Attachment and the Development of Personality and Social Functioning

MARI FRANSSON
Abstract

*Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Social Sciences* 79 pp. Uppsala: Acta Universitatis Upsaliensis.

According to attachment theory, the establishment of an attachment bond to a caregiver not only provides the infant with protection from danger, but also many other resources presumably beneficial to the child’s general psychological development. Although there is substantial empirical support for a link between attachment security and social functioning in childhood and adolescence, less is known about whether childhood attachment contributes to social functioning beyond adolescence. Similarly, attachment has been found predictive of broad aspects of a person’s functioning, but few attempts have been made to link attachment to the currently dominating perspective on personality, the Five Factor Model (FFM). Results in Study I partially supported our expectations, by showing prospective links from middle childhood security to various aspects of social functioning in young adulthood. Further, security contributed to developmental change in social functioning from middle childhood to young adulthood. In Study II, middle childhood security was found to predict some of the FFM personality traits (primarily extraversion and openness) concurrently and prospectively, partially supporting our expectations. The third aim of this thesis was to address whether attachment disorganization, which has usually been found predictive of maladaptive phenomena, may predict also other, non-pathological outcomes. In Study II, we found that higher levels of disorganization in young adulthood were concurrently associated with more openness and lower conscientiousness. Furthermore, in Study III disorganization was shown to be concurrently associated with more New Age spirituality and more absorption in adulthood. In addition, absorption was, in accordance with our expectations, found to statistically mediate the link between disorganization and New Age spirituality. Hence, these findings supported our assumption that disorganization might be expressed in other life domains besides specifically maladaptive ones. Taken together, we suggest that attachment spreads its influence to a broad set of life domains through its continuous influence on general psychological components such as cognitive representations and self-regulation abilities. However, the modest strength of our results indicates that attachment is only one among several factors involved in the development of social functioning, personality traits, and spirituality.

Keywords: Social anxiety, loneliness, social competence, Adult Attachment Interview, Separation Anxiety Test, Five Factor Model, absorption, spirituality

*Mari Fransson, Department of Psychology, Box 1225, Uppsala University, SE-75142 Uppsala, Sweden.*

© Mari Fransson 2014

ISSN 1652-9030

urn:nbn:se:uu:diva-221869 (http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-221869)
To Stefan, Tage and Skillan
List of Papers

This thesis is based on the following papers, which are referred to in the text by their Roman numerals.


*Reprints were made with permission from the publisher.*
## Contents

**Introduction** .................................................................................................................. 7  
*Attachment Theory* ........................................................................................................... 7  
  The Evolutionary Roots of Attachment ............................................................................. 7  
  An Affectional Bond and Its Emotional Ramifications .................................................. 8  
  Internal Working Models (IWMs) ................................................................................... 8  
  Individual Differences in Infant Attachment .................................................................. 9  
*Attachment in Middle Childhood* .................................................................................... 10  
  Normative Developmental Issues .................................................................................. 10  
  Individual Differences in Middle Childhood Attachment ............................................. 11  
*Implications of Attachment for Future Social Functioning* ........................................ 12  
*Attachment in Adulthood* ............................................................................................... 14  
  Normative Developmental Issues .................................................................................. 14  
  Individual Differences in Adult Attachment .................................................................. 15  
  Is Adult Attachment a Personality Construct? ............................................................... 16  
*Attachment and Personality Development* ................................................................... 16  
  Can Attachment Be Used to Understand the Development of Personality Traits? ........ 18  
*Disorganized Attachment and Personality* .................................................................... 20  
  Disorganized Attachment in Infancy and Adulthood ..................................................... 20  
  Disorganized Attachment and Dissociation ................................................................ 21  
  Disorganized Attachment and Absorption .................................................................... 22  
  Disorganized Attachment and Openness ...................................................................... 23  
*Disorganized Attachment in Everyday Life Domains* .................................................. 24  
*Aims of the Current Thesis* ............................................................................................ 26  

**Empirical Studies** ........................................................................................................... 28  
*Method* ............................................................................................................................ 28  
  Participants and Procedure ......................................................................................... 28  
  Measures ...................................................................................................................... 30  
*Study I* ............................................................................................................................ 36  
  Background and Aims ................................................................................................. 36  
  Results .......................................................................................................................... 36  
  Conclusions .................................................................................................................. 39  
*Study II* ............................................................................................................................ 41  
  Background and Aims ................................................................................................. 41  
  Results .......................................................................................................................... 42  
  Conclusions .................................................................................................................. 44
Study III .................................................................................................................. 46
  Background and Aims ......................................................................................... 46
  Results .................................................................................................................. 46
  Conclusions ......................................................................................................... 47

General Discussion ................................................................................................. 48
  Key Findings ....................................................................................................... 48

The Contribution of Security to Aspects of Social Functioning .......... 49
  Middle Childhood Security and Future Social Functioning ......................... 49
  Why Was Avoidance Associated with Low Self-reported Social Functioning? .................................................................................................................. 50
  Was Avoidance Predictive of Relative Change in Social Functioning from Middle Childhood to Young Adulthood? ......................................................... 51
  Why Was Specifically Avoidance Related to Future Social Functioning? .................................................................................................................. 52
  What Processes Might Underlie the Prospective Link from Avoidance to Social Functioning in Young Adulthood? ................................................................. 53

The Contribution of Security to the Development of the FFM Personality Traits .................................................................................................................. 54
  The Attachment Relationship and the FFM Personality Traits ................. 54
  Security and Extraversion ............................................................................... 55
  Security and Openness .................................................................................... 56

Why Was Security in Middle Childhood Generally a Better Predictor than Security in Early Adulthood? ................................................................. 57

Non-Psychopathological Sequelae of Disorganization ......................... 58
  The Contribution of Disorganization to the Development of the FFM Personality Traits .................................................................................................. 58
  Disorganization, Absorption and New Age Spirituality ............................ 60

Additional Limitations and Related Future Directions ................................. 62
  Concluding Remarks ......................................................................................... 63

Acknowledgements ............................................................................................... 64

References ............................................................................................................. 66
Introduction

Attachment Theory
When a person enters the world no one can forecast his or her future. The number of factors involved and the multitude of possible ways in which they are intertwined create a complex pattern difficult to disentangle. Nevertheless, attachment theory, developed by the psychiatrist and psychoanalyst John Bowlby (1907-1990), has together with other developmental theories contributed to the identification of important factors and processes in a person’s development, permitting critical pieces of this pattern to be revealed. One of Bowlby’s most influential contributions was his idea of an evolutionary-based affectional bond, called attachment, which a child forms to his or her caregivers' and which is of great importance for the child’s future functioning (Bowlby, 1973).

The Evolutionary Roots of Attachment
In the beginning of his career, John Bowlby was convinced by his clinical experiences and research findings in, for example, evolutionary biology, ethology and developmental psychology, that prolonged separations from one’s parents in early life have a profound and sometimes irreversible impact on a child’s socio-emotional development (Cassidy, 2008). Through naturalistic observations, Bowlby and his colleagues found that children who were separated from their parents during hospital visits experienced intense distress, even if they were fed and cared for by others (Cassidy, 2008; Robertson, 1953). According to Bowlby (1969/1982), the reason why a child creates such a strong tie to his or her parents is because the ability to do so has been favored by evolution. Because infants are to a great extent vulnerable and helpless, the tendency to seek closeness to a parent has enhanced their ability to survive and reproduce (i.e., their inclusive fitness). Through the processes of natural selection infants are therefore predisposed to seek physical proximity in the context of perceived danger or stress, for example pain, hunger, fatigue, illness, or the absence of the parent. According to Bowlby

---

1 The terms caregivers, parents, and attachment figures are used interchangeably in this thesis. Bowlby (1969/1982) did not assume that the primary attachment figures have to be the biological parents, but referred to those who have the main caregiving responsibility for the child.
(ibid), such external or internal cues of stress or danger trigger an innate behavioral system, called the attachment system, which contains and organizes attachment behaviors, for example crying, reaching, smiling, and later following the parents. The parent’s complementary behavioral system, called the caregiving system (see George & Solomon, 2008), is designed to respond to the child’s attachment signals and promote proximity and comfort when the parent perceives that the child is in real or potential danger (Cassidy, 2008). The chief behavior within this system is retrieval (Bowlby 1969/1982), but includes, for example, also calling, reaching, restraining, following, and soothing.

An Affectional Bond and Its Emotional Ramifications

Through repeated interactions the child creates an affectional bond, called attachment, to his or her parents (Bowlby, 1969/1982). Bowlby described the formation of this bond as falling in love and the maintaining of the bond as loving someone. Consequently, the loss of an attachment figure, or the threat of losing him or her, is likely to give rise to strong reactions of anxiety, anger and sorrow in the child, whilst the unchallenged maintenance of this bond is expected to serve as a source of joy. Such emotional responses are, according to Cassidy (2008), likely to be the result of evolutionary pressure, because experiences of positive emotion in relation to an attachment figure and sadness following his or her loss can actively work to maintain attachment bonds, and thereby contribute to the infant’s enhanced inclusive fitness. Besides the maintaining function, emotions may also serve as regulating mechanisms within the attachment relationship, for example by alerting the attachment figure to the child’s concerns (Bowlby, 1973; Cassidy, 2008). According to Cassidy (ibid), the way emotions are communicated about, responded to, shared, and regulated within the attachment relationship are likely to influence the child’s strategies to maintain the relationship with his or her caregiver (for individual differences in attachment, see below), as well as to shape the child’s own ability to regulate emotions and distress. In turn, such regulation patterns are expected to affect future interactions with, for example, friends and romantic partners (e.g., Cassidy, ibid; Thompson, 2008; Weinfield, Sroufe, Egeland, & Carlson, 2008).

Internal Working Models (IWMs)

According to Bowlby (1969/1982, 1973), the quality of care a child experiences with his or her attachment figures is also expected to affect the child’s cognitive-affective representations, called internal working models (IWMs). He proposed that such interactions influence the child’s beliefs and expectations about others and the self. He suggested that a child, who has by his or her parents been treated in a consistently sensitive manner, learns to expect
that others are available and responsive when needed, and that oneself is loveable and worthy of care. If the parents have repeatedly rejected or responded inconsistently to the child’s needs, the child learns instead to mistrust other people and to view oneself as not deserving better treatment. According to Thompson (2008), the IWMs can be described as filters through which the person reconstructs his or her understanding of new relationships and experiences, in ways that are consistent with past experiences of care. As a consequence, not only do people tend to choose new partners that are consistent with expectations developed in earlier experiences with their principal attachment figures, but they also likely to behave with them in ways that elicit responses that are consistent with such expectations. Although the IWMs are in these ways likely to be confirmed, development depends, according to Bowlby (1973), both on the prior history and on current circumstances. Hence, the IWMs might be transformed at any point in time, but such transformations are at the same time constrained by prior experiences.

Individual Differences in Infant Attachment

To investigate individual differences in attachment Mary Ainsworth (1913-1999) and her colleagues developed a semi-structured lab procedure called the Strange Situation Procedure (SSP; Ainsworth, Blehar, Waters, & Wall, 1978). This procedure was designed to capture the attachment-exploration balance during conditions of increasing though at most moderate stress, represented by repeated separations and reunions between the child and parent in an unfamiliar situation. Ainsworth and colleagues (ibid) found three different patterns of attachment organization, which they named secure, insecure-avoidant and insecure-resistant/ambivalent attachment. Once settled in the unfamiliar situation, the secure child used the parent as a secure base from which he or she explored the environment. When the parent left, the child showed signs of missing the parent, and on reunion he or she greeted the parent. If the child was upset due to the separation, he or she used the parent on reunion as a haven of safety to which he or she turned for protection and comfort. The insecure-avoidant child explored readily throughout the procedure at the expense of attachment interactions. During the separation the child responded minimally and actively avoided the parent on reunion. Thereby neither the separation nor the reunion seemed to affect the child, although psychophysiological measures have revealed that the avoidant child seems to experience such situations as stressful (Sroufe & Waters, 1977; Spangler & Grossman, 1993). On the contrary, the insecure-resistant/ambivalent child was distressed already at the start, when no separation had yet occurred, and clung to the attachment figure to an extent that prevented exploration. The child was distressed during the separation, but failed to find comfort in the parent on reunion.
Another important finding of Ainsworth and colleagues (1978) was that the mother’s sensitivity to her infant’s signals and communications during the first year was linked to attachment security in the SSP when the child was about one year. Ainsworth defined sensitivity as to be aware of, interpret adequately and respond appropriately and promptly to the child’s signals and communications. She found that mothers of avoidant infants provided their infants with little positive experience with physical proximity and were rejecting, and mothers of ambivalent infants were inconsistent or unresponsive to the infant’s distress and to other signals (Solomon & George, 2008). However, in a meta-analysis, De Wolff and van IJzendoorn (1997) concluded that parental sensitivity, although important, seems not to be the exclusive factor involved in the development of secure attachment. Other aspects of parenting as reflective functioning (Fonagy, Steele, Steele, Moran, & Higgitt, 1991; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005) and mind-mindedness (Meins, Fernyhough, Fradley, & Tuckey, 2001), as well as more distal factors such as social support and parental marital quality (see Belsky & Fearon, 2008) have been shown to have at least indirect effects on the development of attachment security. In addition, there is also empirical support for the effect of gene and environment in interaction in such development (e.g., Barry, Kochanska, & Philibert, 2008; Luijk et al., 2011).

Attachment in Middle Childhood

Normative Developmental Issues

Because of cognitive maturation and an increased ability to self-regulate, the goal of the attachment system is expected to change from physical proximity to the parents in early childhood to availability of the parents in middle childhood (see Kerns, 2008; Kobak & Madsen, 2008). According to Sroufe and Waters (1977), the individual’s ‘felt security’ (i.e., one’s perceived level of security, irrespective of one’s age or the specific context at hand) is the optimal set point of the attachment system. Depending on the maturity of the person and the amount of arousal a situation triggers, felt security is achieved through different acts, for example establishing physical proximity or just thinking of the attachment figure.

As the child in middle childhood becomes more self-reliant (Marvin & Britner, 2008) the attachment system is expected to be more rarely and less easily activated, and the frequency and intensity of specific attachment behaviors, such as clinging and following the attachment figure, are likely to decline (Bowlby, 1969/1982; Kerns, 2008). Furthermore, the number of attachment figures is expected to increase from two to three people during the
The child’s first year of life, in western cultures often represented by parents and grandparents, to gradually include people outside the family context, for example day care providers and teachers. Although the attachment system is believed to go through several normative changes during the years preceding middle childhood, the parents continue to function as principal attachment figures, which means that children of these ages mainly turn to their parents for comfort, support and assistance. Not until adolescence do friends or romantic partners normally serve as full-blown attachment figures (Kerns, 2008).

Individual Differences in Middle Childhood Attachment

Another normative change of the attachment system is that as the child gets older the IWMs of specific attachment figures are expected to integrate into a general model of attachment relationships (e.g., Main, Kaplan, & Cassidy, 1985). Such changes in the IWM arrangements have implications for how attachment is measured in different ages, although it is still unclear at which age this transformation is completed and if the generalized model is developed in addition to or in place of representations of specific attachment relationships (see below). However, assessments of attachment differences in middle childhood often focus on the individual’s generalized model of attachment relationships, compared to specific attachment relationships in the SSP (Kerns, 2008). One such instrument commonly used in this age period is the Separation Anxiety Test (SAT; Kaplan, 1987; Slough, Goyette, & Greenberg, 1988), which assesses internal representations of attachment on the basis of children’s responses to projective pictures of separations between fictional children and parents. In the Seattle version of the SAT (described further in the Method section, below), a securely attached child is, due to working models of responsive and accessible caregivers, expected to express concerns or negative feelings about severe separations and express self-confidence and well-being in response to milder separations. In contrast, an insecure child might respond in a variety of ways, for example claiming self-reliance even in severe separations, discussing the separations illogically or avoid talking about separation issues.

Although the exclusive impact of infant security and early parental sensitivity on later development sometimes is highlighted, early security has been found to be more strongly associated with later functioning in the context of continued experiences of sensitive parental care and maintained security (Belsky & Fearon, 2002; Sroufe, Egeland, Carlson, & Collins, 2005; Thompson, 2008). Hence, early security seems to interact with the quality of subsequent experience, implying that both early and later attachment-related experiences are important in predicting later adaptation. Such findings are in accordance with Bowlby’s (1988) proposal that IWMs are likely to restrict
Implications of Attachment for Future Social Functioning

Although the ultimate outcome of the attachment system is the survival and reproduction of the genes an individual is carrying, many other outcomes beneficial to the child are thought to result from the child’s relation to the attachment figure, for example assistance with regulation of affects and biological needs, and learning about the environment and social interaction (Bowlby, 1969/1982; Cassidy, 2008; Thompson, 2008). Bowlby (1979 in Berlin, Cassidy, & Appleyard, 2008) proposed that there is a causal link between an individual’s experience with his or her attachment figures and one’s capacity to create affectional bonds to other close people, for example friends, romantic partners and one’s own children. However, the knowledge acquired in the attachment relationship about social interactions seems likely to be useful not only in close relationships, but also in interactions with peers, teachers and future colleagues.

There are several ways in which a child is expected to profit socially from a secure attachment relationship. For example, experiencing sensitive care by one’s attachment figures is assumed to be generalized into a belief that relationships are a context in which needs are met and induce in the child a basic trust in others’ friendliness (Bowlby, 1969/1982, 1973; Weinfield et al., 2008). In addition, sensitive responses to the child’s signals are expected to increase the sense of self-efficacy and self-esteem in the child, due to experiences that the self is able to retrieve support when needed (Bowlby, 1973; Thompson, 2008; Weinfield et al., ibid). Furthermore, through experiences of sensitive treatment the child is expected to learn behavioral reciprocity and synchrony (Weinfield et al., ibid). Hence, experiences in secure attachment relationships are likely to lend the child with positive expectations regarding others’ availability and responsiveness, and one’s own likeability and capacity, and provide the child with useful insights regarding efficient social interaction abilities, which altogether should bode well for well-adapted social functioning.

According to Bowlby (1973), insecurely attached children, who cannot to the same extent profit from their attachment relationship, are instead at risk for developing maladaptive patterns of social functioning. For example, uncertainty regarding others availability and one’s own capacity, expected to
evolve from a history of inconsistent and unpredictable parental responsiveness (Ainsworth et al., 1978; Bowlby, ibid), might lead to anxious and dependent styles of interacting in ambivalently attached children (Cassidy & Berlin, 1994). Such experiences seem also likely to interfere with social initiative taking, and might increase the risk for social anxiety and elevated feelings of loneliness. In avoidantly attached children experiences of chronic parental rejection are expected to aggravate the growth of empathy toward other people (e.g., Weinfield et al., 2008), and might thereby impede the development of a prosocial orientation toward peers. Similarly, negative expectations regarding others’ responsiveness and one’s own likeability seem likely to discourage also avoidantly attached children from initiating social contact, and might increase the risk for social anxiety and loneliness.

Research has supported the notion that security, from infancy and throughout the childhood period, is both concurrently and prospectively related to a wide range of attributes associated with adaptive social functioning (for a meta-analysis regarding attachment and peer relationships, see Schneider, Atkinson, and Tardiff, 2001). For example, in the Uppsala Longitudinal Study (ULS; which Study I and II in this thesis are parts of), Bohlin, Hagell, and Rydell (2000) found that infancy and middle childhood security was positively related to social initiative taking, popularity (see also Kerns et al., 1996) and positive social behaviors, and negatively related to social anxiety (see also Brumariu & Kerns, 2008) in middle childhood. In addition, attachment security has been associated with high quality friendships (Kerns, Klepac, & Cole, 1996), low rates of peer conflict (Raikes, Virmani, Thompson, & Hatton, 2013), competent social problem-solving skills (Raikes & Thompson, 2008; Suess, Grossman, & Sroufe, 1992), more self-efficacy and independence (e.g., Matas, Arend, & Sroufe, 1978; Sroufe, Fox, & Pancake, 1983; Urban, Carlson, Egeland, & Sroufe, 1991); more positive attributions of peers’ intentions (Cassidy, Kirsch, Scolton, & Parke, 1996; Ziv, Oppenheim, & Sagi-Schwartz, 2004); low hostility, scapegoating and aggressiveness in interactions with others (e.g., McElwain, Cox, Burchinal, & Macfie, 2003; Suess et al., 1992), low social withdrawal (Lewis, Feiring, McGuffog, & Jaskir, 1984), and loneliness (Berlin, Cassidy, & Belsky, 1995; Kerns et al., 1996; Raikes & Thompson, 2008).

Studies on adolescents have revealed a similar pattern of concurrent and prospective associations between attachment security and adaptive social functioning as those found in younger ages. For example, attachment security has been associated with popularity and higher social acceptance (Allen, Moore, Kuperminc, & Bell, 1998; Allen, Porter, McFarland, McElhaney, & Marsh, 2007; Dykas, Ziv, & Cassidy, 2008), higher prosociality (Dykas et al., 2008), being more comfortable with intimacy in close friendships (Allen et al., 2007; Sroufe et al., 2005; Zimmerman, 2004), higher overall quality of
peer relationships (Allen et al., 2007), as well as lower aggression and hostility (Dykas et al., 2008; Kobak & Sceery, 1988; Zimmerman, 2004), social withdrawal (Dykas et al., 2008; Larose & Bernier, 2001), social anxiety (Zimmerman, 2004) and loneliness (Kobak & Sceery, 1988; Larose, & Bernier, 2001). Although there is substantial support for the contribution of attachment to social functioning in childhood and adolescence, studies investigating similar links from attachment to social functioning in adulthood are to the best of our knowledge absent².

Attachment in Adulthood

Normative Developmental Issues

Although attachment theory is considered to be a lifespan developmental theory, and Bowlby and Ainsworth clearly acknowledged the importance of the attachment system across the life course, they provided relatively few specifications concerning its precise function and expression later in life. However, due to contemporary research and theoretical elaborations regarding the life span influence of IWMs (Bowlby, 1969/1982, 1973, 1980), the understanding of adult attachment is growing (Allen, 2008; Crowell, Fraley, & Shaver, 2008; Zeifman & Hazan, 2008).

During adolescence the attachment system is expected to go through major transformations, which permit late adolescents and young adults to go from being recipients of care to becoming potential caregivers themselves to peers, romantic partners, and offspring. At the same time, they begin to function all the more independently of their parents and gradually transfer dependencies from parents to peers and romantic partners, who by late adolescence for some people begin to function as full-blown attachment figures (Friedlmeier & Granqvist, 2006; Zeifman & Hazan, 2008). In early adulthood, close friends or romantic partners often begin to serve as one’s primary attachment figures (Zeifman & Hazan, ibid), although people still turn to their parents as attachment figures even in adulthood (Fraley & Davis, 1997). The kinds of attachment relationships that people form in adulthood share basic similarities with those observed in infancy and early childhood. More specifically, adults show a desire for proximity to the attachment figure when stressed, increased comfort in the presence of the attachment fig-

² There are more examples of such research using self-report measures of adult attachment styles, which is rooted in the personality and social psychology research field. However, the conceptualization of adult attachment originating in developmental psychology is in many ways different. Due to limited space, this thesis will mostly focus on attachment research undertaken in the developmental psychology tradition.
ure, anxiety when the attachment figure is inaccessible (see Crowell et al., 2008) and grief following loss of an attachment figure (Bowlby, 1980; Shaver & Fraley, 2008). A major difference between adult-adult attachment and child-parent attachment, though, is that the two partners in adult attachment relationships are expected to shift between expressing attachment and caregiving, which means that the attachment system tends to work reciprocally in this age period (see Crowell et al., ibid). Throughout life, attachment behaviors are especially evident when an individual is distressed, ill, afraid, or reunited with an attachment figure after a long absence (Bowlby, 1979 in Marvin & Britner, 2008).

Individual Differences in Adult Attachment

By adolescence an emerging generalized stance called ‘state of mind’ toward one’s attachment experiences allows “the security of the self in relation to attachment in its generality rather than in relation to any particular present or past relationship” to be assessed (Main et al., 1985, p. 78). To enable the assessment of such a current ‘state of mind’ with respect to attachment, the Adult Attachment Interview (AAI; Main, Goldwyn, & Hesse, 2003) was developed. The AAI is a semi-structured interview in which the interviewee is asked to describe and evaluate experiences of his or her childhood attachment relationships and the effects those experiences have had on his or her development. The interviewee is asked to provide both general descriptions of their childhood relationships with their parents and specific memories in support of such descriptions. To what degree those experiences are depicted coherently, and not whether they were positive or negative, is crucial for the classification of such a current ‘state of mind’ in the AAI. High coherence demonstrates a secure ‘state of mind’ and is achieved if the narrative appears truthful (i.e., internally consistent), succinct but yet complete, relevant to the topic, and clear (see Hesse, 2008).

Individuals classified as secure-autonomous provide coherent discourse, are free to explore their attachment experiences, and implicitly or explicitly seem to value their attachment relationships and experiences, for example by implying that they have been important to personal development. Dismissing (cf. avoidant) narratives are characterized by low coherence and marked idealization (i.e., illustrate one’s past attachment experiences as globally positive while failing to provide specific supporting details), denial of the importance of the attachment experiences for the speaker’s personality development, and discomfort with expressing vulnerability or feelings of dependence on others. Individuals assigned a preoccupied (cf. ambivalent) classification demonstrate low coherence by a confused and/or passive, excessive and unobjective (e.g., angry) preoccupation with attachment relationships and/or experiences, and appear to be closely and inflexibly tied to ex-
periences with their parents (Hesse, 2008; Main et al., 2003; see also Dykas et al., 2008). The AAI classifications are conceptually equivalent to the classifications derived in the SSP (e.g., the secure infant’s open exploration of the environment, open expression of dependency and valuing of his or her attachment figure). Empirical support for continuity from attachment in infancy (assessed by the SSP) to adulthood (assessed by the AAI) has been found in some studies (e.g., Waters, Merrick, Treboux, Crowell, & Albersheim, 2000), but not in others (e.g., Weinfield, Sroufe, & Egeland, 2000; for a recent meta-analysis, see Pinquart, Feussner, and Ahnert, 2013). Invasive life events, have been suggested, and in some studies found to underlie what is called lawful discontinuity (Weinfield et al., 2000). Concerning the transmission of attachment across generations, meta-analytic findings (van IJzendoorn, 1995) have yielded convincing results regarding the predictive value of parents’ AAI status to their infant’s SSP status.

Is Adult Attachment a Personality Construct?

Through the emergence of a generalized ‘state of mind’, attachment is commonly expected to move from being relationship-specific (albeit represented internally) to become an intrinsic characteristic of the person (Bowlby, 1988; Main et al., 1985). Although such a notion might seem simple on the surface, it raises fundamental questions about stability and change, striking at the person-situation debate in personality research (Fraley & Shaver, 2008). Bowlby (1973) believed that the IWMs should not be viewed as templates, because the environment continuously works to shape them. However, at the same time he argued that attachment relationships have a strong causal influence on later relationships (1979, in Berlin et al., 2008) and that the IWMs become more resistant to change over time. Together such perhaps divergent descriptions of attachment representations suggest that although the IWMs tend to become generalized with time and force the person to show some consistency across relationships, they are at the same time relationship-specific (Fraley & Shaver, 2008). To permit such flexibility it has been proposed that people develop an abstract and global representation besides the relationship-specific IWMs, the former of which captures their averaged attachment experiences (Bretherton & Munholland, 2008). Accordingly, some researchers (e.g., Kobak 1994; Sroufe et al., 2005) have suggested that attachment is best seen as both a personality and relationship construct, at the same time.

Attachment and Personality Development

Given that individual differences in attachment have been related to a broad repertoire of a person’s socio-emotional functioning and that attachment is at
least partly defined as a personality construct, it does not seem far-fetched to suggest that attachment theory could be conceived as a theory about personality development. In the largest and most comprehensive study of early attachment and its developmental consequences (the Minnesota Study of Risk and Adaptation from Birth to Adulthood), Sroufe and colleagues (2005) found that early security directly or via subsequent quality of care influenced the development of a broad range of personality characteristics throughout childhood and adolescence, for example tolerance, self-confidence, ego resiliency, positive affectivity, curiosity and exploration. In accordance with their results, Sroufe and colleagues (ibid) suggested that attachment status shapes emergent personality processes in infancy, and as such processes mature and consolidate, they exert a continuing influence on subsequent personality growth (Sroufe et al., 2005; Thompson, 2008). This view of development is largely inspired by Bowlby’s (1973) pathway theory of personality growth.

Ainsworth and Bowlby (1991) portrayed attachment theory as an “ethological approach to personality development” (Ainsworth & Bowlby, 1991, p. 333). Inspired by Waddington’s (1957) discussion about how a cell maintains a particular developmental trajectory in the face of external disturbances, Bowlby (1973) believed that personality growth was guided by ‘homeorthetic’, or self-regulating factors (e.g., how the person interprets the environment in the light of previous experiences), which together with stability in environment and the general tendency of IWMs to assimilate rather than accommodate to new information (Bowlby, ibid), work to keep the person on a specific pathway once it has been established. Although these factors work in a stabilizing fashion it does not mean that change is not possible, just that it becomes restricted with time. Bowlby (ibid) proposed that at conception a total array of potential pathways are available for the person, but as development progresses the number of pathways that remain open diminishes. Furthermore, he believed that the proceeding development was at every point dependent on “the interaction between the organism as it has developed up to that moment and the environment in which it then finds itself” (Bowlby, ibid, p. 412).

It is unclear to what extent Bowlby believed that a child’s preexisting, constitutionally based dispositions generally play a role in the development of the person (Fraley & Shaver, 2008). He (1973) proposed that the initial “choice” of pathway is determined by the make-up of the individual’s genome, but that a person’s interaction history is a more proximate and crucial determinant of the thoughts, feelings, and behaviors that the person experiences in close relationships (Fraley & Shaver, 2008).
Can Attachment Be Used to Understand the Development of Personality Traits?

Although attachment theory has been theoretically and empirically linked to personality development, it has not been fully embraced by contemporary personality researchers as a theoretical framework through which to understand personality development (Fraley & Shaver, 2008). One reason for this might be that the paradigm of the Five Factor Model (FFM; also named the ‘Big Five’; Digman, 1990; John, Naumann, & Soto, 2008; McCrae & Costa, 2008) in many ways dominates contemporary research. Although mainly descriptive and empirically driven, the FFM, in contrast to attachment theory, has traditionally emphasized genetic origins of personality structures (e.g., Bouchard & Loehlin, 2001; McCrae & Costa, ibid). However, although there is some consensus that traits can be defined as “the relatively enduring patterns of thoughts, feelings, and behaviors that distinguish individuals from each other” (Roberts, Wood, & Caspi, 2008, p. 375), researchers subscribe to a diversity of perspectives on the conceptual status of the Big Five, ranging from purely descriptive to biologically based causal concepts (e.g., see McCrae & Costa, ibid; Saucier & Goldberg, 1996). According to John and colleagues (ibid), the question regarding how to best define traits should be answered empirically.

The five most commonly captured dimensions in the FFM, gained through factor analyses of trait-descriptive terms across a variety of studies, are extraversion, agreeableness, conscientiousness, neuroticism, and openness (John et al., 2008). Extraversion reflects surgency, energetic and positive emotions, and the tendency to actively seek, instead of avoiding, the company of others. Agreeableness refers to the tendency to be compassionate, empathetic and cooperative towards others rather than suspicious and antagonistic. Conscientiousness captures socially prescribed impulse control, the tendency to act in task- and goal-directed ways, and to be able to delay gratification. Neuroticism reflects the presence and effects of negative affect such as anger, anxiety, and sadness, as opposed to emotional stability. Openness to experiences refers to complexity, depth, and quality of a person’s mental and experiential life, reflecting appreciation for creativity, curiosity, and a variety of experience (John et al., ibid; Shiner & Caspi, 2003).

Although personality trait research has been successful in describing the broad structure of individual differences in personality, less is known about the developmental trajectories to these five factors of personality from childhood to adulthood (John et al., 2008). There is, however, growing evidence for a temperamental core to personality (Caspi, Roberts, & Shiner, 2005), but how temperament is elaborated into personality dimensions is rather unclear. Empirical studies that have shown a substantial genetic contribution
to personality (Bouchard & Loehlin, 2001) are in line with the idea of a temperamental origin of personality. Some researchers argue that personality traits are largely independent of environmental influences (McCrae & Costa, 2008), whereas others stress the importance of both genes and environment in personality development (Lewis, 2001; Rothbart, Ahadi, & Evans, 2000; Shiner & Caspi, 2003).

Despite the fact that Bowlby (1973) perceived attachment theory as a theory about personality development, he probably did not have in mind the development of basic personality traits but referred to personality development in a broader sense. Perhaps because of such a discrepancy in the approach to personality development, few empirical investigations have been undertaken to study the specific interrelations between attachment and the FFM. Nevertheless, links between attachment and FFM can be theoretically substantiated, especially in relation to attachment security.

For example, early experiences with attachment figures may serve as a foundation for the acquisition of a broad range of future abilities, which are reflected in the FFM. Presumably through its association with a positive view of the self as a worthy and capable agent and of others as responsive to the self, attachment security is linked to aspects of increased sociability, such as a readiness to establish new relationships (e.g., Londerville & Main, 1981; Main & Weston, 1981; Schneider et al., 2001), which are in turn core constituents of extraversion.

Similarly, along with affirmative caregiver behaviors, a positive view of self and others should facilitate the acquisition of social abilities such as cooperation and reciprocity (e.g., Bohlin et al., 2000; Schneider et al., 2001; Sroufe et al., 2005), which are core constituents of agreeableness. Also, although conscientiousness partly refers to higher-order cognitive (rather than emotional, social, or relational) capacities, secure attachment has been linked to better delay of gratification, executive capacity, and flexibility of attention (Belsky, Garduque, & Hrcir, 1984; Jacobsen, Huss, Fendrich, Kruesi, & Ziegenhain, 1997; Main, 2000), suggesting it might be related to higher conscientiousness as well. This is presumably because a secure attachment relationship liberates mental resources for efficient information-processing capabilities rather than being occupied with defensive strategies (cf. Bowlby, 1973; Main, 2000).

Moreover, conceivably due to a sensitive attachment figure’s reliable responsiveness and competent assistance during states of distress, secure attachment is associated with efficient emotion regulation skills (e.g., Cassidy, 1994; Waters et al., 2010), which are impaired for individuals high in neuroticism. Finally, as secure attachment is characterized by a freedom to explore
(initially using the caregiver as a secure base), security is, not surprisingly, linked to increased exploration (Belsky et al., 1984; Hazen & Durrett, 1982; Matas et al., 1978), which may later be expressed in high openness to experience.

In one of few extant studies of the associations between attachment and the FFM, undertaken in the ULS, Hagekull and Bohlin (2003) found that attachment security in infancy was positively related to extraversion and openness, and negatively related to neuroticism in middle childhood. Regarding adult attachment, the only study that to our knowledge has investigated the relation between a representational measure of adult attachment (the AAI; Main et al., 2003) and the FFM in adulthood found that attachment security was positively associated only with conscientiousness and extraversion (Roisman et al., 2007).

Disorganized Attachment and Personality

Disorganized Attachment in Infancy and Adulthood

As described above, associations between security and personality development can be theoretically and empirically justified, both when addressing personality in a broader and a more specific sense. Can similar associations be found between disorganization and personality? For many years researchers noted that some infants did not fit the three patterns of attachment discovered by Ainsworth and colleagues (1978) in the SSP. Main and Solomon (1990) reexamined a large amount of unclassifiable SSP cases and concluded that as opposed to children assigned secure, ambivalent or avoidant classifications (also described as the organized attachment classifications), most of the unclassifiable children lacked an organized or coherent strategy for dealing with the stress of separation. The infants showed contradictory intentions (approaching a parent with head averted), or behaviors that involve apprehension directly (fearful facial expressions, oblique approaches) or indirectly (disoriented behaviors, including dazed and trance-like expressions; freezing of all movement at the parent’s entrance; Main & Solomon, ibid; see also Lyons-Ruth & Jacobvitz, 2008). The display of such behaviors in the presence of the caregiver was attributed to the infant’s inability of organizing a consistent strategy toward the caregiver when distressed, and is used for assigning a disorganized classification in the SSP (Main & Solomon, 1990). Disorganized attachment has been found to be overrepresented in high-risk samples, with up to 90% in maltreated infants (Cicchetti, Rogosch, & Toth, 2006), compared to 14% in middle-class, nonclinical samples (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). Also, disorganized attachment has repeatedly been found to predict external-
izing problems in childhood (Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman 2010; van IJzendoorn et al., 1999) and is associated with global psychopathology in adolescence (Carlson, 1998).

Adult disorganization is assessed in the AAI (Main et al., 2003) based on the individual’s speech regarding his or her own experiences of loss or abuse. More specifically, disorganization is in adulthood revealed in linguistic break-downs, for example, speech implying that a person lost through death would have input into the speaker’s present day life (i.e., as though the dead person was in fact alive); by excessive details and invasion of the trauma into other (irrelevant) topics; by visual sensory intrusion of the traumatic event; and by psychologically confused statements implying that the traumatic event can be undone through manipulations of the mind (for more specific examples, see Hesse, 2008). These linguistic lapses occur specifically in relation to the individual’s trauma-related discussion; in other words, they are typically not a characteristic of the individual’s discussion of other topics within the interview. In non-clinical adult groups, normally about 18% of interviewees are assigned a unresolved/disorganized classification (i.e., an adult disorganized attachment category defined by scores above a specified cut-off score on the continuous unresolved/disorganized loss/abuse scale in the AAI), whereas in clinical samples the number is much higher, generally about 40% (for a meta-analysis, see Bakermans-Kranenburg and van IJzendoorn, 2009). Above an established link to psychopathology (e.g., Dozier, Stovall-McClough, & Albus, 2008), parental unresolved/disorganized attachment status has, for example, been found predictive of their infant’s disorganized attachment status (for a meta-analysis, see van IJzendoorn, 1995).

Disorganized Attachment and Dissociation

Hesse and Main (2000) have suggested that many disorganized infants have repeatedly been frightened, directly or indirectly, by their attachment figure. This means that the attachment figure has been the source of alarm, creating an irresolvable paradox for the child. Through innate behavioral systems, namely the attachment and fear systems, the infant is in times of distress motivated to simultaneously escape to their attachment figure (i.e., haven of safety) and flee from the attachment figure (i.e., source of alarm). Such pre-programmed strategies are, however, useless in the depicted situation, because the closer the child comes to the attachment figure, the stronger the fear, leading to a fear which cannot be escaped or resolved. Such helplessness and strong conflicting motivations are expected to manifest themselves in the contradictory, confused and apprehensive behaviors and expressions through which disorganized attachment is identified in the SSP (e.g., Hesse & Main, 2006).
As infants, due to insufficient capabilities, are dependent on dyadic regulation to ensure self-regulation, such extreme arousal leads the infant to rely prematurely upon individual and inadequate coping mechanisms, which are thought to interfere with the development of the ability to maintain internal organization (Carlson, 1998). Instead, experiencing such dilemmas leads the child to create reciprocally non-integrated (i.e., dissociated or segregated) representations about the self and the attachment figures (Liotti, 1992), for example of the attachment figure as a persecutor and a rescuer. Hence the unsolvable behavioral paradox described above is temporarily “solved” by the mind segregating the experience. However, should the traumatic circumstances continue such segregated internal representations might, due to sensitized neurobiological systems, generate an internalized pattern of dissociative responses to frightening or in other ways overwhelming situations (Carlson, 1998; Liotti, 1992; Perry, Pollard, Blakely, Baker, & Vigilante, 1995). Supporting this line of reasoning, disorganization in infancy has been found to be predictive of dissociation throughout childhood and adolescence (Carlson, ibid). Dissociation commonly refers to a disruption in the usually integrated functions of consciousness, memory, identity, and perception (American Psychiatric Association, 2000). Thus, the traumatic event is not mentally resolved in a true sense.

Failure to mentally resolve traumatic events is a core requisite of disorganization in adulthood (Main et al., 2003). More specifically, many of the linguistic lapses during trauma-related discussion described above are proposed to be indicative of dissociative alterations. Such examples are uninvited intrusions of trauma-related memories into the interview or contradictory references to the trauma across the interview. Relatedly, dissociative parental behaviors, indicated by a possible entrance into an altered state of consciousness such as stilling or freezing in trance-like postures or haunted voice tones (Main & Hesse, 2006), have in parent-infant interactions been found to predict infant disorganization status (e.g., Abrams, Rifkin, & Hesse, 2006). Hence, regardless of the age period during which it is studied and the specific methodologies used to capture it, disorganized attachment is both theoretically and empirically linked to the concept of dissociation (Hesse & Main, 2006).

Disorganized Attachment and Absorption

Dissociation is clearly a complex, multifaceted construct. For example, it denotes processes such as depersonalization/derealization (e.g., out-of-body experiences), and psychogenic amnesia (e.g., no memory for evidently performed actions; Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997; Waller, Putnam, & Carlson, 1996) that have been associated with serious psy-
chopathology as, for example, the dissociative disorders, posttraumatic stress disorder, and borderline personality disorder. However, dissociation also involves more normative components such as absorption, which might be the aspect of dissociation most worthwhile to study in samples drawn from non-clinical populations as it is more normally distributed in the general population (Tellegen & Atkinson, 1974).

The term absorption was coined by Tellegen and Atkinson (1974) and is intended to represent openness to “absorbing and ‘self-altering’ experiences” (Tellegen & Atkinson, 1974, p. 268), through which the person has lost contact with current surroundings (Waller et al., 1996). Technically, it refers to individual differences in “the disposition for having episodes of ‘total’ attention that fully engage one’s representational (i.e., perceptual, enactive, imaginative, and ideational) resources” (Tellegen & Atkinson, ibid, p. 268). When all (or most) processing resources are occupied the usual metacognitive monitoring of one’s perceptions and thoughts is likely counteracted and the person is expected to have diminished awareness of the environment. Hence, absorption is, as other dissociative processes, believed to be indicative of alterations in consciousness (Tellegen & Atkinson, ibid).

In the AAI system high-level absorption is also expected to underlie an individual’s extreme attention to detail during the individual’s discussion of loss or trauma, sometimes accompanied by funereal speech, which are considered to be signs of unresolved/disorganized experiences of loss or trauma (i.e. disorganization; Hesse & Main, 2006; Main et al., 2003). Adult disorganization is not only methodologically characterized by absorbed states, but has also been empirically linked to higher contemporaneous scores on an independent measure of a more general disposition for absorbed states (Gribneau, 2006; Hesse & van IJzendoorn, 1999). Hence, there seems to be both theoretical and empirical support for a link between disorganization and absorption in adulthood.

Disorganized Attachment and Openness
Absorption, as well as other different forms of alterations in consciousness, (Glisky, Tataryn, Tobias, Kihlstrom, & McConkey, 1991; Ruiz, Pincus, & Ray, 1999), have been found to be positively related to the FFM personality trait openness. Provided that disorganization, has, in turn, been linked to high absorption (Hesse & van IJzendoorn, 1999), disorganization and openness might also be positively associated. As security has previously been linked to high openness, it might seem puzzling to expect a similar relation with disorganization. However, openness has been the most difficult factor in the FFM to consistently conceptualize across studies and instruments: labels and their associated contents have varied among, for example, culture,
intellect, and openness to experiences (McCrae & Costa, 1997). Subsequent findings have supported the latter broader definition, which includes aspects such as richness of fantasy life, aesthetic sensitivity, awareness of inner feelings, need for variety in actions, intellectual curiosity, and liberal value systems (Costa & McCrae, 1992; McCrae & Costa, ibid). Hence, as openness has been found to be a heterogeneous construct (Glisky et al., ibid), different forms of attachment might be related to different aspects of openness.

**Disorganized Attachment in Everyday Life Domains**

Although disorganized attachment has been shown to be overrepresented in high-risk samples, and is a potent predictor of future psychopathology, there is a major knowledge gap in the literature on how disorganization expresses itself in everyday life domains, such as in people’s general beliefs and activities. New Age spirituality has previously been proposed to be a suitable candidate for such a domain (Farias & Granqvist, 2007; Granqvist, Ivarsson, Broberg, & Hagekull, 2007; Granqvist & Hagekull, 2001; see also Granqvist & Kirkpatrick, 2008). Past research has indicated a foundation to expect attachment disorganization to be associated with New Age spirituality. For example, Main, van IJzendoorn, and Hesse (1993) found that adult disorganization was linked to many of the central themes of New Age beliefs (e.g., belief in the paranormal, astrology, spiritualism, contact with the dead, ideas of possession; see also Main & Morgan, 1996). These results (subsequently replicated by Sagi-Schwartz, van IJzendoorn, Joels, & Scharf, 2002) were initially produced in a project, which aimed at identifying unresolved/disorganized attachment status through the use of a questionnaire, one dimension of which was labeled ‘anomalous beliefs’ (Main et al., 1993). However, the relations were not strong enough to demonstrate conceptual equivalence. Hence, anomalous beliefs, such as those present in the New Age movement, are likely to have multiple sources. An additional empirical reason to expect an association between disorganization and New Age spirituality was provided by George and Solomon (1996), who found that mothers classified as disorganized in a caregiving interview tended to attribute supernatural powers to their offspring (e.g., psychic power, special connection with the deceased). Moreover, as in the case of disorganized attachment, a disproportionately high percentage of individuals who have had paranormal experiences or who hold affirmative beliefs about the paranormal also have experienced abuse as well as other forms of severe trauma (e.g., Irwin, 1992; Reinert & Smith, 1997; Sagi-Schwartz et al., 2003). Finally, the only (that we are aware of) direct test of the disorganization-New Age connection supported the prediction. Adult disorganization was indeed linked to higher New Age spirituality (Granqvist et al., 2007).
What psychological process may then explain an empirical relation between disorganization and New Age spirituality? Again, dissociative inclinations have been proposed as an explanatory candidate (Granqvist et al., 2007). Phenotypically, the New Age movement is replete with activities, experiences, and beliefs that would seem to suggest that propensities for dissociation in general and absorption in particular are disproportionately common. Besides a general openness for therapies involving regressive and hypnotic elements (e.g., past life regression therapy; Singer & Nievod, 2003) and trance states (shamanistic drum trips or liberating dance), there are also empirical findings supporting this proposed link between absorption and New Age spirituality. The most direct evidence comes from a study, which showed that New Age spirituality was in fact positively and robustly correlated with absorption (Granqvist & Larsson, 2006). In sum, associations between disorganization and New Age spirituality seem to be justified both theoretically and empirically. It also seems likely that a propensity for absorption may underlie this presumed association.
Aims of the Current Thesis

1. Attachment theory has most commonly been applied as a framework for understanding socio-emotional development, probably because the function of the attachment system and the formation of individual differences in attachment are to such a high extent dependent on relationship interactions. Although there is substantial support, both in childhood and adolescence, for a link between attachment and future social functioning, less is known about whether childhood attachment contributes to social functioning in adulthood.

   • The first aim of this thesis was to investigate whether middle childhood security is prospectively associated with aspects of social functioning in terms of prosocial orientation, social initiative taking, social anxiety, and loneliness, in young adulthood. If so, is the contribution of attachment relevant to explain the developmental stability or change in social functioning that occurs from childhood to adulthood (Study I)?

2. Although attachment most commonly has been used to understand socio-emotional development, attachment theory was originally developed as a theory about personality development, and attachment has empirically been shown to be predictive of a broad range of personality characteristics. However, there have been rather few attempts to link attachment theory to the currently dominating FFM trait perspective of personality, and no one has, as far as we are aware, investigated such links prospectively from childhood to young adulthood.

   • The second aim of this thesis was to investigate whether middle childhood security is related to the FFM personality traits concurrently, as well as prospectively in young adulthood. If so, is the contribution of attachment relevant to explain the developmental stability or change in the FFM traits over the time period? Relatedly we sought to investigate whether young adulthood security is concurrently associated with the FFM personality traits, and whether it contributes over and above the contribution of middle childhood security and the targeted personality traits (Study II).
3. Disorganization has repeatedly been linked to psychopathological outcomes, but few studies have investigated whether there are non-psychopathological sequelae. Therefore, it seems relevant to enhance our understanding of disorganization by investigating if manifestations of disorganization can be found in non-pathological domains, such as personality traits and spirituality.

- The first part of the third aim was to investigate if disorganization in young adulthood is concurrently related to the FFM personality traits (especially openness), and whether it contributes over and above the contribution of middle childhood security and the targeted personality traits (Study II).

- The second part of this aim was to examine whether disorganization in adulthood is prospectively related to New Age spirituality and absorption. If so, is the link between disorganization and New Age spirituality mediated by absorption (Study III)?
Empirical Studies

Method

Participants and Procedure

Study I and II
Study I and II are based on the same sample of children. These studies were part of the Uppsala Longitudinal Study (ULS), Sweden, with the overarching aim to investigate if and how attachment, temperament/personality and the broader social context interact in children’s socio-emotional development. The ULS originally involved 123 children from middle-class families followed from age 6 weeks to age 9 years (for a more detailed description, see Hagekull and Bohlin, 2003). Educational levels of the parents were fairly high as can be expected in a university area like Uppsala County. The data points were intensive during the first four years (13 data waves) and thereafter three data collections were undertaken between ages 8 and 9 years. At the age of 21 a follow-up data collection was completed in which 85 of the original participants agreed to take part.

Study I and II concern the 8-9 and 21 years data points. Only those participants who partook in all the relevant data points were included in the study to obtain comparable statistical power and results across analyses, resulting in 69 participants (36 females; 56% continuation rate) in Study I and 66 participants (34 females; 54% continuation rate) in Study II. According to t tests, the 69 participants in Study I and 66 participants in Study II did not differ from the original sample (N = 123) on mother’s or father’s educational level (ps > .10).

Age 8-9 years. During the spring semester, when the children were in the first grade of school (age M = 8 years, SD = 3 months), teachers and mothers filled out a questionnaire regarding the children’s social initiative taking and prosocial orientation. In the following fall semester when the children were in second grade (age M = 8 years 7 months, SD = 3 months), they visited the laboratory together with their mothers for the attachment assessment and at the same occasion, the mothers filled out a FFM questionnaire regarding their children. During a home visit the same semester the children (age M =
8 years, 9 months, $SD = 3$ months) filled out a self-report questionnaire regarding social anxiety. In the following spring semester teachers and mothers again filled out a questionnaire regarding the children’s social initiative taking and prosocial orientation and teachers filled out the same personality questionnaire as the mothers had marked at the laboratory visit the previous semester (age $M = 9$ years, $SD = 3$ months). For a more detailed description of the procedure at the 8-9 year data point, see Hagekull and Bohlin (2003) and Bohlin and colleagues (2000).

**Age 21 years.** Two weeks before a scheduled visit to the department, a set of questionnaires containing amongst other instruments questionnaires regarding social initiative taking, prosocial orientation, social anxiety, loneliness and personality were sent to the participants (age $M = 21$ years 4 months, $SD = 5$ months). They were asked to fill it out at least one week before their visit, and to bring their marked questionnaire to the laboratory visit. At the laboratory visit (only relevant for study II), the first task during the full day laboratory visit consisted in the individual administration of an attachment interview. The participants received a compensation of 500 Swedish crowns ($79) for participating. According to $t$ tests, there were no differences on the attachment, social functioning or personality variables at 8-9 years between the participants who dropped out from the age 21 years assessment and those who remained in the study (all $ps > .10$).

To investigate inter-rater agreement on the social initiative taking, prosocial orientation and the personality measures, one to three peers were invited by the participants to fill out a questionnaire a few weeks after the study participants’ lab visit. The participants were instructed to choose peers who knew them well but were not their partner. The peers were instructed not to speak with the participant about the ratings, and to send in the set of questionnaires by postal mail. Altogether forty-seven participants in Study I had peer ratings on the social initiative taking and prosocial orientation measures and forty-six participants in Study II had peer ratings on the personality measure. The peers received a cinema gift certificate worth 90 Swedish crowns ($14).

**Study III**  
Study III originally consisted of 84 participants who were interested in religion/spirituality in Uppsala, Sweden. A predominantly religious-spiritual sample was selected rather than a general population sample to obtain adequate variation on religiousness-spirituality, as Sweden is a highly secular country (barely 10% identified as active Christians; Stark, Hamberg, & Miller, 2005). As the sample on which Study III is based was selected to investigate attachment and religion/spirituality in general (i.e., not exclusively New Age spirituality), participants were recruited from religion/spirituality-relevant group gatherings (see Granqvist et al., 2007, for more details about
the sample). To obtain comparable statistical power and results across analyses, only those participants who partook at both time points were included, resulting in 62 participants (40 females; 74% continuation rate).

At Time 1, an attachment interview was individually administered at the university department (age $M = 29$ years 4 months, $SD = 10.05$). Participants received two cinema gift certificates each worth 70 SEK ($10) for participating. Three years later (at Time 2) the participants were invited to a follow-up study in which they were sent a set of questionnaires including measures of absorption and New Age. They were asked to fill it out at least two days before a scheduled laboratory visit (including tasks not used in Study III) and bring it to the visit. Two cinema gift certificates each worth 80 SEK (approximately US$11) was given to the participants. There were no significant differences on sex, age, disorganization, or New Age spirituality at Time 1 between participants who dropped out from the Time 2 assessments and those who remained in the study (all $ps > .10$).

Measures

**Attachment instruments**

*Middle childhood*

**Attachment representations.** The Seattle version of the Separation Anxiety Test (SAT; Slough et al., 1988; Slough & Greenberg, 1990) was used in Study I and II to capture attachment representations in middle childhood. The instrument consists of six pictures showing separations between children and their parents. Three of the situations are considered severe (e.g., parents leaving for a two-week vacation) and three are considered mild (e.g., mother tucks child in bed for the night and then leaves the room). The child is asked what the depicted child may feel, why he/she may feel that way, and what the depicted child might do. The verbal answers were transcribed and scored by a person who had not previously been involved in the project. Inter-rater reliability was established on a separate material, yielding a kappa of .84 for classification of answers to single pictures into the 21 categories on which the final scoring is based.

In accordance with the Seattle scoring procedure, three summary scores were obtained: the **Security–Attachment scale** (scale range: 1-12) reflecting the child’s ability to express vulnerability (sadness or regret) or need, and the capability to turn to someone else to cope with the situation; the **Security–Self-reliance scale** (scale range: 1-12) reflecting the child’s ability to express self-confidence, i.e., feeling “OK”, about handling the separations more or less independently in relation to the three mild separations; and the Insecuri-
ty–Avoidance scale (scale range: 1-18) captures the child’s inability to answer the questions across all six separations, which includes incomplete answers or discussions of irrelevant issues, that is ‘don’t know’ answers and answers containing little information (Slough et al., 1988). In addition, a total score reflecting the Overall Security (scale range: 1-12) of attachment representations was calculated, which takes into account the security of the answers irrespective of the severity of the depicted separations (Verschueren, 1996; Verschueren & Marcoen, 1996).

In Study I, where SAT was the only predictor, high scores on the Security–Attachment and Security–Self-reliance dimensions, and low scores on the Insecurity–Avoidance dimension were used to indicate security. In Study II, attachment was assessed both in middle childhood and adulthood, and to save space, only Overall Security was used to indicate middle childhood security. Validity of the Seattle version of the SAT has been indicated by associations to measures of the quality of the representation of self (Verschueren, 1996). The instrument has also shown acceptable inter-rater agreement (Wright, Binney, & Smith, 1995).

Adulthood

Actual ‘state of mind’ with respect to attachment. In Study II and III, adult attachment was measured with the Adult Attachment Interview (AAI; Main et al., 2003), a semi-structured interview containing 20 questions asking the participant to describe and evaluate his or her childhood relationships with parents and the effects those experiences have had on his or her development. The transcribed interviews were scored and coded according to Main and colleagues’ (2003) instructions, leading to the classification of each interview into one of five categories (i.e., secure-autonomous, dismissing, preoccupied, unresolved/disorganized, and cannot classify), which are assumed to reflect the participant’s current state of mind with respect to attachment.

However, to retain full-scale variance and maximize statistical power in view of the expected modest associations in Study II and to permit the test of the mediational model addressed in Study III, dimensional counterparts of the categories were used in subsequent analyses. Instead of the three organized classifications of the AAI, the Coherence of Transcript scale (scale range: 1-9) was used in Study II. Coherence refers to which extent the transcript provides a credible, internally consistent, free-flowing picture of the participant’s experiences and feelings regarding attachment, regardless of whether participants’ experiences with parents have been primarily positive or negative. This scale is typically used to determine whether a transcript should be assigned a secure-autonomous or some of the organized insecure (i.e., dismissing and preoccupied) classifications. Unresolved/disorganized
loss/abuse is scored on a separate scale tapping speech specifically surrounding loss/abuse experiences. A high score refers to discourse characterized by one or more of three subtypes of unresolved speech: (1) striking lapses in the monitoring of reasoning (e.g., as implied in statements implying that a dead person remains alive in the physical sense or via considerable spatial–temporal confusion surrounding the loss event), (2) striking lapses in the monitoring of discourse (e.g., visual–sensory images related to the trauma intrude discourse), and (3) extreme–lingering behavioral reactions to the traumatic event (e.g., the interviewee is suicidal and this is believed by the person to be due to the loss of a close loved one). The highest score assigned to any given loss or abuse incident is used as the overall U/d loss–abuse score. The reliability and validity of the AAI are well established (Hesse, 2008). The inter-rater agreement was calculated with Pearson correlations and reached $r_s = .53 - .83$ for Coherence of Transcript in Study II and U/d loss/abuse in Study II and Study III (disagreements were resolved through discussion).

**Social functioning measures**

*Middle childhood instruments*

The middle childhood social functioning measures described below were used in Study I exclusively to control for stability in the social functioning variables from middle childhood to young adulthood.

**Social initiative taking and prosocial orientation** was assessed with the Social Competence Inventory (SCI; Rydell, Hagekull, & Bohlin, 1997), which has shown adequate psychometric characteristics (Rydell et al., 1997). It assesses two sub-aspects of social competence: Social Initiative (8 items, e.g., “suggests activities to peers”) and Prosocial Orientation (17 items, e.g., “shows generosity towards peers”) that are rated on a five-point scale. Because the ratings by parents and teachers were significantly related (age 8 and 9 years: $r_s = .48 - .50, ps < .001$), scores were standardized and aggregated across raters and time points to yield robust and representative measures. The scales achieved in Study I showed acceptable internal consistency ($\alpha_s = .73 - .83$).

**Social anxiety** was measured with the Social Anxiety Scale for Children-Revised (SASC-R; LaGreca & Stone, 1993), a self-report questionnaire (18 items) scored on a five-point scale, including three subscales measuring a) fears and worries about negative evaluations from peers (e.g., “I worry about being teased”), b) social avoidance and distress specific to new situations (e.g., “I get nervous when I talk to new kids”), and c) generalized social avoidance and discomfort with peers (“I am quiet when I am with a group of kids”). In the present study, responses to all items were averaged into a total
score of Social Anxiety; high scores indicated more anxiety. High internal consistency ($\alpha = .91$) was achieved in Study I and has, together with concurrent validity, been previously demonstrated as well (LaGreca & Stone, 1993).

Young adulthood instruments
To estimate inter-rater agreement, peer ratings of the social initiative taking and prosocial orientation instruments were included. As we were mainly interested in social anxiety and loneliness in terms of subjective states, peer ratings were not included for those scales. The following three instruments were used in Study I.

Social initiative taking and prosocial orientation was measured with an adapted version of the Social Competence Inventory (SCI; Rydell et al., 1997) described above, adjusted to reflect age-relevant states and behaviors. This version assesses two dimensions of social competence: Social Initiative (8 items; e.g., “I often take the lead when my friends and myself are going to do something together”), and Prosocial Orientation (17 items; e.g., “I try to be there for someone who is in need of support (e.g., is sad, sick or does not feel well)”). Acceptable internal consistency was shown in Study I ($\alpha = .74 - .82$).

To investigate inter-rater consistency, the items were adapted to suit a peer rating format (i.e., “he/she” was used instead of “I”, “his/her” instead of “my” etc.). When more than one friend took part, the mean value of their scores was calculated and used to estimate inter-judge agreement. The concordance between self and peer ratings was supported for the Social Initiative dimension $r = .46$, $p < .01$, but not for the Prosocial Orientation dimension $r = -.04$, n.s. This suggests that our measure of prosocial orientation better represent the individual’s own perception of his or her prosociality rather than how he or she is perceived by others, at least by peers.

Social anxiety was assessed with the self-report questionnaire Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). This instrument contains 20 items (scored on a 5-point scale) such as: “I feel I’ll say something embarrassing when talking” and “I find it difficult to disagree with another’s point of view”. The psychometric properties of the SIAS in terms of internal consistency and test-retest, as well as discriminative and concurrent validity have been supported (Brown et al., 1997). In the present study high internal consistency was found ($\alpha = .91$).

Loneliness was measured with a short version (Oshagan & Allen, 1992) of the revised 20-item UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). This scale contains seven items such as “I lack companionship” and
“I feel isolated from others” to be scored on a 4-point scale. This version has shown adequate internal consistency both in Study I ($\alpha = .89$) and previous studies, as well as to be conceptually representative of the full version of the scale ($r = .96$; Oshagan & Allen, 1992).

**Personality measures**

**Middle childhood**

The Five-Factor Model in middle childhood was assessed in Study II with a Swedish adaptation of a questionnaire developed from Lanthier’s (1993) factor analysis of an instrument for self- and other ratings of 10- to 15-year-olds. The questionnaire contains 42 personal descriptors (rated on a 5-point scale), relating to the five dimensions ($\alpha$s = .80 -.92): Extraversion/surgency (9 items), Agreeableness (13 items), Conscientiousness (10 items), Neuroticism (6 items), and Openness to Experiences (4 items). To increase reliability and capture the child’s personality as shown in two important contexts, home and school, individual scale scores were obtained by averaging mother and teacher item scores. Mother-teacher agreements across 5 months were $rs = .28$ -.51, $ps < .05$.

**Adulthood**

The Five-Factor Model in young adulthood was used in Study II and assessed with Big Five Mini-markers (Saucier, 1994), which is a shortened version of Goldberg’s unipolar Big-Five Markers (Goldberg, 1992). This version consists of 40 instead of the 100 adjective markers used in the original version, scored on a 9-point scale and evenly distributed over the five scales ($\alpha$s = .62 -.90): Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect or Openness. For the sake of consistency with the child scales, the terms neuroticism and openness are henceforth used also for the adult scales. The internal consistency has been found acceptable (Saucier, 1994), also in a Swedish population (Ghaderi & Scott, 2000). To estimate inter-rater agreement, peer ratings of the FFM instrument were included. Concordances between self and peer ratings were: $r = .37$ -.59, $ps < .05$, and agreeableness $r = .28$, $p < .10$. When more than one friend took part, the mean value of their scores was calculated and used to estimate inter-judge agreement.

**Absorption**, or the disposition for having episodes of ‘total’ attention that fully engage the person’s representational resources, indicating a tendency to become absorbed in his or her thoughts, perceptions and associations during routine or other activities, was measured in Study III with Tellegen and Atkinson’s (1974) absorption scale. This scale includes 34 items (scored on a 6-point response scale). Sample items include, “Sometimes I feel as if my mind could envelop the whole world,” “At times I feel the presence of
someone who is not physically there,” and “If I wish, I can imagine (or day- 
dream) some things so vividly that they hold my attention as a good movie 
or story does.” The psychometric properties of this instrument are well es-
established. For example, as theoretically expected, scale scores have been 
found to predict suggestibility to hypnotic induction (e.g., Roche & 
McConkey, 1990; Tellegen & Atkinson, 1974). Internal consistency was 
high in Study III (α = .94).

Spirituality measures

Adulthood

New Age spirituality in adulthood was assessed in Study III using the 22-
item 6-point response instrument New Age Orientation Scale (NAOS; 
Granqvist & Hagekull, 2001). Individual differences in the adoption of New 
Age-related beliefs, interests, and activities were captured by items such as 
“Compared to most religious and non-religious people, I am probably 
somewhat of a spiritual seeker with an unusually open mind,” “Spirituality 
to me is above all about realizing my true nature or becoming one with cos-
mos” and “Tarot cards, horoscopes, or fortune telling can be good starting-
points from which to develop oneself and one’s possibilities.” Previous stu-
dies have shown high internal consistency in both spiritual samples and sam-
plies drawn from the general population, and have supported the construct 
validity of NAOS (Granqvist et al., 2005; Granqvist & Hagekull, 2001; Far-
as, Claridge, & Lalljee, 2005). In Study III, high internal consistency was 
shown (α = .97) as well as high stability over the 3-year time-span (r = .93).
Study I

The Contribution of Middle Childhood Attachment to Social Functioning in Young Adulthood

Background and Aims

There is a vast amount of research showing that attachment status is related in expected ways to a wide range of attributes associated with social functioning throughout the childhood period, both concurrently and longitudinally (for a meta-analysis, see Schneider and colleagues, 2001; e.g., Berlin et al., 1995; Brumariu & Kerns, 2008; Raikes & Thompson, 2008; Suess et al., 1992; Ziv et al., 2004), as well as concurrently or short-term prospectively in adolescence (e.g., Allen et al., 2007; Dykas et al., 2008; Kobak & Sceery, 1988; Larose & Bernier, 2001). However, far less is known about whether prospective associations can be obtained between childhood attachment and adult social functioning. To the best of our knowledge no previous study has investigated if attachment security in middle childhood can predict social initiative taking, prosocial orientation, social anxiety and loneliness in young adulthood, which was the first aim of Study I. Theoretical propositions together with the extant research showing similar associations in childhood and adolescence led us to expect that high levels of security (i.e., high security–attachment, high security–self-reliance and low insecurity–avoidance) in middle childhood would be prospectively associated with higher levels of social initiative taking, prosocial orientation and lower levels of social anxiety and loneliness in early adulthood. Provided that prospective relations are established, our second purpose was to examine whether middle childhood security contributes to relative developmental change in the social functioning variables, over and above their developmental stability. Due to the scarcity of research on this question, it was investigated in an exploratory fashion.

Results

The results showed that the social functioning variables were modestly stable from age 8-9 to 21 years: social initiative taking \( r = .29, p < .01 \), prosocial orientation \( r = .22, p < .05 \) and social anxiety \( r = .23, p < .05 \). Stability for loneliness could not be analyzed as this was measured only at 21 years.

Pearson correlations showed that the four social functioning variables at age 21 years were moderately to strongly inter-correlated \( (rs = .40 - .75, ps < .01) \). Therefore we decided to use an aggregated standardized variable including these four variables in subsequent analyses, called overall social functioning \( (\alpha = .84) \), with higher values representing more adaptive social
functioning. However, for clarity, results are presented also for the individual social functioning variables. These should, however, be interpreted with caution in view of the risk for disputable specificity.

To evaluate if middle childhood attachment could predict social functioning at age 21 years, the child attachment variables were correlated with social initiative, prosocial orientation, social anxiety, and loneliness, as well as overall social functioning. The results (see Table 1) showed that individuals with higher rates of middle childhood avoidance reported lower levels of social initiative taking and prosocial orientation, and higher levels of social anxiety and loneliness at age 21 years. Individuals rated high on the security–attachment subscale reported a more prosocial orientation in young adulthood. In addition, high levels of avoidance were prospectively and significantly related to low levels of overall social functioning, whereas high levels of security-attachment were marginally significantly related to high scores on the same variable. Security–self-reliance was unrelated to all of the social functioning variables. In sum, the results showed that avoidance was the attachment dimension most consistently related to the included aspects of future social functioning.

To examine whether attachment contributed to developmental changes in the outcomes from middle childhood to early adulthood, standard multiple regression analyses were conducted. In these analyses, the stability of the social functioning variables was taken into consideration by including the relevant 8.5 years social functioning variable as predictor together with attachment. Any significant contribution of attachment over and above this stability was interpreted as prediction of developmental change. The variables that were applicable for these analyses were avoidance (on the predictor side) and social initiative and social anxiety (on the outcome side), because avoidance was both prospectively and concurrently related to these two social functioning variables (see Table 1) and these variables in turn showed stability over the time period. Hence, two regression models were tested using each of the individual social functioning variables as outcome (social initiative or social anxiety).
Table 1
Concurrent and Prospective Correlations between Attachment at 8.5 Years and Social Functioning at 8-9 and 21 Years.

<table>
<thead>
<tr>
<th>Age 8-9 years</th>
<th>Age 21 years</th>
<th>OA Soc Func</th>
</tr>
</thead>
<tbody>
<tr>
<td>SI</td>
<td>PO</td>
<td>SA</td>
</tr>
<tr>
<td>Age 8.5 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEC-ATT</td>
<td>.36**</td>
<td>.09</td>
</tr>
<tr>
<td>SEC-SR</td>
<td>.17</td>
<td>-.01</td>
</tr>
<tr>
<td>INSEC-AV</td>
<td>-.34**</td>
<td>-.07</td>
</tr>
</tbody>
</table>


N = 69, *p < .10, *p < .05, **p < .01

Corresponding correlations between the attachment dimensions and concurrent social functioning have previously been reported for the full sample in middle childhood (Bohlin et al., 2000), and are included here to facilitate the understanding of subsequent analyses.
The results (see Table 2) showed that avoidance in middle childhood made a unique contribution to social anxiety in young adulthood, when the stability of social anxiety was controlled for, and a marginally significant contribution to social initiative taking in young adulthood, when the stability of social initiative taking was taken into account. Hence, according to these analyses avoidance contributed most confidently to relative change in social anxiety from middle childhood to young adulthood.

An additional standard regression model was tested in which overall social functioning was the outcome and avoidance was the predictor. Because the social functioning variables were only weakly inter-correlated in middle childhood ($r_s = .05 - .35$), they were not aggregated, but entered individually as covariates together with avoidance. The results (see Table 2) showed that avoidance in middle childhood made a significant unique contribution to overall social functioning in young adulthood, when controlling for the included social functioning variables in middle childhood.

Conclusions

Our expectations regarding a link between security and future social functioning was partially confirmed through prospective relations from insecurity–avoidance (but generally not security–attachment or security–self-reliance) to social initiative taking, prosocial orientation, social anxiety, and loneliness, as well as to an aggregated measure of overall social functioning. Hence, avoidance on the one hand and various aspects of social functioning on the other, seemed to be prospectively related beyond childhood and adolescence, into early adulthood. In addition, avoidance also appeared to contribute to relative change in overall social functioning and social anxiety from middle childhood to early adulthood, implying that attachment contributed to the development of some aspects of social functioning over and above the stability in these phenomena. Altogether, these results suggest that insecure attachment representations, as manifested in the avoidance dimension in middle childhood, may impede social interactions and achievements many years later.
Table 2
Standard Regression Results for the Unique Contribution of Insecurity-Avoidance at Age 8.5 Years to Different Aspects of Social Functioning at Age 21 years, when Controlling for the Stability of these Aspects of Social Functioning.

<table>
<thead>
<tr>
<th></th>
<th>Age 21 years</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social Initiative</td>
<td>Social Anxiety</td>
<td>OA Soc Func</td>
</tr>
<tr>
<td></td>
<td>( R^2 ) ( \beta ) ( sr^2 )</td>
<td>( R^2 ) ( \beta ) ( sr^2 )</td>
<td>( R^2 ) ( \beta ) ( sr^2 )</td>
</tr>
<tr>
<td>Age 8-9 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1</td>
<td>.12*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Initiative</td>
<td></td>
<td>( .22^+ ) .04</td>
<td></td>
</tr>
<tr>
<td>Insecurity-Avoidance</td>
<td></td>
<td>( -.21^+ ) .04</td>
<td></td>
</tr>
<tr>
<td>Model 2</td>
<td>.13*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Anxiety</td>
<td></td>
<td>( .15 ) .02</td>
<td></td>
</tr>
<tr>
<td>Insecurity-Avoidance</td>
<td></td>
<td>( .29^* ) .08</td>
<td></td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td></td>
<td>.21**</td>
</tr>
<tr>
<td>Social Initiative</td>
<td></td>
<td>( .13 ) .02</td>
<td></td>
</tr>
<tr>
<td>Prosocial Orientation</td>
<td></td>
<td>( .10 ) .01</td>
<td></td>
</tr>
<tr>
<td>Social Anxiety</td>
<td></td>
<td>( -.22^+ ) .05</td>
<td></td>
</tr>
<tr>
<td>Insecurity-Avoidance</td>
<td></td>
<td>( -.25^* ) .06</td>
<td></td>
</tr>
</tbody>
</table>

Note. \( N = 69 \). \(+ p < .10, *p < .05, **p < .01.\)
Study II

Interlinkages between Attachment and the Five-Factor Model of Personality in Middle Childhood and Young Adulthood: A longitudinal Approach.

Background and Aims

In Study I, middle childhood attachment was shown to be associated with social functioning in early adulthood. This finding raises the question of whether attachment can be related also to FFM personality traits in middle childhood and early adulthood, as they capture broad aspects of a person’s functioning, including social functioning. Although Ainsworth and Bowlby (1991) portrayed attachment theory as a theory of personality development and attachment organization has been found to foreshadow a broad repertoire of developmental outcomes associated with personality characteristics (Sroufe et al., 2005), few empirical investigations have been undertaken to study the specific interrelations between attachment and the FFM (Digman, 1990; John et al., 2008; McCrae & Costa, 2008). However, the few studies that have been conducted indicate that such relations might exist (Hagekull & Bohlin, 2003; Roisman et al., 2007).

The first aim of Study II was to examine concurrent and longitudinal relations between attachment and the FFM of personality in middle childhood and young adulthood. Concurrent (i.e., overall security and coherence of transcript) and longitudinal (overall security) associations between attachment security on the one hand and high extraversion, high agreeableness, high conscientiousness, low neuroticism, and high openness were expected. In addition, we expected a concurrent link between disorganization (U/d loss/abuse) and high levels of openness in young adulthood. An additional purpose of Study II was to explore whether middle childhood security made a unique contribution to personality in young adulthood when controlling for stability in personality, and whether young adulthood attachment (coherence of transcript and U/d loss/abuse) made a unique contribution to concurrent personality when controlling for both personality and security in middle childhood. These questions were treated as exploratory. To our knowledge, no prior study has investigated the presumed longitudinal relation between childhood attachment and adult personality (in terms of the FFM), nor between young adulthood disorganization and personality.

It should be noted that the associations were not anticipated to be strong but generally modest on the grounds that attachment organization stems mainly from interactions with attachment figures, whereas personality factors are substantially constitutional in origin.
Results

Pearson correlations showed that extraversion and openness were significantly stable ($rs = .35 - .47, p < .01$), neuroticism tended to be stable ($r = .24, p < .10$), whereas agreeableness and conscientiousness did not show stability ($rs = .16 - .17, n.s.$) from age 8.5 to 21 years.

To determine if attachment and personality were related at 8.5 years, SAT overall security was correlated with each of the Big Five dimensions at 8.5 years. The results (see Table 3) showed that children who were rated high on overall security were also rated high on extraversion and openness. The corresponding analyses were performed with the AAI and Big Five variables at 21 years (see Table 3). High values on U/d loss/abuse were significantly associated with low scores on conscientiousness and high scores on openness. Coherence of transcript was marginally significantly related to extraversion; those who were coded as more coherent rated themselves as more extraverted.

To establish if attachment at 8.5 years was related to the Big Five dimensions at age 21 years, the two sets of measures were correlated. The results (see Table 3) showed that children who were rated high on overall security were significantly more extraverted and trend significantly more agreeable and open in adulthood.
Table 3
Concurrent and Prospective Correlations between Attachment and Personality.

<table>
<thead>
<tr>
<th></th>
<th>Age 8.5 years</th>
<th></th>
<th>Age 21 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall Security</td>
<td>Coherence of Transcript</td>
<td>U/d loss/abuse</td>
</tr>
<tr>
<td>Age 8.5 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big Five</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.42**</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.02</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.09</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-.02</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Openness</td>
<td>.25*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Age 21 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big Five</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>.39**</td>
<td>.23*</td>
<td>.02</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.22*</td>
<td>-.01</td>
<td>-.09</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.09</td>
<td>-.14</td>
<td>-.28*</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.06</td>
<td>.05</td>
<td>.19</td>
</tr>
<tr>
<td>Openness</td>
<td>.22*</td>
<td>.10</td>
<td>.34**</td>
</tr>
</tbody>
</table>

Note. U/d = Unresolved/disorganized. Ns = 66 except for correlations with U/d loss/abuse (N = 64), as two participants had no experience of loss or abuse, which made U/d scoring inapplicable. *p < .10, **p < .05, ***p < .01.

The overall results indicate that the Big Five dimensions most consistently related to attachment were extraversion and openness. Hierarchical regression analyses were used to investigate 1) whether middle childhood attachment contributed to developmental stability or change in these outcomes at age 21 years, and 2) whether attachment in young adulthood made a unique contribution to extraversion and openness in young adulthood, above the contribution of middle childhood extraversion/openness and overall security. Extraversion and openness were the two Big Five dimensions eligible for these analyses, because they proved both to be stable between the two time points, and to be related to attachment variables at each time-point. For each regression analysis, one of the eligible dimensions of the Big Five at 8.5 years (i.e., extraversion or openness) was entered in the first step, overall security was entered in the second step, and coherence of transcript and U/d loss/abuse were entered as a block in the third step. The results for extraversion (see Table 4) showed that overall security at age 8.5 years made a marginally significant (p = .06) contribution to extraversion at age 21, when controlling for the stability in extraversion over the time period. The trend
significant contribution from coherence of transcript in young adulthood became insignificant when controlling for the contribution of extraversion and overall security in middle childhood. The results from the regression for openness (see Table 5) showed that the marginally significant contribution from overall security in middle childhood became insignificant when controlling for the stability in openness over the time period, and that U/d loss/abuse still made a unique contribution to openness at age 21, when openness and overall security in middle childhood were controlled.

Conclusions
Study II was an attempt to unify contemporary research on personality, as guided by the FFM, and the developmental literature on attachment. Overall, our results suggest that attachment considerations may contribute to our understanding of personality development. In particular, security in middle childhood and disorganization in young adulthood were associated with the FFM personality traits, especially with extraversion and openness. As we had expected links from security to all the FFM traits, our expectations were partially supported. Nonetheless, the results obtained in Study II extend the knowledge provided in Study I, by showing that security is not only related to social functioning per se, but also to the basic personality characteristics that are expressed in one’s social functioning. Disorganization in early adulthood was concurrently related to conscientiousness (negatively) and openness (positively), which we speculate might be due to dissociative (e.g., absorption) processes stemming from overwhelming attachment-related experiences.
### Table 4
*Hierarchical Regression Results for Attachment at 8.5 and 21 Years Predicting Extraversion at 21 Years.*

<table>
<thead>
<tr>
<th>Age 21 years</th>
<th>ΔR²</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 8.5 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1: Extraversion</td>
<td>.22***</td>
<td>.46***</td>
</tr>
<tr>
<td>Step 2: Overall Security</td>
<td>.05†</td>
<td>.24†</td>
</tr>
<tr>
<td>Age 21 years</td>
<td>.03</td>
<td>.15</td>
</tr>
<tr>
<td>Step 3: Coherence of transcript</td>
<td>.09*</td>
<td>.00</td>
</tr>
<tr>
<td>U/d loss/abuse</td>
<td>.10</td>
<td>.30*</td>
</tr>
</tbody>
</table>

*Note. U/d = Unresolved/disorganized. N = 64, †p < .10, ***p < .001.*

### Table 5
*Hierarchical Regression Results for Attachment at 8.5 and 21 Years Predicting Openness at 21 Years.*

<table>
<thead>
<tr>
<th>Age 21 years</th>
<th>ΔR²</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 8.5 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1: Openness</td>
<td>.11**</td>
<td>.33**</td>
</tr>
<tr>
<td>Step 2: Overall Security</td>
<td>.02</td>
<td>.14</td>
</tr>
<tr>
<td>Age 21 years</td>
<td>.09*</td>
<td>.30*</td>
</tr>
<tr>
<td>Step 3: Coherence of transcript</td>
<td>.09*</td>
<td>.00</td>
</tr>
<tr>
<td>U/d loss/abuse</td>
<td>.10</td>
<td>.30*</td>
</tr>
</tbody>
</table>

*Note. U/d = Unresolved/disorganized. N = 64, *p < .05, **p < .01.*
Study III

Disorganized Attachment, Absorption and New Age Spirituality: A Mediation Model

Background and Aims
Disorganized attachment has repeatedly been linked to maladaptive outcomes, but few studies have been undertaken to investigate whether it can be manifested in everyday life domains. The results in Study II, showing that disorganization in young adulthood was linked to conscientiousness and openness, provide some initial support of such manifestations. In Study III, and building on previous research and theorizing about attachment and aspects of religion and spirituality, we investigated whether New Age spirituality might be an everyday life domain where disorganization can be manifested (Farias & Granqvist, 2007; Granqvist et al., 2007; Granqvist & Hagekull, 2001; see also Granqvist & Kirkpatrick, 2008). More specifically, we suggested that adult disorganization (U/d loss/abuse) leads to a propensity for absorption (as well as other aspects of dissociation), and that this propensity in turn makes some individuals receptive to many of the experiences, beliefs and activities that are associated with the New Age movement. To the best of our knowledge, adult disorganization has not previously been studied in relation to both absorption and New Age spirituality in one and the same study. Using a prospective longitudinal follow-up of Granqvist and colleagues’ (2007) study, we asked (1) if adult disorganization (U/d loss/abuse) at the first measurement occasion would predict absorption and New Age spirituality over a 3-year time-span, and (2) if absorption would act as a mediator for the presumed link between disorganization and New Age spirituality. Given the theoretical and empirical considerations above, we predicted that disorganization would be positively linked both to New Age spirituality and absorption, and that absorption would act as a mediator between disorganization and New Age spirituality.

Results
U/d loss/abuse (the predictor) at Time 1 was positively but modestly associated with New Age spirituality (the outcome) at Time 2, \( r(60) = .23, p < .05 \). Absorption (the presumed mediator) at Time 2 was positively and strongly related to New Age spirituality at Time 2, \( r(60) = .55, p < .001 \). U/d loss/abuse at Time 1 was also positively but modestly linked with absorption at Time 2, \( r(60) = .25, p < .05 \).
Thus, significant relations among all variables were supported, implying that the qualifications for testing a mediational model were present (Baron & Kenny, 1986). A full mediational model, such as the one expected here, is descriptively supported when the mediating variable explains virtually all shared variance between a predictor and an outcome (Baron & Kenny, ibid). We relied on the rather conservative Sobel Z test to formally test mediation, where a significant Z value demonstrates at least partial mediation (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). First, results from a multiple regression analysis descriptively supported the mediational model in that the bivariate relation between U/d loss/abuse and New Age spirituality dropped to non-significance, $\beta = .10$, n.s., following the inclusion of absorption. The mediating absorption variable was in turn strongly related to New Age spirituality, $\beta = .52$, $p < .001$. Results for the full regression model were: $F (2, 59) = 13.36$, $p < .001$, $Adj R^2 = .29$. Second, the formal test of mediation yielded a significant result, Sobel $Z = 1.85$, $p < .05$. These findings are illustrated in Figure 1.

![Figure 1](image)

Figure 1. Mediational model linking unresolved/disorganized (U/d) attachment, absorption, and New Age spirituality. Sobel $Z = 1.85*$. *$p < .05$; **$p < .01$.

Conclusions

In Study III, initial theoretical and empirical support was given for the idea that disorganization is linked to absorption and New Age spiritual beliefs and activities. In addition, absorption was found to mediate the link between disorganization and New Age spirituality. More generally, the study findings illustrate how a failed resolution of trauma and the related propensity to experience an altered consciousness may be expressed in other life domains besides psychopathology, in this case in the domain of people’s spiritual beliefs and activities. These results are also in line with our conjecture that absorption might underlie the link between disorganization and openness obtained in Study II.
General Discussion

Key Findings

The first aim of this thesis was to investigate whether security in middle childhood is prospectively related to various aspects of social functioning (i.e. social initiative taking, prosocial orientation, social anxiety and loneliness) in young adulthood. The main findings of Study I were that avoidance in middle childhood was prospectively linked to all of the social functioning variables in early adulthood, as well as to an aggregated measure of overall social functioning. Furthermore, security³ (i.e., avoidance) was found to contribute to relative developmental change in social anxiety and overall social functioning from middle childhood to early adulthood.

In Study II, we found that attachment security in middle childhood and disorganization in early adulthood could be meaningfully related to the FFM personality traits. More specifically, middle childhood security (i.e., overall security) was found to be concurrently and prospectively related to extraversion and openness. However, the prospective links to extraversion and openness in young adulthood became marginally significant or insignificant when controlling for the stability from middle childhood to young adulthood in extraversion and openness respectively. Therefore it appears that security primarily contributed to developmental stability in the FFM dimensions from middle childhood to early adulthood. Regarding disorganized attachment, young adulthood disorganization was concurrently and negatively related to low conscientiousness and high openness. The fact that both security and disorganization were positively related to high openness might seem surprising, given that security is commonly associated with positive outcomes, and disorganized attachment with negative ones. Our results highlight a potential duality of the openness construct in relation to attachment, suggesting that different attachment histories might lead to seemingly the same outcome.

³ In the discussion of our results, the term ‘security’ refers to the organized security-insecurity dimension of attachment if not otherwise specified. In Study I and II this term is applicable to all dimensions of the Seattle version of the SAT, and to Coherence of Transcript in the AAI. ‘Disorganization’ refers instead to U/d loss/abuse in the AAI, as this was the only variable used for disorganization in our studies.
We speculate that the link between young adult disorganization and openness found in Study II might stem from their joint association with absorption. Absorption represents a propensity for alterations in consciousness, conceived of as a mild form of dissociation. Absorption has previously been related both to adult disorganization and New Age spirituality, which was replicated in Study III. In addition, absorption was found to statistically mediate the link between adult disorganization and New Age spirituality. These findings suggest that disorganization, via mild forms of dissociation, might underlie some people’s spiritual inclinations.

The Contribution of Security to Aspects of Social Functioning

Middle Childhood Security and Future Social Functioning

The support we obtained for an association between avoidance in middle childhood and social functioning in early adulthood was in line with our hypothesis. The hypothesis was based on ideas stemming from attachment theory highlighting the influence of attachment experiences on person’s expectations regarding other people’s availability and friendliness, and one’s own likeability and worthiness. Such expectations are supposed to guide social interactions with other people, and hence influencing various aspects of future social functioning (Bowlby, 1969/1982; 1973).

The link found with the aggregated measure assumed to represent a more robust and broad assessment of social functioning conceptually replicates previous research showing that attachment is associated with general future social adaptation (e.g., Sroufe et al., 2005). However, our full hypothesis stipulated that social functioning would be related to security as reflected not only in low scores on the avoidance dimension but also in high scores on the security-attachment and security-self-reliance dimensions. Because the two latter attachment dimensions were, except for one significant link, found to be unrelated to the outcomes, our hypothesis was only partially supported (the absence of these expected links will be discussed below). Before discussing the results, we point to the moderate to strong inter-correlations between the social functioning variables, which imply that interpretations of results as specifically pertaining to certain aspects of social functioning should be considered as preliminary until replicated.

As noted, avoidance was found to be prospectively and negatively related to low social initiative taking and prosocial orientation, which conceptually
replicates results that have been obtained in previous studies concerning other age periods. For example, in an earlier study in the same project, high avoidance in infancy and middle childhood was associated with low social initiative taking and prosociality in middle childhood (Bohlin et al., 2000). Furthermore, avoidance (i.e., dismissal of attachment) has in adolescence been concurrently related to low prosociality (Dykas et al., 2008). Hence, avoidance, assessed with different attachment instruments, seems to contribute to the development of social initiative taking and prosociality across ages.

Our expectations regarding a link between security on the one hand, and future social anxiety and loneliness on the other, were also partially confirmed through a prospective link from avoidance to these outcomes. In accordance with these results, avoidance has previously been positively related to social anxiety in middle childhood (in the same project; Bohlin et al., 2000) and concurrently in adolescence (i.e., dismissal of attachment; Zimmerman, 2004). However, high avoidance has also been associated with concurrently lower social anxiety in middle childhood (Brumariu & Kerns, 2008).

A similar inconsistency in results across studies has also concerned feelings of loneliness. For the childhood period, we are aware of no prior research finding a link from avoidance to such feelings (but such a link has been established for ambivalence and general insecurity; Berlin et al., 1995; Kerns et al., 1996; Raikes & Thompson, 2008). However, a positive relation has been found between avoidance (i.e., dismissal of attachment) in late adolescence and concurrent self-reported loneliness in one study (Kobak & Sceery, 1988), but not in another (Larose & Bernier, 2001). Such mixed results across studies, concerning the relation between avoidance on the one hand and social anxiety and loneliness on the other, might be due to variations in age periods under study, as well as types of raters and specific instruments used.

Why Was Avoidance Associated with Low Self-reported Social Functioning?

However, as avoidantly attached individuals are expected to defensively minimize attention to and expressions of vulnerability and negative feelings (e.g., Bowlby, 1969/1982; Cassidy, 1994; Dykas & Cassidy, 2011; Main, 2000; Roisman, Tsai, & Chiang, 2004; Sroufe & Waters, 1977), it might seem surprising that high levels of avoidance were related to high social anxiety and loneliness in our study. One reason for these results is that young adulthood is an age period generally associated with several profound life changes, for example shifts in school attendance, employment and living
arrangements. The late adolescence to young adult period is also a peak age period for mental health problems (Kessler et al., 1994). According to Fraley and Shaver (2008), the avoidant strategy to suppress negative thoughts and feelings are successful most of the time, but under serious stress, the avoidant defenses may fail, leaving the individual vulnerable to painful experiences. Hence, the stress likely to arise in early adulthood might, at least momentarily, have challenged habitual defensive strategies of minimizing distress and vulnerability, perhaps leading to more honest reports of social failures and feelings of loneliness.

Another plausible explanation is that individuals in young adulthood did not longer hold avoidant IWMs, which might be the case in Study I as avoidance in middle childhood was shown to be unrelated to a full classification of a dismissing state of mind in young adulthood \( r = .11, N = 66, n.s. \) In that case, our result might imply that either different aspects of the IWMs than captured in the AAI (see below) are responsible for the continuous effect of attachment on social functioning across the time period, or the effect of middle childhood attachment is carried forward by other factors than attachment representations.

Was Avoidance Predictive of Relative Change in Social Functioning from Middle Childhood to Young Adulthood?

An additional aim of this study was to investigate whether security predicted relative change in social functioning between middle childhood and young adulthood. Interestingly, avoidance was related to such developmental change in social anxiety and overall social functioning over the time period. This is an important finding that was obtained by taking advantage of the longitudinal design. This finding provides support for a developmental mechanism or process behind these relations, and it is imperative to continue searching for what the specific mechanisms or processes could be.

We here provide some speculations that could guide future studies. Regarding social anxiety, we speculate that a potential explanation of this developmental change may be a relative increase in social anxiety in individuals high on avoidance. As individuals high on avoidance are expected to be uncomfortable with feelings of vulnerability and failure (e.g., Dykas & Cassidy, 2011; Main, 2000; Sroufe & Waters, 1977), and are at the same time found to be less socially skilled (Sroufe et al., 2005), they might develop a propensity to withdraw from social interactions to protect themselves from such negative feelings (Larose & Bernier, 2001). However, escaping from instead of dealing with one’s social fears and difficulties is likely to increase symptoms of social anxiety (e.g., Clark & Wells, 1995). From an attachment theory perspective, such a relative change in social anxiety, as well as overall social functioning, might be understood by self-perpetuating mechanisms.
in the IWMs (Bowlby, 1973). Through such mechanisms, negative expectations and defensive relational strategies are presumed to lead to confirmation of negative IWMs, which over time might set a pathway toward increased social anxiety and decreased social functioning.

Why Was Specifically Avoidance Related to Future Social Functioning?

Altogether the results of Study I gave partial support for the idea that individual differences in attachment in middle childhood contribute to the development of a person’s social functioning. However, the support holds primarily for the avoidance dimension. The security–attachment and security–self-reliance dimensions were generally unrelated to future social functioning, except for a significant prospective association between security–attachment and prosocial orientation. Presumably, this latter link points to the importance of being able to openly express vulnerability and dependency when one’s attachment system is highly aroused, for the adoption of a caring attitude towards other people’s concern. Security–self-reliance, although defined by Bowlby (1973) to be an important attribute of secure attachment in middle childhood, did not predict any of the social functioning variables in young adulthood. Altogether, the scarcity of links from the security-self-reliance and security-attachment dimensions of the SAT to future social functioning, suggests that either avoidance is in fact of particular predictive value for social functioning in young adulthood, or splitting security into a security-attachment and a security-self-reliance dimension is not an appropriate conceptualization of security this age, at least not in relation to future social functioning. Another plausible explanation could be that the specific instrument used in Study I fails, for one reason or the other, to capture these two security dimensions appropriately.

One additional reason why specifically avoidance was found to be predictive of future social functioning might be that the content of the answers, that is the strategy the child states that the depicted child would use to handle the separations, does not reflect the child’s attachment representations as efficiently as the strategy the child shows in the interview situation, that is, his or her behavioral strategy (e.g., avoiding to speak about attachment-related information; Slough et al., 1988). Presumably, such a behavioral strategy of blocking the interview reflects the minimizing strategy discussed above and is a core characteristic of the lack of memory scale central for classification of a dismissing state of mind in the AAI (e.g., see Hesse, 2008). Interestingly, although middle childhood avoidance was unrelated to full classification of a dismissing state of mind (see above), it was significantly related specifically to the lack of memory scale, $r = .33$, $N = 66$, $p < .01$, suggesting at least some temporal continuity in strategies for getting through these attachment-
activating procedures. In this context, it seems important to ensure that the tendency to block the SAT interview by ‘don’t know’ responses or silence really do indicate avoidance, rather than, for example, an introvertive personality trait. When controlling for middle childhood introversion-extraversion in a standard multiple regression analysis, the link obtained in Study I between avoidance and future overall social functioning did indeed remain significant: $F(2,66) = 6.52, p < .01; \beta = -.27, p < .05; N = 69.$

If the general absence of links between security-attachment and security-self-reliance on the one hand and future social functioning on the other was due to methodological constraints in these particular scales, it should be important to use, also in middle childhood, interview instruments that take into account across all dimensions the form through which the speech is delivered. The Child Attachment Interview (CAI; Shmueli-Goetz, Target, Fonagy, & Datta, 2008; Target, Fonagy, & Shmueli-Goetz, 2003) is a promising attempt in this direction, in which also behavioral strategies evident in the interview situation are incorporated into the coding system. This instrument, together with the 6th year reunion procedure (Main & Cassidy, 1988) and Kaplan (1987) version of the SAT instrument, are also recommended in future studies to investigate whether ambivalent or disorganized attachments are related to future social functioning, which the Seattle version of the SAT (Slough et al., 1988) does not permit.

**What Processes Might Underlie the Prospective Link from Avoidance to Social Functioning in Young Adulthood?**

Showing support for relations between individual differences in attachment and aspects of social functioning across such a long time period as from childhood to early adulthood is in itself an important contribution to the literature. However, critical future steps should include the study of the mechanisms and processes through which different types of attachment may lead to later differences in social functioning. First of all, the understanding of our results could be deepened by investigating whether feelings presumably resulting from social shortcomings, for example social anxiety and feelings of loneliness, are mediated by social inabilities, such as low social initiative taking and prosociality. Secondly, according to attachment theory and research, there are several potential reasons why avoidance was related to low social functioning. Efforts should be made in future studies to directly investigate such processes. Many of these include presumed effects of repeated parental rejection and unavailability, expected to evoke in avoidant children doubts about their own worthiness and likeability, as well as others’ availability and friendliness (Ainsworth et al., 1978; Bowlby, 1973). Such a history is also expected to evoke a defensive strategy of minimized attention to and expression of vulnerability, dependency and distress (e.g., Bowlby,
1969/1982; Cassidy, 1994; Dykas & Cassidy, 2011; Main, 2000; Sroufe & Waters, 1977), which is likely to interfere with interaction reciprocity, emotional sharing and intimacy (e.g., Dubois-Comtois, Cyr, & Moss, 2011; Mayseless, & Scharf, 2007; Weinfield et al., 2008). Through such mechanisms and processes avoidance might be related to inefficient social functioning in general, especially beyond childhood when the demands for emotional sharing and interaction reciprocity are likely to increase (Allen, 2008).

In sum, the results in Study I support a prospective link from avoidance in middle childhood to various aspects of social functioning in early adulthood, which according to our knowledge, has not previously been shown. The magnitude of our associations (about 12% explained variance in overall social functioning) indicates that additional factors are likely to determine these aspects of social functioning, and that a pathway set by middle childhood security to future social functioning is not inevitable. In addition, it is possible that avoidance and social functioning have been bi-directionally influenced during the years preceding middle childhood and young adulthood. Nonetheless, considering the years and developmental phases that have passed between these age periods, the strengths of the associations are notable. Although the results need to be replicated, the prospective associations suggest that childhood attachment plays an influential role in the development of social functioning into early adulthood.

The Contribution of Security to the Development of the FFM Personality Traits

The Attachment Relationship and the FFM Personality Traits

The second general aim of this thesis was to investigate whether middle childhood security (a dimension of overall security not included in Study I) was concurrently and prospectively related to the FFM personality traits, and whether young adulthood security was concurrently related to these five traits. We expected links to all five traits, based on theoretical assumptions and empirical findings concerning the influence of attachment on broad aspects of a person’s functioning, such as social abilities, capacity of self-regulation and freedom of exploration (Bernier, Carlson, Deschênes, & Matte-Gagné, 2012; Drake, Belsky, & Fearon, 2013; Grossmann, Grossmann, Kindler, & Zimmermann, 2008; Sroufe et al., 2005). Some of our expectations were supported. The most notable findings will be discussed below.
Before turning to the discussion, it should be noted that the intention behind Study II was not to show that the FFM personality traits exclusively originate in attachment experiences, but rather to investigate whether attachment contributes to the development of these traits, presumably through underlying gene–environment interaction and addition processes. For example, Pomerantz and Thompson (2008) have suggested that parents provide their children with various opportunities, presumably reflected by the quality of the particular attachment relationship, to develop genetically based individual attributes such as personality traits. In a previous study from the same project (Hagekull & Bohlin, 2003), infant security, as well as temperamental traits such as activity level and sociability, were found to contribute uniquely and with equal strength to middle childhood extraversion, supporting the notion that both attachment experiences and biologically based predispositions are important for the development of FFM personality traits. However, concerning the results in Study II, it seems likely that parental influence, as expressed in attachment, is more evident in the development of some, but not all the FFM traits.

Security and Extraversion

Our findings of a concurrent link between high levels of middle childhood security and high extraversion, and a corresponding longitudinal link from security in middle childhood to extraversion in young adulthood are conceptually in accordance with findings from two previous studies (Bohlin & Hagekull, 2003; Roisman et al., 2007). However, Study II extended previous findings by showing concurrent links within another age period (i.e., middle childhood) and prospective links across a different age span (i.e., from middle childhood to young adulthood). In young adulthood, the relation between security and extraversion was only marginally significant, and this link disappeared when controlling for middle childhood security and extraversion.

The main theoretical rationale behind our expectation considers the assumed impact a person’s view of the self and others has on his or her social confidence (Bowlby 1969/82, 1973; Weinfield et al., 2008). Empirical findings, including those in Study I, have shown that high levels of security are associated with more confidence in taking place in the social world, manifested in, for example more social initiative taking (e.g., Bohlin et al., 2000; Schneider et al., 2001; Weinfield et al., 2008), which is an essential characteristic of extraversion. Thus, from an attachment point of view, extraversion might partly be viewed as an expression of secure IWMs, which aid a person in his or her social endeavors, and helps the person to enjoy the social world instead of withdrawing from it (Hagekull & Bohlin, 2003).
In our study, the prospective link from middle childhood security to young adult extraversion became marginally significant when controlling for stability in extraversion over the time period. The interpretation of this result partly depends on one’s general beliefs regarding the confidence of trend significant results. Notably, in Study I avoidance was the attachment dimension most consistently related to the social functioning outcomes (i.e., conceptually similar to extraversion). Also, in unreported post-hoc analyses avoidance was found to be significantly related to extraversion at both time points. Therefore, we decided to investigate if avoidance could help to clarify whether middle childhood attachment contributes to relative stability or change in extraversion. The results of a standard regression analysis showed that middle childhood avoidance made a unique significant contribution to extraversion in young adulthood, over and above the temporal stability in extraversion: $F(2,63) = 11.80, p < .001; \beta = -.26, N = 66, p < .05$. This finding suggests that attachment, at least in the form of avoidance, is important for developmental change in extraversion from middle childhood to early adulthood. Again, we speculate that a potential explanation for this developmental change may be a relative decrease in extraversion in individuals high on avoidance, as a result of trying to protect oneself from feelings of social failure (e.g., Dykas & Cassidy, 2011; Larose & Bernier, 2001; Main, 2000; Sroufe & Waters, 1977).

In light of the positive associations between attachment and social functioning in Study I, it seems rather surprising that agreeableness was not predicted by security, as it has previously been related to higher quality of children’s friendships in terms of responsiveness, companionship, and conflict (e.g., Kerns et al., 1996; Lieberman, Doyle, & Markiewicz, 1999; Raikes et al., 2013). However, neither in a previous study in the same project (Hagekull & Bohlin, 2003) nor in Roisman and colleagues’ study4 (2007) were links between security and agreeableness found. One reason for this lack of a clear association in Study I may be a restriction in range in our measures of agreeableness.

Security and Openness
The result obtained in Study II of a concurrent association between high levels of middle childhood security and high openness was in accordance with our expectations and a previous study linking infancy security to openness in middle childhood (in the same project, Hagekull & Bohlin, 2003).

4 However, the reported links in Roisman and colleagues’ (2007) study, between attachment and the FFM personality traits, were obtained in multiple regression analysis undertaken to investigate the unique contribution of security from two different attachment instruments. Therefore, insignificant links do not exclude the possibility that there were bivariate correlations between the AAI and the FFM dimensions.
Our expectations were theoretically based on the assumption in attachment theory that security should increase the likelihood of a free and flexible exploration of the surrounding (see Grossmann et al., 2008). From an attachment perspective, an open exploration is expected to stem from freed up cognitive resources and acquired self-confidence, both emerging from the ability to use the parent as a secure base instead of anxiously monitoring the parent’s accessibility during exploration. Security has been empirically related to a more competent and sophisticated exploration, evident in, for example, an enthusiastic approach toward problem-solving tasks (e.g., Belsky et al., 1984; McElwain et al., 2003; see also Grossmann et al., 2008). Relatedly, security has been proposed to reflect a greater capacity for open and flexible information processing, due to consistent parental responsiveness and availability, which might also underlie the link between security and openness found in our study (Bowlby, 1969/1982; Dykas & Cassidy, 2011; Main, 2000; Main et al., 2003; Grossmann et al., 2008).

In our study, security was also found to be prospectively and positively related to openness in young adulthood. However this link was only trend significant, and disappeared when controlling for the stability in openness over the time period. Thus, the contribution of security to openness did not extend to developmental changes in openness from middle childhood to young adulthood. However, in an earlier study in the same project (Hagekull & Bohlin, 2003) middle childhood openness was predicted by infancy security but not by any of the available early temperamental traits, providing some support for the unique importance of attachment in the development of openness in the years preceding middle childhood. Concerning the expected concurrent relations between adult security and openness, such a link was not found in our study, which might be due to fluctuations in the operationalization of the openness and attachment constructs across the time points, or perhaps true changes in them.

Why Was Security in Middle Childhood Generally a Better Predictor than Security in Early Adulthood?

According to our results, the attachment representations attained in middle childhood, presumably emerging from preceding child-parent interactions, seemed to contribute to future social functioning and personality many years later. Seen over both Study I and II, security in middle childhood appeared to be more important for future social functioning and personality (the former revealed in data not shown) than security in early adulthood, which might seem surprising given that AAI and the young adulthood outcomes were measured at the same time point. For example, concerning concurrent rela-
tions between security and the FFM traits only a trend significant relation to extraversion was found, which in addition became insignificant when controlling for middle childhood security and extraversion.

One reason for the variations of the influence of security across measures and time points on social functioning and personality outcomes, as well as for the absent stability between security in the SAT and the AAI ($r = .08$, n.s.), might be that the attachment instruments capture different aspects of IWMs. For example, the AAI was originally developed to understand transmission of attachment across generations (Hesse, 2008; Main et al., 1985), which perhaps makes it more suitable for prediction of parenting-related phenomena. Moreover, the AAI questions focus on attachment experiences in the individual’s own childhood and assesses how coherently he or she has been able to integrate these into a generalized stance regarding attachment. Such a unifying process is suggested to require that the person has gained enough distance to his or her childhood and parents (Allen, 2008). Therefore, the poor predictive ability of AAI-based security to our outcomes might also stem from the AAI not yet having reached its full potential in young adulthood. Altogether, the results in Study I and II suggest that although attachment IWMs seem to influence social functioning and personality characteristics across extended time periods they are not templates that are resistant to developmental change (Main et al., 1985).

Non-Psychopathological Sequelae of Disorganization

The Contribution of Disorganization to the Development of the FFM Personality Traits

Disorganization has repeatedly been linked to psycho-pathological outcomes, but few studies have investigated whether there are non-psychopathological sequelae of disorganized attachment. The first part of the third aim was to examine if young adulthood disorganization, and not only security, was related to the FFM personality traits in young adulthood, which have not, as far as we are aware, previously been investigated. We expected that disorganization would be positively related to openness due to a joint association with absorption (Glisky et al., 1991; Hesse & van IJzendoorn, 1999). The scarcity of relevant literature prevented us from making directed predictions regarding relations between disorganization and the four remaining personality traits. The most notable findings in Study II concerning interrelations between disorganization and the FFM traits will be discussed below.
Disorganization and Openness

In Study II, young adulthood disorganization was concurrently and positively related to openness. Hence, both security and disorganization were related to openness in the same direction, although at different time points. How can these seemingly conflicting results be understood? One possibility is that security and disorganization are related to different facets of openness. Notably, openness is the one FFM factor surrounded by most controversies regarding definition and content (McCrae & Costa, 1997). For example, Glisky and colleagues (1991) argued that the openness factor in the FFM instrument NEO Personality Inventory (Costa & McCrae, 1985) could be split into two dimensions: absorption and social liberalism/curiosity, because the items included in the absorption dimension were, compared to those included in the social liberalism/curiosity dimension, more closely related to Tellegen’s Absorption Scale (Tellegen & Atkinson, 1974). Based on previous findings linking disorganization to absorption (Hesse & van IJzendoorn, 1999), we thus speculate that disorganization is related to aspects of openness associated with absorption (e.g., openness to unusual experiences such as alterations in consciousness), and security is associated with the social liberalism/curiosity facet, reflecting freedom to explore social and other matters in an open, non-defensive manner (cf. Steele, Steele, & Croft, 2008).

In addition, the association between disorganization and openness might reflect a hyper-vigilant approach toward the surrounding in order to control events and people in one’s world. In a previous study (Steele et al., 2008), disorganized children’s capacity to read facial emotions was not found to be significantly different from that of secure children. The capacity to read facial emotions of the disorganized children was speculated to stem from a history of parental inconsistent and frightening reactions and for the sake of self-protection. The capability of secure children was, on the other hand, proposed to arise from attuned and consistent parental responses. Hence, our results might reflect two different attachment-related developmental pathways to openness. Moreover, our findings highlight that openness is a multifaceted construct also in relation to attachment.

However, these interpretations should be understood as speculative as we did not directly assess such developmental pathways or facets of openness, and security and disorganization were not related to openness at the same time point (perhaps partly due to our study lacking a disorganization measure in middle childhood). In addition, disorganization was concurrently related to openness over and above the contribution from middle childhood security and openness, perhaps pointing to a particular influence of disorganization on aspects of openness. Nonetheless, to further investigate a possible duality of openness in relation to attachment, future research should use the NEO-
PI-R (Costa & McCrae, 1992) as this instrument contains different facets of openness.

**Disorganization and Conscientiousness**

In our study, young adulthood disorganization was also negatively and concurrently related to conscientiousness. Due to the scarcity of studies investigating potential links between disorganization and conscientiousness, we did not have any clear expectations regarding such a link. However, a speculative explanation of the mechanism behind this relation may be found in the concept of self-regulation. Conscientiousness is conceptually proximal to self-regulation (e.g., Drake et al., 2013), in that it refers to the tendency to be organized, careful, persistent and trust-worthy in one’s endeavors and dealings with others (Roberts, Chernyshenko, Stark, & Goldberg, 2005). Disorganized individuals are expected to be unable to use the attachment figure to relieve intense distress caused by the same (Carlson, 1998; Hesse & Main, 2000; Hesse & Main, 2006; though see, Bernier and Meins, 2008 and Spangler, Fremmer-Bombik, and Grossmann, 1996, for a discussion about genetic influence). This is suggested to result in low self-regulation as evidenced in, for example, stress-dysregulation in the SSP, externalizing problems later in development, and dissociation (Carlson, 1998; Fearon et al., 2010; Groh et al., 2012; Hertsgaard, Gunnar, Erickson, & Nachmias, 1995; Hesse & Main, 2006; Luijk et al., 2010; Spangler & Grossmann, 1993; Spiegel & Cardeña, 1991). Impaired regulation capacities might thus explain the link between disorganization and conscientiousness found in Study II.

Given that disorganization has previously been linked to dysfunctional self-regulation and psychopathology (e.g., Carlson, 1998), it might seem surprising that disorganization was unrelated to neuroticism in Study II. It could be that there was insufficient pathology-related variance in neuroticism in this low-risk sample for disorganization to display its true effects. However, as there are not, as far as we know, any previous empirical studies investigating if there actually is a link between disorganization and neuroticism, this question should be further examined in future studies, preferably using a sample with more variation in neuroticism.

**Disorganization, Absorption and New Age Spirituality**

As a part of the third aim of this thesis, we investigated whether adult disorganization was related to New Age spirituality, and if absorption statistically mediated this presumed link, as previously suggested by Granqvist and colleagues (2007). The findings in Study III confirmed our expectations, and we suggest that they reflect how a failed resolution of trauma contributes to a propensity for absorption, and that this propensity in turn increases the re-
ceptiveness toward experiences, beliefs and activities that are associated with New Age spirituality.

Based on theoretical considerations and related previous empirical findings, we expected that dissociative components of absorption should underlie the link between adult disorganization and New Age inclination. There is broad consensus that dissociation is connected to experiences of earlier trauma (e.g., Bremner, 2010; but see also Giesbrecht, Lynn, Lilienfeld and Merckelbach, 2008 for a critical review), which is a core requisite of disorganization in adulthood. However, the assumption that absorption really reflects dissociation is surrounded by controversies. Researchers who consider dissociation as a continuous phenomenon (e.g., Butler, 2004; Dalenberg & Paulson, 2009) generally insist that absorption is a mild form of dissociation, whereas advocates for a prototypical view of dissociation (e.g., Dell, 2009; Van der Hart, Nijenhuis, Steele, & Brown, 2004), argue that, although meaningfully correlated with dissociation, absorption should not be conceived as a dissociative phenomenon in itself. Hence, an alternative interpretation of the results in Study III is that other aspects of absorption than dissociative ones underlie the findings, for example general suggestibility, or a general openness to experience, which have previously been related to absorption (e.g., Glisky et al., 1991; Roche & McConkey, 1990), and are commonly embraced within the New Age movement (Singer & Nievod, 2003; see also Farias & Granqvist, 2007). Irrespective of what components of absorption that serves as mediator of the observed link, alterations in consciousness through the immersion in other foci (i.e., absorption) could be used by disorganized individuals to defensively handle overwhelming experiences (Dell, 2009) of loss and abuse.

In addition, as absorption has been found to be moderately genetically heritable (Finkel & McGue, 1997), we cannot exclude the possibility that absorption best serves as a moderator instead of a mediator of the obtained link between disorganization and absorption. In such a case, life experiences would shape the expression of an already existing predisposition for absorption, such that a person with a high predisposition for absorption who is also prone to be unresolved with regard to loss/abuse, might become disproportionately devoted to New Age beliefs, compared to individuals who are not predisposed to high absorption and/or hold an organized state of mind with regard to attachment. However, although there are other possible interpretations of the results in Study III, we argue that the proposed mediating model seems to be feasible, given that it has previously been shown that more than half of the variance in absorption is accounted for by environmental factors (and measurement error; Finkel & McGue, ibid) and that disorganization is predictive of dissociation and absorption (Carlson, 1998; Gribneau, 2006; Hesse & van IJzendoorn, 1999). Nevertheless, because of the small sample
size and that our data did not permit the chronological sequence of events to be determined (e.g., absorption and New Age spirituality were assessed concurrently), the mediational results should be viewed as preliminary and illustrational until replicated.

Concerning generalization of results in Study III, the sample used to test the mediating model was part of a more general project about attachment and various aspects of religion. Therefore, participants were drawn mostly from traditional religious groups. As New Age-related beliefs and activities are more or less orthogonal to traditional religiousness, this is, in principle, not a serious problem. However, population inferences are made uncertain by the use of a sample of convenience. Therefore, a future direction is to recruit participants from more precisely demarcated New Age contexts and compare them with matched participants not involved in the New Age movement (see Cassibba, Granqvist, Costantini, & Gatto, 2008, for a corresponding study of religious participants). Relatedly, we did not expect disorganization to be a strong predictor of New Age spirituality. In showing that only approximately 5% of the variance in New Age spirituality was explained, our results are in line with a multiple pathway understanding of New Age spirituality.

In our view, the findings of Study III illustrate how a failed resolution of trauma and the related propensity to experience an altered consciousness, may be expressed in other life domains besides psychopathology, specifically in the domain of people’s spiritual beliefs and activities. Thus, without denying that disorganization is a risk factor for maladaptive development in general, everything related to disorganization is not inevitably maladaptive. For example, the active involvement in the New Age movement may have buffered some negative effects that might have resulted in the absence of such involvement (cf. Buxant, Saroglou, Casalfiore, & Christians, 2007). Encouraged by our results, a future direction is to continue to investigate whether disorganization is related to other non-pathological attributes, for example unusual forms of creativity.

**Additional Limitations and Related Future Directions**

Besides the limitations already described or implied above, some limitations regarding all three studies should be taken into consideration when interpreting the results of this thesis. Firstly, the sample sizes made it difficult to detect small effects, and also limited the generalizability of the results. Studies that aim to replicate the findings in this thesis should therefore use larger samples. Secondly, as we did not include other factors that might influence the associations between attachment and our outcomes (e.g., temperament, self-regulation, traumatic experiences, parental sensitivity and frightening
behaviors) we could not tap into the assumed underlying processes involved in the developments addressed in this thesis. However, speculative explanations that address such potential processes have been provided, which may serve as incentives for future studies. Thirdly, to exclude the possibility that the links from attachment to the outcomes were not instrument-specific, we suggest that for example the 6th year reunion procedure (Main & Cassidy, 1988) or the CAI (Target et al., 2003) should be used in future studies. Finally, the use of self-reports for many of the outcome variables, instead of more objective ratings like observations or tests, leads to the potential problem of self-report biases, such as social desirability and lack of self-awareness. Consequently, we suggest that future research complements self-reports with more objective measures.

Concluding Remarks

This thesis has spanned over a set of broad life domains: social functioning, personality, and spirituality. Attachment has repeatedly been shown to contribute to the development of these phenomena, in the present thesis as well as in previous research. However, the modest strength of our results suggests that attachment is, not surprisingly, only one among several factors involved.

One discussion often raised in the attachment literature is how widely or narrowly to conceive of the attachment construct. From the perspective of researchers arguing for a more narrow approach (e.g., Weinfield et al, 2008), our utilization of attachment theory to understand FFM personality traits, as well as spiritual beliefs, could be criticized of being too inclusive. However, we agree with Thompson (2008) that a broad and generative usage can be motivated if questions pertaining to why and how attachment should, directly and indirectly, be associated with targeted outcomes are substantiated theoretically. We also agree with his point that researchers should strive at incorporating such findings in overarching models, to prevent an explosion of unrelated mini-theories. Hence, we propose that it is through its continuous effect on general components such as cognitive representations, but also emotional, cognitive and behavioral regulation or dysregulation (Bernier et al., 2012; Cassidy, 1994; Drake et al., 2013; Dykas & Cassidy, 2011; Fearon et al., 2010; Gunnar & Donzella, 2002), that attachment spreads its influence to a broad range of areas in a person’s life, such as social functioning, personality traits and why a person seeks out a particular belief system.
Acknowledgements

Many people have in various ways contributed to the accomplishment of this thesis:

First of all, I would like to express my deepest gratitude toward my excellent supervisor, Pehr Granqvist, for sharing your profound knowledge and inspiring enthusiasm regarding attachment research during all these years. Also thanks for the time and energy you have invested in my progress, and for supporting me in times of doubt or lost direction. In addition, I am grateful that you have emphasized the importance of intellectual creativity and freedom, for having the courage to confide in the strength of my own motivation, and for not trying to make me follow conventional routes.

Likewise, I am grateful to Gunilla Bohlin and Berit Hagekull for sharing your deep and invaluable experience in developmental research, and for letting me be a part of the longitudinal project you once started. In addition, thanks for providing me with solid advise when my own attempts did not reach all the way.

Carin Tillman – your door has always been open to discuss overreaching theoretical questions as well as writing details, for which I am deeply grateful. Thanks also for sharing your exquisite knowledge in method and statistics, and for always encouraging my endeavors. But most of all I am happy to be your friend. Without you, this journey would have been much harder to handle.

Lilianne Eninger, Ata Ghaderi, and Ann-Margret Rydell, as well as former and current members of the developmental psychology research group - thanks to all of you for valuable comments on my work along the way toward the accomplishment of this thesis.

Greg Moran, David Pederson, Sandi Bento, Elspeth Evans and Lindsey Forbes at the University of Western Ontario - my pre-doc visit to your attachment research lab kept inspiring me throughout my PhD studies and probably will thereafter, because of your tremendous knowledge in attachment research as well as the respectful way in which you treated your (PhD) students and participants. Thanks for all the exciting and extremely informa-
tive coding meetings and inspirational everyday discussions about attachment research in general. I am also grateful for the hospitality you showed me also outside of work. Helene Sellery – you not only opened up your home to me during my visit, but also invited me to take part in your everyday life. Thanks for all our conversations about life’s ups and downs, and for showing me the mountains.

I am grateful to Linda Forssman and Sofia Lindqvist for the time we shared at Munken’s second floor and the friendship ever since. I was happy to get to know you when this world was completely new to me. Thanks also Sofia for teaching me the importance of turning things upside down, and Linda for challenging my political ideas. I would also like to thank Maria Johansson and Sara Scholtens for supportive and encouraging conversations, and inspiring spirit and personal strength.

I also would like to express my warmest gratitude to Jenny Bate, Charlotte Brolin, Sara Brunt, Helena Edin, Annika Gerenstein, Petra Larsén, Sofie Svensson, Malin Tellgren, and Louise Ziegler for insightful conversations, great laughs, unforgettable parties, and most of all, friendship. In addition, you have all contributed essentially to my understanding of developmental psychology.

My parents, Mona and Mats Fransson - thanks for all the ways that you have expressed your love and support for my family and me during the years, from filling our fridge with home-grown vegetables to tenderly taking care of our children. I am also grateful that you have never pushed me to choose an academic career, although I ended up here. My grandmother, Maj-Britt Gustafsson, thanks for encouraging creativity and taking all my questions seriously when I was a child.

And finally, my own family. Stefan – thanks for always standing by my side and being so generous with love also when times are tough. You are calm and patient when I am not, and I would never have managed this without you. Tage and Skilla – you were born during this journey. Nothing has taught me as much about love and life as your birth and the years gone by since then. In addition to everything you have given me, thanks for teaching me that although nothing can compete with a parent’s love for his/her children, parenthood is not always as easy as it sometimes says in the books.
References


system for frightened/frightening (FR) parent-infant interactions. Unpublished manuscript, University of California at Berkeley.


Acta Universitatis Upsaliensis

Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Social Sciences

Editor: The Dean of the Faculty of Social Sciences

A doctoral dissertation from the Faculty of Social Sciences, Uppsala University, is usually a summary of a number of papers. A few copies of the complete dissertation are kept at major Swedish research libraries, while the summary alone is distributed internationally through the series Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Social Sciences. (Prior to January, 2005, the series was published under the title “Comprehensive Summaries of Uppsala Dissertations from the Faculty of Social Sciences”.)

Distribution: publications.uu.se
urn:nbn:se:uu:diva-221869