-American	47	“	24 - 42

^aStrange Situation Procedure (Ainsworth et al., 1978).

^bThis assessment was modified from the original method (Ainsworth et al., 1978).

^cAttachment q-sort (Vaughn & Waters, 1990; Waters & Deane, 1985).

Appendix B

Tables of Attachment Ratings for Ethnic Groupings of Samples

Euro-Western, Middle-class Attachment Studies

Study	Western group	n	Assessment	Attachment rating			
AQS Studies							
				Security criterion			
				score			
(Vaughn et al., 1991)	American	46	AQS	.65			
“	Fr.-Canadian	55	AQS	.44			
(Posada et al., 1995)	American	45	AQS	.45			
“	German	31	AQS	.42			
“	Norwegian	20	AQS	.58			
(Posada et al., 2002)	American	60	SSP	.65			
(Bakermans-Kranenburg et al., 2004)	American	1002	AQS	.30			
(Vaughn et al., 2007)	American	47	AQS	.35			
SSP Studies							
				<u>Attachment types</u>			
				B	A	C	D
(Leyendecker, et al., 1997)	American	40	SSP	63%	7.5%	15%	10%
(Carlson & Harwood, 2003)	American	32	SSP	59%	13%	22%	6%

African-American Attachment Studies

Study	n ^a	Assessment	Attachment security
(Jackson, 1993)	37	SSP ^b	(not indicated)
(Broussard, 1998)	26	SSP ^c	11%
(Easterbrooks & Graham, 1999)	20 ^d	AQS	.26
(Bakermans-Kranenburg et al., 2004)	142	AQS	.20
(Vaughn et al., 2007)	9 ^e	AQS	(not indicated)

^an = the number of African-American infants in the study.

^bThis study used a modified version of the SSP.

^cThis study used a modified version of the SSP.

^dThis number represents approximately 18% of the total sample.

^eThis number represents approximately 20% of the total sample.

Latino-American Attachment Studies

Study	Country	n ^a	Attachment types			
			B	A	C	D
(Fracasso, Busch-Rossnagel, & Fisher, 1994)	Puerto-Rico/ Dominican Republic	50 ^a	50%	30%	20%	-
(Carlson & Harwood, 2003)	Puerto-Rico	28 ^b	51%	30%	7%	11%

^aThe two Latino samples in this study are low income.

^bThe sample in this study is middle-class.

North American Immigrant Attachment Studies

Study	Country of origin	n ^a	Assessment	Attachment security
(Nakagawa, Teti, et al., 1992)	Japan	53	AQS	.35
(Leyendecker et al., 1997)	Central America	39	SSP	59%

Latino Attachment Studies

Study	Country	n ^a	Assessment	Attachment security
(Valenzuela, 1997)	Chile	85	SSP	50%/7% ^a
(Carlson & Harwood, 2003)	Puerto-Rico	28	SSP	51%
(Fracasso et al., 1994)	USA ^b	50	SSP	50%
(Leyendecker et al., 1997)	USA ^c	39	SSP	59%
(Posada et al., 1995)	Columbia	31	AQS	.24
(Posada et al., 2002)	Columbia	61	AQS	.69
(Posada et al., 2004)	Columbia	30	AQS	.46
(Vaughn et al., 2007)	Columbia	25	AQS	.49

^aThe two samples in this study were normal birth weight and low birth weight infants.

^bThis sample is from the Puerto-Rican and Dominican populations in the United States.

^cThis sample is from the Central-American immigrant population in the United States.

Asian Attachment Studies

Study	Country	<i>n</i>	Assessment	Attachment security
(Takahashi, 1990)	Japan	60	SSP	68%
(Nakagawa, Teti, et al., 1992)	Japan ^a	53	AQS	.35
(Posada et al., 1995)	China	41	AQS	.30
(Posada et al., 1995)	Japan	29	AQS	.37
(Vereijken et al., 1997)	Japan	48	AQS	- ^b
(Zevalkink et al., 1999)	Indonesia	46	SSP	60%

^aThis sample is of sojourning Japanese families in the United States.

^bThe average q-sort results were not provided for this sample, but the correlation between this sample and American rates was $r = .91$.

African Attachment Studies

Study	Country	<i>n</i> ^a	Assessment	Attachment security
(True et al., 2001)	Mali (Dogon)	27	SSP	67%/87% ^a
(Tomlinson et al., 2005)	South Africa	147	SSP	62%/72% ^a
(Minde, Minde, & Vogel, 2006)	South Africa	46	AQS	.47

^aThe first security rating is from the ABC method (Ainsworth et al, 1978) and the second is from the ABCD method (Main & Solomon, 1990).

Appendix C

Tables of Attachment Ratings for Socio-economic Groupings of Samples

Comparison of Attachment Classification Rates according to Socio-economic Status (SES)

Study	Sample group	AQS Rating	Percentage of sample			
			Type B	Type A	Type C	Type D
Middle SES samples						
(Takahashi, 1990)	Japanese ^a		68	0	32	
(Leyendecker et al., 1997)	Euro-American		63	7.5	15	10
(Carlson & Harwood, 2003)	Euro-American		59	13	22	6
	Puerto-Rican		51	30	7	11
(Vaughn et al., 1991)	Euro-American	.65				
	French-Canadian	.44				
(Nakagawa et al., 1992)	Japanese	.35				
(Posada et al., 1995)	Chinese	.30				
“	German	.42				
“	Israeli	.34				
“	Japanese	.37				
“	Norwegian	.58				
“	Euro-American	.42				

Study	Sample group	AQS Rating	Percentage of sample			
			Type B	Type A	Type C	Type D
(Posada et al., 2002)	Euro-American	.65				
“	Columbian	.69				
(Posada et al., 2004)	Columbian	.46				
(Bakermans-Kranenburg et al., 2004)	Euro-American ^b	.30				
(Vaughn et al., 2007)	Euro-American	.35				
“	Columbian	.49				
“	Portuguese	.35				
Low SES samples						
(Fracasso et al., 1994)	Puerto-Rican/Dominican ^c		50	30	20	
(Leyendecker et al., 1997)	Central-American		59	10	25	13
(Valenzuela, 1997)	Chilean		50 ^d	23	22	2
(Broussard, 1998)	African-American		11	38	11	38
“	Euro-American		50	25	8	16
(Zevalkink et al., 1999)	Indonesian		60 ^e	7	34	
	<i>(Zevalkink et al., 1999)</i>		<i>(52</i>	<i>7</i>	<i>29</i>	<i>20)</i>
(True et al., 2001)	Dogon (Mali)		87	0	13	
	<i>(True et al., 2001)</i>		<i>(67</i>	<i>0</i>	<i>8</i>	<i>25)</i>

Study	Sample group	AQS Rating	Percentage of sample			
			Type B	Type A	Type C	Type D
(Tomlinson et al., 2005)	South African		72	17	11	
	<i>(Tomlinson et al., 2005)</i>		<i>(62</i>	<i>4</i>	<i>8</i>	<i>25)</i>
(Posada et al., 1995)	Columbian	.24				
(Easterbrooks & Graham, 1999)	Euro-American ^e	.26				
(Bakermans-Kranenburg et al., 2004)	African-American ^b	.20				
(Minde et al., 2006)	South African	.47				

Note. Jackson (1993) and Vereijken et al., 1997) were not included in this table because they did not specify attachment rates.

Note. The italicized entries indicate a secondary calculation using the ABCD (Main & Solomon, 1990) versions of the SSP (Ainsworth et al., 1978) on the same sample.

^aThe Japanese participants in this study are sojourners in the United States.

^bThis sample represents a range of socio-economic levels.

^cThe Puerto-Rican and Dominican participants live in the United States.

^dThese results are for the normal weight infant sample.

^eThis American sample is composed of Caucasian, African-American and Latino participants.

Accepted Normative Attachment Rates

Study	Sample group	AQS rating	Percentage of sample			
			Type B	Type A	Type C	Type D
(Ainsworth et al., 1978) ^a	Euro-American		66	22	12	
(van IJzendoorn & Kroonenberg et al., 1988) ^b	Various		65	21	14	
(Main & Solomon, 1990) ^a	Euro-American		63	13	9	15
(van IJzendoorn et al., 1999) ^b	Various		62	15	9	13
(van IJzendoorn et al., 1999) ^c	Various		48	17	10	25
(Vaughn & Waters, 1990) ^b	Euro-American	.32				
(van IJzendoorn et al., 2004) ^b	Canadian, American and European	.32				

^aThis is an original study of the assessment and/or classification system.

^bThis is a validation study of the original results.

^cThese attachment rates were calculated from low-income studies.

Appendix D

Descriptions of Infant Attachment Classifications

The following are descriptions of infant attachment classification types from Ainsworth's Strange Situation studies (Ainsworth et al., 1978) and Main and Solomon's 1990 addition of the insecure-disorganized attachment type.

The Type B (secure) infant:

- Wants proximity or contact with his mother or interaction with her, and he actively seeks it, especially in the reunion episodes.
- If he achieves contact, he seeks to maintain it, and either resists release or at least protests if he is put down.
- The baby responds to his mother's return in the reunion episodes with more than a casual greeting—either with a smile or a cry or a tendency to approach.
- [There is] little or no tendency to resist contact or interaction with his mother.
- [There is] little or no tendency to avoid his mother in the reunion episodes.
- He may or may not be friendly with the stranger, but he is clearly more interested in interaction and/or contact with his mother than with the stranger.
- He may or may not be distressed during the separation episodes, but if he is distressed this is clearly related to his mother's absence and not merely to being alone. He may be somewhat comforted by the stranger, but it is clear that he wants his mother. (Ainsworth et al., 1978, p. 60)

The Type A (insecure-avoidant) infant:

- [Has] conspicuous avoidance of proximity to or interaction with the mother in the reunion episodes. Either the baby ignores his mother on her return,

greeting her casually if at all, or, if there is approach and/or a less casual greeting, the baby tends to mingle his welcome with avoidance responses—turning away, moving past, averting gaze, and the like.

- [There is] little or no tendency to seek proximity to or interaction or contact with the mother, even in the reunion episodes.
- If picked up, [there is] little or no tendency to cling or to resist being released.
- On the other hand, [there is] little or no tendency toward active resistance to contact or interaction with the mother, except for probable squirming to get down if indeed the baby is picked up.
- [There is a] tendency to treat the stranger much as the mother is treated, although perhaps with less avoidance.
- Either the baby is not distressed during separation, or the distress seems to be due to being left alone rather than to his mother's absence. For most, distress does not occur when the stranger is present, and any distress upon being left alone tends to be alleviated when the stranger returns. (Ainsworth et al., 1978, p. 59)

The Type C (insecure/ambivalent) infant:

- ...displays conspicuous contact- and interaction-resisting behavior, perhaps especially in Episode 8 [when the mother returns after two separations]
- He also shows moderate-to-strong seeking of proximity and contact and seeking to maintain contact once gained, so that he gives the impression of being ambivalent to his mother.

- He shows little or no tendency to ignore his mother in the reunion episodes, or to turn or move from her, or to avert his gaze.
- He may display generally “maladaptive” behaviour in the strange situation. Either he tends to be more angry than infants in other groups, or he may be conspicuously passive. (Ainsworth et al., 1978, p. 62)

The description of insecure-disorganized attachment by Main and Solomon (1990) is quite detailed, therefore, only the main categories and descriptors are listed here:

1. Sequential display of contradictory behaviour patterns
 - Very strong displays of attachment behaviour or angry behaviour suddenly followed by avoidance, freezing, or dazed behaviour
 - Calm, contented play suddenly succeeded by distressed, angry behaviour
2. Simultaneous display of contradictory behaviour patterns
 - The infant displays avoidant behaviour simultaneously with proximity seeking, contact maintaining, or contact resisting
 - Simultaneous display of other opposing behavioural propensities
3. Undirected, misdirected, incomplete, and interrupted movements and expressions
4. Stereotypies, asymmetrical movements, mistimed movements, and anomalous postures
5. Freezing, stilling, and slowed movements and expressions
 - Freezing is identified as the holding of movements, gestures, or positions in a posture that involves active resistance to gravity. For example, [the]

infant sits or stands with arms held out waist-high and to sides. Stilling is distinguished from freezing in that [the] infant is in [a] comfortable, resting posture which requires no active resistance to gravity. Freezing is considered a stronger marker of disorientation than stilling.

- Slowed movements and expressions suggesting lack of orientation to the present environment

6. Direct indices of apprehension regarding the parent

- Expression of strong fear or apprehension directly upon return of parent, or when parent calls or approaches

- Other indices of apprehension regarding the parent

7. Direct indices of disorganization or disorientation. (Main & Solomon, 1990, p.136-140)