SALUTOGENIC AND PATHOGENIC ORIENTATIONS TO LIFE: ATTACHMENT, PERSONALITY, SENSE OF COHERENCE AND WELL-BEING IN LATE ADOLESCENCE--A STRUCTURAL EQUATION MODEL

by

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BY

ROBERT C. HOSSACK

A Thesis/Practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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ABSTRACT

The present study proposed a model that integrates the "trait" and "process" approaches to personality development in the form of a structural equation model. More specifically, it examined the influence of personality traits and "internal working models" of attachment (Bowlby, 1969) on subjective well-being (SWB) and the variables which mediate this relationship. The testing and cross-validation of this proposed model formed the primary analysis, while a more detailed exploration of the relationship among a number of variables formed the secondary analysis of this study.

Five hundred and twenty undergraduate participants completed all or relevant sections of the following measures: Relationships Questionnaire (Armsden & Greenberg, 1989), Adult Attachment Scale (Collins & Read, 1990), Objective Measure of Ego Identity Status (Bennion & Adams, 1986), Aspects of Identity Questionnaire (Cheek & Briggs, 1982), Religious Orientation Scale (Allport & Ross, 1967), Religious Life Inventory (Batson & Ventis, 1982), Religious Maturity Scale (Dudley & Cruise, 1990), NEO-Five Factor Inventory (Costa & McCrae, 1989), Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975), Orientation to Life Questionnaire (Antonovsky, 1987), Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), and the Affectometer-2 (Kammann & Flett, 1983).

In the primary analysis, the Bentler-Weeks (1980) structural approach was used to represent the data, and the EQS program

(Bentler, 1989) facilitated the structural equation analysis. Given the sensitivity of the chi-square statistic to sample size, several supplemental fit indices were used to evaluate the model, including; the ratio of the chi-square to degrees of freedom, the Bentler-Bonnet Normed Fit Index (NFI: Bentler, 1980), the Bentler-Bonnet Nonnormed Fit Index (NNFI: Bentler, 1988), and the Comparative Fit Index (CFI: Bentler 1988). The respecified model was confirmed by these supplemental fit indices and was also cross-validated on a different sample.

In the secondary analysis the relationship of several variables were explored, including: religious types and dimensions in relationship to attachment, personality traits, sense of coherence, and subjective well-being; attachment and identity; and parental attachment types with sense of coherence, subjective well-being, and identity. Gender differences were discussed, limitations of the study addressed, and future research possibilities presented.

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CHAPTER 1. INTRODUCTION

1.1. Definitions, Assumptions and Overview

Of general interest to this thesis are two broad and generalized orientations to life in the form of the salutogenic orientation and the pathogenic orientation. The salutogenic approach (Antonovsky, 1979) has a general worldview that tends to see life's demands as challenges. In contrast, the pathogenic perspective tends to see life's demands as threatenings. It will be argued that the individual's developmental history contributes to the underlying organization of these two orientations, with the assumption that the organization of Positive Affect (PA) underlies the salutogenic orientation, while the organization of Negative Affect (NA) underlies the pathogenic orientation. In other words, it is presumed that what causes and regulates PA and NA, indirectly causes and regulates the more generalized salutogenic and pathogenic orientations, respectively.

Further, a genotype-environment interaction is presumed to bring about the phenotypic expression of PA and NA. In other words, in attempting to elaborate on the potential causes for the phenotypic expression of PA and NA, this thesis will attempt to integrate a "structure" approach and a "process" approach to personality development. By "structure" I refer to a personality trait approach, and by "process" I mean a functional, cognitive approach to personality. In this thesis, both approaches will be placed within a socioemotional and relational developmental framework. More specifically, by "structure" I mean "biologically

wired". In other words, personality attributes that appear to have a strong genetic component and provide biologically-based predispositions. Generally, these would include temperamental characteristics or personality traits. In terms of the overall model proposed in this thesis, two prominent superordinate personality traits will be considered, namely, Extraversion and Neuroticism. These two traits, which probably have the greatest consensus for being neurobiologically grounded (e.g., Eysenck, 1967), are hypothesized to have some influence on the structure and regulation of PA and NA, and thus, indirectly on the generalized salutogenic and pathogenic orientations to life, respectively. In other words, these two traits are presumed to provide the individual with a sensitivity and a potential responsivity to the environment. Thus providing, in terms of one definition of temperament, "the characteristic individual differences in the intensive and temporal parameters of the expression of emotionality and arousal..." (Campos, Campos, & Barrett, 1989, p. 399). Consequently, "structure" is seen as providing a broad influence in terms of potentialities and constraints that are neurobiologically grounded.

By "process" I mean the functioning and the influence of cognitive-emotive information processing on the organization of intrapersonal and interpersonal processes. In other words, as a result of interaction with the environment, the individual is motivated to process information and structure reality in a meaningful way. Within this context, "process" involves the

integration of cognitive, emotional, and biological influences, which include the potentialities and constraints of inherited traits. However, given the increasing integration in the developing mind of the child, it is presumed that, not only would a greater level of complexity be expected as a result of this increased level of integration, but also the rise of emergent processes that have properties of their own and that are neither easily reducible to, nor exhausted by, physiological or neurobiological correlates.

In other words, in attempting to integrate "process" and "structure", I acknowledge the importance of the physiological substrate to the human organism, and the importance of a descriptive approach to personality as seen in personality trait theory. However, such an approach can only provide a part of the story. As Epstein (1994) states, regarding a trait theorist's approach to personality, "Their units are useful for describing what people are like (structure) but not how they operate (process)" (p. 120). Consequently, we also need to consider theories that attempt to deal with the "how" of behavior. This would imply the need to also consider theoretical proposals of potential intervening processes that may help explain more of the variance in human behavior.

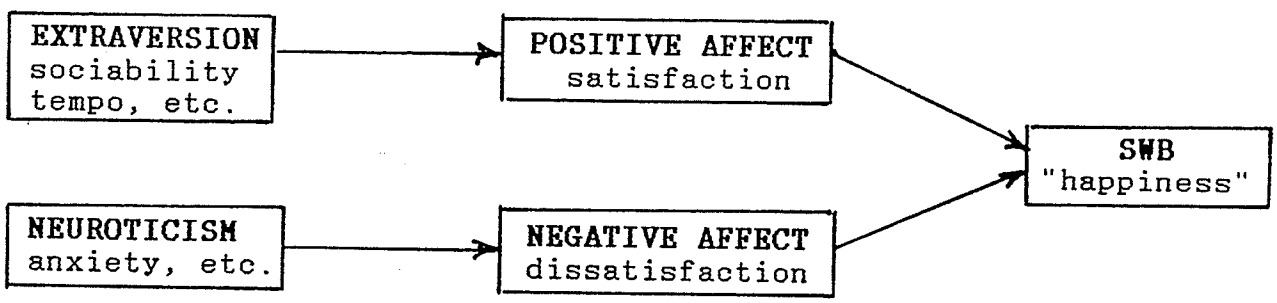
1.2. **Integrating Two Approaches**

In keeping with the assumptions mentioned above, while considering the possible causes of the generalized salutogenic and pathogenic orientations to life, it will be necessary to

elaborate on the organization and regulation of Positive Affect (PA) and Negative Affect (NA). In the process of doing this, an attempt will be made to integrate, into one model, the two approaches to personality ("structure" and "process") mentioned above.

In the context of the literature dealing with Subjective Well-being (SWB), Costa and McCrae (1980a) became fascinated with the finding of Bradburn (1969) regarding the independence of PA and NA in their measures of happiness or SWB. Subsequently, these authors attempted to account for the differences in PA and NA in terms of the broader dimensions of personality, Extraversion and Neuroticism. They discovered that several temperamental traits clustered around these two broader personality dimensions. A depiction of their model is seen in Figure 1.1.

Figure 1.1 A model of personality influences on positive and negative affect on subjective well-being (Costa & McCrae, 1980a, p. 675).



However, their model is still somewhat atheoretical as to the causes of the clustering of the traits into the two broader dimensions of personality. The clustering occurs only

psychometrically in terms of factor analysis in a statistically descriptive sense.

Integrating a "process" approach to personality within the Costa and McCrae (1980a) model may provide a more substantial theoretical base for the differences in PA and NA expression. One "process" approach that may serve this purpose is Bowlby's (1973) attachment construct. Generally, the attachment framework would suggest that early interpersonal relationships of the child, coupled with early cognitive development, result in the development of "internal working models" (Bowlby, 1969) that function to regulate emotional development.

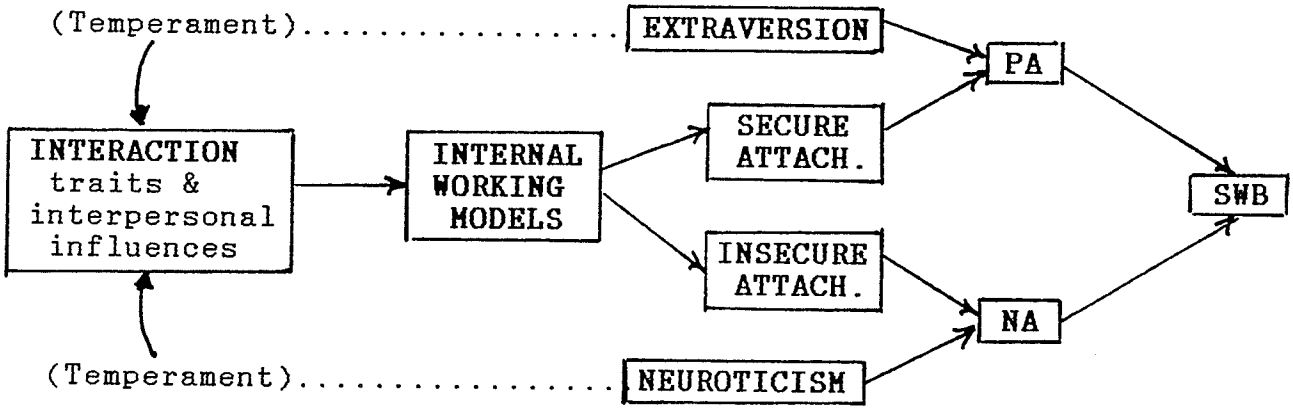
In broad strokes, the attachment system is believed to organize the earliest experiences of love and fear (Sroufe & Waters, 1977), which are, perhaps, the most basic elements of PA and NA, respectively. The development of a secure attachment bond reflects a basic trust (Erikson, 1963) that the infant has in its surroundings, which subsequently engenders exploration of the environment with optimism and self-confidence. Such confidence in exploration is facilitated by using the attachment figure as a secure base.

On the other hand, an insecurely attached infant tends to see the world as a threatening and dangerous place. Out of this early pessimism about life, subsequent deficits in self-esteem and a vulnerability to loneliness, could arise (McAdams, 1990).

More specifically, attachment theory would propose that working models of secure attachment would tend to organize

emotions in terms of PA, whereas insecure attachment working models would tend to organize emotions in the overall direction of NA. Thus, the possible integration of the two approaches (structure and process) could be conceptualized, as seen below.

Figure 1.2 A possible conceptual integration of the "structure" and "process" approaches to personality development.



This integrated conceptualization suggests that heritable traits are brought into the early interpersonal matrix in which the child interacts. It is assumed that a certain amount of modification of some of the traits will occur at this time, and also an opportunity is provided for a variety of trait clusters or combinations to emerge as the individual's personality is forged in transaction with the environment. With early cognitive development, internal representations of the dyadic relationship develop which are presumed to organize emotions and regulate their expression and development. As a result, one would expect Secure Attachment to be correlated with PA and its cluster of

traits seen in the broader personality dimension of Extraversion, while Insecure Attachment would be similarly related to NA and its cluster of traits seen in the broader personality dimension of Neuroticism.

1.3. Assembling an Integrated Model

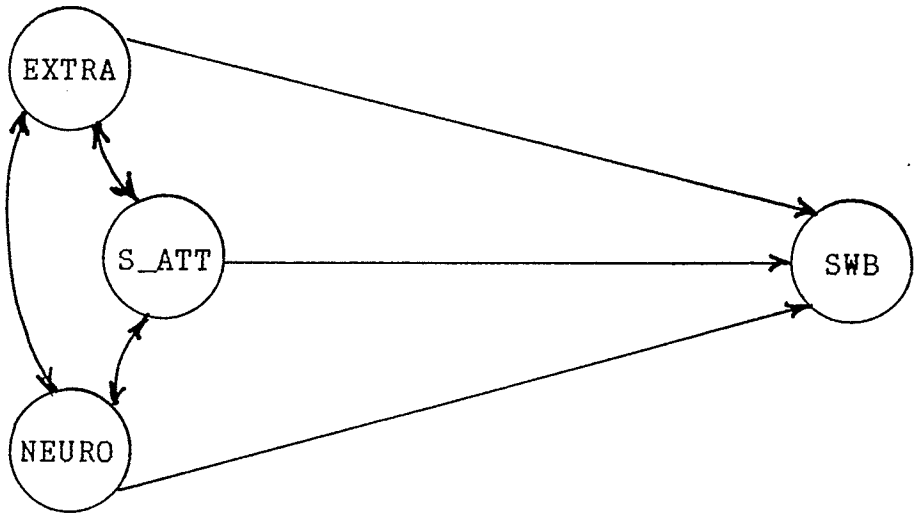
In this section I move toward a quick assembling of the constructs embedded in the model that was tested in the primarily analysis of this dissertation. Consequently, latent constructs and their proposed relationships will be introduced here but will not be described. In the next chapter, which deals with the literature review, all the constructs will be described in detail and the theoretical and/or empirical linkages will be established.

In this study the main dependent variable was Subjective Well-being (SWB). Like the Costa and McCrae (1980a) study, two superordinate personality dimensions, namely, Extraversion and Neuroticism, were used to predict part of the variance in SWB. This part of the proposed model provides the "structure" approach to the problem. The addition of the Attachment and related constructs provided the "process" part of this model.

After reviewing the literature on Attachment and Subjective Well-Being, among other things, it will be concluded that both personality traits (Extraversion and Neuroticism) and Attachment representations have a regulating influence on PA and NA. As a consequence, both are believed to have a predictive influence on SWB. Such a conclusion results in the basic pattern of the

proposed integrated model, shown below in Figure 1.3.

Figure 1.3 The basic pattern of the proposed integrated model.

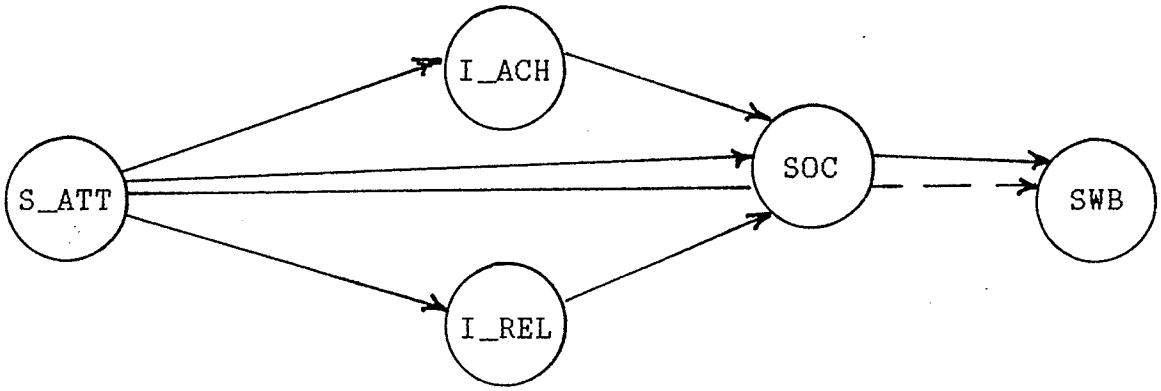


Note: EXTRA=Extraversion, S_ATT=Secure Attachment, NEURO=Neuroticism, and SWB=Subjective Well-Being.

Further, the Sense of Coherence (SOC: Antonovsky 1979) construct is seen as a major intervening variable that will enhance the contribution of the process component of this model in predicting the variance in SWB. After reviewing the literature on SOC, it will be concluded that Antonovsky's (1979, 1987, 1990) theoretical notions as to the life experiences that promote the development and maintenance of a strong SOC (such as social support, ego-strength, and cultural stability) may be operationalized in terms of three constructs: Secure Attachment, Identity Achievement, and Intrinsic Religiousness, respectively. Similarly, it will be shown that attachment representations ("working models") are theoretically influential on identity formation and religious orientation.

To date, there has been some preliminary empirical support for some of these theoretical linkages, and for others, the conceptual linkage has not been made before. Consequently, putting these "process" variables together result in the pattern of constructs seen below, in Figure 1.4.

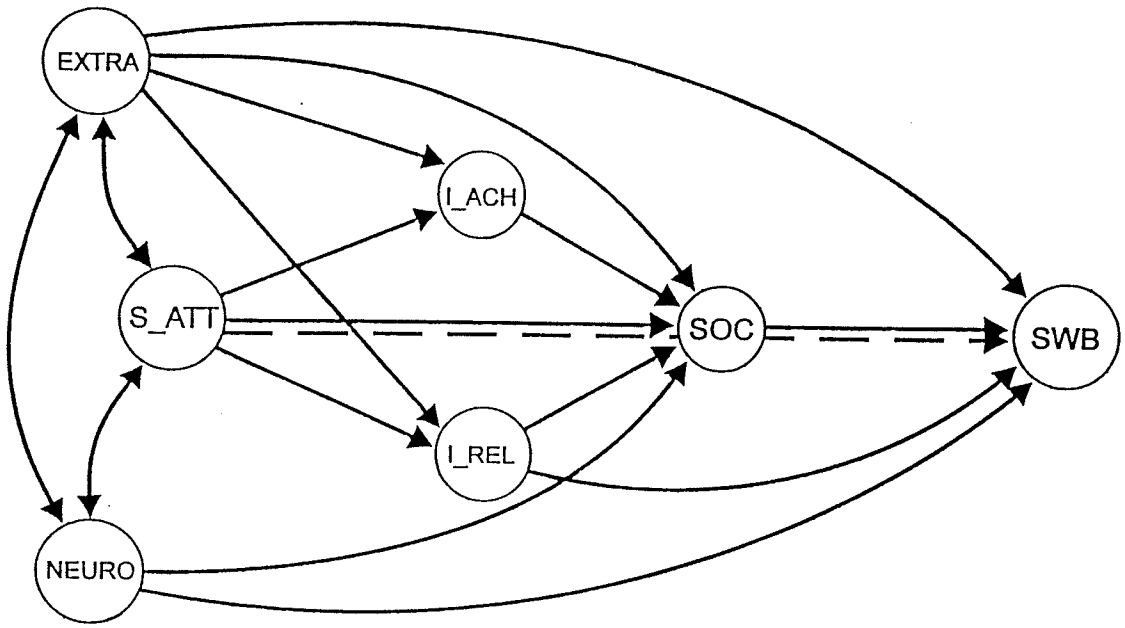
Figure 1.4 The "process" constructs of the model



Note: S_ATT=Secure Attachment, I_ACH=Identity Achieved, I_REL=Intrinsic Religiousness, SOC=Sense of Coherence, and SWB=Subjective Well-Being

Putting all the seven hypothesized constructs together in an integrated "structure/process" model, results in the pattern of relationships seen in Figure 1.5. In this figure we see the seven latent constructs or factors of the proposed model and the hypothesized relationships among them, in terms of, predictive "causal" pathways. To the far left, we have the three correlated independent variables, to the far right we have the dependent variable, and in the center we have the three mediating variables (see Figure 1.5).

Figure 1.5 The latent constructs of the proposed integrated model.



Note: EXTRA=Extraversion, S_ATT=Secure Attachment, NEURO=Neuroticism, I_ACH=Identity Achieved, I_REL=Intrinsic Religiousness, SOC=Sense of Coherence, SWB=Subjective Well-Being

The following chapter will provide the literature review that will describe the nature of these constructs and the empirical and/or conceptual relationships among them that provide a justification for the proposed "causal" pathways.

CHAPTER 2. LITERATURE REVIEW

In order to substantiate the rationale for the variables chosen and the model proposed in the previous chapter, this second chapter will review the appropriate literature. The literature review will be divided by constructs into three main sections; Attachment, Subjective Well-Being, and Sense of Coherence. The remaining constructs in the model, such as, Identity, Religious Orientation, Extraversion, and Neuroticism will be discussed in relationship to the three main sectional-constructs mentioned above.

2.1. Attachment: Theory, Validity and Utility

It was while studying the effects of institutionalization on infants that Bowlby began to formulate his theory of attachment (Bretherton, 1985). He noticed that when infants were separated from their parents, they showed a predictable series of emotional reactions. For example, initially, they protested the mother's departure by exhibiting such behaviors as crying, active searching, and resistance to being soothed. Later, a sense of despair crept in, followed by a defensive detachment that manifested itself in avoidance behavior when the mother returned.

2.1.1. Influences of Ethology and Systems Theory

Inspired by animal behavior studies in ethology, Bowlby's seminal three volume work, Attachment and Loss (1969, 1973, 1980) provides the basic conceptualization for attachment theory. These volumes focus on the mother-infant interaction and the consequences of this interaction for the developing child. During

the formulation of his theory, Bowlby tried to distance himself from the drive-reduction model of behavior, by embedding his notions of attachment within a systems theory framework. Consequently, he discussed attachment behavior in terms of set goals, and goal correction and function (Sroufe & Waters, 1977). Thus, although Bowlby was schooled in psychoanalysis, he not only sensed its limitations in explaining the infant behaviors he observed, but he also saw the advantages of integrating some of the insights gained from ethology and systems theory.

In observing animals, ethologists observe behaviors that appear to have a strong instinctual base. For example, newborn monkeys appear to have a strong predisposition to maintain constant contact with their mothers. As they grow older, they venture further afield but are constantly checking back to ensure the whereabouts of the mother. Consequently, they appear to use the mother, not only as a source of comfort during times of fear and anxiety, but also as a secure base from which to explore the world. Similarly, in terms of human beings, during the first few weeks of the newborn's life, the mother seems instinctively predisposed to maintain almost continual contact. Then, as the infant grows older, she slowly encourages it into independent exploration.

Some ethologists talk about "fixed-action" patterns in terms of the mother's behavior toward the newborn infant. For example, the natural "sign stimulus" of the baby's face ("cute" features), are believed to serve as natural releasers of instinctual

caregiving behaviors (Miller, 1983). Although human behavior is considered to be far more complex and malleable, Bowlby could see the heuristic value of considering the human attachment system as an instinctively based behavioral system.

Bowlby's rationale for the development of an attachment system was embedded in evolutionary terms. The biological foundations of attachment, for example, was based on the survival advantages of proximity and protection for the vulnerable infant. In terms of systems theory, proximity is the set goal of the attachment system, while protection from predation is the biological function of the attachment system. Similarly, Bowlby distinguished between attachment and attachment behaviors. He saw attachment behaviors as components of an attachment system, one which involved the continuous monitoring of the whereabouts and availability of the attachment figure (Bretherton, 1985). More specifically, attachment is seen as a strong affectional bond that promotes the tendency to seek proximity, whereas, attachment behaviors, such as smiling, clinging, and crying, are seen as the means by which proximity is achieved.

Clearly, for Bowlby, the infant-caregiver attachment system serves an adaptive function. However, in order for this system to be adaptive and ensure a synchrony between infant and caregiver behavior, it is necessary to assume that "infants are biologically `wired' to maintain close proximity to the mother and be able to signal the mother in times of distress, whereas mothers are programmed to respond to infant social stimuli"

(Petitt, 1992, p. 20). Thus, attachment theory postulates a behavioral system innate to the human infant and a complimentary system within the adult caregiver. Hazen & Shaver (1994) elaborate further on these two complimentary systems that are presumed to be embedded within the attachment system, and to underlie the observed interrelating between the infant and the primary caregiver. They state:

> These two systems conspire to create the kind of relationship that fosters the infant's survival...The attachment system is similar in some respects to the physiological systems that regulate body temperature, blood pressure, and the like. Any real or perceived obstacles to proximity maintenance results in anxiety, which in turn triggers attachment behaviors designed to re-establish proximity. Such behaviors persist until the "set goal" for proximity has been achieved. The degree of proximity required to keep anxiety at bay is related to a variety of endogenous and exogenous factors, including the child's age, emotional and physical state, and perceived environmental threat. The establishment and maintenance of proximity engender feelings of security and love, whereas disruptions in the relationship typically beget anxiety and sometimes anger or sadness (depending on particular appraisals) (p. 3).

Consequently, Bowlby (1973) conceptualized the attachment system as a homeostatic, goal-corrected control system that maintains a relatively steady state between the individual and his or her environment. In addition Bretherton (1985) suggests that the attachment system incorporates the "antithetical propensities" for safety and for exploration:

> Although the propensity for exploration may take the child away from the attachment figure, the experience of fear and stress takes the child toward the attachment figure. The joint operation of these antithetical propensities facilitates exploration under reasonably safe conditions. When no apparent danger

> threatens, the child can (but need not necessarily) explore at a fair distance from the caregiver, but when stress-arousing stimuli are present, the attachment system pulls the child closer to available protection...Although the function of attachment in an evolutionary sense may be homeostasis with regard to the environment, it is experienced by the attached person as a psychological bond to the attachment figure who plays the part of secure base and haven (p. 7).

Consequently, attachment behaviors are typically elicited during stressful situations when proximity to the primary caregiver becomes important. The closeness that the attachment behavior elicits provides a feeling of safety and security for the individual. For Bowlby, the need for attachment is present in the individual throughout his or her life. The actual attachment behaviors will change as the individual matures, but the need for attachment persists. For example, an infant may express attachment behavior by clinging to the mother in a strange situation. On the other hand, a late adolescent college student facing the new situation of living away from home for the first time, may call home frequently in order to receive a sense of assurance and comfort.

To account for the persistence of attachment relations even in the absence of the attachment figures, Bowlby (1969) proposed "internal working models" of the attachment relationship. He postulated that these cognitive representations act like schemes that enable the individual to assimilate experiences that are relevant to the self and self-other relationships. Thus, early in its experience the child internalizes these relationship patterns in the form of mental schemes, which in turn have the potential

for providing the feelings of comfort and security, even at great distance from the attachment figures. This notion is elaborated further in the next section.

2.1.2. Internal Working Models (Bowlby)

According to Bretherton (1993), Bowlby (1973) followed Craik (1943) in selecting the term "internal working model" because both "working" and "model" suggest

> a dynamic representational system on which an individual can operate in order to engage in planning, decision-making, and interpretation. Bowlby went beyond Craik, however, in elucidating the inter-generational and developmental processes involved in a child's construction of internal working models of the world, attachment figures, and the self (Bretherton, 1993, p. 239).

Thus, according to Bowlby, these constructed "internal working models" describe the child's internal representation of the world, the self and others, and the relationships among them. They contain "a rough-and-ready sketch of the environment and the self which can be mentally manipulated prior to undertaking possible future action" (Main, 1993, p. 131), and are essential to the attachment behavioral system (Bretherton, 1985).

Consequently, in summary, the various patterns of interaction and communication between the child and the primary caregiver (i.e., self-other interactions based on the reciprocal interdependence of responses) fosters the development of internal working models. These cognitive representations, in turn, are presumed to mediate the development of attachment. Furthermore, these working models, as defined by Bowlby (1969, 1973), are not

static images but are dynamic representations that serve, not only to predict and interpret the partner's behavior in the dyadic relationship, but also to plan one's own behavior in response to the partner. More specifically, Bretherton (1993) states:

> Building on Piaget's theory of sensorimotor development, Bowlby speculated that internal working models of self and caregiver are constructed out of the actual transaction patterns between the partners, and are, for that reason, complementary. If the caregiver has fairly consistently acknowledged the infant's needs for comfort and protection, and respected the infant's need for independent exploration of the environment, the child is likely to develop an internal working model of self as valued and self-reliant. Conversely, if the parent has frequently rejected the infant's bids for comfort or for exploration, the child is likely to construct an internal working model of self as unworthy or incompetent. (p. 293)

Therefore, internal working models help the child, not only to develop an appraisal of the relationship, but may also have significant impact on self appraisal. Early empirical validation of the notion of internal working models and its presumed impact on the child is the focus of the next section.

2.1.3. Strange Situation Paradigm (Ainsworth)

Whereas, Bowlby was responsible for the formulation of the attachment construct, it was Mary Ainsworth who first attempted to operationalize it and make it amenable to empirical research. In studying 28 infant-mother dyads in villages in Uganda, Ainsworth (1967) was impressed by the relevancy of Bowlby's ideas. Hence, as Bretherton (1992a) puts it, "the first study of infant-mother attachment from an ethological perspective was

undertaken several years before the three seminal papers in which Bowlby...laid out attachment theory" (p. 764).

Ainsworth (1967), while in Uganda, made the first efforts to classify infant-parent attachment organization in terms of security. Later, on returning to the United States, she attempted a cross-cultural validation of her studies.

> In 1963, while still pondering the data from the Ganda study, Mary Ainsworth embarked on a second observational project whose thoroughness no researcher has since equalled. Again, she opted for naturalistic observations, but with interviews playing a somewhat lesser role (Bretherton, 1992a, p. 764).

These Baltimore studies involved: 26 participating families recruited prenatally; 18 home visits beginning in the first month and ending at 54 weeks; each visit lasted 4 hours, which allowed mothers to relax and follow their normal routine; and resulted in approximately 72 hours of data collection per family (Bretherton, 1992a). An aspect of Ainsworth's methodology, which was unique at the time, was "the emphasis on meaningful behavior patterns in context, rather than on frequency counts of specific behaviors" (Bretherton, 1992a, p. 765). Further, "close examination of the narratives revealed the emergence of characteristic mother-infant interaction patterns during the first 3 months" (Bretherton, 1992a, p. 765).

Subsequently, the "Strange Situation" procedure was developed to permit controlled observation of each infant-mother dyad within a laboratory setting. This procedure consists of a laboratory test that, typically, involves 12 to 18 month-old infants. It includes a standard sequence of seven, 3-minute

episodes in a laboratory playroom in which the mother and baby are joined by an unfamiliar woman. Of particular significance are the two episodes during which the mother leaves the room and then returns (separation and reunion episodes). The whole procedure is videotaped and then later rated. The raters look for individual differences in coping with the stress of separation, focusing particularly on the separation and reunion episodes.

Using this Strange Situation procedure, Ainsworth and her colleagues (Ainsworth, Blehar, Waters & Wall, 1978) found significant infant differences during the separation and reunion episodes with their mothers. Subsequently, based on these differences, a classification scheme was developed to categorize the infants according to the security of their attachment. Three patterns of attachment emerged; one secure and two insecure or anxious.

Secure (group B) infants, after a separation, were willing to approach the mother on her return and to maintain proximity. If required, they received comfort, and then returned to excited or contented play. Avoidant (group A) infants, on the other hand, resisted contact with the mother on her return and actively refrained from interacting with her. They remained watchful of her and were inhibited in their play. Anxious-ambivalent (group C) infants, on the mother's return, sought proximity to the mother but, simultaneously, expressed anger toward her and were difficult to comfort. For example, they sought contact, but then resisted by kicking, turning away, or angrily refusing an offered

toy. They seemed to alternate between anger and clinging behavior, and their exploratory play was inhibited.

A fourth classification, "disorganized/ disoriented," (group D) has recently been suggested (Main & Hesse, 1990). As Main (1990) has indicated, the Baltimore dyads studied by Ainsworth, set the initial A, B, C pattern. However, in a number of studies there were a few infants who were considered unclassifiable. Main and Solomon (1986), using a previously studied upper middle-class California sample, reviewed 33 videotapes of unclassifiable infants. This sample of infants showed response patterns that were not comparable in coherence to the A, B, C types.

> Rather, what unclassified infants shared were <u>diverse</u> indices of disorganization and disorientation, such as moving to and leaning against the wall when frightened by the stranger, rising and falling prone on the parent's entrance, freezing all movement, and stereotypes (Main, 1990, p. 52).

Consequently, when confronted with the parent's return, the group D infant displays a diverse array of contradictory behavior patterns, not seen in the A, B, and C types.

In the earlier research focusing on the original A, B, and C types, Ainsworth and her colleagues (Ainsworth et al., 1978) compared the classification of these infants to mother-infant interaction data collected earlier, during the first three months. What emerged was a clear relationship between infant classification and mother sensitivity.

Bretherton (1993) elaborates on these antecedent, dyadic interaction-patterns presumed to have been internalized as

working models in the mind of the child, and presumably causing the behavior manifested in the laboratory and the subsequent classification of the infant. She states:

> Infants whose mothers had responded sensitively to their signals during feeding, crying, holding, and face-to-face episodes at home during the first 3 months of life, welcomed their mother's return after a brief separation in the Strange Situation. They approached her readily, sought interaction or close contact, were relatively quickly soothed and then returned to play. These infants were labeled secure (group B). Insensitively mothered infants either avoided the returning mother in the Strange Situation by snubbing her, looking, turning, walking away, or refusing interaction bids (insecure-avoidant or group A), or responded ambivalently when the mother came back, seeking close bodily contact, but also showing angry, resistant behavior. Infants assigned to this insecure-ambivalent group (C) wanted to be held, but showed tantrumy behavior in addition to contact-seeking. At home the mothers of the avoidant babies provided less affectionate holding during the first 3 months and frequently rejected bids for close bodily contact during the last quarter of the first year. These mothers also talked about their dislike of bodily contact in conversations with the observer. Mothers of ambivalent babies, by contrast, were inconsistently sensitive at home. Although they frequently ignored their babies' signals, they did not reject close bodily contact (Bretherton, 1993, pp. 241-242).

In respect to the more recent disorganized/disoriented classification (group D), parents of such children, according to Main and Cassidy (1988), seem to be characterized by unresolved trauma such as loss or sexual abuse in childhood.

In investigating the quality of attachment in the Strange Situation procedure, Ainsworth and her colleagues appeared to move away from simply operationalizing attachment as physical proximity to the primary caregiver, to the more psychological dimension of the child's felt security or insecurity. As a

result, the Strange Situation paradigm led researchers to elaborate on the balance between the child's need for attachment and his or her desire to explore the environment, and the phenomena of the child using the attachment figure as a secure base from which to explore.

How stable are attachment classifications? Generally, infant research shows that attachment classification depends on the stability of the infant's environment, which is consistent with Attachment theory. For example, over a 6-month period in stable environments, Connell (1976) and Waters (1978) showed an 81% and a 96% stability rate, respectively (cited in Hazen and Shaver, 1994). Since the attachment process is influenced by the infant's quality of interaction with the environment (that is, caregivers), clearly, unstable environments would cause stability rates to be lowered. However, even in an unstable environment, Egeland and Farber (1984) found a 60% stability rate.

However, the hypothesis that early experience of maternal sensitivity and responsiveness differentiates infants in the Strange Situation procedure, is not without its critics (e.g., Goldsmith & Alansky, 1987; Goldsmith & Campos, 1982; Kagan, 1982; Lamb, 1987; Lamb, Thompson, Gardner & Charnov, 1985). For example, Goldsmith and Alansky (1987) in their meta-analytic review state: "an effect that has enjoyed the confidence of most attachment researchers is not as strong as was once believed" (p. 811). These authors acknowledge that many studies "replicate Ainsworth et al. (1978) original findings of the predictive power

of maternal sensitivity when replication is evaluated in terms of statistical significance". However, they continue, "the newer studies reveal that the size of the effect is weak" (p. 811-813).

In other words, researchers who have attempted to replicate Ainsworth's (Ainsworth et al., 1978) findings have reported a weaker relationship between ratings of maternal sensitivity and attachment security. In response to this criticism, Main (1990) states, in relationship to Ainsworth's original Baltimore study:

> One of the major reasons for the strength of the A, B, C and even subgroup differences observed in Baltimore was the extraordinarily long and frequent visits, made by a single, increasingly familiar observer. It is not surprising if differences are less striking when visits are brief, or involve unfamiliar observers, or methods of recording and analyzing data are incomparable to or less exacting than Ainsworth's (p. 50).

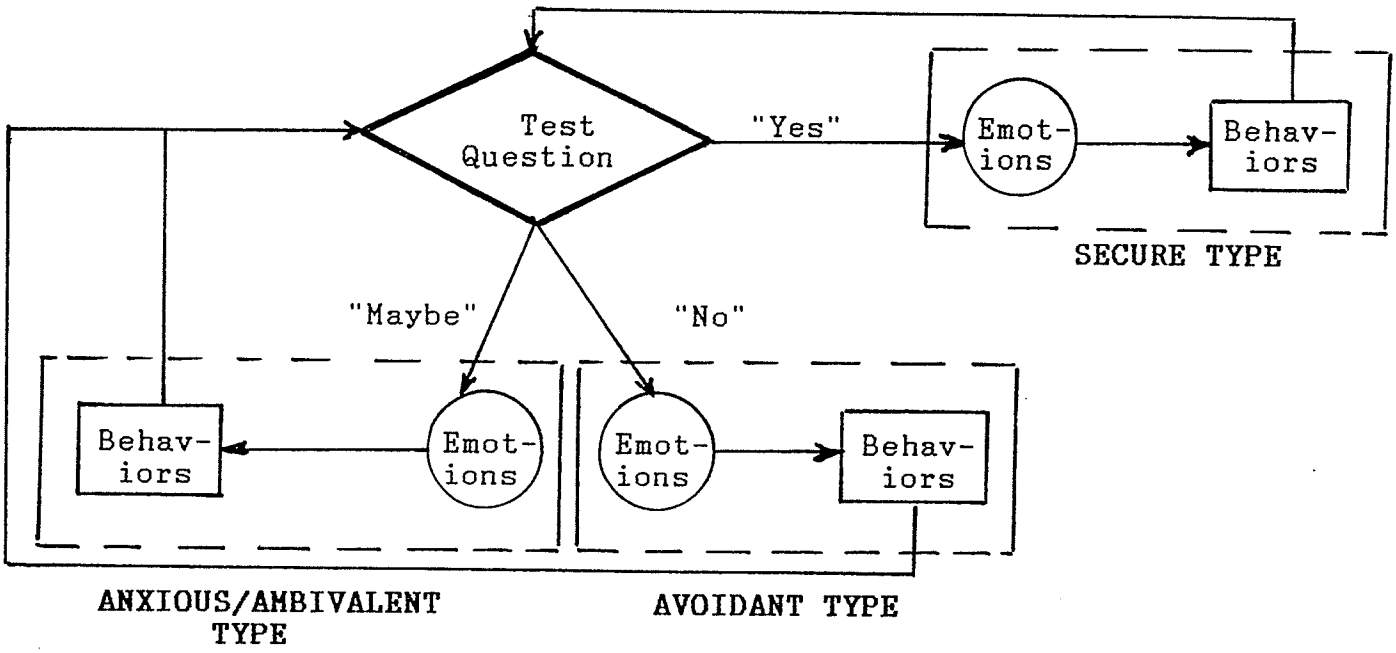
Given the concern shown by a number of infant researchers over the use of the Strange Situation as the lone paradigm in infant attachment classification, several alternative measures are currently being explored. A number of these measures take the form of maternal Q-sorts (e.g., Pederson, Moran, Sitko, Campbell, Ghesquire, & Acton, 1990; Teti, Nakagawa, Das, & Wirth, 1991; Waters & Deane, 1985). Alternatively, Grossmann, Grossman, and Schwan (1986) have pursued the Strange Situation more closely using microanalytic assessment of infant-parent communication during the Strange Situation. Further, such microanalytic studies of the early months of life leading up to the Strange Situation classification at the end of the first year, tend to support Stern's (1985) concept of maternal "attunement" and the

development of the infants sense of integrated selfhood. Holmes (1993) observes: "These processes of attunement are impaired in mothers of insecurely attached infants" (p. 108).

How does the Strange Situation relate to the internal working models discussed in the previous section? For attachment theorists, the behavioral strategies exhibited by the infant in the standardized Strange Situation procedure are presumed to be a means of decoding and making manifest the developing underlying structure of internal working models. "On the basis of repeated interactions with the caregiver, infants learn what to expect, and they adjust their behavior accordingly" (Hazen & Shaver, 1994, p. 5). As mentioned previously, expectations as to the responsiveness and availability of the primary caregiver fuel the construction of internal working models. Consequently, these attachment representations model the caregiver environment and also indirectly reflect the core infrastructure of the child's mind in terms of self-worth and self appraisal. Thus, the subsequent behavioral strategies made manifest in the novel and stressful Strange Situation, simply exposes the underlying structure of the developing internal working models.

Hazen and Shaver (1994), using cognitive schematics, graphically illustrate the hypothesized process of attachment formation in internal working models. A modification of their model of the three major patterns of attachment in correspondence to various aspects of the attachment-system dynamics, is seen below in Figure 2.1

Figure 2.1 The attachment behavioral system



Note: A modified version of the model presented by Hazen and Shaver (1994 p.6)

The test question in the diamond represents the question: "Can I count on my attachment figure to be available and responsive when needed?" The answer to this question, according to Hazen and Shaver, can have three possibilities: "no", "yes", or "maybe". These three possibilities correspond to the three types of caregiver responsiveness in the Ainsworth infant-caregiver attachment classification. That is, the internal working models of the child represents the caregiver as: consistently unresponsive ("no"), consistently responsive ("yes"), or inconsistent ("maybe"); corresponding to the

behavioral strategies seen in the Avoidant, Secure, and Ambivalent types, respectively.

The cognitive appraisals to caregiver responsiveness of "yes", "no", or "maybe", are believed to organize emotions and their corresponding behavioral expressions. For example, the answer "yes" to the question of responsiveness, engenders emotions of felt security, love and confidence. These emotions, in turn, organize behaviors that subsequently manifest themselves in terms of such experiences as playfulness, less inhibition, smiling, exploration-orientation, and being sociable. On the other hand, the answer "no" engenders the emotion of defensiveness characteristic of the Avoidant child. The subsequent behavioral strategies are seen in terms of seeking maintenance of proximity while avoiding close contact, and exhibiting defensive exploration.

The child that has experienced inconsistent caregiving and makes the cognitive appraisal of "maybe", experiences the emotion of fear and anxiety. This brings into play behaviors such as, visual checking, signaling to reestablish contact, moving to reestablish contact, and clinging. As Hazen and Shaver (1994) point out, while fear and anxiety are the stress factors that trigger into operation the attachment behaviors of the attachment system in all normal children, in the case of the Anxious/ Ambivalent type, inconsistent caregiving has caused the emotions of fear and anxiety to be continuously salient in the mind of the child, thus, effectively inhibiting exploration.

In the case of the newly classified fourth pattern of disorganized/disoriented attachment, which was discussed previously, it is "distinguished by the absence of a coherent strategy for managing anxiety and...is manifested in a mixture of avoidant and ambivalent behaviors" (Hazen & Shaver, 1994, p. 6). Some researchers (e.g., Crittenden, 1988; Main & Hesse, 1990) have suggested that this pattern of attachment arises in infancy, as a result of the primary caregiver being disturbed, depressed or abusive.

Hazen and Shaver's (1994) model of the attachment behavioral system is helpful in simplifying the intricate interplay between the attachment figure's role in organizing emotional and behavioral responses in the infant and the subsequent development of internal working models and self-regulation. In the diagram, behaviors feed back into the system, either to modify or reinforce existing expectations that are embedded within internal working models. For Bowlby (1979), although the process of attachment formation takes place during the first 2 or 3 years of life, internal working models of attachment are gradually constructed with the input of experiences, throughout infancy, childhood, and adolescence (Bowlby, 1973). Consequently, Hazen and Shaver (1994) state:

> Attachment theory does not dictate absolute stability of individual differences induced during infancy. Nevertheless, as with any cognitive construction, internal working models are resistant to change, in part because they tend to be overlearned and operate out of awareness, and in part because the default strategy for processing incoming information is to assimilate it to existing schemes rather than modify

> the schemes to accommodate the information (Fiske & Taylor, 1991; Piaget, 1952, p. 7).

Thus, the stress of the Strange Situation triggers attachment behavior strategies that are reflective of internal working models that have developed in the mind of the infant over the first year of life in relationship to the primary caregiver. Of necessity, the Strange Situation procedure involves the preverbal behavior of infants.

In older children, the nature of the attachment experience and its internal representation can be explored by seeing how it manifests itself in language. Consequently, more recently, researchers (e.g., Bretherton, Ridgeway, & Cassidy, 1990; Main, Kaplan, Cassidy, 1985; Rosenberg, 1984) have employed picture and story completion tasks and various play techniques that reflect, in different ways, the separation and reunion themes. In this way, they have attempted to access the internal working models of the child's early experience of attachment.

2.1.4. Organizational Perspective (Sroufe)

Building further on the work of Bowlby and Ainsworth, Sroufe and his associates (Arend, Gove, & Sroufe, 1979; Matas, Arend, & Sroufe, 1978; Sroufe, Fox, & Pancake, 1983; Sroufe & Waters, 1977; Waters, & Sroufe, 1983) emphasize an "organizational perspective" of attachment. Historically, in an early attempt to place attachment within a social learning mold, attachment was conceptualized by some theorists as a trait-like construct

similar to dependency (Maccoby & Masters, 1970). Subsequently, a variety of discrete behaviors, such as looking, smiling, clinging, and crying were presumed to be valid indices of the "strength" of attachments. In this context, attachment was primarily seen as nothing more than infant-adult interactions with little promise as a developmental construct. The subsequent lack of cross situational stability of individual differences in "attachment" seemed to provide confirmation of its lack of promise as a developmental construct (Sroufe & Waters, 1977).

However, an "organizational" perspective assumes that "meaningful analysis is at the level of patterns, relationships, and meaning rather than particular manifest behaviors" (Sroufe, 1990, p. 281). That is, the organizational perspective of attachment emphasizes the importance of the "meaning" of the behavior, rather than discrete behaviors per se. During the first few months of life discrete attachment behaviors, such as sucking, clinging, vocalizing, and smiling, appear to follow their own independent developmental course. However, by the second half of the first year, when infants begin to show a clear preference for attachment objects, attachment behaviors become organized for the purpose of achieving mother-infant proximity. In other words, discrete attachment behaviors begin to work together in an organized way to achieve a goal.

Consequently, the meaning of behavior depends on the context in which it is embedded. "Different behaviors can have similar meanings, and the same behavior may mean different things,

depending on the organization within which it is embedded" (Sroufe, 1990, p. 281). Similar meanings can be expressed through new and different behaviors. In a more explicit statement relating to this point, Sroufe (1979) states:

> Psychological development is characterized not by mere additions but by transformations and epigenesis. Infants are not merely small children. Therefore, one cannot find continuity by simply measuring the same behavior over time. Clingy overdependence, for example, is one form of maladaptation in the preschool years. Such dependency is the norm in infancy. Recent studies have shown that infants who, when threatened or distressed, actively seek physical contact, mold, cling, and derive comfort from such contact with the caregiver (i.e., are effectively dependent) are more effectively autonomous as toddlers and more competent as preschoolers" (p. 834).

Given the transformations that can occur during development, new behaviors may simply be efforts to maintain prototypic, relational patterns. That late adolescent who called home several times during that first week of college, is clearly manifesting profoundly different behavior than the infant, but the affective meaning remains similar (Sroufe, 1979). As Sroufe (1990) has more recently reaffirmed: "Continuity lies not at the level of particular behaviors but at the level of meaning" (p. 282). Consequently, Sroufe and Waters (1977) suggest that the attachment construct can play a greater integrative role in developmental theory, if individual differences are seen in terms of the "organization of behavior" during development. In this approach children are seen as playing an active role in seeking solutions to a series of developmental issues (Sroufe, 1979).

Further, whereas Bowlby emphasizes the set goal of the

attachment system as being "proximity", Sroufe and Waters (1977) view the set goal more in psychological terms, namely, "felt security". Similarly, whereas Bowlby emphasizes the function of the attachment system as protection, these authors see the support of exploration as of parallel importance: "While protection may be sufficient for the evolution of attachment behavior in many species, a role in support of exploration is of similar importance in human adaptation today, since flexibility and problem-solving skills are major advantages of our species" (Sroufe & Waters, 1977, p. 1186). Thus, besides the notion of the caregiver providing comfort under stress, the secure-base concept (Ainsworth, 1972) is central to an "organizational" definition of attachment.

Embedded within this "organizational perspective" of attachment promoted by Sroufe and his associates is an explicit "continuity of adaptation" hypothesis that extends the effects of attachment beyond infancy into other periods of the life-span. However, the bulk of research to date in support of this hypothesis has focused on infancy and early childhood. For example, Sroufe and Waters (1977) predicted that securely attached infants, in the context of novel situations, would demonstrate a higher quality of exploratory behavior than insecurely attached infants. In support of this prediction, Matas, Arend, and Sroufe (1978) found that 2-year-olds who were earlier classified as securely attached were more effective problem-solvers, more enthusiastic in learning tasks, and more

cooperative than 2-year-olds classified earlier as insecurely attached.

Similarly, Arend, Gove, and Sroufe (1979) related securely attached at 18 months to effective independent functioning at 2 years, and concurrent differences in ego-control and ego-resiliency at 4 and 5 years of age. Securely attached children, in contrast to insecurely attached, were more competent among peers. They displayed more smiling and affective sharing with peers (Easterbrooks & Lamb, 1979; Waters, Wippman, & Sroufe, 1979).

In another study (Sroufe, 1983), secure attachment in infancy was found to predict greater competence with peers, ego-resiliency, resourcefulness, empathy, and popularity among preschoolers. On the other hand, avoidant attachment in infancy was associated with emotional insulation, lack of empathy, hostile or antisocial behavior, and attention-seeking among preschoolers. Similarly, resistant attachment in infancy was associated with attention-seeking, tenseness, impulsivity, frustration, passivity, and helplessness among preschoolers. Securely attached children, compared with insecurely attached children, also scored higher on indices of self-esteem (Cassidy, 1988) and were less dependent on their teachers for emotional support (Sroufe & Fleeson, 1986).

There is now a burgeoning literature in early childhood in support of the "continuity of adaptation" hypothesis. Numerous studies show a predictive relationship between the quality of

attachment and various social and intellectual competencies. Thus, secure attachment relations seem to predict cognitive and emotional development, the development of academic skills, and the development of interpersonal and social functioning. This is probably due to the fact that a secure attachment provides a secure base that is supportive of exploration (Belsky, Garduque, & Hrncir, 1984).

Viewing attachment within a life-span developmental perspective, the continuity of adaptation hypothesis would also predict some impact of attachment on the resolution of important adolescent developmental tasks. Indeed, there is now a growing consensus that many important developmental tasks of adolescence find their resolution in the context of attachment and family relationships (e. g., Grotevant & Cooper, 1986). Using adolescent and young adult samples, some researchers have now demonstrated empirical links between parent-adolescent attachment and concurrent reports of self-esteem, life satisfaction, and adjustment to college (Armsden & Greenberg, 1987; Greenberg, Siegel, & Leitch, 1983; Kobak & Sceery, 1988; Lapsley, Rice, & Fitzgerald, 1990).

2.1.5. Attachment and Adolescent Psychological Well-Being

The attachment construct has provided a valuable heuristic for a number of researchers (e.g., Armsden & Greenberg, 1987; Kenny, 1987; Kobak & Sceery, 1988) in explaining how closeness to parents can serve as a source of security and a protective buffer through adolescence. For example, Kobak and Sceery (1988)

explored the influence of the appraisal of one's attachment history on the development of late adolescents. Among their findings they showed that secure attachment was positively associated with ego-resilience and social support and negatively associated with anxiety, hostility, and distress.

Similarly, Greenberg and his associates (Armsden & Greenberg, 1987; Greenberg, Siegal & Leitch, 1983) focused their research on adolescent attachment and psychological well-being. They developed a self-report measure called the Inventory of Parent and Peer Attachment (IPPA). In the development of this instrument they followed Bowlby's theoretical formulations regarding the affective-cognitive dimensions of trust in the accessibility and responsiveness of attachment figures.

The IPPA consists of two scales that are scored independently: the Parent scale (with 28 items) and the Peer scale (with 25 items). A factor analysis indicated that three factors were tapped by this instrument: a "Trust factor", a "Communication factor", and an "Alienation factor" (Armsden & Greenberg, 1987). Quality of attachment is subsequently derived by summing the trust and communication scores, while subtracting the alienation score.

In terms of the description of these factors: "Trust" is indicative of the felt security that comes from knowledge that attachment figures, not only understand but are also responsive to the adolescent's emotional needs; "Communication" reflects the extent and quality of verbal communication with attachment

figures; and "Alienation" refers to anger toward or emotional detachment from attachment figures (insecure attachment).

Greenberg, Seigal, and Leitch (1983) used the precursor of IPPA, the Inventory of Adolescent Attachment (Greenberg, 1982), to study high school students. They found that quality of affect toward parents (attachment) was related to higher self-esteem and life satisfaction scores, and also accounted for significant additional variation when compared to reported affect toward peers and peer utilization. Armsden and Greenberg (1987), in a subsequent study using the IPPA, found that the quality of attachment to parents among university students was positively correlated with measures of self-concept, self-esteem, life satisfaction, and healthy family environment. For example, in terms of self-esteem and life satisfaction, parental attachment correlated r=.67 and r=.64, and peer attachment correlated r=.45 and r=.33, respectively.

More specifically, the investigators used regression analysis for predicting well-being from peer and parent attachment scores. When entered last into the regression equation (following sex and negative life change), parent and peer attachment together, accounted for 37% of the variance in self-esteem scores and 22% of the variance in life satisfaction scores. This particular study also looked at "affective status". Results of a multiple regression analysis for the affective status measure found, on the average, peer attachment accounted for 9% total variance in these scores. On the other hand, parent

attachment accounted for an additional 8% of the variance in depression/anxiety, 9% in resentment/alienation, and an additional 8% in the irritability/anger and guilt scores. Armsden and Greenberg (1987) concluded:

> As hypothesized, quality of parent and peer attachment in late adolescence was highly related to well-being, particularly to self-esteem and life satisfaction. This finding is congruent with the results of a number of studies linking psychological adjustment to the quality of intimate relationships with parents and peers. Importantly, quality of attachment not only was strongly related to well-being, but also meaningfully contributed to predicting the adolescents' depression/ anxiety and resentment/alienation scores (p. 445).

One of the purposes of another study (Bradford & Lyddon, 1993) was to test the hypothesized relationship between current parental attachment and symptoms of psychological distress. The hypothesis was based on attachment theory which, according to the authors, suggests that a child's history of regulating distress with attachment figures has later consequences on ability to constructively regulate distress in other social settings. The subjects in this study were undergraduate college students. For parental attachment, the IPPA (Armsden & Greenberg, 1987) was used, and for symptoms of psychological distress the Symptoms Checklist-90 Revised (Derogatis, Lipman, & Covi, 1973) was used. A hierarchical regression analysis supported the hypothesised relationship between attachment representation and symptoms of psychological distress. More specifically, when other variables in the study were controlled, parental attachment variables (Alienation, Trust, Communication), entered as a block,

independently accounted for approximately 20% of the variance in psychological distress scores.

Another study using the IPPA was that of Benson, Harris, and Rogers (1992). In this study the authors looked at the relationship between attachment, identity and life satisfaction. Since the relationship between attachment and identity will be covered in the next section of this paper, only attachment and life satisfaction will be mentioned here. An interesting feature of this study was that the authors modified the IPPA measure by adding items that would enable them to report attachment "to mother" and "to father", separately. By making this modification, they anticipated an upcoming revision of the IPPA by Armsden and Greenberg, which will be discussed next. However, regarding the results of this study relevant to this section, the results showed that only father attachment predicted life satisfaction.

To access the attachment construct in the primary analysis of my dissertation, I used the revised version of the IPPA, namely, the Relationships Questionnaire. In its revised form, this measure is treated as unifactorial, assessing aspect of security-insecurity along a single dimension. As mentioned earlier, the original version consists of 28 parent and 25 peer items, yielding two attachment scores. The revised version is comprised of 25 items in each of the mother, father, and peer sections, yielding three attachment scores.

Further, in each of the preceding studies that included life satisfaction as a dependent variable, the life satisfaction

measure was a single item. However, given the problems inherent in single-item measures (e.g., difficulty in estimating internal reliability, and the greater potential risks to validity), the multi-item Satisfaction With Life Scale (SWLS: Diener, Emmons, Larsen, & Griffin, 1985) was used in my study.

2.1.6 Attachment and Identity

Although there are a number of theoretical linkages between the theories of Attachment (Bowlby, 1969) and Identity (Erikson, 1968), until relatively recently, they have largely remained in isolation of one another. The first stage of Erikson's eight stage scheme of psychosocial development, namely, trust versus mistrust, is congruent with the development of secure attachment during infancy. In terms of both theories, the securely attached infant experiences a basic trust in its surroundings. That is, it experiences a feeling of confidence in the predictability and availability of a "secure base", which in turn, inspires enthusiastic and self-confident exploration. However, when the attachment is insecure, the infant is likely to see the world in more pessimistic terms as a threatening and a dangerous place. Consequently, out of this early pessimism about life, the infant is likely to experience subsequent deficits in self-esteem and an enduring vulnerability to loneliness (McAdams, 1990).

In regard to adolescence, a number of developmental psychologists believe that many important developmental tasks of adolescence find their resolution within the context of family relationships (e.g., Constantine, 1987; Sabetti & Mazor, 1985).

For Erikson, ego-identity development is regarded as the principal developmental task in adolescence. Thus, within the context of the family, researchers have shown that identity formation in adolescence is sensitive to variations in communication patterns (Grotevant & Cooper, 1985) and parenting styles (Adams & Jones, 1983).

Marcia (1966), in attempting to expand and differentiate Erikson's (1959, 1968) identity-identity confusion dimension, employed two additional dimensions; "crisis", by which he meant serious exploration of identity issues, and "commitment" to an identity. Subsequently, four statuses were differentiated: (1) Identity Achieved, which indicates that the exploration of identity issues has been experienced by the individual and a commitment to an identity has been made; (2) Moratorium, which means that the individual is currently involved in exploration but has not yet made a commitment; (3) Foreclosure, which means the individual has not been involved in exploration but is committed; and (4) Diffusion, which means the individual is neither exploring the issues nor has any intention of making any kind of commitment.

In terms of attachment theory, the securely attached adolescent should have a strong belief in the availability of social support from parents and/or significant others. This belief would not only facilitate the exploration of identity issues with confidence but also facilitate the movement toward a resolution, namely, a commitment to an identity. Clearly, at

least theoretically, the constructs of Identity Achieved and Securely Attached should be positively correlated.

Benson, Harris, and Rogers (1992) explored the identity consequences of attachment among late adolescents. For their attachment measure they used the parent attachment scale from the IPPA (Inventory of Parent and Peer Attachment: Armsden & Greenberg, 1989) with the slight modification of adding items that enabled them to report attachment "to mother" and "to father" separately, as mentioned in the previous section. For measuring the identity variable they used the Extended Version of the Objective Measure of Ego Identity Status (EOMEIS-2: Adams, Bennion, & Huh, 1987). This measure differentiates identity into Marcia's (1966) four identity statuses mentioned above.

The specific hypothesis of this particular study that is relevant here, was the expectation that secure attachment to parents would be positively related to identity achievement and negatively related to identity diffusion. The results showed that attachment to mother predicted higher levels of identity achievement and lower levels of moratorium and diffusion, while attachment to father predicted higher levels of foreclosure.

Similarly, Quintana and Lapsley (1987) looked at the relationship of adolescent attachment and ego-identity within a structural equation model. They used the parent attachment scale from the IPPA to assess attachment and a couple of different measures to assess ego-identity. These identity instruments included a short measure of Eriksonian ego identity (Tan, Kendis,

Fine, & Porac, 1977), and a revised version of Rasmussen's (1964) measure developed by Enright and his colleagues (Enright, Lapsley, Cullen, & Lallensack, 1983). The results showed no association between their measures of identity and parent attachment. Consequently, they concluded that adolescent attachment to parents "does not seem to contribute to identity acquisition" (p. 404). More specifically they state:

> Unlike infants, adolescents enjoy the benefits of an ontogentic history that includes the development of advanced social and cognitive abilities, ego defenses, sublimations, favored capacities, and a much richer inner and interpersonal life. The adolescent, as a result, is not as vulnerable to the vagaries of the inanimate and social environment as is the infant, and is hence much less likely to require parental attachment to mediate adaptation (Quintana & Lapsley, 1987, p. 406).

When we compare the Bensen et al., (1992) and the Quintana and Lapsley (1987) study, both used the same attachment measure but differed in their identity measures and in the subsequent results. The former found a relationship between attachment and identity, the latter did not. In exploring further the differences in the identity measures used in the two studies, we find that the Quintana and Lapsley (1987) study used the Ego Identity scale (EIS-R: Enright et al., 1983), which is a 30-item measure that uses a dichotomous (agree, disagree) response format. Choices are made about conflicts that are representative of the first five stages in Erikson's theory, conflicts presumed to have a cumulative effect in identity formation. The other identity measure (Tan et. al., 1977)

presents 24 statements; 12 reflecting identity integration, and 12 reflecting identity diffusion. These statements are paired in a forced-choice format.

On the other hand, the identity measure used by Benson and his colleagues (Benson et al., 1992) examined the current, identity salient, exploration and commitment activities within the interpersonal and ideological domains. Given that the essence of secure attachment is perceiving the availability of support and encouragement ("secure base") and the subsequent facilitation of self-confident exploratory behavior, perhaps the instrument used by Benson et al., (1992) is better suited to detect a significant relationship between attachment and identity development.

A subsequent study by Lapsley and his colleagues (Lapsley, Rice, & Fitzgerald, 1990) looked at adolescent attachment, identity and adjustment to college. As in the previous study, the IPPA was used to measure attachment. However, this study included a different measure to assess identity. The Aspects of Identity Questionnaire (AIQ: Cheek & Briggs, 1982) was used to assess personal and social identity. According to Cheek and Briggs (1982), "personal" is defined as one's private conception of the self with the accompanying feelings of uniqueness and continuity. On the other hand, "social" is defined in terms of one's roles and relationships. Both these facets of identity seem to be congruent with Erikson's (1959) formulations.

The results of this study (Lapsley et al., 1990) showed a

significant relationship between attachment and identity in first year students. Using regression analysis, parent attachment accounted for 9% of the variation in the Personal Identity scores. Entering the peer attachment scores into the equation significantly improved the prediction by an additional 11%. Regarding social identity, parent attachment predicted 8% of the variation in the scores, while the addition of the peer attached scores did not improve the prediction. Thus, overall, the attachment variables appear to account for 20% of the variance in personal identity scores, and 8% of the social identity scores.

Given the results of no association between attachment and identity in the previous study and the positive results in this study, Lapsley and his colleagues (Lapsley, et al., 1990) conclude that the attachment construct is probably predictive of some aspects of the multi-faceted Identity construct, and not others. Further, given the results of all three studies exploring the relationship between attachment and identity, in this dissertation the Identity Achieved subscale of the EOM-EIS (Bennion & Adams, 1986) was used. However, the Aspects of Identity Questionnaire (AIQ: Cheek & Briggs, 1982), used in the second study by Lapsley and his colleagues (Lapsley, et al., 1990), was also used in this dissertation in the exploratory section of the secondary analysis.

2.1.7. Attachment and Religion

The neonate enters the world as a bundle of reflexes and "biologically-wired" sensitivities that register the endless stream of impinging environmental stimulation. However, ethologically oriented attachment theorists remind us that this same neonate is also "biologically-wired" to enter into an attachment relationship (Petitt, 1992). Emitted attachment behaviors such as smiling, crying and clinging, mesh with a complementary and responsive caregiving system innate to the caregiver. Subsequently, this relationship matrix in which the child is embedded provides the basic elements out of which a world is structured. In other words, meaning, structure, and a sense of certainty arise out of this care-giving matrix, and a world emerges that is more or less ordered and predictable.

Sociologist Peter Marris (1993) stated: "Attachment is the first and most crucial relationship through which human beings learn to organize meaning" (p. 78), and further, "it is at once the primary relationship through which personality develops, and the relationship through which we create our sense of order" (p. 88). He sees attachment theory as a bridge connecting the social and psychological aspects of behavior, and as such, bringing about a potential integration of the psychological and social sciences. Again he writes:

> This ordering of meaning requires both predictability of behavior and continuity of purpose. Purposes arise out of, and remain closely associated with, attachment. From this, we can determine the conditions which are likely to reinforce or undermine our ability to sustain

> our organizations of meaning - the kind of disruptive, unintelligible, or unexpected events which overwhelm us; the ambivalence and insecurities of childhood which inhibit our adult strategies for coping with uncertainty (p. 88).

Individuals not only create their own meaning out of a unique attachment experience, but the attachment matrix itself is, according to Marris, embedded within a larger social matrix. This results in the fact that personal meaning is also a product of a larger culture. In other words, our childhood experience of attachment will be influenced by the child-rearing practices of a culture. Thus, the attachment relationship, is a microcosm of those meanings intertwined within the fabric of a larger society.

The first part of the suggested sequence of influences presented by Marris--from meanings in culture, to parenting styles, to personal meanings in the attachment relationship--finds some support in cross-cultural research on parenting styles and religious beliefs. For example, Rohner's (1975) study looked at the relationship between the society's beliefs about the supernatural and the culturally dominant parenting style, where parenting style was measured along an accepting-rejecting dimension.

Generally, the study reported strong correlations between the two. More specifically, cultures that embrace more benevolent deities tend to have predominant parenting styles that are "accepting" (loving and nurturing). On the other hand, cultures that adopt more malevolent deities tend to have predominantly "rejecting" parenting styles. It seems clear that the belief

systems of the larger culture do make an impact on parenting styles. This being the case, the door is open for the larger culture having an indirect influence on the personal meaning making processes embedded within the attachment relationship.

In regard to attachment and personal meanings, Bowlby's (1985) framework suggests that it is in the context of emotional attachments that personal meaning systems are not only generated, but also maintained and transformed. Consequently, it is not unreasonable to expect a relationship between attachment and religion. At least one theologian (Kaufman, 1981) has made a connection between attachment and people's beliefs in God. He suggests that "the idea of God is the idea of an absolutely adequate attachment-figure...that God is thought of as a protective and caring parent who is always reliable and always available to its children when they are in need" (p. 67). In more specific terms, Kirkpatrick (1992) states: "the availability and responsiveness of an attachment figure, who serves alternately as a haven and a secure base, separation from whom would cause considerable distress, is a fundamental dynamic underlying Christianity and many other theistic religions" (p. 6).

In his important paper entitled "An Attachment-Theory Approach to the Psychology of Religion", Kirkpatrick (1992) draws many conceptual links between attachment and religion in his attempt to show the potential influences of the attachment process on one's personal religion, and the potential for using attachment theory as a broad framework for the psychology of

religion. In, perhaps, one of the first empirical test of this linkage, Kirkpatrick and Shaver (1990) did an exploratory study into the relationship of childhood attachment, religious beliefs, and conversion.

In an earlier study, Hazen and Shaver (1987) did a survey in the general community using their attachment measure consisting of three, one-paragraph descriptions of feelings and cognitions relating to attachment. At the completion of the survey, respondents were asked if they would be willing to participate in a new study exploring the relationship of religious beliefs and experience. Those who were willing to participate in this new study became the subjects in the subsequent study by Kirkpatrick and Shaver (1990), which is of major interest here.

In general, the results of the Kirkpatrick and Shaver (1990) study showed that certain aspects of adult religiosity (e.g., particular beliefs about God and having a personal relationship with God) could be predicted from the interaction of parental religiousness and childhood attachment classification. In particular, subjects who classified themselves as "avoidant" were, according to several measures of religion, more religious than "secure" or "ambivalent" subjects. However, it was only when parents were reported as having been relatively non-religious, that this particular pattern emerged. Further, "avoidant" subjects also had significantly higher rates of sudden religious conversions during adolescence and adulthood, regardless of parental religiosity.

The authors interpreted these findings as supporting a "compensation" hypothesis of attachment and religion as opposed to a "correspondence" hypothesis. Kirkpatrick (1992) elaborates further the nature of these two hypotheses, which he sees as potentially productive in the exploration of the relationship between attachment and religion. Basically, the "compensation" hypothesis suggests that failures to establish secure attachments in childhood may result in the individual seeking attachments elsewhere, including God as a substitute attachment figure.

However, if testing this hypothesis consistently results in insecure attachment being associated with a theistic religiosity, does this mean secure attachment history is associated with an agnostic or atheistic perspective? Noller (1992) raises the question about religious people who have secure attachments. Generally, religious people have been shown to have high self-esteem and positive self-concepts (Benson & Spilka, 1973; Spilka, Addison, & Rosensohn, 1975), and better sense of well-being (Thomas, 1988). Similarly, positive affect, self-confidence, and a sense of well-being, have all been associated with secure attachment (see earlier discussions on the attachment construct). These similarities would suggest a contrary hypothesis which associates secure attachment with authentic religiosity.

This leads us to the second hypothesis suggested by Kirkpatrick (1992), namely, the "correspondence" hypothesis. This hypothesis is more in line with Bowlby's (1969) notion of the continuity of attachment mental models throughout the life

course. This hypothesis would suggest a direct relationship between beliefs about attachment figures (including God) and experience in attachment relationships. In other words, whereas the compensation hypothesis suggests a positive association between insecure attachment and religiosity, the correspondence hypothesis suggests a positive relationship between secure attachment and religiosity.

Although, the Kirkpatrick and Shaver (1990) study found evidence to support the compensation hypothesis, in a later study, they (Kirkpatrick & Shaver, 1992) also found evidence to support the correspondence hypothesis. Generally, in this study, subjects who described themselves as "secure" tended to describe God as less controlling, less distant, and more loving than "avoidant" subjects. There was also a higher proportion of agnostics among the avoidant adult attachment group when compared to the secure and ambivalent groups.

In terms of religious orientation, Allport (1950) distinguished between intrinsic and extrinsic religious orientations within a mature-immature typological framework. That is, intrinsic religious orientation was associated with mature religion and extrinsic religious orientation was associated with immature religion. The intrinsic orientation was characterized by the striving for meaning and value, whereas, the extrinsic orientation was seen in more utilitarian terms in which religion was being used for selfish purposes. In other words, intrinsics are religious because they believe in their

religion. They "find their master motive in religion" (Allport & Ross, 1967, p. 434). Extrinsics, on the other hand, are religious because their religion is useful to them in a variety of ways. Their religion is "lightly held or else selectively shaped to fit more primary needs" (Allport & Ross, 1967, p. 434).

In terms of attachment, according to Allport (1960), if a child has deep psychological needs that have not been fulfilled (e.g., security needs), and that child is exposed to and absorbs religious teachings, he or she will likely be extrinsic in orientation. In other words, religion becomes a means of conferring the much needed psychological security. This would likely parallel Kirpatrick's (1992) "compensation" hypothesis. On the other hand, if the child has experienced "the benefit of basic trust and security within his home" (p. 264), and is exposed to and absorbs religious teachings, he or she is likely to develop an intrinsic religious orientation. Thus, a secure attachment and exposure to a religious environment would theoretically suggest a "correspondence" hypothesis in which secure attachment is positively associated with intrinsic religiousness.

Allport and Ross (1967) subsequently developed the Religious Orientation Scale (ROS) to assess the intrinsic and extrinsic religious orientations, with the assumption that they were at opposite ends of the same continuum. The ROS has been used extensively in research in the psychology of religion (for a comprehensive review, see Donahue, 1985a). According to Donahue

(1985a), intrinsic religiousness is uncorrelated with prejudice, dogmatism, fear of death, and perceived powerlessness and positively correlated with internal locus of control, purpose of life, and lack of anxiety. Extrinsic religiousness, on the other hand, correlates positively with prejudice, dogmatism, trait anxiety, and fear of death and is uncorrelated with altruism.

However, although Allport's I-E theoretical framework clearly specified I and E as bipolar opposites, very early it became clear that a two-factor theory was necessary. That is, repeated factor analyses of ROS produced two orthogonal factors. Furthermore, it was discovered that some subjects endorsed both I and E items on the ROS. Given this situation, Allport and Ross (1967) postulated two other categories: Indiscriminately Proreligious, and Indiscriminately Antireligious or Nonreligious.

Thus, using a four-fold typology, subjects scored on the ROS can be placed in one of four groups: Intrinsic (high I, low E), Extrinsic (low I, high E), Proreligious (high I, high E), and Nonreligious (low I, low E). Over the years this has been the most popular solution to the problem (Kirkpatrick & Hood, 1990) and one that is recommended by Donahue (1985a). Consequently, such a typology was created in the secondary analysis of this dissertation, in order to explore the relationship of the four religious types to a number of other variables.

Thus, contrary to Allport's initial assumption of the bipolarity of ROS, repeated factor analyses have shown that the intrinsic and extrinsic items on the ROS loaded on two separate,

orthogonal factors (Donahue, 1985a). Further, Hoge (1972) and Kirkpatrick (1989) suggest that the extrinsic items of ROS break up into several relatively independent dimensions. On the other hand, Batson and Ventis (1982) take issue with the intrinsic scale. They argue that the intrinsic orientation may not reflect only mature religion, as Allport originally conceptualized maturity, rather, it may reflect a tendency to identify with religious dogma and authority in an uncritical way. For them an intrinsic religious person may resemble more Hoffer's (1951) concept of the "true believer", implying that such an individual can become rigid and fanatical, in contrast to Allport's concept of mature religion.

At least, as measured by ROS, Batson and Raynor-Price (1983) state explicitly,

> intrinsic religion seems limited to single-minded commitment to religion and to reliance on religion as a central, master motive in life. Single-mindedness and centrality were part of Allport's original concept of mature religion, but they were not all. Mature religion also included a critical, open-ended approach to existential concerns (p. 38)

Batson and Ventis (1982) believed that three characteristics of mature religion, as Allport originally conceived it, were missing from current notions of intrinsic religion. They state:

> First,...mature religious sentiment was integrative in the sense of encouraging the individual to face complex issues like ethical responsibility and evil without reducing their complexity. Second, mature religion involved a readiness to doubt and to be self-critical...Third, there was an emphasis on incompleteness and tentativeness; mature religious orientation was seen as involving a continual search

> for more light on religious questions (Batson & Raynor-Prince, 1983, p. 38).

Consequently, in addition to the extrinsic (religion as a means to self-serving ends) and intrinsic (religion as an end in itself) dimensions of religion, Batson and Ventis (1982) add a third dimension when measuring personal religion. Religion as a "quest" is the third dimension, and it involves "openly facing complex, existential questions (questions of life's meaning, of death, and of relations with others) and resisting clear-cut, pat answers" (Batson & Shoenrade, 1991b, p. 430). This third dimension of personal religion is considered to be independent of either an intrinsic (end) or extrinsic (means) dimension (Batson & Ventis, 1982). Further, these three dimensions are believed to be measured by the Religious Life Inventory (RLI: Batson & Ventis, 1982; for the most recent version and psychometric properties, see Batson, Schoenrade, & Ventis, 1993).

The three dimensional conceptualization of religious orientation promoted by Batson and his colleagues, particularly the quest dimension, has come under considerable criticism (e.g., Donahue, 1985a; Finney & Maloney, 1985; Hilty, Morgan, & Hartman, 1985; Hood & Morris, 1985; Kojetin, McIntosh, Bridges, & Spilka, 1987; for a response to these criticisms, see Batson & Schoenrade, 1991a, 1991b). For example, Finney and Maloney (1985) present empirical evidence that questions Batson and Ventis' (1982) claim as to the independence of the three dimensions; and Kojetin, et al., (1987) see the quest measure more in terms of

measuring religious conflict and distress rather than open-minded searching. Similarly, Donahue (1985a) sees quest as less a form of maturity and commitment than a state of troubled religious doubt.

Consequently, at least according to Allport's (1950) conceptualization of mature religion, there is some doubt as to whether the quest scale measures religious maturity better than the intrinsic scale. As a result, Dudley and Cruise (1990) suggest: "What seems to be lacking is a way of being religious that combines the best qualities of both intrinsic and quest and therefore reflects Allport's original definition of mature religion" (p. 99). More explicitly, these authors conclude:

> What is needed, in our opinion, is a scale that contains items that measure the complex ideas Allport was presenting in his description of mature religion. Such an orientation requires the individual to hold contrasting ideas in creative tension. But the contrast is not between faith and doubt. Nothing in Allport's work suggests that doubters are more religiously mature. Rather, the tension is between commitment and tentativeness or openmindedness. Both are necessary, and any real measure of religious maturity must find a way to tap both (p. 100).

As a consequence, Dudley and Cruise (1990) produced some preliminary data on a proposed 11-item scale called the Religious Maturity Scale (RMS: see Appendix H). This scale is part of a larger 58-item Personal Religion Inventory (PRI) that was tested, primarily, on students from two church sponsored universities: Notre Dame (Catholic) and Andrews (Seventh-day Adventist). Results showed that religious maturity was uncorrelated with

extrinsic religion and positively correlated with intrinsic and quest, although only weakly with the former and moderately with the latter. Further, even though the preliminary psychometric data show only moderate reliability (Cronbach's alpha = .55) for RMS, the conceptualization of mature religion put forward by Dudley and Cruise is worthy of research attention.

In conclusion, given Bowlby's conceptualization of attachment as cognitive representations or "working models", and Allport's speculations about early psychological needs being met and religious orientation, we would expect secure attachment to be associated with an intrinsic religious orientation. We would also expect that the intrinsic religious type, of the four-fold religious typology, to be the purest form of the intrinsic religiousness construct. These notions were explored in this dissertation.

2.1.8. Attachment and the "Big Five"

Although trait theories of personality vary in the number of traits identified, two factors or domains that were established early in the history of personality research, were Neuroticism and Extraversion (Eysenck & Eysenck, 1964). These were seen as the "Big Two". A third factor was identified using cluster analysis on Cattell's 16 Personality Factors (Cattell, Eber, Tatsuoka 1970; Costa & McCrae, 1976). Subsequent research confirmed and described this factor as "Openness". Thus, based on a three factor conceptualization of the structure of personality, the NEO Inventory (Neuroticism, Extraversion,

Openness Inventory) emerged with impressive validity and reliability (Costa & McCrae, 1980b). However, although these three dimensions seem to encompass many traits, there were some, like persistence and generosity, that did not fit-in well to this three-factor conceptualization of personality (Costa & McCrae, 1985).

Meanwhile, Norman (1963) had earlier identified five factors which he labelled: Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Culture. Later, Costa and McCrae (1985) interpreted Norman's "culture" factor in terms of "Openness to experience", and saw Agreeableness and Conscientiousness as incorporating some of those traits that did not fit well into the three factor model. Similarly, within the lexical approach, Goldberg (1981), using long adjective lists, was able to consistently support a five factor model. Costa and McCrae (1985), impressed by this research, began to develop scales that would tap the two additionally discovered dimensions.

Consequently, the NEO Inventory (Costa & McCrae, 1980b) was expanded to include these two new factors, namely, Agreeableness and Conscientiousness, and resulted in the NEO Personality Inventory (NEO-PI: Costa & McCrae, 1985). McCrae and Costa (1990) provide the following summary descriptions of the five major NEO-PI scales: "Neuroticism", indicates the individual's proneness to experience unpleasant emotions; "Extraversion", concerns differences in the preferences for social and interpersonal interactions and lively activity; "Openness to Experience",

refers to the receptiveness and exploration of new ideas, approaches, and experiences; "Agreeableness", refers to selfless concern for others and the expression of trusting and generous sentiments; and "Conscientiousness", concerns individual differences in organization, persistence and motivation in goal-directed behavior.

In order to facilitate convenience and more widespread research, the NEO-PI was reduced from 181 items to 60 items, forming the shorter version called the NEO Five Factor Inventory (NEO-FFI: Costa & McCrae, 1989). This shorter version provides a brief and valid assessment of personality (for psychometric properties of this measure, see section 3.2.8.). In the primary analysis of this dissertation, two of the NEO-FFI scales (Extraversion and Neuroticism) was used to tap the extraversion and neuroticism constructs embedded in the overall model to be tested. However, the full scale was included in a secondary analysis involving the exploration of the relationship between the five factor model of personality and a number of other constructs (for example, see section 4.2.2.).

Some preliminary findings between the five factor model of the structure of personality and attachment, is seen in the Shaver and Brennan (1992) study. Using the Hazen and Shaver (1987) measure of Adult Attachment style (see Appendix A #3) and the NEO-PI (Costa and McCrae, 1985), these authors wanted to explore the relationship between the two, and also to compare the ability of the two measures to predict several relationship

variables (e.g., relationship status, length, satisfaction, and commitment) which were assessed eight months after the personality and attachment measure were administered.

As expected, attachment styles (measured categorically and by means of continuous rating scales) were associated with four of the Big Five personality traits. Generally, secure subjects were more extraverted and less neurotic than insecure subjects, and more agreeable than avoidant subjects. Secure subjects were also more conscientious than avoidant subjects, although, in this case, the effect was quite small. In terms of predicting relationship status (being in relationship or not) eight months after assessment, the "attachment variables outperformed the NEO-PI variables despite being somewhat less reliable (presumably because of brevity)" (Shaver & Brennan, 1992, p. 544).

Shaver and Brennan (1992) conclude: "Overall, the results indicate that although styles are meaningfully related to the Big Five personality traits..., they are not simply redundant with them" (p. 544). They further suggest that "the maximum correlations among attachment, NEO-PI, and relationship outcome variables were limited by the less than optimal reliabilities of attachment style measures" (p. 544), and that the development of more recent, multi-item self-report attachment measures, such as the Adult Attachment Scale (Collins & Read, 1990; see appendix C) and others, when tested and refined, would more reliably determine the relationship of attachment to other aspects of personality. In keeping with this suggestion, the Collins and

Read (1990) attachment measure was included as an additional measure of attachment in the secondary analysis of this dissertation, in order to explore a number of relationships.

2.2. Subjective Well-being (SWB)

2.2.1. Definition and Structure of SWB

A sense of subjective well-being (SWB) reflects happiness or satisfaction with life-as-a-whole or life in general (Andrews & Robinson, 1991). It involves an evaluation of the quality of one's life in terms of a global assessment of well-being. SWB research arose from a number of fields such as quality of life studies, mental health, and social gerontology. It has used a variety of overlapping but not necessarily synonymous terms, such as, happiness, satisfaction, morale, positive affect, subjective well-being, and psychological well-being (Andrews & Robinson, 1991; Diener, 1984).

Although involved in a long history among philosophers and social scientists, the actual definition of the SWB construct is somewhat elusive and "fuzzy". Lazarus (1991) sees SWB as being closely related to the "idea of happiness as a background disposition or mood that moderates the impact of daily hassles and uplifts..." (p. 266). SWB seems to suggest an overall, pleasant emotional experience by denoting the preponderance of positive affect over negative affect, which leads people to evaluate their lives in positive terms (Diener, 1984).

For some, SWB is considered to be an attitude (e.g., Andrews & Robinson, 1991), and as such, it would consist of two basic

components, namely, a cognitive component and an affective component. According to Diener (1984), a substantial amount of research has been done in the area of SWB, and one of the most widespread findings in this literature is that SWB consists of three primary components. Two are related to the affective dimension, namely, positive affect and negative affect. The other, to the cognitive dimension, namely, life satisfaction (Andrews & Withey, 1976; Campbell, Converse & Rogers, 1976; Diener, 1984).

In describing these three components of SWB: the positive affective component consists of pleasant emotions and feelings, such as joy and happiness; the negative affective component consists of unpleasant feelings or emotions, such feelings as sadness and anxiety; and the cognitive component is essentially a cognitive appraisal of life satisfaction. That is, the latter refers to a cognitive, judgmental process that results in a global assessment of one's life as a whole (Diener, 1984).

This evaluation process of well-being is "subjective" in the sense that it is not based on an "externally imposed" objective standard (Diener, Emmons, Larsen, & Griffin, 1985). In other words, subjective well-being rests within the experience of the individual (Campbell et al., 1976). Researchers may impose "objective" criteria of well-being and have certain expectations as to how the subject "should" respond, but the SWB researcher is interested in the individual's phenomenological "experience" of well-being. Health, virtue, comfort, wealth and other such

objective conditions may potentially influence SWB, but they are not essential or inherent to it (Diener, 1984; Kammann, 1983). This notion is expressed by two SWB researchers in the following way, in terms of emotional well-being. "For example, our major concern is not to determine which emotions are `normal' or which emotions are adaptive. Rather, we try to determine what produces the experience of emotional well-being as defined from a respondent's own perspective" (Diener & Larsen, 1993).

Thus, given the general structure of SWB, definitions of it tend to emphasize either the cognitive or the affective component. For example, many social scientists see the assessment of life satisfaction (cognitive) as the respondent setting-up a personal criteria as to what is the "good life", and perhaps, what goals are worth striving for, and then determining the level of satisfaction based on whether those standards or goals have been achieved. This has been categorized in terms of the gap/ratio approach to understanding SWB (Andrews & Robinson, 1991). This approach suggests that the "gap" or "ratio" between aspiration and achievement influences the level of life satisfaction. In other words, the smaller the gap, or larger the ratio, the higher the levels of SWB.

This conceptualization of SWB can provide one explanation to the puzzling finding that sometimes people who live under conditions that are "objectively" good, make negative assessments of their well-being and people whose "objective" conditions are those of hardship and deprivation often make a positive

assessment of their well-being (Andrews & Robinson, 1991; Lazarus, 1991). In other words, perhaps people living under conditions considered "well off" may have higher aspirations, leading to a greater gap or smaller ratio between aspiration and achievement, and thus leading to a lower SWB assessment.

In contrast to definitions that place emphasis on the kinds of cognitive appraisal mentioned above, a more everyday conceptualization of happiness tends to emphasize the affective component of SWB. For example, a definition of SWB that emphasizes the overall pleasant emotional experience, would suggest a predominance of positive affect over negative affect (Bradburn, 1969). However, this could mean, either, that the individual is experiencing mostly pleasant emotions, or that the individual is predisposed to such emotions, whether or not they are currently being experienced (Diener, 1984). This will be elaborated further in the next section.

2.2.2. Theories of SWB: Two Broad Perspectives

When SWB is closely aligned to the notion of happiness, theories about what causes happiness can be broken down into two broad categories that Diener (1984) has referred to as "top-down" versus "bottom-up" theories. Top-down theories see individuals as predisposed to experience circumstances in positive or negative ways. In other words, the level of SWB is determined by global dimensions of personality (e.g., Costa & McCrae, 1980a). Consequently, such people are said to be happy, not because they experience more pleasant circumstances in an objective sense,

but because they tend to interpret their circumstances in a positive way and respond to them with pleasant emotions (Stones & Kozma, 1986). Diener (1984) sees this perspective as being aligned with the Kantian view in philosophy, in which "causation proceeds from the higher-order elements down through the lower or more elemental levels" (p. 565).

In contrast, bottom-up theories see happiness as a result of summing-up pleasurable and unpleasurable experiences. The happy person, in this case, is happy because there is a net gain of happy experiences. As a result, life satisfaction is believed to result from a combination of satisfaction in a number of different domains (e.g., marriage, family life, financial or social status, health; see Campbell et al., 1976). In other words, happiness is simply the product of summing the many small pleasures in relationship to pains. The net gain results in happiness or unhappiness. Kozma and Stones (1980) suggest that, in terms of the history of philosophy, this perspective seems to parallel the Lockean reductionistic and atomistic views.

Thus, theories of SWB which conclude that it is the underlying predisposition of the individual to experience life events in certain ways that determines whether he or she will be happy, are classified as "top-down" theories. On the other hand, "bottom-up" approaches tend to suggest that it is the experience and accumulation of the many, actual happy or unhappy events that determine which way the attitude balance will swing, in terms of SWB appraisal. After evaluating a number of studies, Diener and

Larsen (1993) conclude that the "evidence supports both top-down and bottom-up effects" (p. 410). Similarly, Brief, Butcher, George, and Link (1993) recently demonstrated that an integration of both approaches is not only needed but is also possible.

2.2.3. Independence of Positive and Negative Affect

Investigating more closely the relationship of the three components of SWB (positive affect, negative affect, and life satisfaction), researchers have found that positive affect (PA) and negative affect (NA) are two relatively independent and additive determinants of satisfaction (Bradburn, 1969; Costa & McCrae, 1980a; Emmons & Diener, 1985). In other words, it is the presence of PA and the absence of NA that "conjointly determine a person's life satisfaction" (Lewinsohn, Redner, & Seeley, 1991, p. 144). Bradburn's (1969) study was the first to arrive at this conclusion, and one that, according to Diener (1984), has significant implications:

> Bradburn's conclusion that positive and negative affect are independent supported the long-standing argument of the humanists that psychologists focus too exclusively on the negative. Humanistic psychologists such as Rogers and Maslow have maintained that concern with psychopathology ignores positive aspects of life, and Bradburn's proposal supports the idea that absence of negative affect is not the same as the presence of positive affect. Thus, according to Bradburn's findings, attempts to enhance life must both reduce negative affect and increase positive affect (p. 547).

Although Bradburn's findings have been controversial and some have criticized his study on methodological grounds, his findings have been confirmed more recently using other methods (e.g., Bryant & Veroff, 1982; Goldstein & Strube, 1994; Zevon &

Tellegen, 1982). Consequently, increasing evidence supports a two-dimensional structure of affect (Watson & Tellegen, 1985). A recent study (Goldstein & Strube, 1994) which tested the independence of PA and NA between and within situations, concluded: "Affect independence within and between situations suggest that two separate affect systems are involved in the experience of affect, a view consistent with other findings that support a two-factor model" (p. 63).

Interestingly, Sackeim and Weber (1982), after reviewing evidence relating to emotion regulation and brain structure, concluded that NA was associated with greater right cerebral hemispheric control, and PA with greater left hemispheric control, a distribution suggesting separate regulating systems. Some have speculated as to why the structures are separate. For example: "It is possible that a two-dimensional affect system could be of evolutionary necessity, the two systems having different roles for survival or well-being. Thus, separation (or independence) of the two systems could allow for differential and simultaneous sensitivity to positive and negative cues in the environment" (Goldstein & Strube, 1994, p. 63).

Similarly, Gray (1981, 1987), who views personality dimensions as biologically based constructs, has proposed two motivational systems that are neurobiologically based. As described by Gilboa and Revelle (1994), one is the behavioral approach system which is hypothesized to be sensitive to cues of reward and is believed to control behavior when reward stimuli

are encountered. The other is the behavioral inhibition system which is hypothesized to be sensitive to cues of punishment and is believed to control behavior when punishment or nonreward stimuli are encountered. Although there is strong evidence from a biolgically based perspective for the existence of two systems, how these systems relate to personality dimensions, according to Gilboa and Revelle (1994), is still an open question.

Another indication of the independence of PA and NA is that they tend to correlate with different variables (e.g., Bradburn, 1969; Costa & McCrae, 1980a; Diener & Emmons, 1985). For example, Bradburn (1969) reported that PA was exclusively related to social interest, sociability, and activity, whereas NA was related to anxiety, psychosomatic symptoms, and poor role adjustment. In another appraisal, Watson, Clark, and Tellegen (1988) state that PA "reflects the extent to which a person feels enthusiastic, active, and alert" (p. 1063). NA, on the other hand, "is a general dimension of subjective distress and unpleasurable engagement that subsumes a variety of aversive mood states, including anger, contempt, disgust, guilt, fear, and nervousness" (p. 1063). Tellegen (1985) has associated "trait NA and PA, respectively, to psychobiological and psychodynamic constructs of sensitivity to signals of reward and punishment" (Watson, Clark, & Tellegen, 1988, p. 1063). He has suggested further, that in both state and trait form, "low PA and high NA...are major distinguishing features of depression and anxiety, respectively" (Watson, Clark, & Tellegen, 1988, p. 1063).

Thus, there appears to be a significant amount of evidence to suggest that pleasant and unpleasant mood, in terms of PA and NA, are unipolar and orthogonal dimensions, rather than a single bipolar dimension. However, PA and NA have also been found to correlate within individuals in a way consistent with a bipolar dimension. As already mentioned and by way of summary, Bradburn (1969) was the first to discover that PA and NA, when measured separately, vary independently across persons and correlate differentially with various personality measures. These findings have since been confirmed in numerous studies.

However, Kammann and his colleagues (e.g., Kammann, Christie, Irwin, & Dixon, 1979), using their Affectometer scale found that PA and NA, on average, correlated inversely at -.58. Similarly, Brenner (1975) found correlations averaging -.62 among several PA and NA scales. Warr, Barter, & Brownbridge (1983) found that answering Bradburn's Affect Balance Scale (Bradburn, 1969) in terms of frequency of occurrence (e.g., `occasionally', `often') rather than dichotomously, produced a negative correlation between PA and NA. Thus, it also appears that as individuals feel more of one type of affect, the less frequently they will feel the other type, which is congruent with expectations of a bipolar dimension and incongruent with a unipolar, orthogonal conceptualization.

Given that the emotion literature tends to favor an inverse relationship between PA and NA, and the SWB literature tends to favor PA and NA independence, and assuming that both lines of

research have produced reliable and valid evidence, how do we resolve the contradiction in the findings? How can PA and NA vary independently if the two are also shown to vary inversely in terms of frequency? Diener and Emmons (1984), in taking the initial step to try and clarify the confusion, decided to sample affect over varying periods of time (e.g., from moments to weeks). They found that PA and NA are inversely correlated at particular moments in time, but the correlation between the two decreased as the time interval increased. Thus, the longer the period under consideration the greater is the amount of independence of PA and NA experienced, although experiencing the two emotions simultaneously is unlikely (Diener & Emmons, 1984).

However, it was still not clear why the mean levels of PA and NA were independent as longer time periods were considered. A solution suggested by Diener, Larsen, Levine, and Emmons (1985) was that "positive and negative affect covary together on an intensity dimension; that is, a person who experiences strong positive emotions may also be a person who feels strong negative emotions as well" (p. 1255). This study by Diener et al., (1985) includes three studies that look at the intensity and frequency dimensions of affect in terms of the PA and NA relationship. The rationale for these three studies is spelled out concisely in the following statement:

> If the intensity and frequency dimensions are relatively independent across persons, a great deal of confusion can be resolved. Specifically, both a strong positive correlation between the intensity of positive and negative affect and a strong negative correlation between the frequency of positive and negative affect

> would tend to cancel each other out over time. In other words, the negative correlation of the two types of affect in terms of frequency is balanced by the positive correlation for intensity. The result is that the overall means of the two types of affect will tend to be uncorrelated, because mean levels of affect result from the independent contribution of frequency and intensity (p. 1255).

In the results of this study and according to these investigators, intensity and frequency appear to represent separate processes contributing independently to the experience of affect. They appear to combine in an additive way to influence the mean levels of affect (Diener, 1984). In other words, to summarize the theory put forward by Diener and his colleagues: (1) PA and NA are not independent at particular moments in time. That is, in the actual experience of the moment there is a suppressive effect in that as one type of affect is experienced the other is suppressed; (2) Because of this suppressive relationship between PA and NA, the two types of affect are not independent in terms of frequency of occurrence. That is, the more an individual feels PA, the less he or she will feel NA; and (3) When, over longer periods of time, the average level of PA and NA are measured, a near independence will be seen since mean levels are the result of both frequency and intensity of affect. This means a positive relationship in terms of intensity across individuals cancels their inverse relationship in terms of frequency (Diener, 1984).

Their theory is well illustrated by looking at the SWB literature in terms of instruments used and results produced.

For example, the Affectometer scale (Kammann, Christie, Irwin, & Dixon, 1979) measures the frequency of PA and NA, not the average levels. Consequently, when PA and NA are compared there is a strong inverse relationship. In contrast, the Affective Intensity Measure (Larsen, 1983) assesses only emotional intensity. Consequently, PA and NA are found to be strongly and positively correlated. On the other hand, scales that include both intensity and frequency items in their measure tend to show results that resemble mean levels of affect and, thus, a near independence between PA and NA is seen.

The next section discusses two perspectives as to the possible ontogeny of PA and NA differences.

2.2.4. Ontogeny of Differences in PA and NA

2.2.4.1. A Temperament/Personality Construct

Both correlational and experimental research has shown fairly consistent findings which suggest that the broader personality variables of extraversion and neuroticism are related to PA and NA, respectively (Costa & McCrae, 1980a; Emmons & Diener, 1985; Headley & Wearing, 1989; Larsen & Ketelaar, 1989, 1991; Tellegen, 1985; Watson & Clark, 1984). For example, Costa and McCrae (1980a) specifically hypothesized that the personality dimensions of neuroticism and extraversion were responsible for the differences in NA and PA.

Earlier, Buss and Plomin (1975) articulated a theory of personality based on several highly heritable temperamental traits, such as emotionality, activity, sociability, and

impulsivity. Tying into this work, Costa and McCrae (1980a), using four measures of happiness, including Bradburn's (1969) Positive Affect Scale and Negative Affect Scale, compared these scores with scores on the EASI-III Temperament Survey (Buss & Plomin, 1975).

Costa and McCrae (1980a) specifically hypothesized that temperamental traits such as emotionality, fearfulness, hostility and impulsivity, would be associated with lower levels of happiness and higher NA. In contrast, the temperamental traits of sociability and activity would be associated with higher levels of happiness and high PA. As expected, the scores on the temperamental scales clustered about the PA and NA constructs. These investigators further observed that these traits appeared to have a coherent, internal organization around two broader dimensions of personality, namely, extraversion and neuroticism. These findings provided the basis of my proposed model regarding the relationship between personality and happiness (see Figure 1.1 in the first chapter of this dissertation).

Basically the model suggests that, Extraversion (E), together with its component traits (sociability, tempo, and vigor) predispose the individual toward PA, and Neuroticism (N), with its component traits (emotionality, impulsivity, fear and anger) predispose the individual toward NA. Subsequently, both PA (with its corollary of satisfaction) and NA (with its corollary of dissatisfaction) feed into the happiness or Subjective Well-being (SWB) construct, producing a subjective net-balance of SWB.

For these investigators, the clear independence of PA and NA implies that "there must be two independent sources of variation, two sets of causes operating to produce the two independent effects" (Costa & McCrae, 1980a, p. 675). They conclude: "Regardless of the area of life, people tend to be either satisfied or dissatisfied. The two sources of variation must lie within the person, and the dimensions of E and N are prime candidates" (p. 676).

Therefore, generally, the hypothesized connections between temperament and personality and, more specifically, the independence of PA and NA, have persuasive theoretical linkages in existing research. Interestingly, although Buss and Plomin (1984) suggest a significant heritability levels of pleasant and unpleasant affect, both Tellegen, Lykken, Bouchard, Wilcox, Segal, and Rich, (1988) and Cesa, Baker and Gosse (1986) have found, according to Diener and Larsen (1993), "a larger heritability for unpleasant than for pleasant affect. This suggests that environmental and situational factors may have a greater influence on pleasant affect, whereas inborn temperament may have a larger influence on unpleasant moods" (pp. 409-410).

2.2.4.2. A Relational/Personality Construct

Attachment theory (Bowlby, 1973), as discussed earlier, also provides hypotheses to account for individual differences in PA and NA, but in contrast to temperament, the attachment construct provides a relational framework. Borrowing from ethology, systems theory and aspects of psychoanalytic theory, the theory

of attachment postulates a behavioral system innate to the infant and a complementary system within the adult caregiver. Whereas, the attachment behaviors emitted by the infant (e.g., crying, smiling, following) function to maintain proximity to the adult caregiver in order to obtain nurture and protection, the complementary behavioral system in the adult caregiver enhances synchrony and provides the necessary responsivity to ensure the survival of the infant.

Similarly, Sroufe's (1979, 1984) theory of emotional development sees emotions, not simply as products of the amount of in-coming stimulation from the environment, but involving a person-environment interactive relationship. For one thing, the quantitative aspects of this stimulation (e.g., amount of change, novelty, complexity, intensity, etc.) do not necessarily predict the direction of the resulting affect (i.e., positive or negative). We must, according to Sroufe, also "consider the experience-based meaning of the event for the child" (Sroufe, 1984, p. 1).

He suggests that, within limits, it is not the amount of tension the infant experiences that is necessarily aversive, but rather it is the threshold of threat that is important. Further, a perception of the threshold of threat presupposes an underlying cognitive appraisal of the event. For example, if the infant's evaluation of the event is positive, its threshold for threat is higher. Conversely, if the evaluation is negative, the threshold for threat is lower. Moreover, the cornerstone of Sroufe's theory

of emotional development is the attachment bond between the infant and the primary caregiver. A secure attachment bond develops when the caregiver is perceived as being available and responsive to the needs of the infant. A history of consistent and sensitive responding results in a feeling of security in the presence of the caregiver.

Thus, according to Sroufe (1984), the "novel or salient stimulation produces arousal or tension, but whether this tension is expressed in positive or negative affect depends on the infant's context-based evaluation of the event" (p. 110). For example, a mother approaching wearing a mask, can produce the entire range of affective reactions in the 10-month-old infant; ranging from a smile and laughter to distress. Using this mother and mask scenario, Sroufe discovered that in a "playful home context nearly all the infants tested smiled at mother approaching wearing the mask; 50% laughed, and none cried. In the laboratory, however, following a separation experience, no infants laughed, one smiled, and some even became distressed " (Sroufe, 1984, p. 110).

The event in both instances was arousing for the infant, but the context of a playful home, in the first instance, resulted in a positive evaluation of the event. Here the threshold for threat was higher, facilitating the expression of positive affect. This was not the case in the laboratory setting after experiencing separation from the mother. Here the threshold for threat was lower resulting in the absence of the expression

of positive affect.

Given that the development of early attachment bonds center around the early developing emotions of love and fear, it seems logical and reasonable to assume that the threshold of threat will be related to individual differences in the experience of attachment. That is, novel and potentially distressing events are easier to handle (threshold of threat is higher) in the presence of the caregiver, or in the experiential knowledge of the reliability of the attachment figure's responsive caregiving. Thus, subsequent regulation and expression of PA and NA would be closely tied to individual differences in early attachment experiences. Research seems to confirm this hypothesis. According to Belsky and Isabella (1991), attachment theory and research indicates that attachment security is related to affect regulation with regard to both, positive and negative emotionality.

2.2.4.3. Attachment/Temperament Debate

According to Bates (1987), a significant issue in research on infant temperament concerns the stability of individual differences. Stability appears to vary with the dimension examined and the measurement approach used. For example, Belsky, Fish, and Isabella (1991) state: "In considering the stability of individual differences in temperament, it must be acknowledged that even when stability coefficients achieve conventional levels of significance, there remains noteworthy instability in individual rankings" (p. 421). These authors go on to cite

results from Lee and Bates (1985) who "observed, for example, that the continuity of classification of a child in their sample as temperamentally difficult, although significant, was only about 50% from 6 to 24 months, and other researchers reported similar findings" (Belsky, Fish, & Isabella, 1991, p. 421). These and other findings regarding the modest stability of individual differences in infant negative emotionality, led Belsky, Fish, and Isabella (1991) to take issue with Campos, Campos, and Barrett's (1989) statement that "the conclusion is clear that irritability and negative emotionality show impressive continuity throughout infancy and early childhood" (p. 400).

In recent years increasing attention has been given to the relationship between temperament, attachment behavior, and attachment classifications obtained from the Ainsworth Strange Situation. The study by Matas, Arend, and Sroufe (1978) was one of the first to draw attention to these relationships. Looking at child behavior in relationship to problem-solving tasks, these authors described child behavior in terms of "competence" and "temperament" as orthogonal dimensions. They further concluded that only "competence" predicted securely and insecurely attached children, and interpreted this analysis as indicating that temperament was unrelated to attachment security.

This conclusion, that the temperament and attachment constructs were independent, drew considerable criticism from temperament researchers. For example, Chess and Thomas (1982) argued that both, the attachment qualities obtained from the

Strange Situation procedure and the behavioral items used by Matas, et al., (1978) to define competence, could be explained in terms of temperamental "behavioral styles". In terms of explanatory power, a stronger statement in favor of innate and predisposing temperamental dimensions over relational variables such as, quality of attachment, came from Kagan (1982, 1984).

However, after reviewing a number of published reports, a more tempered response came from Campos, Barrett, Lamb, Goldsmith, and Stenberg (1983). They found a modest association between resistance of interaction in the Strange Situation and irritability. Some researchers have indicated, however, that even this modest relationship may be sample dependent (e.g., Belsky & Rovine, 1987; Crokenberg & McCluskey, 1986).

Even though the attachment construct appears trait-like as theorists predict and observe various patterns of behavior, the attachment construct is, nevertheless, primarily a relational construct (Ainsworth, 1982; Bowlby, 1969; Bretherton, 1985). The attachment behaviors observed and their consistency over time, is not seen, by the attachment theorist, as evidence of the stability of a temperamental trait. Rather, this consistency over time is interpreted as reflecting the stability of the internalized working models of a relationship between the infant and its primary caregiver.

However, given that the Strange Situation is the most frequently used procedure to determine attachment quality in infancy, and given that this procedure entails emotions related

to separation distress and comforting, it is not surprising, in order to explain the observed behavior, that a temperament researcher would think in terms of predisposing factors such as temperament. An attachment researcher, on the other hand, would suggest that "the relationship itself is a source of positive and negative feelings that does not depend on characteristic moods or threshold for responding to stress" (Vaughn, Stevenson-Hinde, Waters, Kotsaftis, Lefever, Shouldice, Trudel, & Belsky, 1992, p.464).

Thus, while some contend that individual differences in security is a product of temperamental differences among babies (Chess & Thomas, 1982; Kagan, 1982, 1984), others believe that such temperamental variation is not a significant determinant of attachment classification, particularly with respect to secure and insecure infant classification (Sroufe, 1985).

In order to try and sort through these two conflicting view points, a number of studies appeared (e.g., Bates, Maslin, & Frankel, 1985; Belsky & Rovine, 1987; Frodi & Thompson, 1985; Thompson & Lamb, 1984; Weber, Levitt, & Clark, 1986). However, after reviewing such research, Vaughn, Lefever, Seifer, and Barglow (1989) conclude: "Although a variety of different temperament measures were used in these studies, the empirical results converge on one point, namely, temperament scores derived from the most widely used temperament scales do not distinguish `securely attached' from `insecurely attached' infants" (p. 729).

Concern that the temperament/attachment debate was beginning

to parallel the unproductive history of the nature-nurture conflict, Belsky and Rovine (1987) tried to look at the commonalities of the two sides, rather than the differences. Using the study of Frodi and Thompson (1985) on emotional expression in the Strange Situation, Belsky and Rovine (1987) sought a possible empirical rapproachment between the two sides. Such was possible, they believed, "if it could be shown that temperament determined not so much whether or not an infant developed a secure attachment relationship, as, rather, the manner in which security or insecurity was expressed in the Strange Situation" (p. 788). Their analysis confirmed this expectation.

According to Vaughn and his colleagues (Vaughn et al., 1989) some temperament theorists (e.g., Thomas & Chess, 1980) have indicated that temperamental dimensions may be malleable and capable of being modified by experiences, including experiences in social relationships. For attachment theorists, the patterns of attachment that emerge early in life are expected to play significant roles, not only in the expression and control of affect but also in later personality organization (Bretherton, Ridgeway, & Cassidy, 1990; Main, Kaplan, & Cassidy, 1985: Sroufe & Fleeson, 1986).

However, central in the dispute between temperament and attachment theorists is "whether factors regulating the expression of affect are intrinsic to the child (temperament) or are emerging properties of the child-adult relationship

(attachment)" (Vaughn et al., 1992, p. 463). The neonate is clearly born with highly heritable temperamental traits that are often easily categorized by parents as "easy", "slow-to-warm-up" or "difficult" (Thomas & Chess, 1980). However, the attachment theorist would argue that within the context of sensitive caregiving and the emerging cognitive capabilities of the infant, the organized caregiving matrix itself becomes represented in the memory structure of the child's developing mind. These working models then have a subsequent influence on self-regulation and personality development (Bowlby, 1973; Sroufe, 1990).

There is some evidence that maternal sensitivity can facilitate the self-regulating capacity of the infant, and thus, modify negative emotionality or the "difficult" temperament (Matheny, 1986; Washington, Minde & Goldberg, 1986). For example, Matheny (1986), besides showing that temperament was stable from 12 to 24 months, also observed that infants who became less negative, more attentive and more socially oriented, had mothers who were more expressive and came from families that were more emotionally cohesive. In another study (Washington, Minde, & Goldberg, 1986) it was found, compared to mothers whose premature infants became more difficult over time, mothers whose preterm babies became less difficult were more sensitive to their needs.

The larger picture that encompasses the entire family dynamics is probably the key to better understanding the influences exerted by attachment and temperament. For example, findings seem to suggest that, consistent with Belsky (1984),

family stress can affect quality of maternal care; as one increases the other deteriorates. Then, as a consequence of poorer maternal care and sensitivity, the infant's capacity to regulate negative affect is influenced.

2.2.5. Summing-up

Just as there is some debate as to whether temperament or attachment best explains the variance associated with affect regulation, so there is also some conflicting evidence as to the independence of PA and NA. In the literature, a fairly widespread finding of PA and NA independence is balanced by an equally impressive finding of an inverse relationship between the two. This state of affairs led Diener and Emmons (1984) to hypothesize that two separate processes (intensity and frequency), working together on the affect dimensions, were responsible for the contrasting findings.

In the context of integrating "structure" and "process" approaches to personality development, a purpose of this present thesis (see Chapter 1), it should be clear that temperament is categorized under "structure" and attachment under "process". The attachment/temperament debate suggests that an integrative approach is probably the most productive. This approach, rather than think in terms of either/or, would suggest that both contribute to the variance associated with affect regulation. As the growing organism is forced to transact with the environment, both structure and process integrate as they contribute to the functioning of the organism as-a-whole. Thus, both contribute to

the variance in affect regulation with the subsequent predictive influence on SWB, which is a subjective assessment of happiness or life satisfaction with life-as-whole.

2.3. Sense of Coherence (SOC)

2.3.1. Definition and Structure of SOC

It was while Antonovsky (1979) was attempting to articulate his salutogenic approach to health research that he introduced the more specific construct he called Sense of Coherence (SOC). Given that the SOC construct is clearly embedded in the overall conceptualization of his salutogenic model, a brief description of this approach might be helpful in better understanding the context that gave rise to this construct. The meaning of the word salutogenic is brought into greater relief when we compare and contrast it to the opposite notion of pathogenic. Whereas, the traditional health-oriented research is interested more in pathological or disease end-points (i.e., a pathogenic approach), the salutogenic approach, according to Antonovsky (1979, 1987), focuses on positive health outcomes.

In the salutogenic model, cultural, social and personal resources are seen as important contributors to health and psychological well-being. It approaches health issues in a positive way. For example, the salutogenic model asks the question: why do most people remain healthy despite their exposure to various risk factors? Thus, in contrast to the pathogenic model, the salutogenic model, rather than focusing on what makes people sick, focuses on what keeps people healthy

(Rosenbaum, 1990). Further, Antonovsky (1979, 1987) sees both these approaches as qualitatively distinct. In other words, he suggests that often variables and factors that predict good health and positive adjustment are qualitatively different in nature than those that predict negative or pathological outcomes.

Antonovsky (1979) developed the notion of "generalized resistance resources" (GRRs) to tentatively explain why some people remain healthy despite fairly stressful circumstances. GRRs were conceptualized as any phenomena seen as effective in combating a wide variety of stressors (Antonovsky, 1990) and promoting health (Antonovsky, 1993a). Such resources as wealth, ego strength, cultural stability, and social supports were seen to fit into the category of GRRs. Further, he discovered that a common denominator of all GRRs, was that they assisted the individual in making sense of an environment filled with countless stressors.

As a result of this observation, Antonovsky (1979) developed the more specific Sense of Coherence (SOC) construct. It was initially and tentatively defined as:

> a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected (Antonovsky, 1979, p.132).

Equipped with this tentative definition, he did a series of in-depth interviews with people who had experienced major traumas in their life. How these individual saw their lives was the

central question that guided the interviews. The protocols were then classified as strong or weak in SOC. Taking these two extreme groups, the protocols were then examined for themes that would be consistently in one group but absent in the other. Three such themes were repeatedly found: comprehensibility, manageability, and meaningfulness. That is, individuals identified with a strong SOC were high on these three components, in contrast to individuals with a weak SOC.

Subsequently, SOC was seen as a personal orientation that was structurally composed of the three dimensions mentioned above, and was given a more precise definition:

> The sense of coherence is a global orientation that expresses the extent to which one has a pervasive, enduring...feeling of confidence that: (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable [Comprehensibility], (2) the resources are available to one to meet the demands posed by these stimuli [Manageability], and (3) these demands are challenges worthy of investment and engagement [Meaningful] (Antonovsky, 1987, p. 19).

The "Orientation to Life Questionnaire" was developed to tap the SOC construct (Antonovsky, 1987). The scale consists of 29 items; 11 for the Comprehensibility component, 10 for the Manageability component, and 8 for the Meaningfulness component. High scores on all three components produces a stable pattern of viewing the world as highly coherent, while low scores on all three components produces a stable pattern of viewing the world as highly incoherent. However, although these three components are necessary to the SOC construct, they are not equal in

centrality (Antonovsky, 1990). The meaningfulness component is seen as the motivational element that is most crucial. High comprehensibility and manageability are not likely to be sustained, according to Antonovsky (1990), without a reasonably high rating on the meaningfulness component. Comprehensibility is considered to be next in importance, since high manageability is contingent upon understanding. However, all three components are believed to be highly intertwined and a general predisposition to successful coping depends upon SOC as a whole. Thus, in the manageability component, if the individual does not believe that resources to manage effectively are available, the component of meaningfulness will be affected and, subsequently, SOC as a whole.

Therefore, SOC is seen as a generalized personality-related disposition that provides a stress-resistance resource (Hart, Hittner & Paris, 1991). At the individual personality level, it reflects the notions of subjective adjustment, global optimism and overall resilience (Margalit, Raviv, & Ankonina, 1992). Consequently, people rating themselves high on the three components tend to have a generalized personality disposition that facilitates resilience and positive outcomes. Individuals with a high level of comprehensibility, tend to perceive the world as being understandable and making sense. Those high on the manageability component tend to see themselves as having resources (one's own and those of other's that can be counted upon) to cope with the difficulties and demands. Finally, those

high on meaning, see their personal life as having some purpose, and that the life challenges they encounter are worthy of investments in terms of energy and commitment. The component of meaningfulness is seen as the "emotional counterpart of comprehensibility", that is, "the extent that one feels that life makes sense emotionally" (Margalit, 1985, p. 356).

As mentioned earlier, the SOC construct is embedded in the salutogenic approach, which is essentially a focus on health instead of disease, and as a result it is closely related to coping with stress and positive health outcomes. Antonovsky (1979) showed that the impact of stressful events may be reduced by coping resources for specific stressors. In line with this specific coping strategy approach, two models have emerged in an attempt to try and understand such adaptive coping. First is the "hardy personality" proposed by Kobasa (Kobasa, 1979), which is a theoretical model grounded in existential psychology. The second is the "stress-resistant person" proposed by Flannery (1987), which is a model that is theoretically grounded in social learning theory.

However, in contrast to these two models which focus on specific coping strategies that appear to significantly buffer life stressors, the SOC construct suggests a more fundamental and global perceptual orientation that undergirds the specific coping strategies that an individual might select and utilize. The SOC construct has been shown to be negatively correlated with life

stress and psychological symptomatology (Antonovsky, Hankin, & Stone, 1987; Antonovsky & Sagy, 1986; Bernstein & Carmel, 1987; Flannery & Flannery, 1990; Margalit, 1985). Further, Flannery and Flannery (1990) found, consistent with Antonovsky's (1987) suggestion, that SOC may not be "a specific buffer variable, but, rather, the proposed more basic global predisposition to respond to life stress" (p. 418).

This notion of SOC, in terms of a basic and global salutogenic predispositional orientation to respond to life's stressors, forms the basis for the notion of the generalized life orientation mentioned in the first chapter of this thesis. In this dissertation, a salutogenic orientation is associated with positive affect and a worldview that tends to see life's demands as challenges. On the other hand, a pathogenic orientation is associated with negative affect and a worldview that sees life's demands as threatenings. Consequently, positive affect is expected to be associated with high SOC and negative affect with low SOC. Some support for this expectation is seen in the study by Margalit and Eysenck (1990). Using the Junior Eysenck Personality Questionnaire (J.EPQ: Eysenck & Eysenck, 1975) in an adapted Hebrew version (Eysenck & Margalit, 1988), these investigators found that Extraversion correlated .23 and Neuroticism -.36 with SOC, and both significantly predicted SOC.

2.3.2. Potential Sources for SOC

Antonovsky (1991) points out that it was at a conference in 1973 that he first publically articulated his salutogenic model.

Independently, other researches were also reorienting their focus, and such constructs as self-efficacy (Bandura, 1977) hardiness (Kobasa, 1979) and locus of control (Rotter, 1966) were seen as offering salutogenic strengths. However, it was not until the mid-1980s that things became clearer. Antonovsky (1991), in relationship to the four constructs mentioned above, states:

> It was not really until the mid-1980s that it became clear that a radically different mode of thinking about coping with life stressors was being crystalized. Instead of asking about the pathogens and failures in coping which led to disease, what was common to these four approaches was their focus on explanations of successful resolution of stressors and maintenance of or return to health (pp. 68,69).

In other words, these approaches started to focus on successful coping or salutogenic strengths, rather than continue to focus only on pathogenic factors.

Antonovsky (1987) gives a systematic and a theoretically speculative account of the potential sources for the development of a strong SOC over the life span. Further, this global predisposition seen in the SOC is believed to be generally fully formed by the age of 30 (Antonovsky, 1987; Antonovsky & Sagy, 1986). So, in terms of a strong SOC, what are the hypothesized experiences leading to a generalized way of looking at the world as more or less coherent? Antonovsky (1987) considers three broad influences leading to the three components making up the SOC construct. More specifically: "Consistent experiences provide the basis for the comprehensibility component; a good load balance, for the manageability component;...participation in shaping outcome, for the meaningfulness component" (p. 92).

2.3.2.1. Attachment and SOC

First, consistent experiences are tied to the innate human need for stability and certainty. By implication, the early environment, in particular, needs to be organized and structured, where rules are not vague or obscure. In situations where the rules are vague or inconsistent, Antonovsky (1991) specifically states:

> Facing this perpetual danger of chaos, the human being finds it difficult to make sense of his or her world, to know how to feel, think, or behave. There is, of course, the danger of maladaptive frozenness in an ever changing world. But without rules, guidelines, criteria for setting priorities; without some significant thread of continuity between past, present, and future; without some degree of harmony we are lost. Consistency does not mean identity. A string quartet does not have four violins or four clone players, nor are the first and second movements identical. But to make music, and for the listener to share it, there must be some integration and agreement about rules (p. 94).

Such phrases as "make sense of her or his world", "to know how to feel, think, or behave", "some significant thread of continuity between past, present, and future", and "some integration and agreement about rules", seem to provide clear linkages between the component of comprehensibility found in the SOC construct and the construct of attachment as described earlier. In fact, Antonovsky (1987) refers to both Bowlby and Erikson in regard to the early interactive development of the child. For example, as mentioned earlier, Bowlby's (1973) Attachment theory proposes that an infant comes into the world biologically "prewired" for interaction with caregivers. As a

result of this interaction, internal working models imbedded with intentions and expectations develop and provide schemas that modify, interpret and make sense of incoming information. In a very real way the child begins to structure reality in terms of reducing uncertainty (Marris, 1993) and increasing certainty, stability, and predictability.

> The infant can begin to learn that objects...can disappear but be counted on to reappear. The small child can be likened to the researcher working with natural experiments. Day in, day out, the hypothesis is tested that there is consistency, continuity, and ...permanence... Over time, then, the infant and the child may become persuaded that his or her world, physical and social, can be counted on not to be constantly changing" (Antonovsky, 1987, pp. 95-96).

Similarly, Antonovsky (1987, p. 95) refers to the work of Erikson (1963). As the attachment bonds are developing between the infant and the primary caregiver, Erikson's (1963) "basic trust vs. mistrust" conflict is being resolved. A resulting basic trust would theoretically correlate with the formation of a secure attachment, a situation in which the primary caregiver will have "become an inner certainty as well as an outer predictability" (Erikson, 1963, p. 247). Although theoretical connections can be readily made between attachment and SOC, I am not aware of any empirical studies that have directly examined the relationship between the two.

2.3.2.2. Identity and SOC

A second source that is hypothesized to influence the development of a strong SOC is "a good load balance" (Antonovsky, 1987, p. 92). Elsewhere, Antonovsky (1991) has more precisely

stated: "Load experiences are those which make demands upon us to act, to mobilize resources for the task of performance...The demand can be comprehensible...(but) do we believe that the resources at our disposal enables us to meet the demand" (p. 94). Clearly, early childhood experiences are pertinent here too. Erikson's psychosocial stage of "autonomy vs. shame and guilt", sees the child in this stage as being more mobile and actively exploring and manipulating the environment. However, as we have seen in discussing continuity of secure and insecure attachment working models, it is the securely attached child that has developed sufficient "trust", in Erikson's scheme, to facilitate greater enthusiasm for exploratory activity. Yet these internal working models are modifiable if parents and teachers can learn to show greater sensitivity to the emerging needs of the child.

Greater exploratory activity leads to a greater self-definition and a sense of autonomy. However, individuation need not be experienced at the expense of connectedness. This is also true during the "second" (Blos, 1979) individuation process during adolescence (Grotevant & Cooper, 1986; Hill & Holmbeck, 1986; Youniss, 1983). Rather than parental detachment, characteristics of secure attachment are considered important to adaptive psychological and social functioning (Kenny & Donaldson, 1992). Identity issues become particularly salient during adolescence as physical changes brought on by puberty threaten the sense of continuity, and cognitive changes enable the consideration of alternative hypothetical realities no longer

bound to the concrete world. Further, society's expectations of the individual also changes during adolescence. Adolescents are expected to, not only explore occupational, ideological and interpersonal opportunities that society offers, but also to make a decision and commitment to a particular identity.

In terms of SOC, the extent to which individuals have been exposed to life experiences of a good load balance, will largely determine the extent to which they see themselves as having access to resources, personal or otherwise, in order to meet the demands they encounter. In other words, mature identity formation should reflect a good load balance and tap into the manageability component of the SOC construct. Although the theoretical literature surrounding the SOC construct occasionally makes reference to the notion of identity, I am not aware of any studies that have directly measured the relationship between these two constructs.

2.3.2.3. Religion and SOC

The third and final source that is hypothesized to influence the developing of a strong SOC is the "participation in shaping outcome" (Antonovsky, 1987, p. 92), which feeds into the third component of the SOC construct, namely, meaningfulness. As mentioned earlier, the meaningfulness component is the crucial motivational element in the SOC construct. Whereas, the consistency of experiences refer to the "what" of action and tap into the comprehensibility component of SOC, and the load balance experiences refer to the "how" of action and tap into the

manageability component, the experiences of participation in shaping outcomes refer to the "why" of action and tap into the meaningfulness component of the SOC construct (Antonovsky, 1991).

This component of the SOC construct is believed to grow out of a history of life experiences in which we sense that we have been participants rather than spectators in life's decision making processes. As Antonovsky (1987) has stated it:

> Many life experiences can be consistent and balanced but not of our own making or choosing in any way. For any life experience, one can ask whether we have taken part in choosing to undergo that experience, in judging whether the rules of the game are legitimate, and in solving the problems and tasks posed by the experience. When others decide everything for us --when they set the task, formulate the rules, and manage the outcome --and we have no say in the matter, we are reduced to being an object. A world thus experienced as being indifferent to what we do comes to be seen as a world devoid of meaning (p. 92).

This is consistent with the notion of the fully authentic person found in existential psychology (e.g., Kobasa & Maddi, 1977). That is, it is important for the actor to decide that the activity chosen is worthy, and perhaps, socially valued (Antonovsky, 1991). However, to make clear the distinction between the SOC construct and other similar constructs (e.g., hardiness, self-efficacy), Antonovsky (1987, 1991) stresses another point. In the paragraph cited above, the words "taken part" are used, not "decided", "controlled" or "chosen".

In other words, "the part may even be subsidiary as in an experience shaped by child and parent, and worshipper and the deity" (Antonovsky, 1991, p. 95). Antonovsky (1987) elaborates on

this point further:

> It is important to stress that the dimension is not control but participation in decision making. What is crucial is that people approve of tasks set before them, that they have considerable performance responsibility, and what they do or do not do have an effect on the outcome of the experience. This formulation thus has room not only for the largely autonomous person but also for the loyal party member, the religious believer, the work-group participant, and the child in the healthy family..." (p. 92-93).

Thus, according to Antonovsky (1979), meaningfulness emerges from a sense of being involved "as a participant in the processes shaping one's destiny as well as one's daily experiences" (p.128). Thus, the meaningfulness component is the emotional counterpart to the comprehensibility component of the SOC construct (Margalit, 1985), and indicates the extent to which we feel that life makes sense emotionally and that its many demands are worth investing energy in.

In this dissertation religion was used as one source of meaning and purpose that is likely to tap into the meaningfulness component of SOC. In fact, Antonovsky (1993b) considers religion, "in its various ways", to be one of the roads to a strong SOC (p. 973). Frankl (1959), similarly, saw religion as providing an individual with a sense of meaning and purpose in life. In fact, Peterson and Roy (1985) suggest that religion probably provides an overarching interpretive scheme for some, allowing them to make sense of existence.

However, for Frankl (1959), religious beliefs need to be authentic to be effective in the search for meaning. As a result,

in this thesis, I used the Intrinsic Religiousness construct, which has been associated with religious authenticity (for a review, see Donahue, 1985a), to tap into the meaningfulness component of SOC. Further, the notion presented by Frankl (1959), as to the relationship between religious authenticity and a sense of meaning, has some empirical support. For example, Bolt (1975) found that intrinsic religious motivation was positively related to Frankl's concept of meaning and purpose in life. Thus, theoretically we could expect intrinsic religiousness to be positively correlated with the SOC construct.

2.3.3. SOC and Subjective Well-Being

Subjective well-being (SWB) was defined earlier in terms of general happiness or satisfaction with life-as-a-whole or life in general (Andrews & Robinson, 1991). It consists of two aspects, one cognitive (the appraisal of life satisfaction) and the other affective (the appraisal of pleasant and unpleasant feelings or emotions). Some researchers (e. g., Andrews & Withey, 1976; Michalos, 1980) suggest that SWB is also related to a number of specific life concerns. Some domains that appear to have the strongest links to SWB, are those related to self-efficacy, family life, and financial resources. These resources or life concerns seem to parallel the life experiences or the "general resistance resources" hypothesized by Antonovsky (1979, 1987) to promote a strong SOC, namely, wealth, ego strength, social supports, and cultural stability.

Consequently, it is reasonable to expect a positive

correlation between strong SOC and high SWB. A number of recent studies seem to confirm this expectation (e. g., Coe, Romeis, Tang, & Wolonsky, 1990; Dahlin, Cederblad, Antonovsky, & Hagnell, 1990; Jankey, 1992; Kalimo & Vuori, 1990; Larsson & Setterlind, 1990; Petrie & Azariah, 1990; Sagy, Antonovsky, & Adler, 1990;). For example, Kalimo and Vuori (1990), using a Finnish sample, showed that high SOC is related to life satisfaction and competence. Coe et al., (1990), in a study involving 240 American adult patients, found that SOC predicted morale (r=.71) six months later. Similarly, Dahlin et al., (1990) found a correlation of .76 between SOC and quality of life measures in a Swedish sample. Ryland & Greenfeld (1990), using the short version of the SOC scale with 284 American faculty members, found a relationship with general well-being (r=.62). Using SOC and a life satisfaction measure, Sagy et al., (1990), likewise, found a correlation of .54 in 805 Israeli retirees.

Finally, Jankey (1992), in her master's thesis, recently showed a strong relationship between three personality constructs (optimism, perceived control and sense of coherence) and several quality of life measures. Two correlations of particular concern to this section and relevant to the instruments that will be used in this dissertation are: (1) SOC and the cognitive component of SWB, which is measured by the Satisfaction With Life Scale (r=.64), and (2) SOC and the affective component of SWB which is measured by the Affectometer-2 scale (r=.72). Consistent with the other studies mentioned above, SOC appears to have a fairly

strong relationship to SWB.

An interesting finding in the Jankey (1992) study was observed while exploring the predictive relationship of the three personality constructs to quality of life. It was discovered that, whereas, a direct pathway was found between SOC and quality of life, optimism and perceived control appeared to exert their influence through SOC. Further, by using regression analysis a consistent pattern emerged in which only SOC "retained a significant unique (nonoverlapping) relationship to quality of life, when controlling for the other two personality variables" (p. 67). This seems to substantiate the strong relationship between SOC and SWB, and further suggests that SOC, as a personality variable, may well have an important causal influence on SWB.

2.4. Summary

2.4.1. Problem

The primary analysis of this dissertation deals with two problems. First, there appears to be two broad approaches to understanding personality and human behavior, the "structure" approach and the "process" approach. The structure approach deals with the "what" of personality and behavior. In other words, the contents of this approach are primarily descriptive in nature. On the other hand, the "process" approach deals with the "how" and "why" of personality and behavior. In other words, the contents of this approach are primarily in terms of causal hypotheses. Focusing on one approach to the neglect of the other

can only provide a distorted or incomplete picture of the problem and, thus, result in only a partial solution to the problem. Both approaches need to be integrated. This dissertation seeks to integrate these two approaches.

Second, a number of social and psychological constructs, such as Attachment, Identity, Religious Orientation, Sense of Coherence, Personality Traits, and Subjective Well-being, have developed in relative theoretical isolation. However, many of these constructs have overlapping interests and need to be conceptually integrated. This dissertation seeks to develop a theoretical framework that will bring these constructs together in one model.

2.4.2. Integration

In terms of influencing Subjective Well-being (SWB), which is the major dependent variable in this study, the "structure" approach to personality development would suggest the "Big two" (Extraversion and Neuroticism). In other words, these two superordinate personality dimensions are seen as primary factors underlying a persons's predisposition toward pleasant or unpleasant mood (Positive and Negative Affect, respectively), which are essential components of SWB.

On the other hand, a "process" approach to personality development, in terms of influencing SWB, might suggest the Attachment construct as playing a major role. According to the attachment theoretical framework, attachment representations (internal working models) are believed to provide cognitive rules

and organizational structures that regulate Positive Affect and Negative Affect, and thus, influence SWB appraisal.

Both of these approaches and their related constructs provide the major independent variables in the primary analysis of this thesis. Further, the Sense of Coherence construct is believed to play a major role in mediating the influence of Attachment, Identity, and Intrinsic religious orientation onto SWB, and thus expand the "process" component of the model (see Figure 1.5).

2.4.3. Primary Analysis: Model Hypotheses

The primary analysis of this dissertation involved the testing of the proposed model and its cross-validation. The specific hypotheses pertaining to the proposed model, were as follows:

(1) It is expected that the three exogenous or independent variables (Extraversion, Neuroticism, and Secure Attachment) will be correlated. That is, Secure Attachment will be positively correlated with Extraversion and negatively correlated with Neuroticism, and the two traits will be negatively correlated.

(2) It is expected that the three exogenous or independent variables (Extraversion, Neuroticism, and Secure Attachment) will predict Subjective Well-being (SWB). That is, Extraversion and Secure Attachment will be positively related to SWB while Neuroticism will be negatively related.

(3) It is expected that Secure Attachment will be positively related to (a) Identity Achievement, (b) Intrinsic Religiousness, and (c) Sense of Coherence.

(4) It is expected that Extraversion will be positively related to (a) Identity Achievement, (b) Intrinsic Religiousness, and (c) Sense of Coherence.

(5) It is expected that Neuroticism will be negatively related to Sense of Coherence.

(6) It is expected that Identity Achievement will be positively related to Sense of Coherence.

(7) It is expected that Intrinsic Religiousness will be positively related to (a) Sense of Coherence and (b) Subjective Well-being.

(8) It is expected that Sense of Coherence will be positively related to Subjective Well-being.

2.4.4. Secondary Analysis: Exploratory Questions

The secondary analysis of this dissertation involved a series of exploratory research questions that were used as a guide to explore the relationships among a number of variables and the examination of some additional measures not involved in the primary analysis. The following research questions were used to guide this exploratory analysis:

A. In terms of the religious variables

(1) What is the relationship between Parental and Peer Attachment and religious orientation, where religious orientation includes; religious types and religious

dimensions?

(2) What is the relationship between Adult Attachment Styles (Close, Depend, Anxious) and religious orientation, where religious orientation includes; religious types and religious dimensions?

(3) What is the relationship between the Five-Factor Model of personality structure (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) and religious orientation, where religious orientation includes; religious types and religious dimensions?

(4) What is the relationship between religious orientation and Sense of Coherence (Comprehensibility, Manageability, Meaningfulness), where religious orientation includes; religious types, and religious dimensions?

(5) What is the relationship between religious orientation and Subjective Well-being (Life Satisfaction, Positive Affect, and Negative Affect), where religious orientation includes; religious types, and religious dimensions?

B. In terms of personality traits

(6) What is the relationship between Parental and Peer Attachment and the Five-Factor Model of personality structure, where personality is defined in terms of Neuroticism, Extraversion, Openness to Experience,

Agreeableness, and Conscientiousness.

(7) What is the relationship between Adult Attachment Styles (Close, Depend, Anxious) and the Five-Factor Model of personality structure, where personality is defined in terms of Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness?

(8) What is the relationship between Sense of Coherence (Comprehensibility, Manageability, Meaningfulness) and the Five-Factor Model of personality structure, where personality is defined in terms of Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness?

C. In terms of identity

(9) What is the relationship between Parental and Peer Attachment and Identity, where Identity includes: Identity Achieved, Personal Identity, and Social Identity?

(10) What is the relationship between Adult Attachment Styles (Close, Depend, Anxious) and Identity, where identity includes Identity Achieved, Personal Identity, and Social Identity?

CHAPTER 3. METHOD

3.1. Participants

A total of 520 undergraduate research participants were involved in this study (for information regarding sample size determination, see 3.3.2.), with the majority (85.6%) within the age-range of 18-22. Above this range, approximately 9% were between 23-26 years of age, 3.8% were between 27-30, and the remaining seven subjects (1.3%) were over 31 years of age. This total sample consisted of an almost equal representation of males and females (258 males and 262 females). Participants were registered in Introduction to Psychology classes at the University of Manitoba and received experimental credit for participation.

In terms of their perceived social class, 93% of subjects classified themselves as middle-class, 16% saw themselves as lower-class, while 19% saw themselves as upper-class. In terms of religious affiliation, a little over 52% claimed to be Christians (32.1% Catholic and 20.2% Protestant), while another 2% classified themselves as Jewish, 24.4% as "other", and a little over 21% claimed to have no religious affiliation. Consistent with this, over 23% indicated that they had no interest in religion, while the remaining 76.3% indicated they were either moderately (56.3%) interested in religion or very interested (20%) in religion.

Likewise, almost 29% of subjects were involved in some form of religious activity at least once a week, while an additional

16.9% engaged in religious activity once a month. The remaining 54% claimed to be involved in religious activity either once a year or not at all. However, the majority of subjects saw themselves as theists (67.7%), while 26.6% saw themselves as agnostics, and only 6.7% as atheists.

3.2. Instruments

3.2.1. Relationships Questionnaire (IPPA-Revised)

The Inventory of Parent and Peer Attachment (IPPA: Armsden & Greenberg, 1987) is a self-report measure based on the theoretical formulations of Bowlby. It attempts to access the attachment representations of the individual in terms of affective and cognitive dimensions of trust in the availability and responsiveness of attachment figures. The IPPA consists of two scales: the Parent scale (28 items) and the Peer scale (25 items). Responses are made along a five-point Likert-type scale ranging from "almost true or always true" to "almost never or never true". Both scales have three subscales (Trust, Communication, and Alienation) which were determined on the basis of their conceptual content and factor loadings. The authors reported Cronbach coefficient alphas for the three subscales, .91, .91, and .86, respectively, for the Parent scale, and .91, .87, and .72, respectively, for the Peer scale. Since the subscales were highly intercorrelated (at least for the Parent scale) a summary score for each scale was devised as an index of the overall quality of attachment to parents and peers. Thus, the quality of attachment was the sum of the Trust and

Communication raw scores minus the Alienation raw score.

Sample items of the IPPA Parent scale include: "My parents respect my feelings" (Trust), "My parents sense when I'm upset about something" (Communication), and "I get upset easily at home" (Alienation). The IPPA has been used extensively with college-age samples and it is not found to be associated with socio-economic status (e.g. Armsden & Greenberg, 1987). Evidence for construct validity can be inferred by the factor structure and the predicted relationships with measures of family cohesion, depression, self-concept, loneliness, life satisfaction, and affective status (Armsden & Greenberg, 1987).

The IPPA-revised version (The Relationships Questionnaire: see Appendix B), which was adapted to separately assess quality of attachment to mother and father, was used in this dissertation. This new version has three, 25-item, Likert-type scales, that are designed to measure the degree of attachment toward mother, father, and close friends. In this version the subscales are no longer used in calculating the total score for the scale. Rather, the scoring simply involves summing the 25 items for each of the three scales, taking into consideration the items that are scored in the reverse direction. This produces three separate attachment scores for each of the three scales. The mother and father scales have demonstrated good reliability with alphas of .87 and .89, respectively (Armsden & Greenberg, 1989). Using this revised version of the IPPA, a recent study (Brack, Gay, & Matheny, 1993) found that all three scales were

significantly interrelated. However, the mother and father attachment scales were more highly correlated (r=.67) compared to peer-mother (r=.28) and peer-father (r=.26) correlations.

All three scales (mother, father, peer) of the Relationships Questionnaire were used in this study. However, given the low correlation between the parental attachment scales and the peer scale, only the mother and father attachment measures were used to tap the Secure Attachment latent variable of the model tested in the primary analysis. Reliability coefficients for the mother, father and peer scales, .94, .95, and .92, respectively, were noticeably higher in the present study, when compared to the sample on which the revised scale was initially validated (see previous paragraph). Perhaps, as more research makes use of this instrument, future testing on other samples will help establish more normative coefficients. However, the intercorrelations of the three scales was not as high for this sample. Although, the mother and father attachment scales were more highly correlated (r=.45) compared to peer-mother (r=.32) and peer-father (r=.18) correlations.

3.2.2. Adult Attachment Scale (AAS-Revised)

The Adult Attachment Scale (AAS: Collins & Read, 1990) was designed to assess adult attitudes and behaviors indicative of one's attachment history. It is a multi-item scale based on Hazen and Shaver's (1987) widely used categorical measure of adult attachment. The AAS contains three subscales, interpersonal anxiety (Anxiety), comfort with closeness (Close), and belief in

the dependability of others (Depend). The authors found that while scores on the Close and Depend subscales were moderately correlated, scores on the Anxiety subscale were largely independent of the scores on the other two subscales.

Collins and Read (1990) believe that these dimensions, not only capture themes central to an attachment system with a set goal of felt security, but also provide dimensions that are comparable to the categorical measure of attachment styles pioneered by the Hazen and Shaver (1987) measure. Further, they believe that these dimensions have greater research utility than the discrete measures. That is, dimensions provide continuous measures that can more readily be used to explore the relationship between attachment and other important variables.

The scale consists of 18 items, with six items loading on three separate factors forming the three subscales. Internal consistency is fairly reasonable with Cronbach's alpha for the Depend, Anxiety, and Close items at .75, .72, and .69, respectively. As a result, the six items defining each factor are summed to form three composites, with a high score representing greater amount of the variable in question. Test-retest correlations for Close, Depend, and Anxiety were .68, .71, and .52, respectively.

A Likert-type response format is used, with responses ranging from (1) "Not at all characteristic of me" to (5) "Very characteristic of me". A sample of items include: "I find it relatively easy to get close to people" (Close), "I am

comfortable depending on others" (Depend), and "When I show my feelings for people, I'm afraid they will not feel the same about me" (Anxiety). See Appendix C for the full scale. This attachment scale was included only in the secondary analysis of this study, which involved the exploration of the relationship of attachment to a number of other constructs (e.g. religious and personality variables).

In terms of the present study, the reliability coefficients for the Close, Depend, and Anxious scales were .82, .80, and .86, respectively. The relationship among the three scales were as follows: Close and Depend (r=.66), Close and Anxious (r=-.39), and Depend and Anxious (r=-.51).

3.2.3. Objective Measure of Ego Identity Status

The Extended Version of the Objective Measure of Ego Identity Status-Revised (EOM-EIS: Bennion & Adams, 1986) is a self-report measure used to categorize subjects into four ego identity statuses. The 64-item EOM-EIS Likert-type scale employs a response format ranging from (1) "strongly disagree" to (6) "strongly agree". However, this response format was modified to a 5-point scale for purposes of this dissertation.

The four identity statuses (Achieved, Moratorium, Foreclosure, and Diffusion) are embedded within two major domains; the ideological domain and the interpersonal domain. This gives a total of eight scales with eight items in each of these scales (64 items overall). The internal consistencies across the four scales ranged from .66 to .90 (Blustein, Devenis,

& Kidney, 1989). Blustein et al., (1989) also indicate that the EOM-EIS has excellent stability with correlation coefficients ranging from .82 to .90 across a two week interval. The factor structure of EOM-EIS is relatively consistent with theoretical predictions, providing support for its construct and concurrent validity. Discriminant validity is seen in the expected relationships with measures of personality (see Bennion & Adams, 1986).

The EOM-EIS assesses exploration and commitments in the ideological and interpersonal domains of identity. The content of the ideological issues include assessments of occupational, political, religious, and philosophical exploration and commitment. The content of the interpersonal issues include assessment of friendship, dating, sex role, and recreational commitments and exploration. Raw scale scores for each of the four statuses are derived, and an identity status can be assigned for ideological, interpersonal, or a combined ideological/ interpersonal identity.

For the purposes of this dissertation only the Identity Achieved status was measured. The Identity Achieved items in the Ideological domain (8 items) and the Identity Achieved items in the Interpersonal domain (8 items) were treated as separate scales, coming from two domains, tapping the Identity Achieved latent construct of the proposed model. Both scales were used as continuous measures, with high scores indicating a greater amount of identity achievement (see Appendix D). In addition, about 10

filler items were scattered through the two scales to reduce a response set bias.

Results from this study indicate a reliability coefficient of .67 for the Ideological identity subscale and .73 for the Interpersonal identity subscale. Although these findings were consistent with some of the previous literature using this scale, I decided to improve the consistency of the items in the Identity Achieved Ideological subscale.

A visual examination of correlation patterns from the correlational matrix of the eight ideological items suggested that four items were more closely knit. A factor analysis confirmed this visual inspection. A further factor analysis of the 4-item scale showed that all items loaded from .42 to .81 on the principal axes factor. Further, the Cronbach coefficient alpha improved from .67 to .74, and the correlation between the original 8-item scale and the revised 4-item scale was .87. Subsequently, any use of the code IDE for the ideological identity measure will be in reference to this shortened scale.

3.2.4. Aspects of Identity Questionnaire

The Aspects of Identity Questionnaire (AIQ: Cheek & Briggs, 1982) is a measure designed to assess personal identity (PI) and social identity (SI). According to the authors of this questionnaire, one's private conception of self and feelings of continuity and uniqueness reflects PI, whereas, one's roles and relationships is reflective of SI. According to Erikson (1959), identity formation requires a balancing of one's personal needs

with requirements and opportunities of the social world (Cheek & Briggs, 1982).

This questionnaire is made up of nine statements concerning PI and eight statements concerning SI, with a 5-point Likert-type response format ranging from "not very important to my sense of who I am" to "extremely important to my sense of who I am" (see Appendix E). A factor analysis resulted in two distinct factors: Personal and Social Identity. Each item loaded above .40 on its appropriate factor, with the average interitem correlation being .34 for the PI Scale and .46 for the SI Scale.

The alpha coefficients for the PI and the SI scales were .84 and .86, respectively. The correlation between the two scales was only .15. In the present study, the reliability coefficients for the PI and SI scales were, .85 and .82, respectively, and the correlation between the two scales was .13. These two scales were used only in the secondary analysis of this study.

3.2.5. Religious Orientation Scale

The Religious Orientation Scale (ROS: Allport & Ross, 1967) is a 20-item scale that was designed to measure an individual's orientation toward religion on both an intrinsic (I) and extrinsic (E) dimension. Responses were limited to two categories, disagree or agree, or a forced-choice between two alternatives (e. g., Bible study or social fellowship). However, for purposes of this study the response format used was a 5-point scale ranging from (1) "strongly disagree" to (5) "strongly agree" (see Appendix F). In addition, wording of some items were

modified to cater to a diversity of religions, and also items 1, 3, and 11 were not included in this study because of poor factor loadings reported in a recent study (see Batson & Schoenrade, 1991b). A summary score was obtained for each dimension. According to Donahue (1985b), reliabilities for this scale range from .69 to .93. More specifically, Griffin and Thompson (1983), studying three denominational groups, reported alpha reliabilities ranging from .81 to .93 for the Intrinsic scale and .69 to .82 for the Extrinsic scale.

In terms of the present study, the Intrinsic scale was used in the primary analysis to tap the Intrinsic Religiousness latent construct of the model, but both subscales were used in the secondary analysis of this study. Reliability data for ROS from the present study indicate coefficient alphas of .93 and .73 for the Intrinsic and Extrinsic scales, respectively.

3.2.6. Religious Life Inventory

The Religious Life Inventory (RLI: Batson & Ventis, 1982) consists of three scales: Religion as a Means (believed to be approximately equivalent to the Extrinsic dimension in the ROS), Religion as an End (believed to be approximately equivalent to the Intrinsic dimension in ROS), and Religion as a Quest. In its present form (personal communication, Batson, July 30, 1994) these scales consist of: Means (6-items), End (10-items), Quest (12 items), and 7 filler items, giving a total of 35 items. A Likert-type response format ranging from (1) "strongly disagree" to (9) "strongly agree", is used. However, a 5-point response

format was adopted in this study, due to the restrictions imposed by the machine scorable answer sheets used in this study (see Appendix G). In addition two items (17 and 22) were dropped, the latter was a filler item and the former related to the Quest scale and showed a problematic factor loading in a recent study (Batson & Schoenrade, 1991b).

Internal consistency of each scale is seen by reported Cronbach's alphas ranging from .70 to .75 (Means), .83 to .84 (End), and .72 to .82 (Quest). Further reliability and validity information, particularly for the Quest scale, can be found in a detailed discussion in two articles by Batson and Schoenrade, (1991a, 1991b).

For purposes of the present study, only the End scale was used in the primary analysis in order to provide a second measure to tap the Intrinsic Religiousness latent construct of the model. The entire scale, however, was used in the secondary analysis to explore the relationship of religious orientation to a number of variables. In the present study, reliability coefficients for each scale were as follows: End .91, Means .80, and Quest .82.

3.2.7. Religious Maturity Scale

The Religious Maturity Scale (Dudley & Cruise, 1990) is composed of 11 items and, according to the authors, is designed to measure religious maturity as conceptualized by Allport (1950). Although the preliminary findings suggest that the internal consistency for this scale is only moderate (Cronbach's alpha =.55), "the point multiserial correlations on the

individual items were all strong, ranging from .36 to .51" (Dudley & Cruise, 1990, p. 103). Each item calls for a response on a five-point scale from (1) "strongly disagree" to (5) "strongly agree" (see Appendix H). The authors suggest that a weak to moderate correlation of the Religious Maturity (RM) scale with the End and Quest dimensions of the RLI (Batson & Ventis, 1982), supports the notion that the RM scale, conceptually, contains elements from both, but is also different. As expected, RM was not correlated with the Means dimension of religiousness.

In terms of the present study, the RM scale was used only in the secondary analysis in combination with other religious scales to explore religious dimensions in relationship to other variables. In terms of reliability in this study, the RM scale had a Cronbach's reliability coefficient alpha of .71.

3.2.8. NEO-Five Factor Inventory ("The Big Five")

The NEO-FFI scale (Costa & McCrae, 1989) was developed to tap the constructs of the Big Five personality dimensions, namely, Extraversion, Neuroticism, Openness to Experience, Agreeableness, and Conscientiousness. This scale is a shorter versvion of NEO-PI (for a description of the theoretical development of the five-factor approach to personality structure see section 2.1.8.).

Reliability studies on the NEO-PI obtained alphas ranging from .85 to .93 over the five domain scale (McCrae & Costa, 1987). A six month test-retest reliability score ranged from .86 to .91 for the three domain scale. No test-retest data were

reported on the Agreeableness and Conscientiousness scales. Construct validity is approximated in that the NEO-PI has been shown to correlate with a number of personality scales including Eysenck's Extraversion and Neuroticism scales, and the Myer-Briggs Temperament Inventory (see Costa & McCrae, 1989).

A reduction of the NEO-PI from 181 items to 60 items, resulted in the NEO-FFI (see Appendix I). This shorter version provides a brief but valid assessment of the postulated five domains of personality. The response format involves a five-point scale ranging from, (1)-strongly disagree to (5)-strongly agree. Correlations with parent NEO-PI scale ranged from .75 to .89, and interitem consistency revealed Cronbach's alphas of .89 for the Neuroticism scale, .79 for the Extraversion scale, .76 for the Openness scale, .74 for the Agreeableness scale, and .84 for the Conscientiousness scale. Validity coefficients range from .56 to .62. Costa and McCrae (1989) conclude: "on the average, the NEO-FFI scales account for about 75% as much variance in the convergent criteria as do the full NEO-PI validmax factors. As is true in all cases where abbreviated scales are formed, some precision is traded for speed and convenience" (p. 18).

In the present study, only two of the domains from the NEO-FFI was used in the primary analysis, namely, Extraversion and Neuroticism. However, all five dimensions of the NEO-FFI were used in the secondary analysis, which involved the exploration of the relationship of these dimension of personality to a number of other variables. The present sample produced the following

consistency coefficients for each scale: Neuroticism (.85), Extraversion (.79), Openness to Experience (.72), Agreeableness (.76), and Conscientiousness (.81). These results are very close the findings discussed in the previous paragraph.

3.2.9. Eysenck Personality Questionnaire

The Eysenck Personality Questionnaire (EPQ: Eysenck & Eysenck, 1975) consists of 90 true-false items that are grouped together, through factor analysis, on four scales. The four scales are called, Extraversion, Neuroticism, Psychoticism, and Dissimulation. According to these authors, Extraversion relates to impulsivity, high activity level, need for social stimulation, and ready access to anger. Neuroticism, on the other hand, relates to emotionality, worry, depression, and maladjustment. Finally, Psychoticism relates to insensitivity, absence of caring or empathy, and hostiity toward others, while Dissimulation measures the tendency to respond in a socially desirable manner. In terms of reliability, internal consistency is typically above .80 for three of the scales and between .70 and .80 for Psychoticism. Test-retest reliability is also good, ranging from .78 to .89 (Eysenck & Eysenck, 1975).

However, only the Extraversion and Neuroticism scales were used in this study (see Appendix J), and only in the primary analysis. They were used to provide a second measure for each of these latent constructs in the model. The reliability findings in the present study for these two scales were consistent with the literature: Extraversion (.91), and Neuroticism (.92).

3.2.10. Orientation to Life Questionnaire (SOC)

The Orientation to Life Questionnaire is the name given to the Sense of Coherence (SOC) scale developed by Antonovsky (1987) to operationalize the sense of coherence construct. The SOC scale consists of 29-items to which respondents select a response on a 7-point semantic differential scale with two anchoring phrases. However, in this study, for purposes of convenience in scoring, the response format was reduced to a 5-point scale (see Appendix K). High scores are believed to reflect a greater SOC. In addition, in order to reduce the potential confusion for the respondents, some of the anchoring phrases used in the responses of a number of items were reversed to maintain a consistent direction. For example, question 7: "Life is" and the response possibilities range from (1) "full of interest" to (5) "completely routine". This was changed so that (1)="completely routine" and (5)="full of interest". Similarly, question 9: "Do you have the feeling that you're being treated unfairly? The possible responses range from (1) "very often" to (5) "very seldom or never". This was changed so that (1)="very seldom or never" and (5)="very often". Such changes in the direction of the anchoring phrases involved the following questions: 7, 9, 11, 12, 13, 14, 16, 19, 20, 21, 23, 24, 27, 28, and 29.

Antonovsky (1993a) reports on studies conducted in over 20 countries that provides considerable support for the reliability and validity of this scale. In 26 studies, this scale showed good internal consistency with Cronbach's alphas ranging from .82 to

.95. Similarly, although there are relatively few studies that included test-retest correlations, the few that did, showed considerable stability (e.g., .54 over a 2-year period among retirees).

The SOC scale consists of three subscales; Comprehensibility (11 items), Manageability (10 items), and Meaningfulness (8 items). These three subscales tend to load on a common factor (Antonovsky, 1987; Flannery & Flannery, 1990) and show high intercorrelations. For example, Flannery and Flannery (1990) show intercorrelations ranging from .66 to .76.

In the present study, the three subscales were used as three separate measures to tap the SOC latent construct in the testing of the overall model in the primary analysis. In the secondary analysis, the three subscales were compared to a number of other constructs (e.g. religious and personality variables). In terms of the present study, reliability coefficients for the three subscales for the SOC scale were as follows: Comprehensibility (.70); Manageability (.73); Meaningfulness (.80); and for the entire SOC scale (.88). The intercorrelation of the three subscales ranged from .54 to .64, which is slightly below the range reported by Flannery and Flannery (1990) at the end of the previous paragraph.

3.2.11. Satisfaction With Life Scale

The Satisfaction With Life Scale (SWLS: Diener, Emmons, Larsen, & Griffin, 1985) assesses the cognitive component of the subjective well-being (SWB) construct. Life satisfaction is a

subjective, global evaluation the individual makes of his or her life. This scale has just 5 items, but Diener et al., (1985) have shown that it has a single factor with good internal consistency and reliability. For example, the single factor that emerged from a principal axis factor analysis accounted for 66% of the variance, the coefficient alpha was .87, and the 2-month test-retest correlation coefficient was .82. Each item is scored on a 7-point rating scale, giving a possible range of scores from 5 (low satisfaction) to 35 (high satisfaction).

This scale was used in the present study as one of the measures to tap into the subjective well-being (SWB) construct. However, for convenience of scoring, a 5-point rating format was used in this study (see Appendix L).

The favorable psychometric properties of SWLS has been substantiated by other researchers. For example, Blais, Vallerand, Pelletier and Briere (1989) reported a coefficient alpha of .85 and a 2-month test-retest correlation coefficient of .64. They also confirmed the unidimensional nature of the scale. Similarly, Yardley and Rice (1991) reported a coefficient alpha of .86 and a 10-week test retest correlation coefficient of .50. Further, Pavot, Diener, Colvin, & Sandvik, (1991) report construct validity for SWLS in terms of extraversion and neuroticism, with SWLS being positively correlated with the former and negatively correlated with the latter.

Convergent validity for SWLS is shown by good correlations with other happiness or satisfaction scales. For example, SWLS

correlated .68 with the Delighted-Terrible Scale (Andrews & Withey, 1976), and .58 with the Global Happiness Scale (Fordyce, 1977). Strong negative correlations between SWLS and measures of psychological distress provide support for divergent validity. For example, one study (Blais, Vallerand, Pelletier, & Briere (1989) reported a correlation of -.72 between SWLS and the Beck Depression Inventory (Beck, Ward, Mendelson, Mock & Erbaugh, 1961).

In terms of the present study, SWLS was used in the primary analysis to access the cognitive component of the Subjective Well-being latent construct of the model. It was also used in the secondary analysis to compare the relationship of SWLS to a number of other variables. Consistent with previous studies, the present study reports a Cronbach's coefficient alpha of .85 for this scale.

3.2.12. Affectometer 2

The Affectometer 2 (Kammann & Flett, 1983) is a measure of general happiness based on the balance of positive and negative affect in recent experience. It is a shorter version of the earlier Affectometer 1, but with a "comparable" coefficient alpha. This 40-item self-report measure is patterned closely on Bradburn's Affect Balance Scale (Bradburn, 1969), but rather than using a "yes-no" response format, it uses a frequency response scale. Ten categories are tapped with four items in each category: confluence, optimism, self-esteem, self-efficacy, social support, social interest, freedom, energy, thought

clarity, and cheerfulness.

The 40-items are made up of 20 adjectives and 20 sentences. The Adjective subscale consists of 10 adjectives that are positively related to happiness and 10 antonyms that are negatively related to happiness. Similarly, the Sentence subscale consists of 10 sentences representing positive affective states, and 10 representing negative affective states. Respondents rate their responses on a 5-point scale ranging from "not at all" to "all the time" (see Appendix M).

Kammannn and Flett (1983), reporting on the psychometric properties of this scale, show an internal reliability of .95, and alpha coefficients for the Adjective and Sentence subscales of .93 and .88, respectively. A test-retest coefficient was reported for a 2-week interval (.88) and an 8-month interval (.56). Correlations ranging from .62 to .74 with measures of affect provide support for this scale's convergent validity. A correlation of -.84 with the Beck Depression Inventory (Beck et al., 1961) provides support for its divergent validity. According to Diener (1984), this scale "deserves to be a widely used measure of the frequency of positive and negative affect. The high level of internal homogeneity suggests that the scale does indeed measure the unitary frequency of positive affect dimension. It had a very high convergence with other SWB scales (an average of .70)" (p. 549).

Consequently, this scale was used in the primary analysis to tap the affective component of the subjective well-being (SWB)

latent construct in the testing of the model. The two subscales were treated as two separate scales. In the secondary analysis, the positive and negative affect components of this scale were compared to a number of other variables. In terms of the present sample, the reliability coefficients for the two subscales used in the primary analysis were: Affectometer 2--Sentences (.89), and Affectometer 2--Adjectives (.91).

3.3. Research Design

The general research design used in this study was cross-sectional and non-experimental. More specifically, in the primary analysis of this thesis, the statistical design used to test the overall model was a structural equation design with latent variables. However, it should be kept in mind, given that the data collected were correlational in nature, the statistical procedure used provided information as to the plausibility of the model, not proof of causality (Kenny, 1979). Further, presumed directionality of influences was largely based on logic and theory, and any "confirmation" of the model suggests only that it is a viable one.

3.3.1. Overview of Structural Equation Modeling

Measurement error is a potentially confounding factor that has persistently confronted researchers in the behavioral and social sciences. Such unreliability reduces the magnitude of the correlation between two variables. Further, two important and frequently used approaches to analyze correlational data are Multiple Regression Analysis and Observed Variable Path Analysis.

However, both these approaches are not immune to the confounding effects of measurement error.

On the other hand, structural equation modeling helps to deal with the confounding of measurement error by combining factor and path analysis. To elaborate, one statistical procedure that deals quite effectively with the confounding effects of error variance is factor analysis. This procedure effectively isolates the valid and unreliable portion of variation in a set of measures, with the emerging factor more accurately estimating the hypothesized latent construct. Now, if these factors or latent constructs were then related to each other in terms of presumed "causal" pathways, and then this overall hypothesized pattern of relationships allowed to be tested, the path analytic approach would be greatly strengthened. This is precisely what the structural equation modeling approach (SEM), with latent variables, seeks to do. Thus, SEM is a hybrid of factor and path analytic approaches, building on the strengths of both. As long as latent constructs are measured with multiple indicators (observed variables) the SEM approach enables us to study the influence of one "error-free" construct on another "error-free" construct (Huba & Harlow, 1987). More specifically, Huba and Harlow (1987) state: "Thus, structural equation models with latent variables can permit us to eliminate the potentially confounding influences of measurement error in the observed variables" (p. 147).

There are two types of variables in SEM, latent variables

and manifest variables. The latent variables are not directly observed but are related to manifest variables. Manifest variables, on the other hand, are directly measured by test instruments or scales used in the study. As a result, SEM consists of two component models, the "measurement model" and the "structural model". The measurement model defines how the measured or manifest variables are related to the latent variables. The structural model, on the other hand, defines how the latent variables are related to one another.

In essence, then, the measurement model of SEM is analogous to factor analysis and is rooted heavily in psychometric issues, such as reliability and validity. On the other hand, the structural component of SEM is analogous to path analysis and is, thus, heavily grounded in theory and logic.

Thus, SEM effectively combines factor analysis and path analysis into one analytical procedure. In SEM path diagrams, according to convention, latent variable (LVs) or factors are placed in circles and manifest variables (MVs) or measured variables are placed in square boxes or rectangles. Single headed arrows from circles (LVs) to boxes (MVs) define the measurement portion of the model, and represent a confirmatory factor analysis of the constructs believed to underlie the MVs. Thus, numerical values seen in the measurement model are analogous to the factor loadings of MVs on LVs, with similarly high values within factors suggesting that the MVs provide relatively good measures of the LVs of interest.

On the other hand, arrows from circles (LVs) to circles (LVs) define the structural portion of the model, which simultaneously tests the effects of latent variables on each other. Double headed arrows between LVs that are exogenous (independent), indicate correlations that are presumed and unanalyzed.

In sum, then, two or more manifest (measured) variables are utilized to construct the latent variable of interest, in order to provide unbiased estimates of the path coefficients. The structural equation model reflects the causal relationships among the latent variables and delineates the causal effect and amount of variance explained by the variables. The seven latent variables used in this study (see Figure 3.1) are: Extraversion (EXTRA), Secure Attachment (S_ATT), Neuroticism (NEURO), Identity Achieved (I_ACH), Intrinsic Religiousness (I_REL), Sense of Coherence (SOC), and Subjective Well-being (SWB). Moving from left to right in Figure 3.1, the first five latent variables (LVs) have two manifest variables (MVs) each, and the last two LVs have three MVs each.

The overall theoretical model can be analyzed by using such computer programs as LISREL (Joreskog & Sorbom, 1988) and EQS (Bentler, 1989). However, the raw sample data must first be placed into a correlational or covariance matrix and then described by a series of regression equations. Using this matrix, the computer program examines the proposed model's fit in the population from which the sample is drawn. Such an analysis

provides estimation of the parameters of the model (e.g., path coefficients and error terms) and several measures of goodness-of-fit of the model to the sample data. Examination of parameter estimates and goodness-of-fit information, as a result of the analysis, may suggest modifications to the model that are theoretically consistent, and subsequently result in a retesting of the respecified model. Thus, according to Hoyle and Smith (1994), SEM provides a comprehensive and flexible approach to the modeling of relationships among variables.

More specifically, Bollen and Long (1993) have suggested that there are five steps that characterize most applications of SEMs; model specification, identification, estimation, testing fit, and respecification. First, model specification involves the initial model put forward by the researcher, prior to estimation, and is based on theory and literature review. The relationships of theoretical variables and the observed measures in the overall proposed model are expressed in equation form. Specification of the two sets of relations (measurement model and structural model) provides information that allows the computer program to generate estimates for all unknown parameters in the model.

Second, identification "determines whether it is possible to find unique values for the paramaters of the specified model" (p. 2). In other words, identification facilitates the estimation of causal parameters of a set of structural equations. When the number of correlations between measured variables (MVs) is greater than or equal to the number of parameters, estimation is

possible (Kenny, 1979). If there are more correlations than parameters, the structural model is considered "overidentified". In other words, there is more than one way to estimate a parameter in the system.

If the number of correlations equal the number of parameters, then the model is "just-identified". In other words, there is only one estimate for each causal parameter. When the model is "underidentified", meaning that there are more parameters than correlations, finding unique values for the parameters of the specified model is not possible. Thus, essentially, when a model is identified it is indicative of the fact that there is sufficient information in the sample correlation matrix or covariance matrix to solve for the unknown coefficients (see Kenny, 1979).

Third, provided that the specified model is identified, the values of the parameters of both the structural and measurement models of SEM can be estimated simultaneously. Several estimation methods are available and choice of estimation techniques is often determined by the distributional properties of the variables being analyzed (Bollen & Long, 1993). Maximum likelihood estimation, unlike the least-squares approach in path analysis in which each equation is estimated separately, means that all parameters are estimated simultaneously. Maximum likelihood estimation is used most frequently and is the default estimation procedure in both LISREL and EQS. However, as Hoyle (1991, p. 69) points out, there are estimation procedures

designed specifically for nonnormally distributed data (Browne, 1984) and dichotomous or ordinal data (Muthen, 1984).

Fourth, after estimates are obtained, the model can then be tested to see if it is consistent with the data. If the fit is good, then the next step is not necessary. However, if the fit can be improved, the fifth step involves respecification and steps two to four are then repeated. That is, the inputted sample correlational or covariance matrix of the respecified model, accompanied by the appropriate series of regression equations, enables the computer program to examine the proposed model's fit in the population from which the sample is drawn. In other words, the comparison of the predicted matrix to the actual matrix, provides a measure of the adequacy of the model in explaining the data.

Several statistics provide information on the fit of the model. The most widely used measure of fit is the chi-square statistic. The chi-square tests whether the differences between the predicted matrix and the actual matrix approach zero. In a "good" fit the chi-quare should be small relative to the degrees of freedom, and unlike most statistics, the resulting probability should be insignificant. If significant, it suggests that the proposed model can be rejected as an explanation of the given data. However, the chi-square statistic is very sensitive to departures from multinormality of the observed variables and appears to increase as a direct function of sample size.

Thus, with large samples, trivial differences between the

predicted matrix and the actual matrix can lead to the rejection of a good model. Given these limitations of the chi-square statistic, perhaps the most common use of the chi-square is to examine the ratio of the chi-square relative to the degrees of freedom. If this value is relatively small, it indicates a reasonably good fit. Traditionally, the ratio of the chi-square/ degrees of freedom criterion value has been < 2. However, a value of < 3 is still considered low or conservative (see Bollen and Long, 1993). Consequently, a criterion value midway between 2 and 3 will be used in this study, that is, ≤ 2.5, which is still considered a reasonably conservative criterion.

Further, several additional goodness-of-fit indices have been proposed in recent years (Bollen, 1989; Kline, 1991). For example, the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the normed fit index (NFI), the nonnormed fit index (NNFI), and the root-mean-square residual (RMR). The GFI shows the proportion of sample variance/covariance explained by the model. The AGFI indicates the proportion of explained sample variance/covariance corrected for the number of model parameters. The NFI and the NNFI show the relative fit of the path model against a "null model" one in which the variables are assumed to be statistically independent of one another. The RMR represents the average squared differences between observed and predicted correlations.

All these indices of goodness-of-fit range from 0 to 1.00. After briefly describing the indices mentioned above, Kline

(1991), suggested a rule-of-thumb for goodness of fit: GFI, NFI, and NNFI >.90; AGFI >.80; and RMR <.10. Further, given the concern expressed over goodness-of-fit indices, Bollen (1989) has recommended that researchers using SEM report a number of fit indices, both normed and nonnormed. (For a detailed discussion of fit indices, see Bentler, 1990).

If the overall model being tested does not fit the data well, or is acceptable but could be improved, LISREL and EQS software provide several statistics that suggest how a model might be modified to better fit the data. In terms of the EQS, Bentler (1993) suggests several adjustments that can be made. For example, to produce the most conservative model and on the basis of results from the Wald Test, nonsignificant paths can be removed one at a time and the model be reestimated. This can be done until all remaining paths are significant. Similarly, using the Lagrange Multiplier Test, parameters that are statistically and theoretically meaningful can be added one at a time.

However, as MacCullum (1986) has suggested, data-based model modifications should be done sparingly, and only if such modifications can be theoretically defended. The goal of model modification is the development of a model that is consistent with the data and is replicable. Typically, given that most models are respecified in order to be improved (Bollen & Long, 1993), some have urged that we interpret such results with caution and to cross-validate the model whenever possible (Cudeck & Browne, 1983). Consequently, several methods of cross-

validation of SEM results have been proposed (see Cudeck & Browne, 1983; Cliff,1983). Similarly, Breckler (1990) states:

> A prudent procedure is to routinely divide the original sample into two parts: a "derivation" sample and a "cross-validation" sample. The derivation sample can be used to fit the initial model and to derive modifications of it. Once a favored model is found, its fit can be assessed by using (different) data from the cross-validation sample (p. 269).

In this way, the researcher can avoid "confirming" the model with the same data used to make modifications (Breckler, 1990).

3.3.2. Procedures

First, it is necessary to establish that the sample size used to test the model is adequate. The ratio of sample size to the number of free parameters to be estimated, may be as low as 5:1, providing the variables are fairly normally distributed (Bentler, 1993). That is, five subjects are needed for each free parameter to be estimated. In the full proposed model (see Figure 3.1), there are 46 free parameters to be estimated. This means that the minimum number of subjects required to test the model is 230. In this study, there are 258 subjects to test the model in each of the two samples.

Second, the following steps were taken to implement the recommended cross-validation procedure mentioned above:

(1) The protocols from the sample of subjects used for this study were randomly split into two equal groups, with an approximately equal number of males and females in each subsample. The calibrating sample was called Sample I, and the confirmatory sample was called Sample II.

(2) Sample I was used to fit the initial model and to derive the necessary modifications that were statistically significant and theoretically sound.

(3) The final respecified model was then tested on the unused half of the data, namely, Sample II.

3.3.3. Analysis of the Data

First, in the primary analysis or first part of this study, the Bentler-Weeks (Bentler & Weeks, 1980) approach and structural representation of the data was used, and the testing of the model was conducted using EQS software (Bentler, 1989). The latent constructs and manifest variables of the model are outlined in Table 3.1. Similarly, a path diagram, including the measurement and structural components of the overall model, but omitting the error variables for clarity of presentation, is seen in Figure 3.1. Four measures to test for goodness-of-fit were used: (1) the chi-square statistic, (2) the ratio of chi-square to degrees of freedom with the criterion value of ≤ 2.5, (3) Bentler-Bonnet Normed Fit Index (NFI: Bentler, 1980), (4) Bentler-Bonnet Nonnormed Fit Index (NNFI:Bentler, 1988), and Comparitive Fit Index (CFI:Bentler, 1988).

Second, in the secondary analysis or second part of this study, simple descriptive statistics, ANOVAs, correlational analyses, and regression analyses were conducted to explore the relationships among a number of variables.

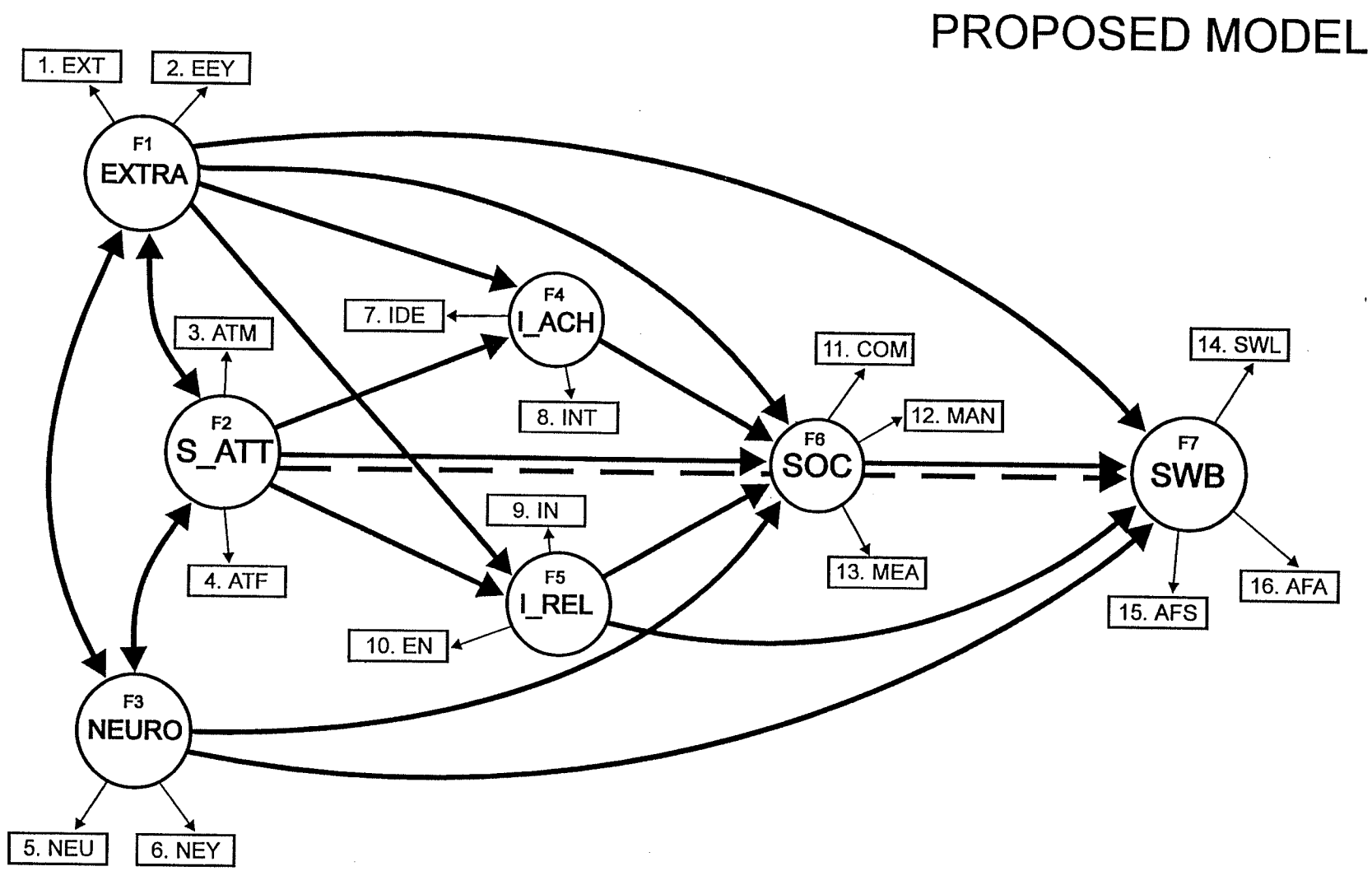
Table 3.1

The Model Latent Constructs and Manifest Variables

Latent Construct		Components	Manifest Variable/Code	
F1	Extraversion	Extraversion	V1	EXT
		Extraversion	V2	EEY
F2	Secure Attachment	Mother Attachment	V3	ATM
		Father Attachment	V4	ATF
F3	Neuroticism	Neuroticism	V5	NEU
		Neuroticism	V6	NEY
F4	Identity Achieved	Ideological	V7	IDE
		Interpersonal	V8	INT
F5	Intrinsic Religiousness	Intrinsic Religion	V9	IN
		Religion as End	V10	EN
F6	Sense of Coherence	Comprehensibility	V11	COM
		Manageability	V12	MAN
		Meaningfulness	V13	MEA
F7	Subjective Well-Being	Life Satisfaction	V14	SWL
		Affect-Sentences	V15	AFS
		Affect-Adjectives	V16	AFA

Note: F=Factor (Latent Construct); V=Variable (Measured);
EXT=Extraversion (Costa);EEY=Extraversion (Eysenck);
ATM= Attachment to Mother (Relationships Questionnaire);
ATF=Attachment to Father (Relationships Questionnaire);
NEU=Neuroticism (Costa); NEY=Neuroticism (Eysenck);
IDE=Identity Achieved (Ideology) (Extended Version of the Objective Measure of Ego Identity Status-Revised);
INT=Identity Achieved (Interpersonal) (Extended Version of the Objective Measure of Ego Identity Status-Revised);
IN=Intrinsic scale (Religious Orientation Scale);
EN=End scale (Religious Life Inventory);
COM=Sense of Coherence Comprehensibility subscale;
MAN=Sense of Coherence Manageability subscale;
MEA=Sense of Coherence Meaningfulness subscale;
SWL=Satisfaction With Life Scale;
AFS=Affectometer 2, Sentences scale;
AFA=Affectometer 2, Adjective scale.

Figure 3.1



NOTE:

Latent Variables (Factors): *(F1)* EXTRA= Extraversion, *(F2)* S_ATT= Secure Attachment, *(F3)* NEURO= Neuroticism, *(F4)* I_ACH= Identity Acheived, *(F5)* I_REL= Intrinsic Religiousness, *(F6)* SOC= Sense Of Coherence, *(F7)* SWB= Subjective Well-Being.

Measured Variables: *(1)* EXT= Extraversion (Costa), *(2)* EEY= Extraversion (Eysenck), *(3)* ATM= Attachment To Mother, *(4)* ATF= Attachment To Father, *(5)* NEU= Neuroticism (Costa), *(6)* NEY= Neuroticism (Eysenck), *(7)* IDE= Ideological Identity, *(8)* INT= Interpersonal Identity, *(9)* IN= Intrinsic (Allport), *(10)* EN= End (Batson), *(11)* COM= Comprehensibility, *(12)* MAN= Manageability, *(13)* MEA= Meaningfulness, *(14)* SWL= Satisfaction With Life, *(15)* AFS= Affectometer 2 (Sen), *(16)* AFA= Affectometer 2 (ADJ).

CHAPTER 4. RESULTS

The results will be presented in two sections. The first section will include the results of the primary analysis in which the model was tested and cross-validated. The second section will include the results of the secondary analysis pertaining to the exploratory research questions raised earlier.

4.1. Primary Analysis

4.1.1. Preliminary concerns

Prior to the actual model analysis, all 16 measured variables of the model were examined for normality and the presence of outliers. The few missing values that emerged were replaced by prorated values. That is, the value appearing for the same item in the preceding protocol was substituted for the missing value. This was believed to be the most convenient and unbiased approach to missing values. All scales used in the model were univariate normal. However, four participants had extreme values on a number of scales. Given the sensitivity of structural equation modeling to outliers, these cases were deleted prior to splitting the overall sample. This reduced the total sample from 520 participants to 516. The total sample was then split into two equal halves with near equal representation of males and females in each half. This resulted in Sample I (the calibrating sample) having 128 males and 130 females, and Sample II (the confirmatory sample) having 128 males and 130 females.

4.1.2. Sample I Model Analysis

Some descriptive and distributional information for the

model scales used in Sample I are shown in Table 4.1 below.

Table 4.1

Reliabilities, Means, Standard Deviations, Skewness and Kurtosis of the 16 Manifest Variables: Sample I (n=258)

Scale	Alpha*	Mean	SD	Skewness	Kurtosis
Extraversion					
1. EXT	.79	31.078	5.660	-0.388	0.383
2. EEY	.91	74.744	12.229	-0.212	0.408
Secure Attachment					
3. ATM	.94	95.888	18.164	-0.804	0.082
4. ATF	.95	86.806	21.020	-0.454	-0.225
Neuroticism					
5. NEU	.85	20.690	7.625	0.185	-0.255
6. NEY	.91	58.368	15.216	-0.001	-0.368
Identity Achieved					
7. IDE	.74	14.333	3.177	-0.191	-0.656
8. INT	.73	29.775	4.349	-0.432	0.558
Intrinsic Religiousness					
9. IN	.92	26.911	10.086	0.304	-0.817
10. EN	.91	26.942	9.222	0.085	-0.833
Sense of Coherence					
11. COM	.70	34.554	5.504	-0.003	-0.138
12. MAN	.73	36.655	5.362	-0.360	0.048
13. MEA	.80	30.162	4.974	-0.461	-0.201
Subjective Well-being					
14. SWL	.85	17.593	3.819	-0.392	-0.303
15. AFS	.89	18.031	10.265	-0.653	-0.030
16. AFA	.91	16.872	10.225	-0.509	0.055

Note: *Cronbach Alphas based on total sample (N=516), EXT= Extraversion (Costa), EEY=Extraversion (Eysenck), ATM=Attachment to Mother, ATF=Attachment to Father, NEU=Neuroticism (Costa), NEY=Neuroticism (Eysenck), IDE=Ideological Identity, INT= Interpersonal Identity, IN=Intrinsic Religion, EN=Religion as an End, COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness SWL=Satisfaction with life, AFS=Affect-sentences, AFA=Affect-

adjectives

The measures of skewness and kurtosis depict the shape of the distribution for each of the variables. Most of the scales appear to be negatively skewed, implying that most of the data are skewed toward the larger values on the scales. The religious construct appears to be the only one that has both of its scales skewed in the positive direction. However, the magnitude of skewness on all these measures are small, indicating that the scales are quite symmetric. Similarly, in terms of kurtosis, a number of the scales are negative, implying that these distributions tend to be flattened. Again, however, the magnitude of this statistic for all of the scales is small, which implies that the scales do not deviate too much from normal peakedness. Thus, the 16 measures appear to be fairly normal in their distributions.

Further, the intercorrelations among these 16 measures are seen below in Table 4.2. This Table presents the lower diagonal of the modified correlational matrix (rounded to two decimal points) for the 16 manifest variables. This correlational matrix, generally, reflects expected relationships. For example, both the Neuroticism scales (NEU and NEY) correlate positively with each other but inversely with all the other variables. Similarly, the larger correlations, as would be expected, tend to be between scales tapping the same latent construct. For example, the three scales (SWL, AFS, AFA) related to Subjective Well-being correlate

between .66 and .82 with each other.

Table 4.2

Correlations Among the 16 Measured Variables: Sample I (n=258)

	1	2	3	4	5	6	7	8
1. EXT	---							
2. EEY	.75	---						
3. ATM	.35	.22	---					
4. ATF	.22	.19	.46	---				
5. NEU	-.41	-.28	-.25	-.27	---			
6. NEY	-.40	-.25	-.29	-.30	.81	---		
7. IDE	.18	.13	.25	.12	-.30	-.23	---	
8. INT	.27	.20	.29	.18	-.27	-.25	.48	---
9. IN	.12	.04	.22	.16	-.04	-.11	.11	.19
10. EN	.13	.04	.17	.10	-.03	-.10	.08	.15
11. COM	.35	.25	.29	.25	-.63	-.57	.26	.31
12. MAN	.48	.38	.43	.35	-.66	-.60	.27	.37
13. MEA	.50	.37	.38	.31	-.47	-.44	.38	.42
14. SWL	.48	.31	.39	.35	-.57	-.53	.30	.37
15. AFS	.60	.49	.42	.39	-.68	-.61	.35	.43
16. AFA	.59	.48	.40	.30	-.68	-.64	.33	.42

	9	10	11	12	13	14	15	16
9. IN	---							
10. EN	.83	---						
11. COM	.05	.08	---					
12. MAN	.15	.11	.66	---				
13. MEA	.29	.25	.54	.68	---			
14. SWL	.15	.10	.49	.57	.56	---		
15. AFS	.15	.14	.59	.74	.72	.68	---	
16. AFA	.13	.10	.63	.71	.62	.66	.82	---

Note: Critical value for Pearson r is .12 at p <.05, .16 at p <.01 .21 at p <.001, .24 at p <.0001. EXT=Extraversion (Costa), EEY= Extraversion (Eysenck), ATM=Attachment to Mother, ATF=Attachment to Father, NEU=Neuroticism (Costa), NEY=Neuroticism (Eysenck), IDE=Ideological identity, INT=Interpersonal identity, IN=Intrinsic Religion, EN=Religion as an End, COM=Comprehensibility, MAN= Manageability, MEA=Meaningfulness, SWL=Satisfaction with life, AFS=Affect-sentences, AFA=Affect-adjectives.

Compared to other relationships, the religious scales have fewer significant relationships with other variables. Between the

two scales (IN and EN), only 14 relationships achieve significance at the .05 level, and of these the strongest correlations are with Attachment to Mother (ATM: .22 and .17), Interpersonal Identity (INT: .19 and .15), and the Meaningfulness component of Sense of Coherence (MEA: .29 and .25). The lack of significant correlations with expected scales may present significant empirical underidentification for the religious construct. That is, portions of the model may not be evaluated due to a paucity of information contained in the matrix to be analyzed.

The correlational matrix seen in Table 4.2, but rounded to four decimal points, was used as the input matrix for the EQS structural equation program. The standard deviation for each variable was also entered, which enabled the EQS program to convert the correlational matrix into a covariance matrix, providing the basis for the covariance analysis. To guide the analysis, a series of regression equations representative of the proposed model were also specified. An example of these equations is seen in Table 4.3.

As indicated in Table 4.3, using the Bentler-Weeks (1979) representation of the data, the equation section of the structural equation model consists of 20 equations, since there are 20 dependent variables. That is, 20 variables have unidirectional arrows pointing at them (see Figure 3.1, p. 134). The only variables that do not have unidirectional arrows pointing at them, other than the error (Es) and disturbance (Ds)

variables, are the latent variables: F1 (Extraversion factor), F2 (Secure Attachment factor) and F3 (Neuroticism factor).

Table 4.3

An Example of the Equations used in the EQS Program

```
V1=  F1                                                  +E1;
V2= *F1                                                  +E2;
V3=      F2                                              +E3;
V4=     *F2                                              +E4;
V5=          F3                                          +E5;
V6=         *F3                                          +E6;
V7=              F4                                      +E7;
V8=             *F4                                      +E8;
V9=                  F5                                  +E9;
V10=                *F5                                  +E10;
V11=                     F6                              +E11;
V12=                    *F6                              +E12;
V13=                    *F6                              +E13;
V14=                          F7                         +E14;
V15=                         *F7                         +E15;
V16=                         *F7                         +E16;
F4= .1*F1 + .4*F2                                        +D4;
F5= .1*F1 + .2*F2                                        +D5;
F6= .2*F1 + .2*F2  - .5*F3 + .2*F4 + .1*F5               +D6;
F7= .1*F1 + .1*F2  - .1*F3         + .1*F5 + .5*F6       +D7;
```

Note: "*" indicate free parameters to be estimated. V1= Extraversion (Costa), V2=Extraversion (Eysenck), V3=Attachment to Mother, V4=Attachment to Father, V5=Neuroticism (Costa), V6= Neuroticism (Eysenck), V7=Ideological Identity, V8=Interpersonal Identity, V9=Intrinsic Religion, V10=Religion as an End, V11=Comprehensibility, V12=Manageability, V13=Meaningfulness, V14=Satisfaction with life, V15=Affect-sentences, V16=Affect-adjectives, F4=Identity Achieved factor, F5=Intrinsic Religion factor, F6=Sense of Coherence factor, F7=Subjective Well-being factor, E=Error, D=Disturbance.

The latent variables F1, F2, and F3, with the Es and Ds, are the only independent variables in the model. All remaining variables are considered as dependent variables, according to the Bentler-Weeks (1980) representation of the data which is used here in the testing of the model.

Further, as indicated in the table of equations (see Table 4.3), seven of the 16 factor loading parameters were not allowed to be freely estimated, in order to facilitate iteration and identification (see Bentler, 1993; Cudeck, 1989); leaving 9 to be freely estimated, as indicated by the asterisks. Thus, the asterisks in the EQS equation set-up indicate free parameters to be estimated and any numbers preceding them are simply initial guesses to facilitate convergence of the iterative process that generates the optimal estimates.

If all parameter estimates appear to be technically acceptable, the EQS program prints out the message: PARAMETER ESTIMATES APPEAR IN ORDER. NO SPECIAL PROBLEMS WERE ENCOUNTERED DURING OPTIMIZATION. This message appears before any output of the analysis of the covariance matrix begins and provides the ideal case and clearance for the interpretation of the following results that appear in the printout.

Unfortunately, such a message did not appear in my analysis using all the 16 measured variables. A parameter condition code indicated that the variance of the IN religious scale was "constrained at lower bound". This suggests an unacceptable parameter estimate, namely, a negative variance estimate. A log transformation of the variables did not help. By default EQS does not allow variance estimates to be negative. Consequently, the program constrained the uniqueness of this variable (IN) to a boundary value of 0.0 and also printed the following message before reporting model fit indices: *** WARNING *** TEST RESULTS

MAY NOT BE APPROPRIATE DUE TO CONDITION CODE.

As a result of this, I decided to remove the religious variable from the model and postpone exploring its relationships until the secondary analysis section of this dissertation. Thus, any further analyses and model modifications done in Sample I and then validated in Sample II, was done in relationship to the reduced model. That is, the model consisted of 14 rather than 16 measured variables and six rather than seven latent variables.

With this reduced model in mind, the previous correlational matrix and the accompanying standard deviations were run again through the EQS program, with the absence of the religious factor. The resulting covariance matrix used in the analysis is seen in Table 4.4 below. The output from this analysis generated the message: PARAMETER ESTIMATES APPEAR IN ORDER. NO SPECIAL PROBLEMS WERE ENCOUNTERED DURING OPTIMIZATION. Clearly, parameter estimates had not become linearly dependent nor held at any determined boundary.

Next, the standardized residual matrix was analyzed. If the model is a good representation of the data, the standardized residual values should be small and evenly distributed among the variables. The results showed that, in absolute terms, the largest standardized residual in this sample was -0.157 and was associated with the correlation between IDE and NEU. The average absolute standardized residual for the model was 0.0362. These indicate standardized residual values that are quite small. Furthermore, the frequency distribution of the standardized

residuals was close to symmetric and centered around zero (see Figure 4.1 below), which is another indication that the model is a reasonably good representation of the data.

Table 4.4

Covariance Matrix for the 14 variable model for Sample I

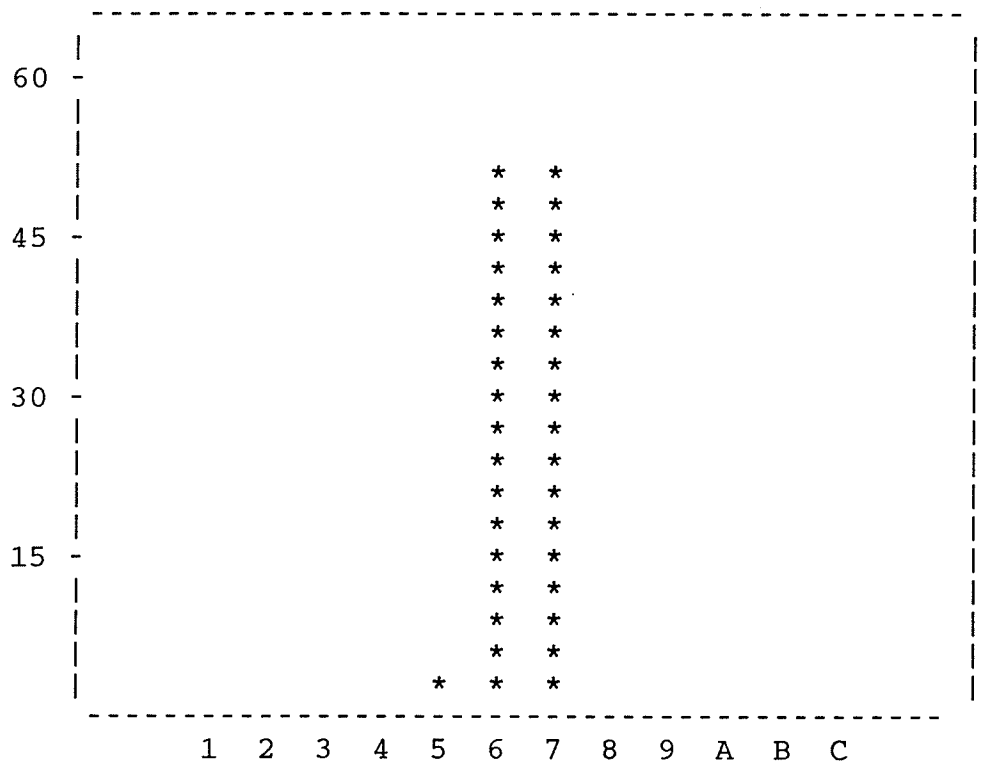
	V1	V2	V3	V4	V5	V6	V7
V1	32.033						
V2	51.795	149.546					
V3	36.378	47.889	329.945				
V4	26.167	48.348	174.438	441.832			
V5	-17.645	-26.114	-34.036	-42.664	58.145		
V6	-36.192	-47.337	-79.390	-96.146	94.453	231.542	
V7	3.313	4.942	14.575	7.991	-7.285	-11.220	10.091
V8	6.621	10.666	22.905	16.011	-9.019	-16.644	6.659
V9	10.809	17.068	29.289	29.174	-26.396	-47.326	4.573
V10	14.603	24.818	42.362	39.003	-26.975	-49.223	4.676
V11	14.096	22.914	34.252	32.922	-17.926	-33.157	5.984
V12	10.390	14.584	27.028	27.976	-16.465	-30.630	3.630
V13	33.994	58.822	79.942	84.038	-52.870	-95.665	11.433
V14	34.372	60.438	75.041	64.196	-52.725	-95.587	10.584

	V8	V9	V10	V11	V12	V13	V14
V8	18.915						
V9	7.300	30.295					
V10	8.665	19.534	28.748				
V11	9.072	14.680	18.056	24.744			
V12	6.196	10.367	11.657	10.588	14.585		
V13	19.206	33.777	40.804	36.259	26.234	105.360	
V14	18.839	35.242	38.827	31.499	25.773	86.307	104.555

Note: V1=Extraversion (NEO-FFI), V2=Extraversion (Eysenck), V3=Attachment to Mother, V4=Attachment to Father, V5=Neuroticism (NEO-FFI), V6=Neuroticism (Eysenck), V7=Ideological Identity, V8=Interpersonal Identity, V9=Comprehensibility, V10=Manageability, V11=Meaningfulness, V12=Satisfaction With Life, V13=Affect-sentences, V14=Affect-adjectives.

Figure 4.1 Distribution of Standardized Residuals

(SAMPLE I)



	Range			Freq	Percent
1	-0.5	-	--	0	0.00%
2	-0.4	-	-0.5	0	0.00%
3	-0.3	-	-0.4	0	0.00%
4	-0.2	-	-0.3	0	0.00%
5	-0.1	-	-0.2	2	1.90%
6	0.0	-	-0.1	50	47.62%
7	0.1	-	0.0	52	49.52%
8	0.2	-	0.1	1	0.95%
9	0.3	-	0.2	0	0.00%
A	0.4	-	0.3	0	0.00%
B	0.5	-	0.4	0	0.00%
C	++	-	0.5	0	0.00%
	TOTAL			105	100.00%

<u>NOTE</u>: Each "*" represents 3 residuals

A Maximum Likelihood estimation resulted in a chi-square value of 125.516 with 64 degrees of freedom and a probability $< .001$, indicating a rejection of the proposed model as a good explanation of the data. However, the relatively large sample size made the rejection of the model almost certain. On the other hand, the ratio of chi-square to degrees of freedom was 1.96, which is smaller than the criterion of ≤ 2.5, suggesting an acceptable fit.

Given the sample-size sensitivity of the chi-square test in structural equation modeling, it is important to look at other fit indices. Other indices of fit less sensitive to sample size are the Bentler-Bonnet Normal Fit Index (NFI:Bentler, 1980), the Bentler-Bonnet Nonnormed Fit Index (NNFI: Bentler, 1988), and the Comparative Fit Index (CFI: Bentler,1988).

For each of these indices a good fit is represented by a value $>.90$. The NFI is based on the baseline or null model of uncorrelated variables (Bentler, 1989). In the present analysis the NFI yielded a value of .945. The NNFI also takes into account the degrees of freedom. Here the NNFI had a value of .960. Likewise, the CFI which represents a relatively good fit index for a variety of sample sizes, resulted in a value of .972. On the whole, these supplemental fit indices indicate a reasonably good fit of the model.

More light was shed on the strength of internal relationships by exploring, in more detail, the measurement and construct components of the model. The Maximum Likelihood

Standardized Solution is printed in Table 4.5 below.

Table 4.5

Maximum Likelihood Standardized Solution: Sample I

(Measurement Component of Structural Equation Model)

EXT (V1)	=	.969 F1	+	.252 E1		
EEY (V2)	=	.772 F1	+	.634 E2		
ATM (V3)	=	.748 F2	+	.663 E3		
ATF (V4)	=	.591 F2	+	.806 E4		
NEU (V5)	=	.944 F3	+	.331 E5		
NEY (V6)	=	.863 F3	+	.505 E6		
IDE (V7)	=	.595 F4	+	.804 E7		
INT (V8)	=	.810 F4	+	.586 E8		
COM (V9)	=	.734 F5	+	.680 E9		
MAN (V10)	=	.865 F5	+	.503 E10		
MEA (V11)	=	.765 F5	+	.642 E11		
SWL (V12)	=	.736 F6	+	.673 E12		
AFS (V13)	=	.915 F6	+	.402 E13		
AFA (V14)	=	.894 F6	+	.453 E14		

(Structural Component of Structural Equation Model)

I_ACH (F4)	=	.148 F1	+	.429 F2	+	.858 D4					
SOC (F5)	=	.230 F4	+	.154 F1	+	.243 F2	-	.539 F3	+	.454 D5	
SWB (F6)	=	.641 F5	+	.190 F1	+	.077 F2	-	.169 F3	+	.299 D6	

Note: EXT=Extraversion (Costa), EEY=Extraversion (Eysenck), ATM=Attachment to Mother, ATF=Attachment to Father, NEU=Neuroticism, (Costa), NEY=Neuroticism (Eysenck), IDE=Ideological Identity, INT=Interpersonal Identity, COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness, SWL=Satisfaction with life, AFS=Affect-sentences, AFA=Affect-adjectives, I_ACH=Identity Achieved factor, SOC=Sense of Coherence factor, SWB=Subjective well-being factor, E=Error, D=Disturbance. A significance level of .05 was used for all path coefficients.

Looking at Table 4.5 we see both components of the structural equation model (measurement and structural) represented in equation form. That is, variables to the left of the equal sign are the variables that have one or more arrows pointing at them in a path diagram. The variables to the right of the equal sign, on the other hand, are representative of the

hypothesized causal agents.

First, the measurement component of the structural equation model deals with relationships between the factors (Fs) and the manifest variables (Vs). In Table 4.4 we see that all factor loadings (F --> V paths) were significant at the .05 level, and were substantial in magnitude. For example, the coefficient values for factor loadings for the six factors (F1 - F6), ranged from .591 for ATF (the Attachment to Father component of the secure attachment factor, F2) to .969 for EXT (the Extraversion scale of the Costa and McCrae inventory tapping the extraversion factor, F1). As mentioned earlier, in terms of significance in the measurement component of the structural equation model, all the hypothesized path coefficients of the 14 measured variables were significant, being above the cutoff level of z $\pm$ 1.96 for a .05 size test.

Moving down Table 4.5 we come to the structural component of the structural equation model which represents the relationship among the latent constructs or factors (F-->F paths). All but two path coefficients exceeded the cutoff level for statistical significance. The two paths that were not significant were the paths from Extraversion to Identity Achieved (F1-->F4), reaching only 1.63, and the path from Secure Attachment to Subjective well-being (F2 -->F6), reaching only 1.13. Clearly, these paths would be dropped in model respecification. To confirm this, the Wald Test (Wald, 1943), which is incorporated into the EQS program, was run. The test is designed to determine whether sets

of parameters treated as free in the model, could be simultaneously set to zero (i.e. restricted) without significant loss in model fit. The Wald test section of the EQS printout reported the following results (see Table 4.6 below)

Table 4.6

Wald Test Results for Dropping Parameters

Wald Test (for dropping parameters)

Multivariate Wald Test by simultaneous process.

Cumulative Multivariate Statistics

Step	Parameter	Chi-square	D.F.	Probability
1	E1,E1	0.995	1	0.319
2	F6,F2	2.328	2	0.312
3	F4,F1	4.838	3	0.184

Univariate Increment

Step	Parameter	Chi-square	Probability
1	E1,E1	0.995	0.319
2	F6,F2	1.333	0.248
3	F4,F1	2.510	0.113

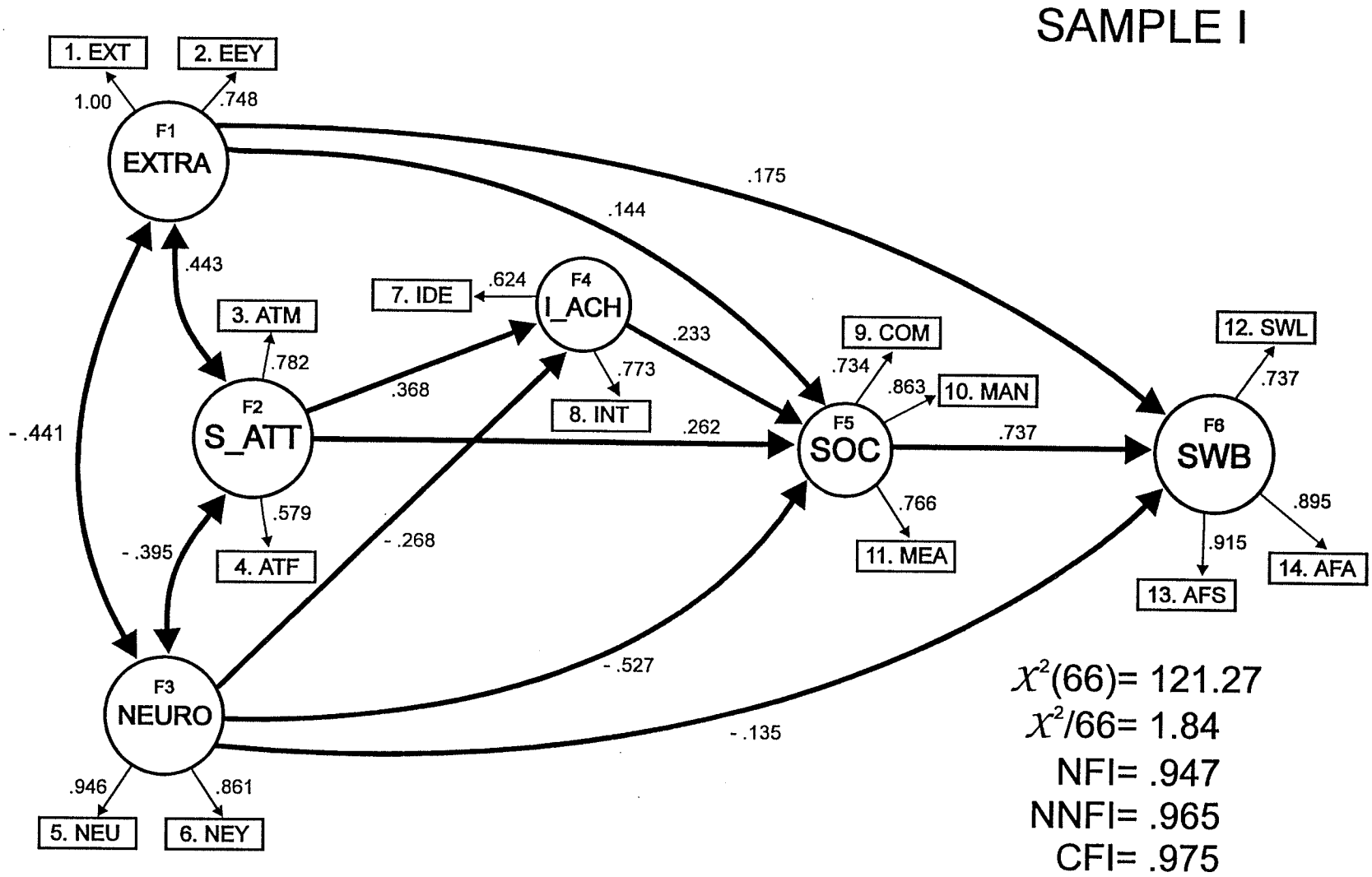
These results are similar to the earlier z-test results. The Wald test indicates that both the free path parameters F2-->F6, and F1-->F4 could be dropped. Also the test suggests that the variance of E1 can be set to zero without substantial loss of information.

On the other hand, the Multivariate Lagrange Multiplier Test

was examined to see if there were any paths that would be worthwhile adding to the model. A path between Neuroticism and Identity Achieved (F3-->F4, negative) was statistically significant and consistent with theoretical concerns. As a result, this path was included in model respecification. The modified model was re-run through the EQS program, and the Maximum Likelihood estimation resulted in a chi-square value of 121.27 with 66 degrees of freedom and a probability < .001. Although the model was still rejected as a good explanation of the data, as far as the chi-square test was concerned, the ratio of the chi-square to the degrees of freedom improved slightly from 1.97 to 1.84. If a ratio criterion of ≤ 2.5 is used for acceptance, the proposed model would be within the bounds of acceptability. Similarly, the three supplemental fit indices used in this study also showed a slight improvement and were all >.90 (NFI=.947, NNFI=.965, CFI=.975), indicating an acceptable fit. The final modified model and the Maximum Likelihood Standardized solution for Sample I, is graphically presented in Figure 4.2 below.

Figure 4.2 shows the results of the respecified model for Sample I, in a path diagram form. In terms of direct effects on Subjective well-being (SWB: F6), the personality traits of Extraversion and Neuroticism, together, account for about 5% of the variance in SWB, while Sense of Coherence (SOC: F5) accounts for approximately 54% of the variance. SOC, likewise, mediates indirect effects from the personality traits, attachment and

Figure 4.2



NOTE:

Latent Variables (Factors): *(F1)* EXTRA= Extraversion, *(F2)* S_ATT= Secure Attachment, *(F3)* NEURO= Neuroticism, *(F4)* I_ACH= Identity Acheived, *(F5)* SOC= Sense Of Coherence, *(F6)* SWB= Subjective Well-Being.

Measured Variables: *(1)* EXT= Extraversion (Costa), *(2)* EEY= Extraversion (Eysenck), *(3)* ATM= Attachment To Mother, *(4)* ATF= Attachment To Father, *(5)* NEU= Neuroticism (Costa), *(6)* NEY= Neuroticism (Eysenck), *(7)* IDE= Ideological Identity, *(8)* INT= Interpersonal Identity, *(9)* COM= Comprehensibility, *(10)* MAN= Manageability, *(11)* MEA= Meaningfulness, *(12)* SWL= Satisfaction With Life, *(13)* AFS= Affectometer 2 (Sen), *(14)* AFA= Affectometer 2 (ADJ). A significance level of .05 was used for all path coefficients.

Indices: NFI= Normed Fit Index, NNFI= Non-Normed Fit Index, CFI= Comparative Fit Index

identity. The personality traits combine to account for 30% of the variance in SOC, with Neuroticism (28%) taking the lion's share. Secure Attachment, on the other hand, accounts for almost 7%, and Identity Achieved, a little over 5% of the variance in SOC. Similarly, Identity Achieved is influenced by two sources in this model, with Secure Attachment accounting for 14% of the variance and Neuroticism, 7.2%.

Finally, the full decomposition of effects for the final respecified model for Sample I, was analyzed. The effects can be broken down in terms of indirect, direct and total effects. The total effect is the sum of the direct plus indirect effects (see Table 4.7 below). For example, glancing over Table 4.7, we can see that the Extraversion latent factor (F1) has direct effects on the measured variables EXT and EEY and the latent variables SOC (F5) and SWB (F6). At the same time, it also has indirect effects on the measured variables that tap the latter two latent constructs (i.e., COM, MAN, MEA, SWL, FAS, and AFA).

Next, given that all the paths of the respecified model were significant and that the overall model fits the data reasonably well, according to the criterion value for the chi-square/degrees of freedom ratio and the supplemental fit indices, it will be necessary now to see if these relationships can be sustained using the same model on another sample.

Table 4.7
Indirect, Direct and Total Effects: Sample I

Variables		Effects		
		Indirect	Direct	Total
EXTRA (F1)	EXT (V1)		1.000*	1.000*
	EEY (V2)		.748*	.748*
	SOC (F5)		.144*	.144*
	COM (V9)	.106*		.106*
	MAN (V10)	.124*		.124*
	MEA (V11)	.110*		.110*
	SWB (F6)	.106	.175*	.281*
	SWL (V12)	.207*		.207*
	AFS (V13)	.258*		.258*
	AFA (V14)	.252*		.252*
S_ATT (F2)	ATM (V3)		.782*	.782*
	ATF (V4)		.579*	.579*
	I ACH (F4)		.368*	.368*
	IDE (V7)	.229*		.229*
	INT (V8)	.284*		.284*
	SOC (F5)	.086	.262*	.348*
	COM (V9)	.255*		.255*
	MAN (V10)	.300*		.300*
	MEA (V11)	.266*		.266*
	SWB (F6)	.256		.256
	SWL (V12)	.189*		.189*
	AFS (V13)	.234*		.234*
	AFA (V14)	.229*		.229*
NEURO (F3)	NEU (V5)		.946*	.946*
	NEY (V6)		.861*	.861*
	I ACH (F4)		-.268*	-.268*
	IDE (V7)	-.167*		-.167*
	INT (V8)	-.207*		-.207*
	SOC (F5)		-.527*	-.527*
	COM (V9)	-.433*		-.433*
	MAN (V10)	-.509*		-.509*
	MEA (V11)	-.452*		-.452*
	SWB (F6)	-.435	-.135*	-.569*
	SWL (V12)	-.420*		-.420*
	AFS (V13)	-.521*		-.521*
	AFA (V13)	-.510*		-.510*
I-ACH (F4)	IDE (V7)		.624*	.624*
	INT (V8)		.773*	.773*
	SOC (F5)		.233*	.233*
	COM (V9)	.171*		.171*
	MAN (V10)	.201*		.201*

Table 4.7 continued.

	MEA (V11)	.179*		.179*
	SWB (F6)	.172*		.172*
	SWL (V12)	.127*		.127*
	AFS (V13)	.157*		.157*
	AFA (V14)	.154*		.154*
SOC (F5)	COM (V9)		.734*	.734*
	MAN (V10)		.863*	.863*
	MEA (V11)		.766*	.766*
	SWB (F6)		.737*	.737*
	SWL (V12)	.543*		.543*
	AFS (V13)	.674*		.674*
	AFA (V14)	.659*		.659*

Note: * $p < .05$. Latent Variables (Factors): EXTRA=Extraversion factor; S_ATT=Secure Attachment factor; NEURO=Neuroticism factor; I_ACH=Identity Achieved factor; SOC=Sense of Coherence factor; SWB=Subjective Well-being factor; Manifest Variables (Scales): EXT=Extraversion (Costa), EEY=Extraversion (Eysenck). ATM=Attachment to Mother, ATF=Attachment to Father, NEU= Neuroticism (Costa), NEY=Neuroticism (Eysenck), IDE=Ideological Identity, INT=Interpersonal Identity, COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness, SWL=Satisfaction With Life, AFS=Affect-sentences, AFA=Affect-adjectives.

4.1.3. Sample II: Cross-validation

A second sample, with an approximately equal number of males and females, was used to cross-validate the model tested on Sample I. The descriptive and distributional information for the model scales used in Sample II are shown below in Table 4.8.

As in Sample I, the variables appear to be sufficiently univariate normal to be acceptable for structural equation analysis. All absolute values of skewness and kurtosis are less than one, indicating that the variables are close to normal in symmetry and peakedness.

Table 4.8

Means, Standard Deviations, Skewness, and Kurtosis for the 14 Measured Variables used in the Model for Sample II

Scale	Mean	SD	Skewness	Kurtosis
1. EXT	31.318	6.053	-0.353	0.013
2. EEY	76.089	12.911	-0.317	-0.227
3. ATM	95.938	18.084	-0.644	-0.058
4. ATF	86.632	21.218	-0.462	-0.250
5. NEU	20.031	6.734	0.207	0.191
6. NEY	57.512	13.409	0.208	-0.093
7. IDE	14.612	2.895	-0.490	-0.171
8. INT	29.857	4.360	-0.400	0.096
9. COM	34.632	5.211	0.047	0.256
10. MAN	36.620	4.994	-0.486	0.043
11. MEA	30.357	4.572	-0.266	-0.191
12. SWL	17.953	3.638	-0.348	-0.261
13. AFS	19.147	9.849	-0.578	0.279
14. AFA	17.682	9.263	-0.474	0.336

Note: EXT=Extraversion (Costa), EEY=Extraversion(Eysenck), ATM=Attachment to Mother, ATF=Attachment to Father, NEU= Neuroticism (Costa), NEY=Neuroticism (Eysenck), IDE=Ideological Identity, INT=Interpersonal Identity, COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness, SWL=Satisfaction with life, AFS=Affect-sentences, AFA=Affect-adjectives

The covariance matrix used to analyze the data for Sample II is seen below in Table 4.9. Further, the frequency distribution of the standardized residuals was close to symmetric and centered around zero (see Figure 4.3 below), indicating a reasonably good representation of the data.

Table 4.9

Covariance Matrix for the 14 variable model for Sample II

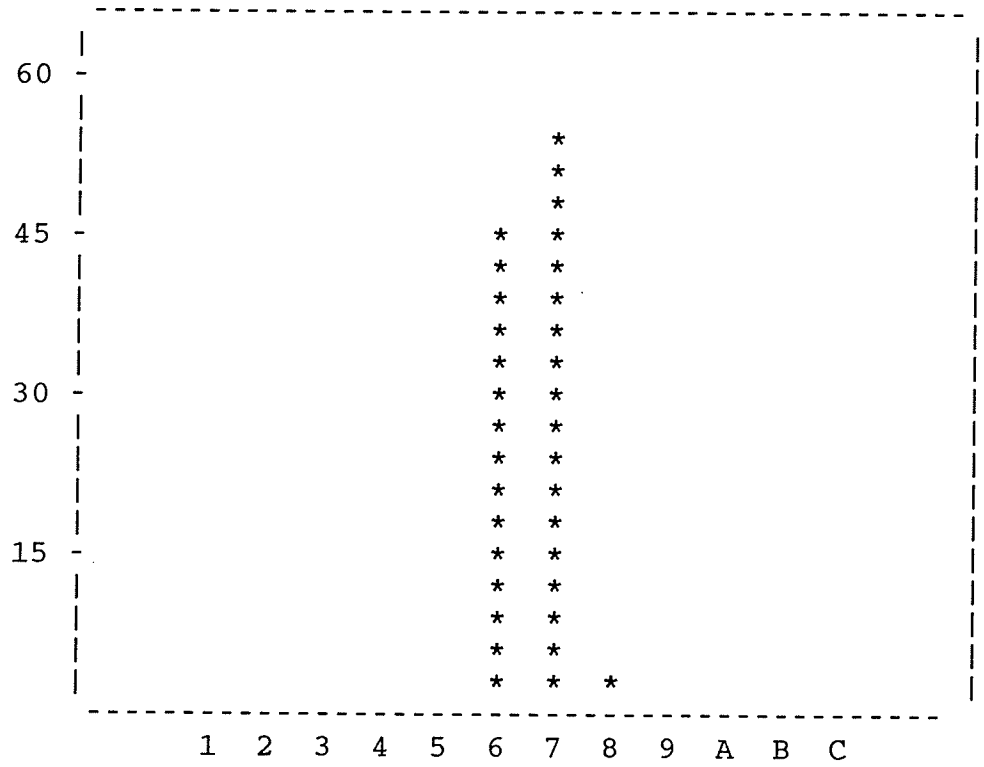
	V1	V2	V3	V4	V5	V6	V7
V1	36.638						
V2	62.438	166.704					
V3	25.647	64.471	327.031				
V4	26.953	50.623	171.596	450.195			
V5	-16.563	-30.520	-28.846	-41.498	45.353		
V6	-35.828	-69.064	-49.866	-90.668	72.580	179.791	
V7	2.984	6.323	9.435	7.600	-6.256	-11.062	8.378
V8	7.968	14.729	20.828	15.044	-6.603	-11.748	6.991
V9	9.195	15.084	27.191	29.883	-19.331	-37.632	5.273
V10	12.456	24.672	33.471	40.899	-19.012	-35.618	3.806
V11	13.388	22.093	34.346	33.043	-17.291	-30.156	5.944
V12	9.093	15.553	27.421	29.885	-12.045	-23.034	3.274
V13	29.715	55.371	80.561	80.649	-43.530	-82.982	10.719
V14	31.588	53.258	62.740	66.568	-43.500	-80.934	8.689

	V8	V9	V10	V11	V12	V13	V14
V8	19.010						
V9	5.383	27.151					
V10	6.401	15.677	24.945				
V11	8.118	12.828	13.541	20.908			
V12	5.783	7.259	9.290	8.581	13.235		
V13	15.745	25.436	31.430	32.267	24.396	97.013	
V14	14.437	24.513	27.689	29.254	20.798	74.194	85.798

Note: V1=Extraversion (NEO-FFI), V2=Extraversion (Eysenck), V3=Attachment to Mother, V4=Attachment to Father, V5=Neuroticism (NEO-FFI), V6=Neuroticism (Eysenck), V7=Ideological Identity, V8=Interpersonal Identity, V9=Comprehensibility, V10=Manageability, V11=Meaningfulness, V12=Satisfaction With Life, V13=Affect-sentences, V14=Affect-adjectives.

Figure 4.3 Distribution of Standardized Residuals

(SAMPLE II)



	Range			Freq	Percent
1	-0.5	-	--	0	0.00%
2	-0.4	-	-0.5	0	0.00%
3	-0.3	-	-0.4	0	0.00%
4	-0.2	-	-0.3	0	0.00%
5	-0.1	-	-0.2	0	0.00%
6	0.0	-	-0.1	46	43.81%
7	0.1	-	0.0	55	52.38%
8	0.2	-	0.1	4	3.81%
9	0.3	-	0.2	0	0.00%
A	0.4	-	0.3	0	0.00%
B	0.5	-	0.4	0	0.00%
C	++	-	0.5	0	0.00%
	TOTAL			105	100.00%

NOTE: Each "*" represents 3 residuals

The correlation between INT (the interpersonal scale of the Identity Achieved factor) and EXT (the Extraversion scale from Five Factor Inventory) produced the largest standardized residual, a value of 0.142. The average absolute standardized residual for this sample was 0.0320. Like Sample I, the standardized residual values appear to be small and evenly distributed among the variables, again suggesting that the model is a reasonably good representation of the data.

The model tested on Sample II resulted in a Maximum Likelihood chi-square value of 147.755 with 66 degrees of freedom and a probability < .001. As in Sample I, the chi-square statistic rejected the model as a good explanation of the data. However, the ratio of the chi-square to degrees of freedom was 2.24, which is a little larger than Sample I, but is still below the criterion of $\leq$ 2.5 used in this study. Similarly, all the supplemental fit indices were >.90, indicating an acceptable fit. For example, the Bentler-Bonett Normed Fit Index (NFI) was .933; the Bentler-Bonett Nonormed Fit Index (NNFI) was .947; and the Comparative Fit Index (CFI) was .961.

The results of the Maximum Likelihood solution for Sample II is shown in Table 4.10 below. Again, both components of the structural equation model (measurement and structural) are represented in equation form. That is, variables to the left of the equal sign are variables that have one or more arrows pointing at them in a path diagram, while variables to the right, are representative of hypothesized causal agents. Furthermore,

consistent with the respecified model of Sample I, all path coefficients for the measurement and the structural components of the model were significant for Sample II.

Table 4.10

Maximum Likelihood Standardized Solution: Sample II

(Measurement Component of Structural Equation Model)

EXT (V1)	=	1.000	F1	+	.000	E1
EEY (V2)	=	.799	F1	+	.601	E2
ATM (V3)	=	.728	F2	+	.686	E3
ATF (V4)	=	.611	F2	+	.792	E4
NEU (V5)	=	.924	F3	+	.382	E5
NEY (V6)	=	.870	F3	+	.493	E6
IDE (V7)	=	.776	F4	+	.631	E7
INT (V8)	=	.714	F4	+	.700	E8
COM (V9)	=	.662	F5	+	.750	E9
MAN (V10)	=	.753	F5	+	.658	E10
MEA (V11)	=	.817	F5	+	.577	E11
SWL (V12)	=	.717	F6	+	.697	E12
AFS (V13)	=	.911	F6	+	.411	E13
AFA (V14)	=	.894	F6	+	.448	E14

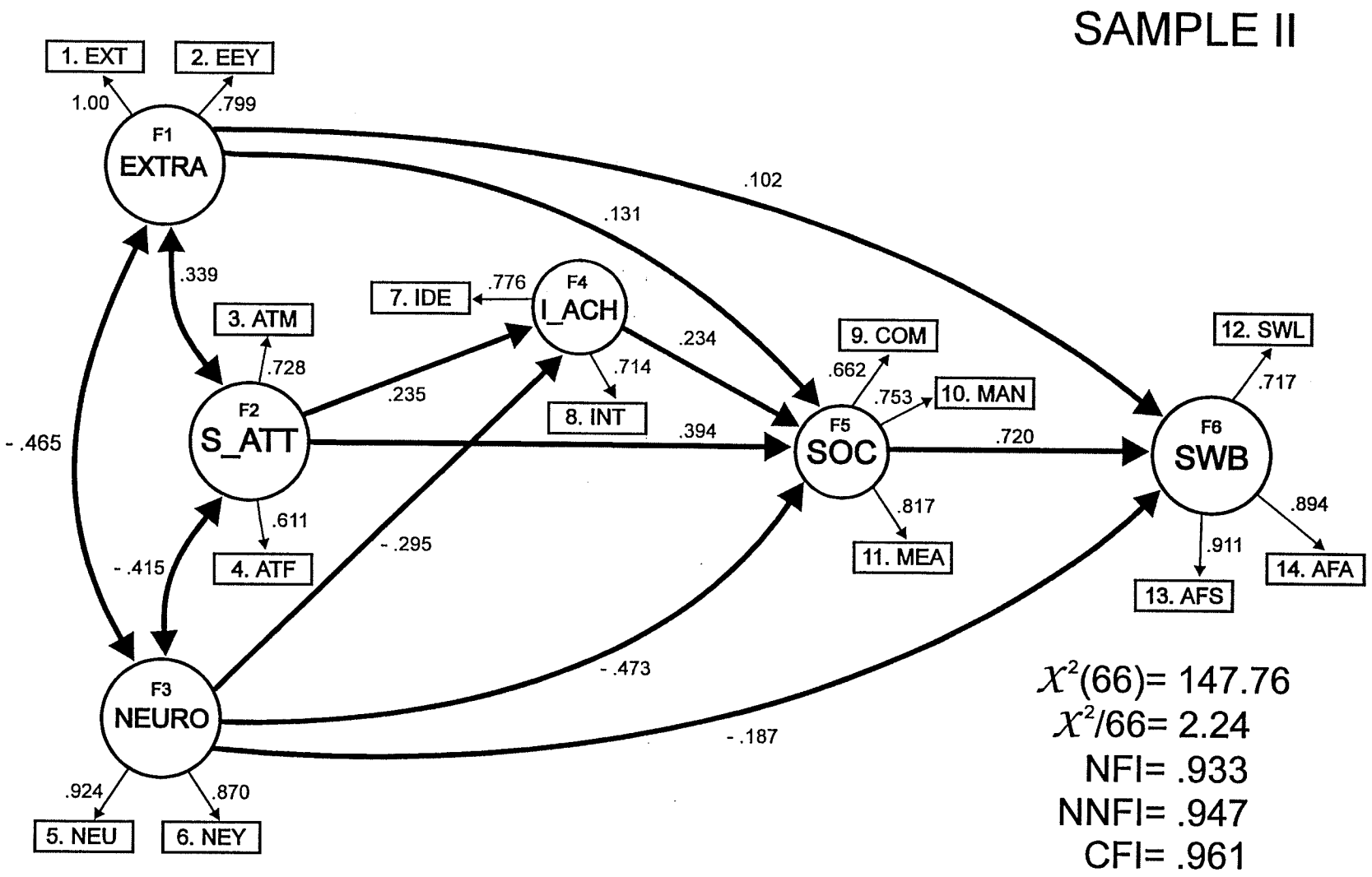
(Structural Component of Structural Equation Model)

I_ACH (F4)	=	.253	F2	-	.295	F3	+	.887	D4			
SOC (F5)	=	.234	F4	+	.131	F1	+	.394	F2	-	.473	F3 + .360 D5
SWB (F6)	=	.720	F5	+	.102	F1	-	.187	F3	+	.357	D6

Note: EXT=Extraversion (Costa), EEY=Extraversion (Eysenck), ATM=Attachment to Mother, ATF=Attachment to Father, NEU= Neuroticism, (Costa), NEY=Neuroticism (Eysenck), I=Ideological Identity, INT=Interpersonal Identity, COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness, SWL=Satisfaction with life, V15=Affect-sentences, V16=Affect-adjectives, I_ACH=Identity Achieved factor, SOC=Sense of Coherence factor, SWB=Subjective Well-being factor, E=Error, D=Disturbance. A significance level of .05 was used for all path coefficients.

A path diagram of the Maximum Likelihood Standardized solution for Sample II is seen below in Figure 4.4, and a full decomposition of the indirect, direct, and total effects for Sample II is seen in Table 4.11.

Figure 4.4



NOTE:

Latent Variables (Factors): *(F1)* EXTRA= Extraversion, *(F2)* S_ATT= Secure Attachment, *(F3)* NEURO= Neuroticism, *(F4)* I_ACH= Identity Acheived, *(F5)* SOC= Sense Of Coherence, *(F6)* SWB= Subjective Well-Being.

Measured Variables: *(1)* EXT= Extraversion (Costa), *(2)* EEY= Extraversion (Eysenck), *(3)* ATM= Attachment To Mother, *(4)* ATF= Attachment To Father, *(5)* NEU= Neuroticism (Costa), *(6)* NEY= Neuroticism (Eysenck), *(7)* IDE= Ideological Identity, *(8)* INT= Interpersonal Identity, *(9)* COM= Comprehensibility, *(10)* MAN= Manageability, *(11)* MEA= Meaningfulness, *(12)* SWL= Satisfaction With Life, *(13)* AFS= Affectometer 2 (Sen), *(14)* AFA= Affectometer 2 (ADJ). A significance level of .05 was used for all path coefficients.

Indices: NFI= Normed Fit Index, NNFI= Non-Normed Fit Index, CFI= Comparative Fit Index.

Table 4.11

Indirect, Direct and Total Effects: Sample II

Variables		Effects		
		Indirect	Direct	Total
EXTRA (F1)	EXT (V1)		1.000*	1.000*
	EEY (V2)		.799*	.799*
	SOC (F5)		.131*	.131*
	COM (V9)	.087*		.087*
	MAN (V10)	.099*		.099*
	MEA (V11)	.107*		.107*
	SWB (F6)	.094	.102*	.196*
	SWL (V12)	.140*		.140*
	AFS (V13)	.178*		.178*
	AFA (V14)	.175*		.175*
S_ATT (F2)	ATM (V3)		.728*	.728*
	ATF (V4)		.611*	.611*
	I_ACH (F4)		.253*	.253*
	IDE (V7)	.197*		.197*
	INT (V8)	.181*		.181*
	SOC (F5)	.059	.394*	.394*
	COM (V9)	.300*		.300*
	MAN (V10)	.342*		.342*
	MEA (V11)	.370*		.370*
	SWB (F6)	.327		.327
	SWL (V12)	.234*		.234*
	AFS (V13)	.298*		.298*
	AFA (V14)	.292*		.292*
NEURO (F3)	NEU (V5)		.924*	.924*
	NEY (V6)		.870*	.870*
	I_ACH (F4)		-.295*	-.295*
	IDE (V7)	-.229*		-.229*
	INT (V8)	-.211*		-.211*
	SOC (F5)	-.069	-.473*	-.542*
	COM (V9)	-.359*		-.359*
	MAN (V10)	-.408*		-.408*
	MEA (V11)	-.443*		-.443*
	SWB (F6)	-.391	-.187*	-.577*
	SWL (V12)	-.414*		-.414*
	AFS (V13)	-.526*		-.526*
	AFA (V13)	-.516*		-.516*
I-ACH (F4)	IDE (V7)		.776*	.776*
	INT (V8)		.714*	.714*
	SOC (F5)		.234*	.234*
	COM (V9)	.155*		.155*

Table 4.11 continued.

	MAN (V10)	.177*		.177*
	MEA (V11)	.192*		.192*
	SWB (F6)	.169*		.169*
	SWL (V12)	.121*		.121*
	AFS (V13)	.154*		.154*
	AFA (V14)	.151*		.151*
SOC (F5)	COM (V9)		.662*	.662*
	MAN (V10)		.753*	.753*
	MEA (V11)		.817*	.817*
	SWB (F6)		.720*	.720*
	SWL (V12)	.516*		.516*
	AFS (V13)	.656*		.656*
	AFA (V14)	.644*		.644*

Note: * $p < .05$. Latent Variables: EXTRA=Extraversion factor; S_ATT=Secure Attachment factor; NEURO=Neuroticism factor; I_ACH=Identity Achieved factor; SOC=Sense of Coherence factor; SWB=Subjective Well-being factor; Measured Variables: EXT=Extraversion (Costa), EEY=Extraversion (Eysenck). ATM=Attachment to Mother, ATF=Attachment to Father, NEU= Neuroticism (Costa), NEY=Neuroticism (Eysenck), IDE=Ideological Identity, INT=Interpersonal Identity, COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness, SWL=Satisfaction With Life, AFS=Affect-sentences, AFA=Affect-adjectives.

In sum, all paths were significant, the chi-square/degrees of freedom ratio value was within the criterion set for acceptability, and supplemental fit indices were all >.90, indicating an acceptable cross-validation of the model in Sample II.

4.1.4. The Religiousness Factor Revisited

In the original model (see Figure 1.5 or 3.1), I proposed that the Secure Attachment factor would predict the Intrinsic Religiousness (I_REL) factor, and that I_REL would, in turn, predict Sense of Coherence and Subjective Well-being. Unfortunately, a condition code was generated by the EQS program,

indicating a negative variance estimate with the religious variable. Subsequently, I pulled the religious variable from the model in order to facilitate the validation of the rest of the model. Here, I would like to revisit the Religiousness factor.

Given the diverse sample, in terms of religious interest and commitment, I decided to select a more religiously homogenous group to do some further analyses. If subjects indicated that they were involved in some kind of religious behavior monthly, weekly, or daily, they were included in this group (n=236). Further, the two religious scales selected to be the manifest variables to tap the Intrinsic Religiousness latent construct in the model, were selected on the basis of their theoretical and conceptual link to the notion of Intrinsic Religiousness.

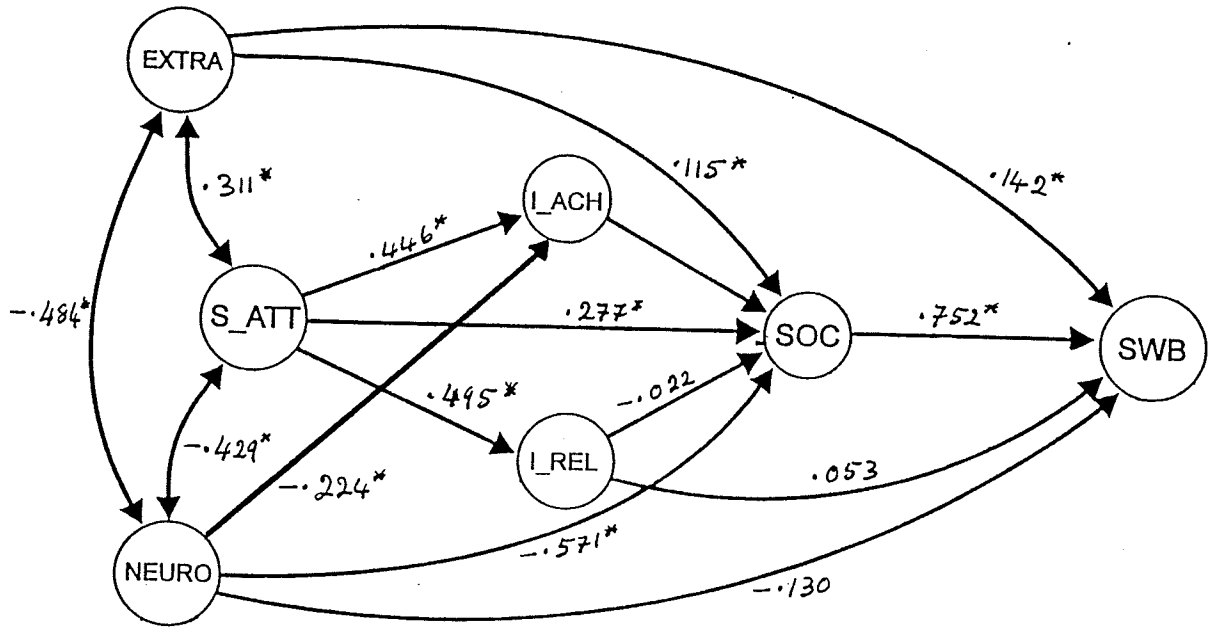
However, although the two scales, IN (Intrinsic) and EN (religion as an End), correlated quite highly with each other (.83), the EN scale showed weaker relationships to other variables when compared to the IN scale. On the other hand, the ME (religion as Means) scale, which also had a fairly strong correlation with IN (.75), showed stronger relationships to other variables, when compared to the EN scale, and more closely paralleled the correlations of IN, in these instances. Consequently, I decided to replace the EN scale with the ME scale (for further discussion of the relationship between EN and ME, see the secondary analysis section 4.2).

Subsequently, when the correlation matrix and standard deviations for the 16 manifest variables for this group were fed

into the EQS program, no condition code appeared as before. In other words, the previous problem of negative variance estimates did not arise. In terms of the model analysis for this group (n=236), the results showed a chi-square value of 179.92 with 90 degrees of freedom, a chi-square/degrees of freedom ratio value of 2, and supplemental fit indices of: NFI=.926; NNFI=.948; and CFI=.961.

In Figure 4.5 below, we see a diagram that shows only the relationships among the latent constructs of the model, which is of major interest here. That is, the measurement component of the structural equation model is absent. It can be seen that some path coefficients for predicted paths were not significant at the .05 level (e.g. paths with no asterisks). The path from the Secure Attachment to the Intrinsic Religiousness (I_REL) factor was significant and provided a coefficient value of .495, which accounted for 25% of the variance in the I_REL factor. This provides confirmation of the hypothesized relationship between attachment and intrinsic religion, at least for a religiously homogeneous sample. But the predicted paths from I_REL to Sense of Coherence and Subjective Well-being, as proposed in the original model, were not significant (see Figure 4.5)

Figure 4.5 Relationships among the latent constructs for the religiously homogenous subsample (n=236)



Note: * p <.05. EXTRA=Extraversion, S_ATT=Secure Attachment, NEURO=Neuroticism, I-ACH=Identity Achieved, I_REL=Intrinsic Religiousness, SOC=Sense of Coherence, SWB=Subjective Well-Being

Given the apparent differences in outcome for the religious scales, relative to the sample used (e.g. whole versus the religious subsample), further analysis was conducted to determine the nature of the religious scales. First, a single-item, categorical measure of religion was compared to the continuous religious scales. The single item asked: "How often do you participate in religious activities (attend church/synagogue, pray, focus on religious things, etc)?" The possible alternatives to this question were: (1) Never, (2) Once a year, (3) Once a

month, (4) Once a week, or (5) One or more times a day (see Appendix A #6). Clearly, the alternatives move toward a greater amount of religious behavior, presumably reflective of a greater amount of religiousness.

When the religious-activity variable was compared to the IN, EN and ME scales, there was a clear, positive monotonic relationship. That is, at each of the five levels of the categorical measure, there was a corresponding increase in mean value on the continuous measures. However, when the religious activity measure was compared to some attachment and personality measures, a nonmonotonic relationship resulted (see Table 4.12).

Table 4.12

Comparing Religious Activity Level Mean Values on Religious Dimensions, Attachment, and Personality Measures

	Religious Activity Level				
_	Never (n=109)	Yearly (n=171)	Monthly (n=87)	Weekly (n=103)	Daily (n=46)
IN	19.83	23.33	29.32	34.31	41.22
EN	18.88	24.38	30.07	33.32	38.46
ME	13.04	15.59	18.85	21.30	21.76
ATM	92.85	96.56	94.84	95.52	103.67
ATF	85.34	85.56	87.26	86.48	93.83
NEU	20.68	20.63	19.98	20.97	17.96
EXT	29.10	31.93	31.85	31.81	30.85
AGR	30.20	30.62	30.93	30.97	34.20
CON	30.06	31.27	30.29	30.87	33.57
SOC	99.01	101.61	102.40	101.43	105.33
SWL	17.28	17.91	17.24	17.91	19.11

Note: IN=Intrinsic, EN=End, ME=Means, ATM=Attachment to Mother, ATF=Attachment to Father, NEU=Neuroticism, EXT=Extraversion, AGR=Agreeableness, CON=Conscientiousness, SOC=Sense of Coherence, SWL=Satisfaction with Life.

Table 4.12 suggests that a nonmonotic and nonlinear relationship exists between the religious scales and the attachment and personality measures.

To confirm this working hypothesis, the ascending scores of the IN, EN and ME scales were subdivided into 10% intervals, forming 10 groups. For each group the mean and standard deviation was calculated on the attachment and personality measures. As suspected, a general, nonmotonic relationship was seen, except for the top 30% of subjects (see Table 4.13). For these more religiously committed subjects the relationship appears to be more monotonic. Similar but weaker trends were also found with the EN and ME scales. Thus, in terms of the total sample in this study, a nonmonotonic and nonlinear relationship exists between some religious scales and some attachment and personality measures.

However, for the more religiously committed subjects we expected more meaningful and higher correlations between the religious scales and the other scales used in this study. This was confirmed when the whole sample was compared to the more religiously committed (the top 30%) group on correlations between the IN and EN scales and the attachment and personality measures.

These analyses seem to substantiate why these religious scales generated a negative variance estimate in the structural equation model and created a condition code in the EQS program. In correlational and regression analyses, such as is incorporated in structural equation modeling, monotonic and linear

Table 4.13

Mean Values of Attachment and Personality Variables for 10 Deciles of IN Scores

	Deciles of IN Scores									
	1	2	3	4	5	6	7	8	9	10
ATM	89.08	93.35	92.57	97.36	95.47	98.43	93.06	93.43	98.76	107.61
ATF	82.48	80.80	84.20	87.09	85.88	90.22	83.23	85.24	90.96	97.98
NEU	19.34	21.39	21.05	21.73	20.35	20.84	20.55	20.20	20.84	17.14
AGR	30.10	28.65	31.30	30.76	32.43	30.12	30.94	29.33	32.06	33.84
CON	31.00	28.98	29.93	30.00	31.08	29.67	31.38	31.49	31.67	34.69
SOC	98.26	97.65	99.86	100.62	102.47	100.84	102.64	102.27	100.35	109.94
SWL	17.50	16.65	17.73	17.36	17.24	18.02	17.60	17.61	17.80	20.20

Note: The range of IN scores was divided into 10 deciles and the means of attachment and personality scores corresponding to each decile of IN scores were calculated. Abbreviations: IN = Intrinsic Religiousness, ATM = Attachment to Mother, ATF = Attachment to Father, NEU = Neuroticism, AGR = Agreeableness, CON = Conscientiousness, SOC = Sense of Coherence, SWL = Satisfaction with Life.

relationships are necessary for coefficients to be meaningful.

The problems encountered in this study by using these religious scales in a diverse population, seem to provide some support for Donahue's (1985a) contention. He pointed out that simply correlating the Intrinsic and Extrinsic subscales of the ROS with other dependent measures could be problematic because it confounds the proreligious with intrinsic orientations and the nonreligious with the extrinsic orientations. According to Donahue, confounding these orientations could obscure curvilinearity between religiousness and other variables. Given this observation and the brief exploratory analyses discussed above, there appears to be a basis and justification for the dual conceptualization of religious orientation introduced in the next section of this study.

4.2 Secondary Analysis

In terms of the secondary interests of this dissertation, I will follow the general sequence of the secondary research questions raised earlier (see 2.4.4.). That is, questions pertaining to the religious variables will be dealt with first.

4.2.1. Religious Variables

To maximize the yield from the results of this study, religious orientation was conceptualized in two ways. First, the Extrinsic and Intrinsic dimensions of religious orientation were conceptualized as a continuum, extending from "not at all religious" to "very religious"; the former pole being the nonreligious participant and the latter, the highly religious subject. This conceptualization necessitates a heterogenous sample that contains a proportion of nonreligious individuals. It is this conceptualization that undergirds the results in this section under the heading of "Religious Types". In terms of analysis, the analysis of variance (ANOVA) model was used, since this model makes no assumption of linearity. This is in keeping with the discussion at the end of the previous section.

The second way that the religious orientation was conceptualized in this study, was to see Intrinsic and Extrinsic more in terms of orthogonal dimensions, without relationship to the indiscriminate categories seen in the typological conceptualization. In other words, by definition, the Intrinsic and Extrinsic religious orientations are restricted to religious subjects. That is, individuals who show some interest and

commitment to religion. This second conceptualization undergirds the results in this section under the heading of "Religious Dimensions". In terms of analysis, a correlational approach was used on the religiously homogeneous subsample.

4.2.1.1. Religious Types

In conceptualizing religious orientation along a continuum ranging from "very religious" to "nonreligious", we can define religious orientation in terms of religious types. However, we need to recall how the types were obtained. The mean values for the Intrinsic (I) and the Extrinsic (E) scales of the Religious Orientation Scale (ROS: Allport & Ross, 1967) were used as cut-off points to differentiate the four types: Internal (High I, Low E), External (Low I, High E), Indiscriminately Proreligious (High I, High E), and Indiscriminately Nonreligious or Antireligious (Low I, Low E).

With the formation of the religious types, we can now see how these types vary in comparison on a number of variables. Religious Types were compared on (1) Parental and Peer Attachment, (2) Adult Attachment Styles, (3) Personality Traits, (4) Sense of Coherence, and (4) Subjective Well-being.

4.2.1.1.1. Parental and Peer Attachment. As we look at how the various religious types relate to Parental and Peer Attachment, we see some significant differences (see Table 4.14 below). First, in terms of Mother Attachment, a significant difference was found between the Proreligious and Nonreligious types, with greater attachment to mother associated with the

Proreligious type.

As we look at Father Attachment, we see greater specificity and a larger difference. That is, the Internal or Intrinsic Religious Type is significantly different from the other three types, associating high Father Attachment with high religious internality. In contrast, Peer Attachment barely achieved significance and was not powerful enough to discriminate among the religious types (see Table 4.14 below). The results, however, are tentative, given the disparity in group sizes.

Table 4.14

Descriptive Statistics, ANOVA and Post-Hoc Multiple Comparisons in Parental and Peer Attachment among Religious Types

	Religious Types					
Attachment	Int. (n=59)	Ext. (n=106)	Pro. (n=196)	Non. (n=155)	F (3,512)	R^2
Mother	99.10 (22.37)	95.92 (16.37)	98.00a (15.77)	92.06b (19.65)	3.88**	.022
Father	96.75a (21.15)	84.35b (22.50)	87.10b (20.64)	84.05b (19.64)	5.90***	.033
Peers	105.10 (13.01)	103.46 (12.13)	101.15 (13.74)	100.23 (13.69)	2.63*	.015

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Int.=Internal, Ext.=External, Pro.=Proreligious, Non.=Nonreligious. Standard Deviations are included in parentheses. Means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test.

As we look at all three measures of attachment, the means of the Intrinsic group appears to be larger than the nonreligious group, although, only Father Attachment appears to achieve the

statistically acceptable level of significance. But, when taken by themselves, how do these two extreme types compare? The results, seen in Table 4.15 below, show that the means are significantly different for Mother and Peer Attachment, at the .05 level, with both having similar F values, 5.08 and 5.55, respectively. On the other hand, Attachment to Father produced a much stronger effect with an F value of 17.12 (p <.0001).

However, because of the disparity in sample size (59 and 155), I decided to form two samples (n=59) from the Nonreligious group, and then compare them separately to the Intrinsic sample (see Table 4.15). The R^2 column provides an index of how much of the variation between the means is due to the dependent variable. For example, when comparing the Intrinsic group with the full Nonreligious group (n=155), both Mother and Peer Attachment account for between 2% to 3% of the variation between the two groups. Attachment to Father, on the other hand, accounts for approximately 8% of the variation between the two groups. However, the value of these relationships must be approached cautiously because of the difference in sample sizes (59 and 155).

When we match the sample sizes in the group A and B validation procedure, we see that the relationship is not sustained in both groups for Mother and Peer Attachment, but is sustained for Father Attachment. In fact, according to groups A and B, between 7% and 10% of the variance between the Intrinsics and Nonreligious is accounted for by Attachment to Father. It

seems clear that Father Attachment maintains a relatively strong and consistent differential relationship between religious internality and nonreligiousness.

Table 4.15

Descriptive Statistics and ANOVA in Parental and Peer Attachment between the Intrinsically Religious and Nonreligious Types

	Types					
Attachment	N	Intrinsic	N	Nonreligious	F #	R^2
Mother	59	99.10 (22.37)	155	92.06 (19.65)	5.08*	.023
Group A	59	99.10 (22.37)	59	92.95 (20.52)	2.42	--
Group B	59	99.10 (22.37)	59	91.22 (20.80)	3.93*	.033
Father	59	96.75 (21.15)	155	84.05 (19.64)	17.12****	.075
Group A	59	96.75 (21.15)	59	83.46 (19.98)	12.31***	.096
Group B	59	96.75 (21.15)	59	85.53 (19.36)	9.04**	.072
Peers	59	105.10 (13.01)	155	100.23 (13.69)	5.55*	.026
Group A	59	105.10 (13.01)	59	98.71 (14.61)	6.29**	.051
Group B	59	105.10 (13.01)	59	101.20 (11.92)	2.88	--

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$. Standard Deviations are placed in parentheses. Group A and B are smaller samples drawn from the Nonreligious group to match sample sizes between the two types. F #:Degrees of freedom in initial comparison (1,212), A and B comparison (1,116).

Given that a significant gender difference was found in two of the three attachment measures (Mother and Peer Attachment, but not in Father Attachment), I decided to explore these gender

differences in relationship to the Religious Types. However, the cell sizes were quite disparate. For example, the number of Nonreligious males was three times the number of Intrinsic males, and for females, it was almost 2 1/2 times. To ensure the validity of the *F* value, group sizes need to be approximately equal. According to Howell (1987), group sizes are considered approximately equal if the largest group is no more than 1 1/2 times larger than the smallest. Clearly, in this situation, the differences in cell sizes could not ensure a valid *F* value. Consequently, I divided the Nonreligious into two equal groups for males and females, and then made two comparisons for each dependent variable. Thus, each comparison would ensure the validity of the *F* value for that specific comparison, and then a comparison between groups would give some indication of the stability of that relationship. The results are shown below in Table 4.16.

Looking at gender differences and validating it by more reasonably matched group sizes, showed a strong gender difference in Peer Attachment but not in Mother Attachment. That is, females showed significantly higher means on Religious Type and Peer Attachment compared to males; 103 to 109 compared to 96 to 99, respectively. In fact, omega squared, which is analogous to the R^2, showed that the amount of variance accounted for by gender was between 10% and 11% (see Table 4.16).

In support of the previous analysis, the religious type effect was unstable in Mother and Peer Attachment, being

significant in only one of the two groups, but was strong and stable in Father Attachment (omega squared ranged from 7% to 9%).

Table 4.16

Descriptive Statistics and ANOVA in Parental and Peer Attachment by Gender and Religious Type: Group A and B Comparison

	N	Attachment					
		Mother		Father		Peer	
		A	B	A	B	A	B
Male							
Internal	26	98.27	98.27	96.50	96.50	99.69	99.69
		(20.90)	(20.90)	(19.20)	(19.20)	(14.18)	(14.18)
Nonrel.	38	90.68	85.76	82.74	83.71	96.03	96.87
		(17.37)	(16.21)	(16.93)	(15.57)	(11.35)	(13.16)
Female							
Internal	33	99.76	99.76	96.94	96.94	109.36	109.36
		(23.76)	(23.76)	(22.86)	(22.86)	(10.37)	(10.37)
Nonrel.	38	96.39	95.66	84.39	85.66	103.79	104.84
		(22.42)	(20.26)	(21.35)	(23.08)	(15.80)	(11.68)
Overall F (3,131)		1.25	3.43*	4.76**	3.92**	6.61***	6.94***
R^2		0.028	0.073	0.098	0.082	0.131	0.137
Effects							
Gender		1.32	3.69	0.30	0.32	15.42****	17.65****
Omega-Sq.		--	--	--	--	0.097	0.110
Rtype		2.10	5.17*	13.99***	11.40**	4.23*	3.03
Omega-Sq.		--	0.030	0.088	0.072	0.023	--
Gen x Rtype		0.33	1.41	0.03	0.04	0.17	0.16
Omega-Sq.		--	--	--	--	--	--

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$. Standard Deviations are placed in parentheses. Groups A and B are smaller samples drawn from the Nonreligious group.

These findings substantiate and clarify previous results discussed in this section, indicating again, the strong relationship between Father Attachment and religious internality. That is, irrespective of gender, Father Attachment discriminated

most strongly between religious internality and nonreligiousness.

4.2.1.1.2. Adult Attachment Styles. Whereas the attachment measure in the previous section assesses the adolescents' perceived quality of attachment in both parents and in nonexclusive peer attachment relationships, the Adult Attachment Styles measure excludes parental attachment and assesses attachment relationships in which romantic figures have a central focus. The theoretical linkage, of course, between Parental and Peer Attachment and "romantic" attachment styles, is that the former more closely manifests the quality of cognitive attachment representations or "working models", which, in turn, anticipates much of the latter (i.e. "romantic" adult attachment styles). The results are shown below.

Table 4.17

Descriptive Statistics, ANOVA and Post-Hoc Multiple Comparisons in Adult Attachment Styles and Religious Types

	Religious Types					
Attachment Styles	Int. (n=59)	Ext. (n=106)	Pro. (n=196)	Non. (n=155)	F (3,512)	R^2
Close	23.20a (5.04)	22.54 (4.60)	22.35 (4.88)	21.10b (4.73)	3.77**	.022
Depend	20.37 (5.22)	21.30a (4.36)	20.20 (4.94)	19.50b (4.63)	3.00*	.017
Anxious	15.41 (6.48)	15.58 (5.39)	16.16 (5.46)	15.99 (4.97)	0.44	--

Note: * $p < .05$, ** $p < .01$. Int.=Internal, Ext.=External, Pro.=Proreligious, Non.=Nonreligious. Standard Deviations included in parentheses. Means with different subscripts within a row differ significantly at the .05 level by Tukey post hoc test.

Although significant differences are seen in the Close and Depend dimensions of attachment style, the *F* values and the R^2 values are not very large. The means for the Religiously Intrinsic and Nonreligious types are significantly different on the Close dimension, while the means for the Religiously Extrinsic and the Nonreligious types are significantly different on the Depend dimension. None of the types are significantly different on the Anxious dimension of attachment style.

Given the likely instability of the low values due to unequal samples sizes, no further exploration was done on the relationship of these measures. However, we can tentatively conclude that the Close and Depend attachment styles, which presumably combine to reflect secure parental attachment representations, have the potential of discriminating among religious types.

4.2.1.1.3. Personality Traits. As we look at how the various Religious Types relate to personality, a comparison with the Five-Factor Model of personality structure revealed some significant differences for four of the five factors. Openness to Experience was the only factor that showed no significant differences among the Religious Types (see Table 4.18 below).

Keeping in mind the tentativeness of the *F* values due to the differences in group sizes, we see a consistent contrast emerge across four of the five factors of personality, namely, between the Intrinsics and the Nonreligious. The Nonreligious have a significantly higher mean on Neuroticism than the Intrinsics,

while the Intrinsics have a significantly higher mean on Extraversion, Agreeableness, and Conscientiousness (see Table 4.18).

Table 4.18

Descriptive Statistics, ANOVA and Post-Hoc Multiple Comparisons in Personality Traits and Religious Types

	Religious Types					
Personality Traits	Int. (n=59)	Ext. (n=106)	Pro. (n=196)	Non. (n=155)	F (3,512)	R^2
Neuroticism	17.59a	21.01b	20.62b	20.65b	3.41*	.020
	(7.12)	(7.50)	(7.75)	(6.01)		
Extraversion	32.95a	31.92a	31.38a	29.81b	5.38***	.031
	(5.59)	(5.04)	(5.91)	(6.16)		
Open.to Exper.	29.53	27.36	27.29	28.32	2.59	--
	(6.23)	(5.68)	(6.36)	(5.90)		
Agreeableness	33.39a	31.57ab	30.63b	30.08b	5.28***	.030
	(6.03)	(5.69)	(5.51)	(6.06)		
Conscientious	32.24a	30.71ab	31.63a	29.85b	3.64*	.021
	(5.29)	(6.53)	(5.61)	(6.09)		

Note: * $p < .05$, *** $p < .001$. Int.=Internal, Ext.=External, Pro=Proreligious, Non.=Nonreligious. Standard Deviations included in parentheses. Means with different subscripts within a row differ at the .05 level by Tukey post hoc test.

In order to examine the contrast between these two types (Intrinsics and Nonreligious) more closely, and to ensure the validity of the F value, group sizes were matched in the A and B comparison format introduced earlier. That is, I formed two samples (59 subjects in each) from the Nonreligious group, and then compared them separately to the Intrinsic sample. In this way we could see if the initial pattern of significance and strength of relationship was sustained over two comparisons. The

results of this analysis is shown below in Table 4.19. Since the Openness to Experience personality trait showed no significant relationship to the religious types in the previous analysis, it was excluded from Table 4.19.

Table 4.19

Descriptive Statistics and ANOVA in Intrinsically Religious and Nonreligious group comparison on Four of the Five Personality Factors

	Types					
Traits	N	Intrinsic	N	Nonreligious	F #	R^2
Neuroticism	59	17.59 (7.12)	155	20.65 (6.01)	9.91**	.045
Group A	59	17.59 (7.12)	59	20.19 (5.96)	4.60*	.038
Group B	59	17.59 (7.12)	59	20.90 (6.10)	7.33**	.059
Extraversion	59	32.95 (5.59)	155	29.81 (6.16)	11.64***	.052
Group A	59	32.95 (5.59)	59	28.83 (6.61)	13.37***	.103
Group B	59	32.95 (5.59)	59	30.64 (5.05)	5.53*	.045
Agreeableness	59	33.39 (6.03)	155	30.08 (6.06)	12.79***	.057
Group A	59	33.39 (6.03)	59	29.90 (6.53)	9.11**	.073
Group B	59	33.39 (6.03)	59	30.90 (5.99)	5.08*	.042
Conscientiousness	59	32.24 (5.29)	155	29.85 (6.09)	7.07**	.032
Group A	59	32.24 (5.29)	59	29.92 (5.83)	5.13*	.042
Group B	59	32.24 (5.29)	59	30.36 (6.43)	3.01	.025

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Standard Deviations are placed in parentheses. Group A and B are samples drawn from the Nonreligious group to match sample sizes. F #:Degrees of freedom in initial comparison (1,212), in A and B comparison (1,116).

The results show that the initial comparison between the two types on Neuroticism, that is, the Intrinsic group showing a significantly lower mean on Neuroticism, was sustained in both groups, A and B. For example, the R^2 value for the initial comparison was 5%, and a comparable value was seen in groups A and B, 4% and 6%, respectively.

In terms of Extraversion, the significant differences between the two types were sustained in both validating groups, but the range of the R^2 value was larger. More specifically, while the R^2 value for group B was almost the same as the initial value (5%), group A was twice as large (10%). In terms of Agreeableness, the significant differences were sustained in both validating groups and the range of the R^2 values encompassed the initial value, 4% to 7%.

On the other hand, Conscientiousness was the only personality trait in which the significant differences were not sustained across both validating groups. However, the R^2 value for the initial comparison and groups A and B, were close, ranging from 3% to 4%. Thus, generally, the results suggest that the earlier relationships between the Religiously Intrinsic and Nonreligious groups on personality traits were sustained, after group sizes were matched.

A preliminary examination of gender differences and personality traits, showed that males and females were significantly different on Neuroticism, Extraversion, Agreeableness, and Conscientiousness. Consequently, in the

further analysis of Religious Type and personality traits, gender was included. The results of this exploration are seen below in Tables 4.20 and 4.21.

Table 4.20

Decriptive Statistics and ANOVA in Neuroticism and Extraversion by Gender and Religious Type: Group A and B Comparisons

	N	Personality Trait			
		Neuroticism		Extraversion	
		A	B	A	B
Male					
Internal	26	14.69	14.69	33.23	33.23
		(6.05)	(6.05)	(5.74)	(5.74)
Nonrel.	38	19.82	19.55	27.55	30.79
		(5.46)	(6.44)	(6.23)	(5.16)
Female					
Internal	33	19.88	19.88	32.73	32.73
		(7.15)	(7.15)	(5.54)	(5.54)
Nonrel.	38	20.97	22.18	31.13	29.76
		(6.62)	(5.52)	(5.66)	(7.01)
Overall F (3,131)		5.61***	7.36***	6.70***	2.47
R^2		0.114	0.144	0.133	0.054
Effects					
Gender		6.23**	10.57**	4.04*	0.39
Omega-Sq.		0.037	0.067	0.022	--
Rtype		7.27**	10.17**	12.00***	6.97**
Omega-Sq.		0.044	0.064	0.075	0.042
Gen x Rtype		3.32	1.35	4.06*	0.06
Omega-Sq.		--	--	0.022	--

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Standard Deviations are placed in parentheses. Groups A and B are smaller samples drawn from the nonreligious group.

The results, in terms of Neuroticism, show a main effect for both, gender and Religious Type. This suggests that females tend to have higher means on Neuroticism than males, and that the

Nonreligious have higher means than Intrinsics. Thus, the initial differences found between Intrinsics and Nonreligious still persist even after gender differences are taken into account.

In terms of Extraversion, a gender effect was found in group A but not in group B, suggesting that the gender difference in Extraversion was not as strong or stable as in the case of Neuroticism. However, the Religious Type effect was stable over both groups, suggesting that Intrinsics have higher means on Extraversion than Nonreligious.

In terms of the remaining two traits, Agreeableness and Conscientiousness, the results are seen in Table 4.21 below. The results indicate that both Gender and Religious Type main effects were significant and stable for Agreeableness. This suggests, that in terms of Ageeableness, females are significantly higher than males, and the Religiously Intrinsic are significantly higher than the Nonreligious. For Conscientiousness, on the other hand, there is a tentative Religious Type main effect, given that significance was seen in only one of the two comparison groups (see Table 4.21).

To summarize, when we included the exploration of gender differences in our study of Religious type and personality traits, the previous results were generally untouched by any gender differences. That is, the significant differences between the Intrinsic and Nonreligious groups on Neuroticism, Extraversion, and Agreeableness, were not diminished by any intervening gender differences. At the same time gender

differences were maintained across both groups for Neuroticism and Agreeableness.

Table 4.21

Descriptive Statistics and ANOVA in Agreeableness and Conscientiousness by Gender and Religious Type: Group A and B Comparisons

	N	Personality Trait			
		Agreeableness		Conscientiousness	
		A	B	A	B
Male					
Internal	26	32.81	32.81	31.92	31.92
		(4.96)	(4.96)	(4.68)	(4.68)
Nonrel.	38	27.03	28.55	28.95	28.87
		(5.99)	(5.34)	(5.92)	(5.68)
Female					
Internal	33	33.85	33.85	32.48	32.48
		(6.79)	(6.79)	(5.78)	(5.78)
Nonrel.	38	33.18	31.84	31.32	30.76
		(5.75)	(5.18)	(6.94)	(5.08)
Overall F (3,131)		10.30****	5.91***	2.40	3.10*
R^2		0.191	0.119	0.052	0.066
Effects					
Gender		16.12****	6.63**	2.72	2.48
Omega-Sq.		0.101	0.040	--	--
Rtype		8.70**	9.78**	3.73	6.32**
Omega-Sq.		0.054	0.061	--	0.038
Gen x Rtype		6.09**	1.32	0.75	0.51
Omega-Sq.		0.036	--	--	--

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$. Standard Deviations are placed in parentheses. Groups A and B are smaller samples drawn from the nonreligious group.

4.2.1.1.4. Sense of Coherence. In exploring the relationship between Religious Types and Sense of Coherence (SOC), the only component of the SOC construct that showed no significant differences among the types was Comprehensibility (see below).

Table 4.22

Descriptive Statistics, ANOVA and Post-Hoc Multiple Comparisons in Sense of Coherence and Religious Types

Sense of Coherence	Religious Types: Int. (n=59)	Ext. (n=106)	Pro. (n=196)	Non. (n=155)	F (3,512)	R^2
Comprehensibility	35.69 (5.77)	34.88 (5.53)	34.64 (5.32)	33.92 (5.07)	1.77	--
Manageability	37.95a (5.11)	37.12ab (5.23)	36.82ab (5.33)	35.57b (4.80)	3.90**	.022
Meaningfulness	32.19a (4.57)	29.91bc (4.78)	30.96ac (4.53)	28.88b (4.77)	9.54****	.053
Full SOC Scale	105.83a (13.67)	101.91ab (13.35)	102.42a (13.12)	98.37b (12.18)	5.57***	.032

Note: ** $p < .01$, *** $p < .001$, **** $p < .0001$. Int.=Internal, Ext.=External, Pro=Proreligious, Non.=Nonreligious. Standard Deviations included in parentheses. Means with different subscripts within a row differ significantly at the .05 level by Tukey post hoc test.

Again, a consistent contrast between the Religiously Intrinsic and Nonreligious appears to be evident. For example, not only is the Intrinsic mean significantly higher than the Nonreligious mean on SOC as a whole, but this is also true for the Manageability and Meaningfulness components. To explore this relationship between these two contrasting groups further and to accommodate for the differences in sample size (59 vs 155), the previously discussed procedure of comparing Group A and Group B was followed.

The results comparing the initial differences with group A

and B, representing the two samples containing 59 subjects each from the Nonreligious group, are reported below.

Table 4.23

Descriptive Statistics and ANOVA in Intrinsically Religious and Nonreligious groups on Sense of Coherence: Group A and B Comparison

	Types					
SOC	N	Intrinsic	N	Nonreligious	F #	R^2
SOC (whole)	59	105.83 (13.67)	155	98.37 (12.18)	14.94****	.066
Group A	59	105.83 (13.67)	59	97.25 (11.93)	13.18***	.102
Group B	59	105.83 (13.67)	59	99.03 (13.13)	7.58**	.061
Manageability	59	37.95 (5.11)	155	35.57 (4.80)	10.08**	.045
Group A	59	37.95 (5.11)	59	35.20 (4.64)	9.33**	.074
Group B	59	37.95 (5.11)	59	35.80 (5.24)	5.10*	.042
Meaningfulness	59	32.19 (4.57)	155	28.88 (4.77)	20.96****	.090
Group A	59	32.19 (4.57)	59	28.37 (4.72)	19.85***	.150
Group B	59	32.19 (4.57)	59	29.42 (4.92)	9.98**	.079

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$. Standard Deviations are placed in parentheses. Group A and B are samples drawn from the Nonreligious group to match sample sizes. F #:Degrees of freedom in initial comparison (1,212), in A and B comparison (1,116).

In terms of the whole SOC scale, like the initial comparison, group A and B are also significant and have a range of R^2 values between 6% to 10%. While the initial comparison on Manageability was significant and had an R^2 value of 5%, the

range of this value between groups A and B was between 4% to 7%. Similarly, for Meaningfulness, while the initial comparison had an R^2 value of 9%, the range between group A and B was between 8% and 15%.

Consequently, the earlier tentative finding of the contrast between the Religiously Intrinsic and Nonreligious types on SOC, were substantiated when group sizes were matched. These results suggest that Intrinsics, when compared to the Nonreligious types, have a stronger Sense of Coherence, particularly, in the components of Manageability and Meaningfulness.

4.2.1.1.5. Subjective Well-being. When Religious Types were compared on Subjective Well-being, some significant differences were seen (see Table 4.24 below).

Table 4.24
Descriptive Statistics, ANOVA and Post-Hoc Multiple Comparisons in Subjective Well-being and Religious Types

	Religious Types					
Subjective Well-being	Int. (n=59)	Ext. (n=106)	Pro. (n=196)	Non. (n=155)	F (3,512)	R^2
SWL	19.07a	17.40b	18.00ab	17.25b	4.05**	.023
	(3.71)	(3.68)	(3.79)	(3.59)		
AF(Net)	22.76a	18.43b	18.69b	16.98b	4.82**	.027
	(9.43)	(10.47)	(10.16)	(9.52)		
PA	39.86a	37.91ab	38.14ab	36.99b	4.49**	.026
	(5.52)	(5.38)	(5.03)	(5.24)		
NA	17.10a	19.47b	19.45b	20.01b	3.92**	.022
	(4.78)	(5.82)	(5.94)	(5.30)		

Note: ** $p < .01$. SWL=Satisfaction with life, AF=Affect (net = PA-NA), PA=Positive affect, NA=Negative affect, Int.=Internal, Ext.=External, Pro.=Proreligilous, Non.=Nonreligious. Standard Deviations included in parentheses. Means with different subscripts within a row differ significantly at the .05 level by Tukey post hoc test.

Further analysis of the two extreme types, while accommodating for differences in group size, is shown below.

Table 4.25

Descriptive Statistics and ANOVA in Intrinsically Religious and Nonreligious groups on Subjective Well-being (SWB): Group A and B Comparisons

	Types					
SWB	N	Intrinsic	N	Nonreligious	F #	R^2
Satisfaction with life	59	19.07 (3.71)	155	17.25 (3.59)	10.72***	.048
Group A	59	19.07 (3.71)	59	16.75 (3.55)	12.07***	.094
Group B	59	19.07 (3.71)	59	17.34 (3.66)	6.49**	.053
Affect (net)	59	22.76 (9.43)	155	16.98 (9.52)	15.85****	.070
Group A	59	22.76 (9.43)	59	16.66 (10.21)	11.37***	.089
Group B	59	22.76 (9.43)	59	17.80 (9.06)	8.50**	.068
Positive Affect	59	39.86 (5.52)	155	36.99 (5.24)	12.50***	.056
Group A	59	39.86 (5.52)	59	36.73 (5.72)	9.19**	.073
Group B	59	39.86 (5.52)	59	37.22 (4.89)	7.59**	.061
Negative Affect	59	17.10 (4.78)	155	20.01 (5.30)	13.54***	.060
Group A	59	17.10 (4.78)	59	20.07 (5.43)	9.91**	.079
Group B	59	17.10 (4.78)	59	19.42 (5.39)	6.12**	.050

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Standard Deviations are placed in parentheses. Group A and B are samples drawn from the Nonreligious group to match sample sizes between the two types. Affect (net = Positive Affect - Negative Affect). F #: Degrees of freedom in initial comparison (1,212), in A and B comparison (1,116).

To sum-up, the results reported in Table 4.24, tentatively show a consistent contrast between the two extreme types, the Intrinsics and the Nonreligious. That is, Intrinsics appear to have significantly higher means on life satisfaction, an overall sense of happiness, and positive affect, while having a significantly lower mean on negative affect.

Again, after matching for group sizes, the previously tentative findings of the contrast between the two extreme types were validated. For example, in terms of life satisfaction, the R^2 value between groups A and B ranged between 5% to 9%, which encompassed the value of the initial comparison. Similarly, for overall happiness the R^2 value for all three comparisons ranged from 7% to 9%, and for positive and negative affect, these values ranged from 5% to 8% over all six comparisons.

4.2.1.1.6. Summary and Conclusion. In this section religious orientation was conceptualized as a continuum ranging from "not at all religious" to "very religious". This conceptualization resulted in the formation of the following religious types: Internal, External, Indiscriminately Proreligious, and Indiscriminately Nonreligious. These types were then compared on Parental and Peer Attachment, the "big five" personality traits, Sense of Coherence, and Subjective Well-being. The results showed a consistently significant difference between the two extreme groups, namely, the Religiously Intrinsic and the Nonreligious types.

In terms of Attachment, attachment to Father maintained the

strongest differential relationship between religious internality and nonreligiousness. In terms of personality traits, Intrinsics, when compared to the Nonreligious, were significantly lower on Neuroticism and higher on Extraversion, Agreeableness and Conscientiousness. However, the significant difference on Conscientiousness was not as stable as the other three factors. Neither were the two types significantly different on Openness to Experience.

Similarly, in terms of Sense of Coherence and Subjective Well-being, the Intrinsics seem to fare better. The Intrinsics were significantly higher on Manageability, Meaningfulness and Sense of Coherence as a whole, but there were no differences in Comprehensibility. For Subjective Well-being, the Intrinsics were higher in satisfaction with life and an overall sense of happiness.

When gender differences were explored in relationship to Intrinsic and Nonreligious types and the various dependent variables mentioned above, they were found to be stable in Peer Attachment, Neuroticism, and Agreeableness. In each case females had significantly higher means than males.

Traditionally, the main interest in religious types has been the contrast between the Intrinsic and Extrinsic types, the former, presumably, representing the more genuine religious experience, while the latter, representing those religious individuals who use their religion for other ends. How do these two types differ in this sample? Although the two types can be

traced through all the previous tables in this section that cover the four types, I decided to summarize the variables on which these two groups significantly differ (see Table 4.26).

Table 4.26

Summarizing Means with significant differences between Intrinsic and Extrinsic Religious Types on a number of variables.

Dependent Variable	Intrinsic (n= 59)	Extrinsic (n=106)	F (1,165)	R^2
ATF	96.75 (21.15)	84.35 (22.50)	12.00***	.069
MEA	32.19 (4.57)	22.91 (4.78)	8.90**	.052
NEU	17.59 (7.12)	21.01 (7.50)	8.15**	.048
SWL	19.07 (3.71)	17.40 (3.68)	7.78**	.046
AF (net)	22.76 (9.43)	18.43 (10.47)	6.94**	.041
NA	17.10 (4.78)	19.47 (5.82)	7.11**	.042

Note: ** $p < .01$, *** $p < .001$. ATF=Attachment to Father, MEA=Meaningfulness, NEU=Neuroticism, SWL=Satisfaction With Life, AF (net)=Affect (Positive affect-Negative affect:Happiness), Na=Negative affect.

Table 4.26 shows that Intrinsics differ significantly from Extrinsics on Father Attachment, the Meaningfulness component of Sense of Coherence, Satisfaction With Life, general happiness (net affect), and Negative Affect. The amount of variation in these contrasting means accounted for by the various dependent variables, ranges from 4% to 7%.

4.2.1.2. Religious Dimensions

In defining religious orientation in terms of religious dimensions, several religious scales were used: the Religious Orientation Scale (ROS) provided the Intrinsic (IN) and Extrinsic (EX) scales; the Religious Life Inventory (RLI) provided the End (EN), Means (ME), and Quest (QU) scales; and the Religious Maturity (RM) scale. Further, average scores were calculated on all scales so that the means and standard deviations could be compared, if desired, to much of the existing literature exploring these dimensions. The interrelationships among these scales for the entire sample are seen below in Table 4.27.

Table 4.27

Means, Standard Deviations and Correlations among the Religious Scales (N=516)

	IN	EX	EN	ME	QU	RM
IN	--					
EX	.48	--				
EN	.82	.37	--			
ME	.73	.45	.77	--		
QU	.18	.31	.26	.23	--	
RM	.38	.37	.44	.40	.58	--
Mean	2.74	2.61	3.02	2.88	2.76	3.06
SD	0.96	0.63	0.97	0.83	0.65	0.55

Note: $p < .0001$. IN=Intrinsic, EX=Extrinsic, EN=religion as End, ME=religion as Means, QU=Quest, RM=Religious Maturity.

Generally, the correlations seen in Table 4.27 differ from studies done on more religiously homogeneous populations. For example, the mean correlational value across 34 samples for IN and EX of the ROS was not significant (r=-.06); among more conservative populations it was -.44 ($p < .001$), and for other

groups with some sort of religious affiliation or interest in religion it was -.23 ($p < .001$) (see Donahue, 1985a).

With the diverse population used for the purposes of this thesis, ranging from nonreligious to very religious, the correlation between IN and EX was not only significant but was also in the positive direction (r=.48). In other words, the expected differences among scales are not seen here. All scales are positively correlated.

Given the previously discussed problem of using these religious scales on a diverse population, which includes nonreligious participants, and in order to obtain meaningful correlational values, it was necessary to adopt the second conceptualization of religious orientation mentioned earlier. That is, by definition, restricting religious orientation to religious subjects. Consequently, several 1-item variables (see Appendix A) were used to filter out nonreligious subjects and, thus, procure a more religiously homogeneous sample.

One question asked: "How interested are you in religion?" The response alternatives to this question were: (1) Not at all interested, (2) Moderately interested, and (3) Very interested. Subjects selecting (1) were deleted. Another question asked: "Do you feel that you have a personal relationship with Jesus Christ and/or God?" The response alternatives were (1) Not at all, (2) Some of the time, (3) Most of the time, and (4) All of the time. Subjects selecting (1) were deleted. Similarly, a third question asked: "How often do you participate in religious activities

(attend church/synagogue, pray, focus on religious things, etc.)?" The response alternatives were: (1) Never, (2) Once a year (3) Once a month (4) Once a Week, and (5) One or more times a day. Subjects selecting (1) and (2) were deleted.

This process resulted in a group (n=169) that was relatively homogeneous. Comparing the religious scales on this religiously homogeneous group resulted in the relationships seen below.

Table 4.28

Means, Standard Deviations and Correlations among the Religious Scales (N=169)

	IN	EX	EN	ME	QU	RM
IN	--					
EX	-.09	--				
EN	.72****	-.08	--			
ME	.58****	.11	.61****	--		
QU	-.25***	.26***	-.27***	-.21**	--	
RM	-.17*	.28***	-.18*	-.10	.53****	--
Mean	3.59	2.86	3.88	3.60	2.84	3.28
SD	0.73	0.58	0.65	0.56	0.62	0.48

Note: * p <.05, ** p <.01, *** p <.001, **** p < .0001.
IN=Intrinsic, EX=Extrinsic, EN=religion as End, ME=religion as Means, QU=Quest, RM=Religious Maturity.

As would be expected, a visual glance comparing Table 4.27 and Table 4.28 shows, for the homogenous group, consistently higher means on the religious scales and smaller standard deviations, the latter attesting to greater homogeneity. Also the relationship between the Intrinsic (IN) and Extrinsic (EX) scales is closer to the expectations of a more religiously homogeneous sample.

The results in Table 4.28 shows a relationship between the IN and EX scales (-.09) that is similar in value to the mean

correlational value reported by Donahue (1985a) across 34 samples (-.06): nonsignificant and in the negative direction. The table also shows a fairly close relationship between the Quest (QU) scale and the Religious Maturity (RM) scale. Likewise, both scales seem to show parallel relationships to the IN, End (EN), and EX scales, being negatively correlated to the former two and positively related to the latter. This maintains the expected relationship between the IN and EX scales.

Similarly, the relatively strong relationship between IN, EN, and ME is very close to what is seen in the literature. For example, Batson and Schoenrade (1991b) report the findings from two samples: IN/ME r=.60 (.60), IN/EN r=.73 (.72), and ME/EN r=.65 (.60). In Table 4.22 the correlations among these three variables range from .58 to .72. This empirical evidence should discourage the temptation of making ME (religion as Means) conceptually parallel to EX (Extrinsic dimension of religion). Although not as strongly related to IN as EN is, ME appears to be more closely associated with IN than EX.

Likewise, there is the expected contrast between the End (EN) dimension and the Quest (QU) dimension. According to Batson's conceptualization, the EN orientation is associated with a readiness to bind oneself to religious beliefs, while the QU orientation is related to the opposite, a hesitancy or tentativeness to affirm particular beliefs. This theoretical relationship appears to be confirmed in this sample with the negative correlation between EN and QU (r=-.27).

4.2.1.2.1. Parental and Peer Attachment. When religious orientation is defined in terms of religious dimensions and compared to Parental and Peer Attachment, some significant relationships are seen.

Table 4.29

Correlations of Parental and Peer Attachment and Religious Dimensions (N=169)

	Attachment		
Religious Measure	Mother	Father	Peer
ROS (Allport)			
Intrinsic	.32****	.22**	.13
Extrinsic	.03	-.12	-.07
RLI (Batson)			
Religion as an End	.24***	.15*	.03
Religion as Means	.30****	.22**	.25***
Religion as Quest	-.21**	-.18**	-.17*
RMS (Dudley)			
Religious Maturity	-.13	-.09	-.05

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$

Generally, high attachment to mother and father are associated with the Intrinsic (IN), End (EN), and Means (ME) dimensions, but not with the Extrinsic (EX) dimension. This would suggest parental attachment is associated with greater religious internality. Peer attachment, on the other hand, was associated with ME, but not with EN, and almost reached significance on IN. This suggests that Peer attachment is associated less with internal religion than Parental attachment. The Quest (QU) scale was associated negatively with all three attachment measures, suggesting that with increased attachment there was a decrease in

the tentativeness in which one held his or her religious beliefs.

4.2.1.2.2. Personality Traits. When we look at personality factors and religious orientation in terms of religious dimensions, some significant relationships are seen (see Table 4.30).

Table 4.30

Correlations between Personality Traits and Religious Dimensions (N=169)

	Personality Traits				
Religious Measure	NEU	EXT	OPE	AGR	CON
ROS (Allport)					
Intrinsic	-.07	-.04	.01	.19**	.28***
Extrinsic	.17*	-.08	-.15*	-.24**	.01
RLI (Batson)					
Religion as an End	.02	-.13	-.06	.16*	.23**
Religion as Means	-.03	-.04	-.10	.14	.21**
Religion as Quest	.09	-.04	.30****	-.29****	-.19**
RMS (Dudley)					
Religious Maturity	.08	-.05	.35****	-.19**	-.22**

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$, **** $p < .0001$.
NEU=Neuroticism, EXT=Extraversion, OPE=Openness to Experience, AGR=Agreeableness, CON=Conscientiousness.

None of the religious dimensions are significantly related to Neuroticism, except the Extrinsic dimension (r=.17). The Conscientiousness factor shows a fairly consistent and positive relationship to the IN, EN and ME dimensions, while showing an inverse relationship to QU and RM. This would suggest that intrinsics are closely associated with conscientiousness and, perhaps, the need to structure reality and one's belief system in clearly defined terms. Conscientiousness, thus, may be associated

with the need for structure and the desire to have "no loose ends". On the other hand, the Quest oriented individual appears to be more closely associated with the predisposition toward Openness to Experience and its concomitant greater toleration for existing "loose ends".

Similarly, Agreeableness is positively associated with IN and EN, and negatively associated with the EX, QU, and RM dimensions of religion. Perhaps, the lack of willingness to conform and a greater willingness to question is reflected in the inverse relationship that QU and RM individuals have to the personality trait of Agreeableness.

4.2.1.2.3. Sense of Coherence. When we look at Sense of Coherence and religious orientation in terms of religious dimensions, we see a few significant but weak correlations.

Table 4.31

Correlations between Sense of Coherence and Religious Dimensions (N=169)

	Sense of Coherence			
Religious Measure	COM	MAN	MEA	SOC (Whole)
ROS (Allport)				
Intrinsic	.00	.10	.21**	.11
Extrinsic	-.12	-.11	-.02	-.10
RLI (Batson)				
Religion as an End	.01	-.04	.10	.02
Religion as Means	.03	.10	.21**	.12
Religion as Quest	-.20**	-.12	-.11	-.16*
RMS (Dudley)				
Religious Maturity	-.08	-.01	.03	-.03

Note: * $p < .05$, ** $p < .01$. SOC=Sense of Coherence (Full Scale) COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness.

Although the magnitude of the significant relationships is not large, the results tend to show that the IN and ME religious dimensions are significantly related to the meaningfulness component of SOC, while the QU dimension is negatively associated with the Comprehensibility component and SOC as a whole. That is, in terms of the former, individuals high on IN and ME tend to see their lives as having purpose and meaning. On the other hand, in terms of the latter, the results would tend to imply that increased hesitancy and tentativeness to hold to particular beliefs is associated with a decrease in perceiving the world as making sense and being understandable.

4.2.1.2.4. Subjective Well-being. Exploring the relationship between Subjective Well-being and religious orientation in terms of religious dimensions, we see a few significant correlations.

Table 4.32
Correlations between Subjective Well-Being and Religious Dimensions (*N*=169)

	Subjective Well-being			
Religious Measures	SWL	AF(net)	PA	NA
ROS (Allport)				
Intrinsic	.21**	.13	.15*	-.08
Extrinsic	-.07	-.17*	-.11	.20**
RLI (Batson)				
Religion as an End	.10	.03	.05	.00
Religion as Means	.20**	.14	.18**	-.07
Religion as Quest	-.08	-.20**	.08	.28***
RMS (Dudley)				
Religious Maturity	-.03	-.08	-.04	.11

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. SWL=Satisfaction With Life, AF=Affect (net=PA - NA), PA=Positive Affect, NA=Negative Affect.

Congruent with the previously discussed Sense of Coherence construct, we see the IN and ME religious dimensions associated with life satisfaction, and QU associated with negative affect. That is, a hesitancy to hold to a set of beliefs is associated with greater anxiety. Similarly, the religiously extrinsic (EX) dimension, which is descriptive of people who tend to use religion for other needs, is significantly associated with negative affect.

4.2.1.2.5. Conclusion. When we consider the religious dimensions in relationship to Attachment, Personality Traits, Sense of Coherence and Subjective Well-being, we tend to see an overall pattern that seems to contrast the more internalized forms of religion with the more hesitant and tentative, in terms of commitment to particular beliefs. While the more internalized forms of religion (IN, EN, ME) are associated with high parental attachment, the more hesitant (QU) are associated with low attachment. The former also tend to be associated more with the personality factors of Conscientiousness and Agreeableness, while the latter (QU and RM) with Openness to Experience.

Similar patterns appear between SOC and SWB. For example, IN and ME are associated with meaningfulness, life satisfaction and positive affect, while QU is associated with low SOC and high negative affect. This would imply, that while a hesitancy and a tentativeness in holding to a particular set of beliefs is positively associated with the personality factor of Openness to Experience, the downside is a lower Sense of Coherence and

greater anxiety.

4.2.2. Personality Traits

4.2.2.1. Parental and Peer Attachment

In this section we explore the relationship between Parental and Peer Attachment and the Five-Factor Model of personality structure, where personality is defined in terms of Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. The results show highly significant relationships between attachment and four of the five personality factors (see Table 4.33 below).

Table 4.33

Correlations between Personality Traits and Parental and Peer Attachment (N=516)

	Attachment		
Traits	Mother	Father	Peers
1. Neuroticism	-.24****	-.28****	-.26****
2. Extraversion	.29****	.21****	.44****
3. Openness to experience	.02	-.00	.13**
4. Agreeableness	.31****	.21****	.33****
5. Conscientiousness	.26****	.20****	.28****

** p <.01, **** p < .0001

The Openness to Experience factor does not correlate at all with Mother and Father attachment, and only marginally with Peer Attachment. High scores on each of the three attachment measure is correlated with low scores on Neuroticism, while high scores in Mother and Peer Attachment appear to have slightly larger positive correlations with Extraversion, Agreeableness, and

Conscientiousness, compared to high scores on Father Attachment.

Further, since gender differences were detected in two of the attachment measures (Mother and Peer) and four of the five personality traits (all but Openness to Experience), I thought it would be worthwhile to see how males and females might differ in these correlations (see Table 4.34 below).

Table 4.34

Correlations between Personality Traits and Parental and Peer Attachment by Gender (N=516)

	Attachment					
Traits	Mother		Father		Peers	
	Males	Females	Males	Females	Males	Females
NEU	-.31****	-.22***	-.33****	-.24****	-.26****	-.35****
EXT	.31****	.27****	.14*	.27****	.43****	.45****
OPE	-.06	.00	-.03	.02	.15*	.10
AGR	.28****	.29****	.26****	.18**	.27****	.27****
CON	.26****	.23***	.24****	.17**	.27****	.22***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$. Males (n=255), Females (n=261), NEU=Neuroticism, EXT=Extraversion, OPE=Openness to Experience, AGR=Agreeableness, CON=Conscientiousness.

Generally, a visual glance over Table 4.34 shows that correlations are quite similar in direction and magnitude, with Father Attachment containing some of the more contrasting correlations in terms of gender.

4.2.2.2. Adult Attachment Styles

When we look the relationship between Adult Attachment Styles (Close, Depend, Anxious) and the Five-Factor Model of personality structure, we see significant relationships with four

of the five factors of personality (see Table 4.35 below).

Table 4.35

Correlations between Personality Traits and Adult Attachment Styles (N=516)

Traits	Attachment Styles		
	Close	Depend	Anxious
1. Neuroticism	-.34****	-.41****	.51****
2. Extraversion	.44****	.40****	-.21****
3. Openness to experience	.03	.03	-.01
4. Agreeableness	.35****	.44****	-.31****
5. Conscientiousness	.20****	.16***	-.26****

*** $p < .001$, **** $p < .0001$

Correlations are also in the expected direction, with the Anxious Style relating positively to Neuroticism and inversely to the other personality traits. Only the Openness to Experience factor showed no significant correlations with the attachment styles. Given that a combination of the Close and Depend styles are representative of secure attachment, we see secure attachment having a fairly robust and positive relationship to Extraversion and Agreeableness, and a marginal to low correlation with Conscientiousness.

4.2.2.3. Sense of Coherence

In this section we look at the relationship between the Five-Factor Model of personality structure and the Sense of Coherence (SOC). Congruent with the literature, which shows that SOC has a strong inverse relationship to trait anxiety, we see a fairly strong negative correlation with Neuroticism in the

various components of SOC and in the scale as a whole. The results are seen below in Table 4.36

Table 4.36

Correlations between Personality Traits and Sense of Coherence (N=516)

	Sense of Coherence			
Traits	COM	MAN	MEA	SOC
Neuroticism	-.59****	-.62****	-.51****	-.67****
Extraversion	.32****	.45****	.49****	.48****
Openness to Exper.	.01	.07	.13**	.08
Agreeableness	.25****	.32****	.34****	.35****
Conscientiousness	.36****	.37****	.40****	.44****

Note: ** $p < .01$, **** $p < .0001$ COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness, SOC=Sense of Coherence (Full scale)

Generally, four of the five personality factors are related quite strongly to Sense of Coherence, with Openness to Experience showing no significant relationships except for a marginal one with Meaningfulness. This suggests that people high on Sense of Coherence tend to be low on Neuroticism, on the one hand, and high on Extraversion, Agreeableness, and Conscientiousness, on the other.

4.2.3. Identity

4.2.3.1. Parental and Peer Attachment

This section deals with the question: "What is the relationship between Parental and Peer Attachment and Identity, where identity includes Identity Achieved, Personal Identity and Social Identity?

When we explore the relationship between Parental and Peer Attachment to late adolescent Identity, we see significant but weak to moderate correlations. The Personal Identity measure produces correlations comparable to the Identity Achieved measure, but the Social Identity measure shows no relationship to Parental and Peer Attachment (Table 4.37 below).

Table 4.37

Correlations between Identity and Parental and Peer Attachment (N=516)

	Attachment		
Identity	Mother	Father	Peers
Identity Achieved	.29****	.17****	.27****
Ideological	.22****	.12**	.14**
Interpersonal	.28****	.17****	.31****
Personal Identity	.25****	.15***	.28****
Social Identity	.01	-.08	.09

** $p < .01$, *** $p < .001$, **** $p < .0001$.

In terms of Parental Attachment, these results suggest that high attachment to mother has a slightly stronger relationship to Identity than high attachment to father. In terms of attachment to peers, the largest correlation is seen with the Interpersonal component of Identity Achieved. Similarly, the magnitude of the correlations with Identity Achieved and Personal Identity is comparable to attachment to mother.

In the primary analysis, Attachment to Mother and Attachment to Father were both used as manifest variables for the latent construct, Secure Attachment. This was done so that Secure

Attachment could predict the latent construct of Identity Achievement. But, when explored separately, how do these measures of attachment predict scores on the identity scales, including Personal Identity? To pursue this question, a forward, stepwise regression analysis was done with each of the identity scales taking a turn at being the dependent variable.

The forward technique starts with the best single regressor, and then progressively adds the next best, until the criterion of statistical significance is reached in which adding another variables does not significantly improve on the amount of variance explained. The results of this regression analysis indicated that Attachment to Mother was the most significant variable and accounted for 8.3% of the variation in Identity Achievement scores (R^2=.083, F=46.78, p < .0001). With the addition of Attachment to Peers, the model now explained 11.9% of the variation in Identity Achievement scores (R^2=.036, F=20.83, p < .0001). The addition of the Attachment to Father variable, however, did not significantly improve the prediction of Identity Achievement scores.

These results seem to replicate the study done by Benson, Harris and Rogers (1992) in which they found that Attachment to Mother predicted higher levels of Identity Achievement, while Attachment to Father predicted higher levels of Foreclosure.

In terms of Personal Identity, a similar regression analysis was done with the three measures of attachment as the independent variables. Attachment to Peers was the most significant variable

and accounted for 8.1% of variation in Personal Identity scores (R^2=.081, F=45.22, p <.0001). With the addition of the Attachment to Mother variable, the model now explained 11% of the variation in Personal Identity scores (R^2=.029, F=16.50, p < .0001). Again, the addition of Father Attachment did not add any significant predictive power to the model.

In previous decades the research literature on identity development, in general, and Identity Achievement, in particular, tended to favor males. That is, males tended to score higher on identity measures. Although such differences between males and females have shown to be less pronounced during this last decade, presumably, due to the fact that females show stronger vocational interests today, I decided to do a gender comparison of the correlations shown in Table 4.37. The results are seen in Table 4.38 below. Consistent with earlier results, in terms of the Social Identity measure, neither males nor females show any significant correlations.

In general, mother-attached males seem to have slightly higher correlations on the Identity Achieved measures than mother-attached females. On the other hand, mother-attached females seem to do better on the Personal Identity measure. In all three measures of attachment, males appear to have slightly higher correlations on Ideological Identity. Further, the magnitude of the correlations for both males and females on Father Attachment are noticeably smaller than on Mother and Peer Attachment. This would suggest that not only is secure attachment

important to identity formation, in general, but also mother attachment to Identity achievement, in particular. As indicated in Table 4.38, even male Identity achievement is enhanced by a secure mother attachment.

Table 4.38

Correlations between Identity and Parental and Peer Attachment by Gender (N=516)

	Attachment					
Identity	Mother		Father		Peers	
	Males	Females	Males	Females	Males	Females
IA	.33****	.24****	.19**	.15**	.28****	.24****
IDE	.26****	.17**	.17**	.07	.14*	.11
INT	.31****	.23***	.16**	.17**	.32****	.27****
PI	.20***	.27****	.11	.19**	.26****	.24****
SI	-.01	.04	-.08	-.07	.11	.11

Note: * $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$. Males (n=255), Females (n=261), IA=Identity Achieved, IDE=Ideological Identity, INT=Interpersonal Identity, PI=Personal Identity, SI=Social Identity.

To see if these apparent differences in correlations between males and females would show a difference in predictive power, a regression analysis was done. The results indicate that males' attachment to mother accounted for 10.6% of the variation in Identity Achievement scores (R^2=.106, F=30.14, $p < .0001$), while females' attachment to mother accounted for 5.8% of the variation in Identity Achievement scores (R^2=.058, F=15.93, $p < .01$). With the addition of the Attachment to Peers variable to the model, it took the explained variance to 14.5% for males (R^2=.039, F=11.53, $p < .01$) and 8.7% for females (R^2=.029, F=8.05, $p < .01$).

Thus, for securely attached males and females there is almost a 6% difference between them, in terms of the amount of explained variance in the Identity Achievement scores. It appears that although secure attachment to mother clearly enhances Identity Achievement for both males and females, it does not seem to dissolve the overall advantage males appear to have, when both are matched on secure attachment to mother.

For Personal Identity, the difference between males and females was not as large as seen in Identity Achievement. For females, Attachment to Mother made the largest contribution, predicting 7.4% of the variance in Personal Identity scores (R^2=.074, F =20.74, p < .0001). When attachment to peers was added it took the explained variance to 10% (R^2=.026, F=7.31, p < .01). On the other hand, for males, Attachment to Peers made the largest contribution, predicting 7% of the variance in Personal Identity scores (R^2=.070, F=18.89, p < .0001). Being attached to mother took the variance explained to 8.8% (R^2=.019, F=5.13, p < .05). Thus, for securely attached males and females there is only a marginal difference in the amount of variance explained in Personal Identity scores (1.2%).

4.2.3.2. Adult Attachment Styles

This section deals with the question: "What is the relationship between Adult Attachment Styles (Close, Depend, Anxious) and Identity?" The results are reported below (see Table 4.39).

Table 4.39

Correlations between Identity and Adult Attachment Styles (N=516)

Identity	Attachment Styles		
	Close	Depend	Anxious
Identity Achieved	.27****	.18****	-.22****
Ideological	.19****	.09*	-.19****
Interpersonal	.28****	.21****	-.20****
Personal identity	.20****	.14***	-.11**
Social identity	.09*	.01	.13**

* $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$

The results show that the relationship between Adult Attachment Styles and the various Identity measures is very similar to the relationship seen earlier between the Parental and Peer Attachment measures and Identity. Interestingly, whereas the Anxious (or insecure) style of attachment is inversely related to Identity Achievement and Personal Identity, it is positively related to the Social Identity measure. Perhaps such an individual, lacking secure attachment relationships and the resulting sense of personal identity, seeks compensation in a predominantly social identity. This notion is worth exploration and elaboration in the future. Further, the Close Attachment Style seems to show more consistently significant and slightly larger correlations than the Depend Style.

4.2.4. Parental Attachment Types

In exploring further the Mother and Father Attachment measures, I developed four types of parental attachment. In order

to do this, I followed the same procedure I used with the Intrinsic and Extrinsic religious orientation scales to form the four religious types. In terms of parental attachment, I took the mean values of the Attachment to Mother scale (M=95) and the Attachment to Father scale (M=86) and used these values as the cut-off points to differentiate the four Attachment Types.

The resulting four types were: High Mother/High Father (HM/HF); High Mother/Low Father (HM/LF); Low Mother/High Father (LM/HF); and Low Mother/Low Father (LM/LF). The two high and low extreme types had the largest number of subjects: HM/HF (n=215); LM/LF (n=137). The intermediate mixed types, on the other hand, had fewer subjects: HM/LF (n=90); LM/HF (n=74). These four Parental Attachment Types were then compared on Sense of Coherence, Subjective Well-being, and Identity.

4.2.4.1. Sense of Coherence

First, the four Parental Attachment Types were compared on Sense of Coherence (SOC). The results are shown in Table 4.40

The SOC scale as a whole and each of the three components, all show significant differences among the Parental Attachment Types. In each instance High Mother/High Father (HM/HF) has the highest mean and Low Mother/Low Father (LM/LF) has the lowest mean. Further, in each instance, HM/HF has a significantly different mean from the other three types. This would clearly suggest that the best possible scenario for the development of a strong SOC, as far as parental attachment is concerned, is to have a high and secure attachment to both parents.

Table 4.40

Mean Differences among the Four Parental Attachment Types and Sense of Coherence (SOC)

	Attachment					
	Mother High		Mother Low			
SOC	Father High (n=215)	Father Low (n=90)	Father High (n=74)	Father Low (n=137)	F (3,512)	R^2
COM	36.64a (5.02)	34.56b (5.36)	32.58bc (5.16)	32.50c (4.75)	23.70****	.122
MAN	38.94a (4.44)	36.70b (5.14)	35.42b (4.90)	33.64c (4.69)	37.56****	.180
MEA	32.30a (4.08)	30.10b (4.63)	28.72bc (4.95)	27.99c (4.45)	30.50****	.152
FULL SCALE	107.88a (11.35)	101.36b (13.08)	96.72bc (12.20)	94.12c (11.25)	43.13****	.202

Note:**** p <.0001. Standard Deviations are placed in parentheses and the means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test. COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness

Clearly, the worst scenario, in terms of developing a strong SOC is to have low or insecure attachment to both parents. However, a second best scenario is to be securely attached to mother, even though attachment to father may be low. This is because HM/LF attachment is still significantly better than the worst scenario, namely, LM/LF, whereas, LM/HF is not (see Table 4.40). But it should be kept in mind that there is still a significant difference between the best (HM/HF) and second best (HM/LF) scenario. In other words, when father attachment is added to mother attachment it does make a difference in SOC. However,

the question remains as to how valid and stable are these relationships given the disparity among sample sizes. For example, group sizes ranged from 74 to 215.

Consequently, I decided to reduce the HM/HF group (n=215) into three equal samples of 71 subjects each, and the LM/LF (n=137) group into two equal samples of 68 subjects each, while maintaining the size of the two high and low mixed groups, HM/LF and LM/HF. The two samples taken from the two high and low pure or extreme groups provided two comparisons. The extra sample taken from the HM/HF (n=215) group was compared to both samples of the LM/LF group. Thus, the comparison patterns for each group (A, B, C, and D), ranging from HM/HF to LM/LF, is as follows: Group A - 1, 1, 1, 1; Group B - 2, 1, 1, 2; Group C - 3, 1, 1, 1; and Group D - 3, 1, 1, 2. In other words, four comparisons were made which provided four sets of data to see if the initial significance and pattern of differences were maintained for each of the dependent variables. The results are shown in Table 4.41.

Generally, this validation procedure showed that the initial findings of significance and the general patterns of significant differences between the Parental Attachment Types and Sense of Coherence were maintained. Thus, the notions of best (HM/HF) and second best (HM/LF) scenarios of attachment being associated with a strong Sense of Coherence, compared to LM/LF, were sustained (see Table 4.41).

Table 4.41
Validating the Mean Differences among the Four Parental Attachment Types and Sense of Coherence (SOC)

	Attachment					
	Mother High		Mother Low			
SOC	Father High (n=71)	Father Low (n=90)	Father High (n=74)	Father Low (n=68)	F (3,299)	R^2
COM						
A	36.72a	34.56b	32.58bc	32.28c	11.20****	.101
	(4.86)	(5.36)	(5.16)	(5.27)		
B	36.58a	34.56ab	32.58b	32.71b	10.01****	.091
	(5.12)	(5.36)	(5.16)	(4.23)		
C	36.54a	34.56ab	32.58bc	32.28c	10.12****	.092
	(5.13)	(5.36)	(5.16)	(5.27)		
D	36.54a	34.56ab	32.58b	32.71b	9.80****	.089
	(5.13)	(5.36)	(5.16)	(4.23)		
MAN						
A	38.51a	36.70ab	35.42bc	33.76c	12.52****	.112
	(4.17)	(5.14)	(4.90)	(4.62)		
B	38.72a	36.70b	35.42bc	33.43c	14.57****	.128
	(4.59)	(5.14)	(4.90)	(4.79)		
C	39.46a	36.70b	35.42bc	33.76c	17.52****	.150
	(4.47)	(5.14)	(4.90)	(4.62)		
D	39.46a	36.70b	35.42bc	33.43c	19.05****	.160
	(4.47)	(5.14)	(4.90)	(4.79)		
MEA						
A	32.14a	30.10b	28.72bc	27.68c	11.94****	.107
	(4.55)	(4.63)	(4.95)	(4.61)		
B	32.32a	30.10b	28.72b	28.32b	11.34****	.102
	(4.04)	(4.63)	(4.95)	(4.32)		
C	32.37a	30.10b	28.72bc	27.68c	14.28****	.125
	(3.67)	(4.63)	(4.95)	(4.61)		
D	32.37a	30.10b	28.72b	28.32b	11.98****	.107
	(3.67)	(4.63)	(4.92)	(4.32)		
FULL SCALE						
A	107.37a	101.36b	96.72bc	93.72c	17.31****	.148
	(11.01)	(13.08)	(12.20)	(11.31)		
B	107.62a	101.36b	96.72bc	94.46c	16.01****	.138

Table 4.41 continued.

	(11.91)	(13.08)	(12.20)	(11.32)		
C	108.37a	101.36b	96.72bc	93.72c	19.81****	.166
	(11.10)	(13.08)	(12.20)	(11.31)		
D	108.37a	101.36b	96.72bc	94.46c	18.39****	.156
	(11.10)	(13.08)	(12.20)	(11.32)		

Note:**** p <.0001. Standard Deviations are placed in parentheses and the means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test. COM=Comprehensibility, MAN=Manageability, MEA=Meaningfulness

4.2.4.2. Subjective Well-being

In terms of Subjective Well-being (SWB), a similar finding emerges. For the results see Table 4.42 below.

Table 4.42

Mean Differences among the Four Parental Attachment Types and Subjective Well-being

	Attachment					
	Mother High		Mother Low			
SWB	Father High (n=215)	Father Low (n=90)	Father High (n=74)	Father Low (n=137)	F (3,512)	R^2
SWL	19.53a	17.69b	16.53bc	15.74c	39.36****	.187
	(3.08)	(3.48)	(3.57)	(3.62)		
AF(net)	23.34a	18.80b	15.05c	12.91c	41.51****	.196
	(7.95)	(9.51)	(10.34)	(9.61)		
PA	40.33a	37.89b	36.47bc	35.04c	36.72****	.177
	(4.34)	(5.00)	(5.17)	(5.14)		
NA	16.99a	19.099b	21.42c	22.13c	31.83****	.157
	(4.48)	(5.39)	(6.17)	(5.56)		

Note:**** p <.0001. Standard Deviations are placed in parentheses and the means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test. SWB=Subjective Well-being, SWL=Satisfaction With Life, AF(net)= net happiness (PA-NA), PA=Positive Affect, NA=Negative Affect.

The results show that for Subjective Well-being, the most

advantageous group appears to be the HM/HF group. This group has the highest mean of all the types on Satisfaction With Life, net happiness (AF=PA-NA), and Positive Affect. Conversely, HM/HF has the lowest mean on Negative Affect (see Table 4.42).

Again, as with SOC, while the best scenario is HM/HF for high levels of SWB, the second best scenario is to maintain a secure attachment to mother. Maintaining a predominant attachment to mother (HM/LF) produced a significantly higher mean when compared to a predominant attachment to father (LM/HF), as far as net happiness (AF net) was concerned and lower negative affect. This was not true, however, for the cognitive component of SWB (Satisfaction With Life) and for Positive Affect (PA), in which case, a high mother attachment alone was not adequate to distinguish from a predominant father attachment. In all cases, adding high father attachment to high mother attachment made a significant difference. Thus, as in the case of SOC, high father attachment significantly enhances the impact of high mother attachment

In order to see if these relationships to SWB would be sustained after adjusting for sample size, the same validation procedure used earlier with SOC, was conducted with SWB. The results are seen below in Table 4.43.

Table 4.43

Validating the Mean Differences among the Four Parental Attachment Types and Subjective Well-being

	Attachment					
	Mother High		Mother Low			
SWB	Father High (n=71)	Father Low (n=90)	Father High (n=74)	Father Low (n=68)	F (3,299)	R^2
SWL						
A	19.51a	17.69b	16.53bc	15.18c	21.03****	.174
	(3.14)	(3.48)	(3.57)	(3.15)		
B	19.51a	17.69b	16.53b	16.28b	12.31****	.120
	(3.04)	(3.48)	(3.57)	(4.00)		
C	19.61a	17.69b	16.53bc	15.18c	22.03****	.181
	(3.12)	(3.48)	(3.57)	(3.15)		
D	19.61a	17.69b	16.53b	16.28b	12.95****	.115
	(3.12)	(3.48)	(3.57)	(4.00)		
AF (net)						
A	23.82a	18.80b	15.05bc	11.71c	21.97****	.181
	(7.94)	(9.51)	(10.34)	(9.17)		
B	23.42a	18.80b	15.05bc	14.10c	14.14****	.124
	(7.86)	(9.51)	(10.34)	(10.03)		
C	23.04a	18.80b	15.05c	11.71c	19.75****	.165
	(7.53)	(9.51)	(10.34)	(9.71)		
D	23.04a	18.80b	15.05bc	14.10c	13.24****	.117
	(7.53)	(9.51)	(10.34)	(10.03)		
PA						
A	40.76a	37.89b	36.47bc	34.66c	19.18****	.161
	(4.48)	(5.00)	(5.17)	(4.99)		
B	40.06a	37.89b	36.47bc	35.37c	11.81****	.106
	(4.17)	(5.00)	(5.17)	(5.33)		
C	40.32a	37.89b	36.47bc	34.66c	17.15****	.147
	(4.04)	(5.00)	(5.17)	(4.99)		
D	40.32a	37.89b	36.47bc	35.37c	13.34****	.118
	(4.04)	(5.00)	(5.17)	(5.33)		
NA						
A	16.94a	19.09a	21.42b	22.96b	17.02****	.146
	(4.48)	(5.39)	(6.17)	(5.33)		
B	16.63a	19.09ab	21.42b	21.26c	11.92****	.107

Table 4.43 continued.

	(4.60)	(5.39)	(6.17)	(5.72)		
C	17.28a	19.09a	21.42b	22.96b	15.73****	.136
	(4.17)	(5.39)	(6.17)	(5.33)		
D	17.28a	19.09ab	21.42bc	21.26c	9.47****	.087
	(4.17)	(5.39)	(6.17)	(5.72)		

Note:**** p <.0001. Standard Deviations are placed in parentheses and the means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test. SWB=Subjective Well-being, SWL=Satisfaction With Life, AF(net)=net happiness (PA-NA), PA=Positive Affect, NA=Negative Affect.

As in the case with SOC, the general pattern of the relationship between Parental Attachment Type and SWB, the magnitude of the relationships, and the levels of significance were generally replicated in the validation samples.

4.2.4.3. Identity

In terms of Identity and Parental Attachment Types, significant differences were seen in Identity Achievement and Personal Identity, but not Social Identity. As a result, Social Identity was not included in the results reported in Table 4.44 below.

As seen in the previous dependent variables, the two extreme groups (HM/HF and LM/LF) of Parental Attachment Types were consistently and significantly different, with HM/HF producing the highest means on Identity and LM/LF producing the lowest means. However, an interesting dichotomy seems to occur between high and low mother attachment that produces significant differences, not seen in SOC or SWB. That is, manipulating differences in father attachment makes no difference. It is the

manipulation of mother attachment that produces the significant differences. In other words, the addition of high father attachment to high mother attachment does not significantly enhance the contribution of high mother attachment as it did with SOC and SWB. This corroborates earlier results that elevates Mother Attachment over Father Attachment, in terms of importance in contributing to Identity Achievement. A similar pattern was seen with the Personal Identity measure (see Table 4.44).

Table 4.44

Mean Differences among the Four Parental Attachment Types and Identity

	Attachment					
	Mother High		Mother Low			
Identity	Father High (n=215)	Father Low (n=90)	Father High (n=74)	Father Low (n=137)	F (3,512)	R^2
IA	46.44a (6.02)	44.62a (6.65)	41.47b (5.59)	42.21b (6.28)	19.28***	.101
IDE	15.21a (2.86)	14.67ab (2.89)	13.45bc (2.85)	13.74c (3.20)	10.42***	.058
INT	31.23a (4.02)	29.96a (4.55)	28.03b (4.08)	28.47b (4.13)	17.65***	.094
PERSONAL	41.79a (4.65)	40.94a (4.35)	38.78b (4.56)	39.24b (4.83)	12.57***	.069

Note: *** $p < .001$. Standard Deviations are placed in parentheses and the means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test. IA=Identity Achieved (Full Scale), IDE=Ideological Identity, INT=Interpersonal Identity.

Clearly, these findings suggest that the maintenance of a

high attachment to mother is associated higher scores on these identity measures. This would suggest that mother attachment has a significant bearing on identity formation, a notion that, to date, has not received much research attention or validation.

In order to see if these relationships to Identity were sustained after adjusting for sample sizes, the same validation procedure used earlier with SOC and SWB, was conducted. The results are seen below in Table 4.45. Generally, the same pattern of significant relationships seen in the initial comparison made between Parental Attachment Types and Identity were sustained when group sizes were more closely matched (see Table 4.45).

Table 4.45
Validating the Mean Differences among the Four Parental Attachment Types and Identity

	Attachment					
	Mother High		Mother Low			
Identity	Father High (n=71)	Father Low (n=90)	Father High (n=74)	Father Low (n=68)	F (3,299)	R^2
IA						
A	48.01a	44.62b	41.47c	42.19bc	16.67****	.143
	(5.81)	(6.65)	(5.59)	(6.24)		
B	45.56a	44.62a	41.47b	42.03b	7.60****	.071
	(6.07)	(6.65)	(5.59)	(6.19)		
C	45.85a	44.62ab	41.47c	42.19bc	8.08****	.075
	(6.02)	(6.65)	(5.59)	(6.24)		
D	45.85a	44.62a	41.47b	42.03b	8.40****	.078
	(6.02)	(6.62)	(5.59)	(6.19)		
IDE						
A	16.06a	14.67b	13.45c	13.94bc	11.35****	.102
	(2.61)	(2.89)	(2.85)	(3.06)		
B	14.83a	14.67ab	13.45c	13.47bc	4.68**	.045
	(2.90)	(2.89)	(2.85)	(3.33)		
C	14.80a	14.67a	13.45b	13.94ab	3.55*	.034
	(2.95)	(2.89)	(2.85)	(3.06)		
D	14.80a	14.67ab	13.45c	13.47bc	4.54**	.044
	(2.95)	(2.89)	(2.85)	(3.33)		
INT						
A	31.96a	29.96b	28.03c	28.25bc	13.14****	.117
	(4.09)	(4.55)	(4.08)	(4.19)		
B	30.73a	29.96ab	28.03c	28.56bc	6.57***	.062
	(3.90)	(4.55)	(4.08)	(3.95)		
C	31.04a	29.96ab	28.03c	28.25bc	8.28****	.077
	(4.07)	(4.55)	(4.08)	(4.19)		
D	31.04a	29.96ab	28.03c	28.56bc	7.70****	.072
	(4.07)	(4.55)	(4.08)	(3.95)		
PI						
A	42.46a	40.94ab	38.78c	39.06bc	10.27****	.093
	(4.38)	(4.35)	(4.56)	(5.04)		
B	41.28a	40.94a	38.78b	39.40ab	5.19**	.050

Table 4.45 continued.

	(4.72)	(4.35)	(4.56)	(4.67)		
C	41.65a	40.94ab	38.78c	39.06bc	6.60***	.062
	(4.88)	(4.35)	(4.56)	(5.04)		
D	41.65a	40.94ab	38.78c	39.40bc	6.14***	.058
	(4.88)	(4.35)	(4.56)	(4.67)		

Note: ** p <.05 ** p <.01, *** p <.001, **** p <.0001. Standard Deviations are placed in parentheses and the means with different subscripts within a row differ significantly at the .05 level by the Tukey post hoc test. IA=Identity Achieved (Full Scale), IDE=Ideological Identity, INT=Interpersonal Identity, PI=Personal Identity.

CHAPTER 5. DISCUSSION

This study brings together seven constructs that have not been previously brought together within the parameters of a single model. Each construct has had its own research tradition that has established its validity and reliability, but no effort has been made to exploit the theoretical linkages among all of these seven constructs. Consequently, in this study I bring these constructs together in a single theoretical framework and within an empirical model that is capable of being tested.

The testing and cross-validation of this model culminates in the primary analysis of this dissertation. Eight hypotheses pertaining to the model were articulated, and each one will be briefly discussed in light of the results.

5.1. Hypothesis One: Secure Attachment, Extraversion and Neuroticism

First, the three exogenous or independent variables of the model (Extraversion, Secure Attachment, and Neuroticism) were expected to be correlated to each other. The theoretical foundation for this hypothesis formed the basis for the proposed integration of the "structural" and "process" approaches to personality development. That is, the integration of temperaments and "working models" of attachment in early development, and the subsequent underlying development of positive and negative affect.

More specifically, Secure Attachment was expected to be positively correlated with Extraversion and negatively correlated

with Neuroticism, while the two traits were expected to be negatively correlated. This hypothesis was confirmed. In terms of Sample I, Secure Attachment related positively to Extraversion (.44) and negatively to Neuroticism (-.40). The two traits correlated negatively with each other (-.44). In terms of Sample II, a similar pattern of correlations emerged. Secure Attachment related positively to Extraversion (.34) and negatively to Neuroticism (-.42). The two traits correlated negatively with each other (-.47). Thus, the first hypothesis was confirmed in both samples.

5.2. Hypothesis Two: Secure Attachment, Extraversion, Neuroticism, and Subjective Well-being

Second, the three exogenous variables mentioned above were also expected to predict Subjective Well-being (SWB), with Extraversion and Secure Attachment producing a positive outcome and Neuroticism, a negative one. This hypothesis was confirmed for the traits but not for attachment. In testing the overall model, the relationship between Secure Attachment and SWB was not powerful enough to exert a direct and significant influence on SWB. On the other hand, the two personality traits did have a significant and direct influence on SWB, although it was relatively weak. In terms of Sample I, Extraversion accounted for 3.1% of the variance in SWB, and Neuroticism 1.8%. In Sample II, in contrast, Neuroticism appeared to be more dominant of the two. In this instance, while Extraversion accounted for 1% of the variance in SWB, Neuroticism accounted for 3.5% of the variance.

Thus, in terms of the exogenous variables, consisting of the two traits and the attachment construct as representative of the structural and process approaches to personality development, respectively, the results suggest that the structural (trait) approach only accounts for about 4% to 5% of the variance in SWB. Clearly, intermediate constructs are necessary to elaborate the influences of these exogenous variables in order to account for a greater amount of the variation in SWB.

As a consequence, this dissertation proposed that one such intervening variable was the Sense of Coherence construct. This construct was believed to have an important mediating influence on SWB and would account for much of the additional variance. Subsequently, theoretical elaboration of the Sense of Coherence construct resulted in the introduction of two other variables that were thought to be important mediating variables, namely, Identity Achievement and Intrinsic Religiousness.

5.3. Hypothesis Three: Secure Attachment, Identity Achievement, Intrinsic Religiousness, and Sense of Coherence

Thus, elaborating further on the process approach to personality development, the third hypothesis expected that Secure Attachment would also predict Identity Achievement, Intrinsic Religiousness, and Sense of Coherence. Given that the religiousness factor was necessarily removed from the model due to nonlinearity and underidentification problems associated with its manifest variables, it could not be evaluated in the testing

of the overall model in Sample I and II. However, when the whole sample was reduced to a more religiously homogeneous group, and the religiousness factor was reconsidered, Secure Attachment accounted for 25% of the variance in the religiousness factor. But this could not be confirmed on another sample. Consequently, there was only partial support and confirmation for this part of the third hypothesis, at least within a more religiously oriented sample.

In terms of the other two constructs involved in the third hypothesis, namely, Identity Achievement and Sense of Coherence, both were predicted by Secure Attachment, as expected. In Sample I, Secure Attachment accounted for 14% of the variance in Identity Achievement, while in Sample II it accounted for 6% of the variance. Clearly, the hypothesized relationship between Secure Attachment and Identity Achievement was confirmed.

Unlike Quintana and Lapsley (1987), who found no relationship between attachment and identity, and as a result concluded that the attachment construct was, perhaps, more appropriate for infants rather than adolescents facing identity issues, this study found evidence to the contrary. Like Benson, Harris and Rogers (1992) and Lapsley, Rice and Fitzgerald (1990), this study found evidence to support the important connection between attachment and identity formation.

Exploring the separate contributions of parental and peer attachment to identity, further analysis revealed that attachment to father did not contribute anything significant above and

beyond that which was contributed by attachment to mother, in terms of accounting for the variation in Identity Achievement scores. This is not to say that attachment to father was not related at all to Identity Achievement. Taken by itself, the R^2 value for attachment to father was .029. In other words, attachment to father contributed to the variation of Identity Achievement scores by almost 3%. However, combined with attachment to mother and peers, the contribution to the variance by the attachment to father variable was not statistically significant. Attachment to mother explained a little over 8% of variance, which increased to a little over 12% when peer attachment was added to the equation. These results are congruent with the findings of Benson, Harris and Rogers (1992) who found that mother attachment predicted higher levels of Identity Achievement, while father attachment tended to predict higher levels of Foreclosure.

Personal Identity scores, on the other hand, were best predicted by peer attachment. Attachment to peers accounted for a little over 8% of the variance, and this increased to 11% when attachment to mother was added to the equation. Again, attachment to father appeared to make no significant additional contribution to explaining the variance in the Personal Identity scores. Although not using separate scales for mother and father attachment, Lapsley, Rice, and Fitzgerald (1990) found that parental attachment accounted for 8% of the variance in Personal Identity scores in first year students, which improved by an

additional 11% when Peer attachment was added to the equation. Thus, the attachment variable accounted for a total of 20% of the variance in Personal Identity scores, which is somewhat larger than what was found in the present study.

Taken together, the present findings clearly show a reasonably good relationship between Secure Attachment and Identity. This is significant, given the fact that in the past much of the literature relating to identity formation has focused on autonomy and separation from parents. These results confirm the necessity for an underlying connectedness to be maintained, if identity issues are to be resolved and identity achievement to be realized. When the parent or primary caregiver is still viewed by the young person as a secure base, providing resources and support that can be counted upon, then there is greater freedom to explore identity issues and greater movement toward identity resolution.

Further, this study contributes to the very limited amount of information available regarding the separate influences of mother and father attachment to identity formation. In terms of the Identity Achievement and Personal Identity measures used in this study, it seems clear that mother attachment makes a significant impact over and above that of father attachment. On the other hand, if father attachment is associated with the identity status of Foreclosure, as indicated by Benson, Harris and Rogers (1992), future research would do well to explore what it is about father attachment that leads to one identity status

and what it is about mother attachment that leads to another status.

Including the identity statuses in this study would have been very helpful in the exploration of some interesting questions. However, in a previous study (Hossack, 1990) I found that when I compared the four identity statuses to Locus of Control (Internal, Powerful Others, and Chance), in each instance the Achieved and Foreclosed statuses were at opposite ends. Keep in mind that the Achieved and Foreclosed statuses are the two committed statuses, the former making a commitment to an identity after an exploration of identity issues, while the latter commits to an identity that has been handed-down (e.g., from an authority figure) without any serious exploration.

Hossack (1990) found, for example, that on internal-control orientation, the Achieved status was the highest (M=35.13, SD=6.45) and Foreclosure, the lowest (M=28.96, SD=5.28). In terms of being powerful other-control oriented, the Achieved status had the lowest mean (M=15.82, SD=8.23) and the Foreclosed, the highest mean (M=19.23, SD=7.19). Finally, in terms of chance-control orientation, the Foreclosed had the highest mean (M=21.00, SD=7.19), while the Achieved status had the lowest mean (M=15.56, SD=6.38).

In future research it would be worthwhile exploring control-orientation in terms of attachment. Is mother attachment associated with being internal-control oriented, and father attachment to chance-control oriented or powerful other-control

oriented. If it turns out to be that way, then what is it about being attached to mother and father that leads to potentially different orientations? Is it simply a perceived reflection of the predominant caregiving that mother might give in a typical and traditional family setting, in terms of availability, responsiveness, and being able to be counted upon? Would this contribute more to a sense of internal control, and less to chance-control or powerful other-control orientations? Is secure attachment to mother qualitatively different from secure attachment to father, so that the former leads to identity commitment only after exploration, while the latter leads to commitment without exploration? This would make for interesting research in the future.

In the past the literature on identity formation not only favored the autonomous person and separation rather than connectedness, it also seemed to show a preponderance of males as identity achievers over females. When gender differences were explored in this study, males still seemed to have an edge over females. Males with secure attachment to mother, accounted for 10.6% of the variance in Identity Achievement scores, while similarly attached females accounted for only 5.8% of the variance.

Thus, although secure attachment to mother clearly enhances Identity Achievement for both males and females, when males and females are matched on security of attachment to mother, males still appear to do better on Identity Achievement. If security of

attachment to mother is not an equalizer of gender in Identity Achievement, then what are some of the other psychological and sociological variables that come into play during development that create the differences in Identity Achievement outcome? How does secure/insecure attachment interact to modify or enhance these other variables? These questions need to be explored in future research.

In terms of Sense of Coherence (SOC), the third construct in this hypothesis, as expected, it was predicted by Secure Attachment. In Sample I, Secure Attachment accounted for 7% of the variance in SOC, and 16% in Sample II. This provides evidence that securely attached youth tend to perceive the world as understandable, manageable and meaningful. That is, they tend to be high on SOC. This evidence confirms secure parental attachment as one of the sources for the development of a strong SOC, and as such, is one of the contributors to a generalized personality-related disposition that provides a stress-resistance resource (as Hart, Hittner and Paris, 1991, describe SOC).

5.4. Hypothesis Four: Extraversion, Identity Achievement, Intrinsic Religiousness, and Sense of Coherence

Like the previously discussed Secure Attachment construct, the fourth hypothesis expected Extraversion to also have an influence on Identity Achievement, Intrinsic Religiousness, and Sense of Coherence. Similarly, as in the previous hypothesis, the removal of the religiousness factor from the model, precluded its evaluation in this part of the hypothesis. However, in terms of

the other two constructs, Extraversion did not have a significant influence on Identity Achievement, but it did have a weak but significant influence on Sense of Coherence (SOC). Between the two samples the amount of variance accounted for in SOC, by Extraversion, averaged about 2%.

5.5. Hypothesis Five: Neuroticism and Sense of Coherence

In this hypothesis it was expected that Neuroticism would have a strong negative relationship to Sense of Coherence. This hypothesis was confirmed. In Sample I, Neuroticism accounted for 28% of the variance in SOC and 22% of its variance in Sample II. This is congruent with a large amount of literature that shows a consistent and strong inverse relationship between SOC and trait anxiety.

An unexpected finding was the relationship between Neuroticism and Identity Achievement. When this path was included in the respecified model, it accounted for 7.2% of the variance in Identity Achievement in Sample I and 8.7% in Sample II. This may be reflective of the inherent anxiety of the whole identity resolution process for the late adolescent.

5.6. Hypothesis Six: Identity Achievement and Sense of Coherence

The sixth hypothesis expected Identity Achievement to predict Sense of Coherence (SOC). However, given the paucity of empirical evidence to feed this hypothesis, it was largely based on conceptual and chronological rationale. First, I conceptually tied identity achievement to Antonovsky's (1987) notion of "good

load balance", which he hypothesized to be one source for a strong SOC. This concept reflects the learned ability to mobilize resources to meet demands for performance. This learning begins early and is conceptually related to perceiving the parent as a secure and resourceful base from which to explore the world. During childhood these learned skills become more differentiated, and during adolescence, more critical. It is at this time that the individual is faced with a host of new expectations and demands, encompassing physiological, psychological and social areas of concern, many of which culminate in the need for identity resolution.

Second, there was also a chronological factor. According to Antonovsky (1987), a strong Sense of Coherence is not fully developed till about the age of 30. This time period is somewhat contiguous to the expected upper boundaries of identity resolution. Given this rationale, it was expected that Identity Achievement would predict SOC. The results confirmed this hypothesis. Identity Achievement accounted for 5.4% of the variance in SOC in Sample I and 5.5% in Sample II.

5.7. Hypothesis Seven: Intrinsic Religiousness, Sense of Coherence and Subjective Well-being

The seventh hypothesis expected that the Intrinsic Religiousness factor would influence Sense of Coherence and Subjective Well-being. In terms of the testing of the overall model in Sample I and II, this hypothesis could not be directly evaluated, since the Intrinsic Religiousness factor was withdrawn

from the model, as discussed earlier. On the other hand, when the whole sample was reduced to a more religiously homogenous group, and the religiousness factor was reconsidered, the predicted paths to Sense of Coherence and Subjective Well-being were not statistically significant.

However, during the course of analyzing the data in this study, it became increasingly clear that the Intrinsic Religiousness factor was not being tapped adequately by the manifest variables that were used. In the first instance, using Sample I, the Intrinsic (IN) and religion as End (EN) scales were used. In the second instance, using the more religiously homogeneous group, the Intrinsic (IN) and religion as Means (ME) scales were used. In both instances, it is doubtful whether the Intrinsic Religiousness factor was being tapped, given the confounding by the individuals who were indiscriminately proreligious. That is, individuals who indiscriminately scored high on both, the intrinsic and extrinsic dimensions of religious orientation.

Forming religious types in the secondary analysis of this study, effectively extracted the purest form of the religiously intrinsic group. That is, individuals who scored high on the intrinsic dimension and low on the extrinsic dimension of religious orientation. When this was done and the Intrinsics were compared to the other types on Sense of Coherence (SOC) and Subjective Well-being (SWB), they were significantly different from the Nonreligious type on SOC and the Extrinsic type on the

meaningfulness component of SOC.

Similarly, in terms of Subjective Well-being, the Intrinsics were significantly different from the Extrinsic and Nonreligious type on Satisfaction With Life, and significantly different from all three types (Proreligious, Extrinsics and Nonreligious) on negative affect and overall happiness. That is, the Intrinsics showed significantly lower negative affect and higher happiness.

In sum then, the secondary analysis, in which a purer form of the intrinsic religiousness concept was extracted, provides indirect evidence in support of the initial theorizing. That is, the hypothesis that intrinsic religiousness influences SOC and SWB. Future research would do well to develop religious scales that would provide a continuous measure to tap the Intrinsic Religiousness factor more adequately. Then, perhaps, what is presented here, potentially, as secondary confirmation, could be a primary realization within a structural equation model.

5.8. Hypothesis Eight: Sense of Coherence and Subjective Well-being

The eighth and final hypothesis pertaining to the model expected a strong positive relationship between Sense of Coherence and Subjective Well-being. This hypothesis was confirmed. Sense of Coherence accounted for 54% of the variance in Subjective Well-being in Sample I and 52% in Sample II.

In the overall model, Sense of Coherence was hypothesized to play a major role in mediating the influences of the process component of personality development, providing the additional

variation in SWB not accounted for by the structural (trait) component of personality development. In sum, then, over the two samples the combined and direct influence of the traits, in accounting for the variance in SWB, averaged about 5%. On the other hand, SOC averaged about 53%. These results may suggest that the process approach to personality,--which emphasizes more the impact of earlier internalized transactions with the environment on personality, as opposed to a more biologically grounded approach to personality--has a greater potential for explaining the variance in SWB. Although the approach taken in this dissertation to SWB is still restricted to a top-down approach, it emphasizes personality variables that are internalized as a result of earlier learning and experience with environmental influences.

5.9. Some Further Analyses

5.9.1. Religion Variables

In the secondary analysis of this study several themes were followed in exploring further the relationships among the variables. Given that the Intrinsic Religiousness factor could not be evaluated in the testing of the overall model in Sample I, a good part of the secondary analysis was devoted to this construct. Subsequently, religious orientation was explored from two perspectives; one involving a heterogenous population (the total sample) resulting in a religious typology ranging from "nonreligious" to "very religious", and the other involving a religiously homogenous subsample, resulting in the exploration of

religious dimensions.

When exploring the Religious Types among the total sample, a recurring and significant contrast emerged between the Intrinsic and Nonreligious type. In terms of attachment, this contrast between the two groups was strongest with attachment to father, suggesting that, irrespective of gender, high Father Attachment was associated with high religious internality. This was also confirmed when the Intrinsic and Extrinsic religious types were compared. In this instance the differences between the two groups were highly significant on Father Attachment, with Intrinsics having a higher mean (96.75) than the Extrinsics (84.35), and with attachment to father accounting for 7% of the variance between the two groups.

Continuing the contrast between the two extreme groups (Intrinsics and Nonreligious) in terms of personality traits, the Intrinsically Religious type was significantly lower on Neuroticism, and significantly higher on Extraversion and Agreeableness, when compared to the Nonreligious Type. Although I was not able to confirm it in the testing of the overall model, the original theorizing about a positive relationship between Extraversion and Intrinsic religiousness seems to be confirmed in this secondary analysis.

Similarly, when comparing the Intrinsics and Extrinsics on Neuroticism, the Extrinsics had a significantly higher mean on Neuroticism. These results are congruent with the findings of researchers who have investigated religious orientation and

anxiety. For example, Baker and Gorsuch (1982) found a negative correlation between intrinsic scores and trait anxiety, and a positive correlation between extrinsic scores and anxiety. Likewise, a series of studies by Watson, Morris and Hood (1988a, 1988b, 1988c) found that Intrinsic religiousness correlated negatively with depression scales, whereas Extrinsic religiousness was positively correlated with them.

In terms of Sense of Coherence as whole, the difference between the Religiously Intrinsic type and the Nonreligious type was highly significant, with an overall SOC contributing between 6% to 10% of the variation. More specifically, the significant differences were seen in two of the three components, namely, Manageability and Meaningfulness, with the former contributing between 4% to 7% of the variation, while the latter, between 8% to 15%. This confirmed the earlier theorizing regarding the notion that religion provides one source in the development of a strong sense of coherence, particularly, as it relates to a sense of meaningfulness. Similarly, the Intrinsics had a significantly higher mean on the meaningfulness component of SOC compared to the Extrinsics, which confirms the theorizing that it is Intrinsic religiousness that is related to a greater sense of meaningfulness. This tends to support Bolt's (1975) finding that intrinsic religious motivation was positively related to Frankl's (1959) concept of meaning and purpose in life.

The Intrinsics were also significantly different from the Nonreligious type in Subjective Well-being, with the former being

higher on life satisfaction and happiness (net affect). More specifically, between 5% to 9% of the variation between the two groups was due to life satisfaction, and between 7% to 9% due to happiness. In other words, when comparing the two groups, Intrinsics tended to be happier and more satisfied with life. Similarly, when comparing Intrinsics and Extrinsics, the former had significantly higher means on life satisfaction and general happiness, while the latter had significantly higher means on negative affect. Again, this provides support for the general theorizing in this thesis that Intrinsic religiousness is associated with greater positive affect than negative affect and, thus, associated with a salutogenic rather than a pathogenic orientation to life.

When exploring religious dimensions within the religiously homogeneous subsample, several religious scales were used. The relationships of these religious scales to Attachment, Personality Traits, Sense of Coherence and Subjective Well-being were examined. This exploration revealed an overall pattern that seemed to contrast the more internalized form of religion with the more hesitant and tentative form, in terms of commitment to particular beliefs. While the more internalized form of religion was associated with high parental attachment, the more hesitant (Quest scale), was associated with low attachment. For example, the Quest scale had a significant and negative correlation with all three measures of Parental and Peer attachment, suggesting that with an increase in secure attachment there is a decrease in

the tentativeness in which one held the particulars of his or her religious beliefs.

Further, in terms of personality traits, the more internalized form of religion tended to be associated with the personality factors of Conscientiousness and Agreeableness, while the more hesitant form (Quest and Religious Maturity scale) with Openness to Experience. Elaborating further on this contrast, the association with Conscientiousness on the part of the more internalized forms of religion, may imply the need to structure reality and one's belief system in clearly defined terms with "no loose ends". On the other hand, the Quest oriented individual appears to be more closely associated with the predisposition toward Openness to Experience and its concomitant greater toleration for existing "loose ends".

These findings provide interesting questions for future research. For example, what is the relationship between the more internalized forms of religion and the personal need for structure? Neuberg and Newsom (1993) recently examined a measure of personal need for structure and found that it correlated negatively (r=-.42) with Openness to Experience and positively with Intolerance of Ambiguity (r=.36). Earlier I discussed the interesting link between attachment to father and intrinsic religiousness (see 5.9.1), and in hypothesis three, we saw that attachment to mother was clearly linked to the Identity Achieved status, while attachment to father was potentially linked to the Foreclosed status (see 5.3). If attachment to father is clearly

linked to intrinsic religiousness and potentially linked to the Foreclosed status, then what is the relationship between intrinsic religiousness and the Foreclosed identity status? Hossack (1990) found that the Foreclosed status was significantly more intolerant of ambiguity compared to the Identity Achieved status. Is this also true of Intrinsics? The Intrinsic's negative relationship to Openness to Experience may suggest an intolerance to ambiguity and the need to have "no loose ends". What then is the relationship between the religious dimensions and a personal need for structure, and does this have any relationship to the maintenance of the Intrinsic's well defined religious belief system? These are potential questions for future research.

On the other hand, the relationship of religious dimensions to Sense of Coherence and Subjective Well-being show a similar pattern to the previous variables discussed. For example, the Intrinsic and Religion as Means scales were associated with meaningfulness, life satisfaction and positive affect, while the Quest scale was associated with low Sense of Coherence and high negative affect. This would imply that, while a hesitancy and a tentativeness in holding to a particular set of beliefs is positively associated with the personality factor of Openness to Experience, the downside is a lower Sense of Coherence and greater anxiety. This may provide some support for Batson's conceptualization of religion as quest, which "involves openly facing complex, existential questions (question of life's

meaning, of death, and relationship with others) and resisting clear-cut, pat answers" (Batson & Schoenrade, 1991, p.430).

5.9.2. The Five-Factor Model of Personality

The Five-Factor model of the structure of personality was also explored in the secondary analysis, in terms of Parental and Peer Attachment, Adult Attachment Styles, and Sense of Coherence. In all cases, four of the five personality factors showed significant relationships. The one weak factor appears to be the Openness to Experience factor, which showed little or no significant relationships. The magnitude of the correlations between the three remaining factors and the three measures of attachment (Mother, Father, Peer), ranged from .20 to .44, with only three (20%) of its significant correlations greater than .30. These magnitudes were somewhat larger when comparing the personality traits to the three Adult Attachment Styles (Close, Depend, Anxious), which ranged from .16 to .51, but showed approximately 67% of its significant correlations greater than .30. On the other hand, the magnitude of the correlations were consistently larger when the personality traits were compared to the Sense of Coherence (SOC) and its components. Neuroticism showed the strongest relationship, ranging from -.51 to -.62 with the components (Comprehensibility, Manageability, Meaningfulness) and -.67 with the full scale. This is congruent with the literature, which shows a strong inverse relationship between SOC and trait anxiety.

5.9.3. Parental Attachment Types

Finally, Parental attachment types were explored in relationship to Sense of Coherence (SOC), Subjective Well-being (SWB), and Identity. In terms of a strong SOC and high SWB, high mother and father attachment produced the highest means, while low mother and father attachment produced the lowest means. The second best scenario was the maintenance of high attachment to mother, since this was still better than the worst case scenario of low mother and low father attachment, while maintaining just a high father attachment did not produce levels significantly different from the worst case scenario. However, although mother attachment appears to be a powerful influence on SOC and SWB, it is significantly enhanced by the addition of a secure father attachment, since the high mother/high father attachment type was significantly different from high mother/low father attachment type.

However, the situation was different for Identity. Significant differences were seen between high and low mother attachment categories, irrespective of father attachment. Thus, it appears that father attachment has little to add to Identity Achievement beyond the contribution that mother attachment makes. This corroborated earlier findings between attachment and identity.

5.10. Conclusion and Limitations

The general purpose of this study was to try and combine two seemingly divergent approaches to personality, place it within a

theoretical developmental framework, and at the same time integrate seven conceptually related psychological constructs within a single empirical model. With the exception of one construct, this rather global and ambitious project resulted in a specified structural equation model, that was modified, then respecified, and then cross-validated on another sample.

However, given that the general design of the study was cross-sectional, non-experimental, and correlational in nature, the statistical procedures undertaken provided information as to the plausibility of the model, not proof of causality. Similarly, presumed directionality of influences among the hypothesized latent constructs was largely based on logic and theory, and the "confirmation" of the model suggests only that it is a viable one. Because of the global and general exploratory nature of the model tested, the emphasis is on plausibility. That is, it is clearly possible to conceive of alternative formulations that account for the data-set, analyzed equally well or better.

However, the combined weight of the conceptual and theoretical integration of these constructs, the general acceptance of the model fit in terms of the chi-square to degrees of freedom ratio value and supplemental fit indices, and the cross-validation of the model with all path coefficients maintaining significance --seem to add weight to the plausibility of this model.

In summary, these were the major findings of this study: (1) Secure parental attachment correlated positively with

Extraversion and negatively with Neuroticism.

(2) Extraversion and Neuroticism were both predictive of Subjective Well-being, but these relationships were relatively weak.

(3) Secure parental attachment was predictive of religiousness, but only for a religious subsample. In addition, attachment to father was the most strongly related to religious internality.

(4) Secure parental attachment was predictive of Identity Achievement, with attachment to mother being the most powerful predictor. The addition of peer attachment added to this predictive power.

(5) On the Identity Achievement measure, males high on attachment to mother were significantly higher than females who were high on attachment to mother.

(6) Peer attachment was most predictive of personal identity, which increased significantly when attachment to mother was added.

(7) Secure parental attachment predicted a high Sense of Coherence.

(8) Extraversion had a weak but significant influence on Sense of Coherence.

(9) Neuroticism had a relatively strong, inverse relationship to Sense of Coherence.

(10) Neuroticism had a significant inverse relationship to Identity Achievement.

(11) Identity Achievement was predictive of a high Sense of Coherence.

(12) Sense of Coherence was strongly predictive of Subjective Well-being (SWB). It proved to be a major mediating variable that provided the additional variation in SWB, not accounted for directly by the structural (trait) approach to personality development.

(13) The Intrinsically Religious type was significantly lower on Neuroticism and higher on Extraversion and Agreeableness, than the Nonreligious type.

(14) Compared to the Extrinsically Religious type, the Intrinsically Religious type was lower on Neuroticism.

(15) The Intrinsically Religious type were significantly higher on Sense of Coherence, particularly, the Manageability and Meaningfulness components, than the Nonreligious type.

(16) Compared to the Extrinsic Religious type, the Intrinsically Religious type was significantly higher on the Meaningfulness component of Sense of Coherence.

(17) The Intrinsically Religious type was significantly higher on life satisfaction and happiness, than both, the Extrinsic Religious type and the Nonreligious type.

(18) In terms of commitment to particular religious beliefs, the less hesitant and less tentative were associated with secure attachments, Conscientiousness, Agreeableness, and higher Sense of Coherence, but were lower on Openness to Experience, when compared to the more hesitant and more

tentative.

(19) In the Five-Factor model of the structure of personality, all but the Openness to Experience factor showed significant relationships to the Sense of Coherence and attachment measures.

(20) Finally, in terms of parental attachment types, high mother attachment was needed for a strong Sense of Coherence (SOC), high Subjective Well-being (SWB), and high Identity Achievement. With the addition of father attachment, the former two (SOC and SWB) were enhanced, but not the latter (Identity Achieved).

5.11. Future Research Possibilities

On the basis of the findings in this study, future research can move in several directions. First, it would be helpful to try and validate this model on a more religiously homogeneous sample, with the Intrinsic Religiousness factor remaining intact. Given the information provided in the secondary analysis regarding the stronger links between the Intrinsically religious type and the other constructs used in the model, a corollary would be to obtain or develop religious scales that were continuous in nature and which would target the intrinsic type more accurately without the potential confounding presently seen. An adjacent research path would be to explore the nature of the religious variable in diverse populations, while at the same time developing scales that are more appropriate for such diversity.

Second, one can focus only on the process aspect of the

model and also various components of the model can be diversified. For example, expanding the identity construct to include all four identity statuses that can be accessed by continuous measures without forming mutually exclusive types. If this could be combined with a similar process with religious types, including the nonreligious, then multiple models could be compared by varying the combinations of religious and identity types. Further, if security of attachment could be in terms of high (secure) and low (insecure), this could add to the combinations for model comparison. For example, how would the model-fit compare between secure attachment, moratorium status, and intrinsic religiousness, and secure attachment, moratorium status, and quest orientation, or secure attachment, achieved status, and intrinsic religiousness, etc.

Third, adding new components to the model could be helpful. For example, adding the component of personal need for structure, may be helpful in comparison with the components of Sense of Coherence, identity and religiousness. Thus, future research could expand the present findings of this study and potentially explore in several new directions.

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APPENDIXES

APPENDIX A

QUESTIONNAIRE BOOKLET

Thank you for participating in this study. The general purpose of this study is to look at the relationship of attitudes and experiences in college-age youth: relationships to parents and peers, personality dimensions, religion-related attitudes, life satisfaction, and identity. Different attitudes and experiences will be assessed by different scales. There are no right or wrong answers. You have two hours to complete all the scales included in this study

GENERAL INSTRUCTIONS

Each questionnaire begins with specific instructions. Please read these instructions carefully before responding. When you respond to a given item, do not spend too much time thinking about it, but express the attitude which comes first into your mind. Be sure to answer all items and make sure, when responding, that the item number in the questionnaire corresponds to the item number on the answer sheet.

MACHINE-SCORABLE ANSWER SHEET

Please do not write on the questionnaire booklet. Use the machine-scorable answer sheet to record your answer. However, before you start recording your answers on the answer sheet, please fill-in your student number and shade in the appropriate digits in the student number box, in the upper right corner. Do not write your name on the answer sheet. We need your student number only to keep your answer sheets together. We are not interested in finding-out your identity. But please answer all the questions as honestly as you can and keep focused as you work your way through the questions.

As mentioned above,it should take approximately two hours to complete the three forms containing the scales. When you have finished please check your answer sheets for any items you may have missed. Be sure that all the items are answered. Thank you for your cooperation. Note: A brief abstract of the results of this study will be posted on the first floor of the Duff Roblin Building by the end of the year.

SOME GENERAL INFORMATION

On your answer sheets, please respond to the following questions:

1) What is your gender?
   1 = male
   2 = female

2) Your age-range is:
   1 = 18-22 years
   2 = 23-25 years
   3 = 26-30 years
   4 = 30-40 years

3) Which of the following best describes your feelings? (Choose one)

1 = I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting to close to me.

2 = I am somewhat uncomfortable being close to others; I find it difficult to trust them, difficult to allow myself to depend on them. I am nervous when anyone gets to close, and often love partners want me to be more intimate than I feel comfortable being.

3 = I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away.

4) What is your general religious affiliation:
   1 = Catholic
   2 = Protestant
   3 = Jewish
   4 = Other
   5 = None

5) How interested are you in religion?
   1 = Not at all interested
   2 = Moderately interested
   3 = Very interested

6) How often do you participate in religious activities (attend church/synagogue, pray, focus on religious things, etc.)?
   1 = Never
   2 = Once a year
   3 = Once a month
   4 = Once a week
   5 = One or more times a day

7) As you were growing up, according to your perception, how would you rate your mother's (or one acting as your mother) religiousness?
   1 = non-religious
   2 = moderately religious
   3 = strongly religious

8) As you were growing up, according to your perception, how would you rate your father's (or one acting as your father) religiousness?

1 = non-religious
2 = moderately religious
3 = strongly religious

9) Are your religious beliefs similar to your parents?

1 = No
2 = Yes

10) Which of the following best describes your beliefs about God?

1 = God is a living, personal being who is interested and involved in human lives and affairs.
2 = God created the universe, but is no longer active or involved in human lives and affairs.
3 = God in an impersonal, transcendental force in the universe.
4 =God does not exist, either as a personal being or as a force in the universe.

11) Do you feel that you have a personal relationship with Jesus Christ and/or God?

1 = Not at all
2 = Some of the time
3 = Most of the time
4 = All of the time

12) What is the range of your family's average annual income?

1 = Less than $20,000
2 = $20,000 - $29,000
3 = $30,000 - $39,000
4 = $40,000 - $49,000
5 = $50,000 or more

13) How do you classify yourself? (Choose on of the options below)

1 = Atheist (rejects any notion of God)
2 = Agnostic (disinterest in the notion of God)
3 = Theist (interested in the notion of God)

14) How would you categorize the social class of your family of origin?

1 = lower class
2 = middle class
3 = upper middle class
4 = upper class

15) When you were growing up as a child, which statement below best describes your relationship to your mother (or primary caregiver)?

1 = She was generally warm and responsive; she was good at knowing when to be supportive and when to let me operate on my own; our relationship was almost always comfortable, and I have no major reservations or complaints about it.

2 = She was fairly cold, distant, and rejecting, and not very responsive; I often felt that her concerns were elsewhere; I frequently had the feeling that she would just as soon not have had me.

3 = She was noticeably inconsistent in her reactions to me, sometimes warm and sometimes not; she had her own needs and agendas which sometimes got in the way of her receptiveness and responsiveness to my needs; she definitely loved me but didn't always show it in the best way.

APPENDIX B

RELATIONSHIPS QUESTIONNAIRE

This questionnaire asks about your relationships with important people in your life --your mother, your father, and your close friends. Please read the directions to each part carefully.

Part I

Each of the following statements asks about your feelings about your mother or the woman who has acted as your mother. If you have more than one person acting as your mother (e.g. a natural mother and a step-mother) answer the questions for the one you feel has most influenced you.

Read each statement carefully. Then select the number that tells how true the statement is for you now, and mark it on your machine-scorable answer sheet.

Almost Never or Never True	Seldom True	Sometimes True	Often True	Almost Always or Always True
1	2	3	4	5

1. My mother respect my feelings.
2. I feel my mother does a good job as my mother.
3. I wish I had a different mother.
4. My mother accepts me as I am.
5. I like to get my mother's point of view on things I'm concerned about.
6. I feel it's no use letting my feelings show around my mother.
7. My mother can tell when I'm upset about something.
8. Talking over my problems with my mother makes me feel ashamed or foolish.
9. My mother expects too much from me.
10. I get upset easily around my mother.
11. I get upset alot more than my mother knows about.
12. When we discuss things, my mother cares about my point of view.
13. My mother trusts my judgment.
14. My mother has her own problems, so I don't bother her with mine.
15. My mother helps me to understand myself better.
16. I tell my mother about my problems and troubles.
17. I feel angry with my mother.
18. I don't get much attention from my mother.
19. My mother helps me to talk about my difficulties.

20. My mother understands me.
21. When I am angry about something, my mother tries to be understanding.
22. I trust my mother.
23. My mother doesn't understand what I'm going through these days.
24. I can count on mother when I need to get something off my chest.
25. If my mother knows something is bothering me, she asks me about it.

Part II

This part asks about your feelings about your father, or the man who has acted as your father. If you have more than one person acting as your father (e.g. natural and step-father) answer the question for the one you feel has most influenced you.

Almost Never or Never True	Seldom True	Sometimes True	Often True	Almost Always or Always True
1	2	3	4	5

1. My father respects my feelings.
2. I feel my father does a good job as my father.
3. I wish I had a different father.
4. My father accepts me as I am.
5. I like to get my father's point of view on things I'm concerned about.
6. I feel it's no use letting my feelings show around my father.
7. My father can tell when I'm upset about something.
8. Talking over my problem with my father makes me ashamed or foolish.
9. My father expects too much from me.
10. I get upset easily around my father.
11. I get upset alot more than my father knows about.
12. When we discuss things, my father cares about my point of view.
13. My father trusts my judgment.
14. My father has his own prnoblems, so I don't bother him with mine.
15. My father helps me to understand myself better.
16. I tell my father about my problems and troubles.
17. I feel angry with my father.
18. I don't get much attention from my father.
19. My father helps me to talk about my difficulties.
20. My father understands me.
21. When I am angry about something, my father tries to be understanding.
22. I trust my father.
23. My father doesn't understand what I'm going through these days.

24. I can count on my father when I need to get something off my chest.
25. If my father knows something is bothering me, he asks me about it.

Part III

This part asks about your feelings about your relationships with your close friends. Please read each statement and enter the appropriate number in your machine-scorable answer sheet that tells how true the statement is for you now.

Almost Never or Never True	Seldom True	Sometimes True	Often True	Almost Always or Never True
1	2	3	4	5

1. I like to get my friend's point of view on things I'm concerned about.
2. My friends can tell when I'm upset about something.
3. When we discuss things, my friends care about my point of view.
4. Talking over my problems with my friends makes me feel ashamed or foolish.
5. I wish I had different friends.
6. My friends understand me.
7. My friends help me to talk about my difficulties.
8. My friends accept me as I am.
9. I feel the need to be in touch with my friends more often.
10. My friends don't understand what I'm going through these days.
11. I feel alone or apart when I'm with my friends.
12. My friends listen to what I have to say.
13. I feel my friends are good friends.
14. My friends are fairly easy to talk to.
15. When I am angry about something, my friends try to be understanding.
16. My friends help me to understand myself better.
17. My friends care about how I am.
18. I feel angry with my friends.
19. I can count on my friends when I need to get something of my chest.
20. I trust my friends.
21. My friends respect my feelings.
22. I get upset alot more than my friends know about.
23. It seems as if my friends are irritated with me for no reason.
24. I can tell my friends about my problems and troubles.
25. If my friends know something is bothering me, they ask me out it.

APPENDIX C

ADULT ATTACHMENT SCALE (AAS)

Instructions: Please read each of the following statements and rate the extent to which it describes your feelings about romantic relationships. Please think about all your relationships (past and present) and respond in terms rof how you generally feel in these relationships. If you have never been involved in a romantic relationship, answer in terms of how you think you would feel. Please use the scale below as you respond.

1	2	3	4	5
Not at all characteristic of me				Very characteristic of me

1) I find it relatively easy to get close to people.

2) I find it difficult to allow myself to depend on others.

3) In relationships, I often worry that my partner does not really love me.

4) I find that others are reluctant to get as close as I would like.

5) I am comfortable depending on others.

6) I do not worry about someone getting too close to me.

7) I find people are never there when you need them.

8) I am uncomfortable being close to people.

9) In relationships, I often worry that my partner will not want to stay with me.

10) When I show my feelings for people, I'm afraid they will not feel the same about me.

11) In relationships, I often wonder whether my partner really cares about me.

12) I am comfortable developing close relationships with others.

13) I am nervous when anyone gets too close to me.

14) I know that people will be there when I need them.

15) I want to get close to people but I worry about being hurt by them.

16) I find it difficult to trust others completely.

17) Often, people want me to be closer than I feel comfortable being.

18) I am not sure that I can always depend on people to be there when I need them.

APPENDIX D

IDENTITY ACHIEVED (EOM-EIS)

Instructions: Read each item and indicate to what degree it reflects your own thoughts and feelings. If a statement has more than one part, please indicate your reaction to the statement AS A WHOLE. Use the scale below to indicate the degree of your respose.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1) Politics is something that I can never be too sure about because things change so fast. But I do think it's important to know what I can politically stand for.

2) There are many reasons for friendship, but I choose my close friends on the basis of certain values and similarities that I've personally decided on.

3) A person's faith is unique to each individual. I've considered and reconsidered it myself and know what I can believe.

4) Based on past experiences, I've chosen the type of dating relationship I want now.

5) After considerable thought I've developed my own individual viewpoint of what is for me an ideal "lifestyle" and don't believe anyone will be likely to change my perspective.

6) It took me a while to figure it out, but I now really know what I want for a career.

7) I've spent some time thinking about men's and women's roles in marriage and I've decided what will work best for me.

8) I've thought my political beliefs through and realize I can agree with some and not other aspects of what my parents believe.

9) After a lot of self-examination I have established a very definite view on what my own lifestyle will be.

10) I've chosen one or more recreational activities to engage in regularly from lots of things and I'm satisfied with those choices.

11) I've gone through a period of serious questions about faith and can say I understand what I believe in as an individual.

12) It took me a long time to decide but now I know for sure what direction to move in for a career.

13) I've tried many different friendships and now I have a clear idea of what I look for in a friend.

14) There are many ways that married couples can divide up family responsibilities. I've thought about lots of ways and now I know exactly how I want it to happen for me.

15) After trying a lot of different recreational activities I've found one or more I really enjoy doing by myself or with friends.

16) I've dated different types of people and now know exactly what my own "unwritten rules" for dating are and who I will date.

APPENDIX E
ASPECTS OF IDENTITY QUESTIONNAIRE (AIQ)

Instructions: These items describe different aspects of identity. Please read each item carefully and consider how it applies to you. Choose a number from the scale below to indicate your response.

1 = Not important to my sense of who I am
2 = Slightly important to my sense of who I am
3 = Somewhat important to my sense of who I am
4 = Very important to my sense of who I am
5 = Extremely important to my sense of who I am

1) My popularity with other people

2) My personal values and moral standards

3) My dreams and imagination

4) The ways in which other people react to what I say and do

5) My thoughts and ideas

6) Knowing that I continue to be essentially the same inside even though life involves many external changes

7) My attractiveness to other people

8) The way I deal with my fears and anxieties

9) My feelings of being a unique person, being distict from others

10) My reputation, what others think of me

11) My self-knowledge, my ideas about what kind of person I really am

12) My gestures and mannerisms, the impression I make on others

13) My personal goals and hopes for the future

14) My social behavior, such as the way I act when meeting people

15) My personal self-knowledge, the private opinion I have of myself

16) My emotions and feelings

17) My physical appearance: height, weight, and the shape of my body

APPENDIX F

RELIGIOUS ORIENTATION SCALE

Instructions: Read each item and indicate your disagreement or agreement according to the scale below. There are no right or wrong answers. Note: if your religious faith is different from Christianity, please interpret "church" as place of worship (e.g., synagogue or temple) and "Bible" as religious or sacred writings.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1) Although I believe in my religion, I feel there are many more important things in my life.

2) It is important to me to spend periods of time in private religious thought and meditaion.

3) It doesn't matter so much what I believe so long as I lead a moral life.

4) If not prevented by unavoidable circumstances, I attend church.

5) The primary purpose of prayer is to gain relief and protection.

6) The church is most important as a place to formulate good social relationships.

7) I try hard to carry my religion over into all my other dealings in life.

8) What religion offers me most is comfort when sorrows and misfortune strike.

9) I pray chiefly because I have been taught to pray.

10) The prayers I say when I am alone carry as much meaning and personal emotion as those said by me during services.

11) Although I am a religious person I refuse to let religious considerations influence my everyday affairs.

12) A Primary reason for my interest in religion is that my church is a congenial social activity.

13) Quite often I have been keenly aware of the presence of God or the Divine Being.

14) I read literature about my faith (or church).

15) If I were to join a church group I would prefer to join a Bible Study group rather than a social fellowship

16) Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic well-being.

17) One reason for my being a church member is that such membership helps to establish a person in the community.

18) My religious beliefs are what really lie behind my whole approach to life.

19) Religion is especially important to me because it answers many questions about the meaning of life.

20) The purpose of prayer is to secure a happy and peaceful life.

APPENDIX G

RELIGIOUS LIFE INVENTORY

Instructions: This questionnaire relates to religious development. There is no concensus about right or wrong answers; some people will agree and others will disagree with each of the statements.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. The church has been very important for my religious development.

2. Worldly events cannot affect the eternal truths of my religion.

3. As I grow older and change, I expect my religion also to grow and change.

4. My religious development is a natural response to our innate need for devotion to God.

5. I am constantly questioning my religious beliefs.

6. It might be said that I value my religious doubts and uncertainties.

7. My minister (or youth director, camp counsellor, etc.) has had a profound influence on my personal religious development.

8. I was not very interested in religion until I began to ask questions about the meaning and purpose of my life.

9. God's will should shape my life.

10. On religious issues, I find the opinions of others irrelevant.

11. For me, doubting is an important part of what it means to be religious.

12. It is necessary for me to have a religious belief.

13. When it comes to religious questions, I feel driven to know the truth.

14. I find my everyday experiences severely test my religious convictions.

15. A major factor in my religious development has been the importance of religion for my parents.

16. I do not expect my religious convictions to change in the next few years.

17. I find religious doubts upsetting.

18. Religion is something I have never felt personally compelled to consider.

19. I have not yet arrived at what is the truth about religion.

20. I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to my world.

21. My religion serves to satisfy needs for fellowship and security.

22. My religious development has emerged out of my growing sense of personal identity.

23. My religion is a personal matter, independent of the influence of organized religion.

24. Whether I turn out to be religious or not doesn't make much difference to me.

25. My life experiences have led me to rethink my religious convictions.

26. Certain people have served as "models" for my religious development.

27. There are many religious issues on which my views are still changing.

28. I have found it essential to have faith.

29. It is important for me to learn about religion from those who know more about it than I do.

30. God wasn't very important for me until I began to ask questions about the meaning of my own life.

31. I find it impossible to conceive of myself not being religious.

32. The "me" of a few years back would be surprised at my present religious stance.

33. Questions are far more central to my religious experience than are answers.

34. Outside forces (other persons, church, etc.) have been relatively unimportant in my religious development.

35. For me, religion has not been a "must".

APPENDIX H

RELIGIOUS MATURITY SCALE

Here are some statements that show how people feel about religion. Please indicate how much you agree or disagree with the statement by selecting a number according to the key below.

1	2	3	4	5
Strongly Disagree				Strongly Agree

1) My religious beliefs provide me with satisfying answers at this stage of my development, but I am prepared to alter them as new information becomes available.

2) I am happy with my present religion but wish to be open to new insights and ways of understanding the meaning of life.

3) As best as I can determine, my religion is true, but I recognize that I could be mistaken on some points.

4) Important questions about the meaning of life do not have simple or easy answers; therefore faith is a developmental process.

5) I could not commit myself to a religion unless I was certain that it is completely true.

6) I have struggled in trying to understand the problems of evil, suffering, and death that mark this world.

7) Churches should concentrate on proclaiming the gospel and not become involved in trying to change society through social or political action.

8) While we can never be quite sure that what we believe is absolutely true, it is worth acting on the probability that it may be.

9) I have found many religious questions to be difficult and complex so I am hesitant to be dogmatic or final in my assertions.

10) In my religion my relationships with other people are as fundamental as my relationship with God.

11) My religious beliefs are pretty much the same today as they were five years ago.

APPENDIX I

NEO-FFI ("THE BIG FIVE")

Read each statement carefully. For each statement choose the number of the response that best represents your opinion. Select only one response for each statement. Please respond to all statements.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. I am not a worrier.
2. I like to have a lot of people around me.
3. I don't like to waste my time daydreaming.
4. I try to be courteous to everyone I meet.
5. I keep my belongings clean and neat.
6. I often feel inferior to others.
7. I laugh easily.
8. Once I find the right way to do something, I stick to it.
9. I often get into arguments with my family and coworkers
10. I am pretty good about pacing myself so as to get things done on time.
11. When I am under a great deal of stress, sometimes I feel like I am going to pieces.
12. I don't consider myself especially "light-hearted".
13. I am intrigued by the patterns I find in art and nature.
14. Some people think I am selfish and egotistical.
15. I am not a methodical person.
16. I rarely feel lonely or blue.
17. I really enjoy talking to people.
18. I believe letting students hear contoversial speakers can only confuse and mislead them.
19. I would rather cooperate with others than compete with them.
20. I try to perform all the tasks assigned to me conscientiously.
21. I often feel tense and jittery.
22. I like to be where the action is.
23. Poetry has little or no effect on me.
24. I tend to be cynical and skeptical of others' intentions.
25. I have a clear set of goals and work toward them in an orderly fashion.
26. Sometimes I feel completely worthless.
27. I usually prefer to do things alone.
28. I often try new and foreign foods.
29. I believe that most people will take advantage of you, if you let them.
30. I waste alot of time before settling down to work.
31. I rarely feel fearful or anxious.

32. I often feel as if I am bursting with energy.
33. I seldom notice the moods and feelings that different environments produce.
34. Most people I know like me.
35. I work hard to accomplish goals.
36. I often get angry at the way people treat me.
37. I am a cheerful, high-spirited person.
38. I believe we should look to our religious authorities for decision on moral issues.
39. Some people think of me as cold and calculating.
40. When I make a commitment, I can always be counted on to llow through.
41. Too often, when things go wrong, I get discouraged and feel like giving up.
42. I am not a cheerful optimist.
43. Sometimes, when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
44. I am hard-headed and tough-minded in my attitudes.
45. Sometimes, I am not as dependable or reliable as I should be.
46. I am seldom sad or depressed.
47. My life is fast-paced.
48. I have little interest in speculating on the nature of the universe or the human condition.
49. I generally try to be thoughtful and considerate.
50. I am a productive person who always gets the job done.
51. I often feel helpless and want someone else to solve my problems.
52. I am a very active person.
53. I have a lot of intellectual curiosity.
54. If I don't like people, I let them know it.
55. I never seem to be able to get organized.
56. At times, I have been so ashamed I just wanted to hide.
57. I would rather go my own way than be a leader of others.
58. I often enjoy playing with theories or abstract ideas.
59. If necessary, I am willing to manipulate people to get what I want.
60. I strive for excellence in everything I do.

APPENDIX J

EYSENCK'S E-SCALE

Instructions: Listed below are number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is "true" or "false", as it pertains to you personally.

1 = True (yes) 2 = False (no)

1) Do you have many different hobbies?
2) Are you a talkative person?
3) Are you rather lively?
4) Can you usually let yourself go and enjoy yourself at a lively party?
5) Do you enjoy meeting new people?
6) Do you tend to keep in the background on social occasions?
7) Do you like going out a lot?
8) Do you prefer reading to meeting people?
9) Do you have many friends?
10) Would you call yourself happy-go-lucky?
11) Do you usually take the initiative in making new friends?
12) Are you mostly quiet when you are with other people?
13) Can you easily get some life into a rather dull party?
14) Do you like telling jokes and funny stories to your friends?
15) Do you like mixing with people?
16) Do you nearly always have a "ready answer", when people talk to you?
17) Do you like doing things in which you have to act quickly?
18) Do you often take on more activities than you have time for?
19) Can you get a party going?
20) Do you like plenty of bustle and excitement around you?
21) Do other people think of you as being very lively?

EYSENCK'S N-SCALE

1 = True (yes) 2 = False (no)

1) Does your mood often go up and down?
2) Do you feel "just miserable" for no reason?
3) Do you often worry about things you should not have done or said?
4) Are you an irritable person?
5) Are your feelings easily hurt?
6) Do you often feel "fed-up"?
7) Are you often troubled about feelings of guilt?
8) Would you call yourself a nervous person?
9) Are you a worrier?
10) Do you worry about awful things that might happen?
11) Would you call yourself tense or "highly-strung"?
12) Do you worry about your health?

13) Do you suffer from sleeplessness?
14) Have you often felt listless and tired for no reason?
15) Do you often feel life is very dull?
16) Do you worry a lot about your looks?
17) Have you ever wished that you were dead?
18) Do you worry too long after an embarrassing experience?
19) Do you suffer from "nerves"?
20) Do you often feel lonely?
21) Are you easily hurt when people find fault with you or the work you do?
22) Are you sometimes bubbling over with energy and sometimes very sluggish?

APPENDIX K

ORIENTATION TO LIFE QUESTIONNAIRE (SOC)

Instructions: Here is a set of questions relating to various aspects of our lives. Each question has five possible answers, with numbers 1 and 5 being extreme answers. If the words under 1 are right for you, mark number 1 on your answer sheet; if the words under 5 are right for you, mark number 5 on your answer sheet. If you feel differently, mark the number which best expresses your feeling. Please give only one answer to each question.

1. When you talk to people, do you have the feeling that they don't understand you?

1	2	3	4	5
never have this feeling				always have this feeling

2. In the past, when you had to do something which depended upon cooperation with others, did you have the feeling that it:

1	2	3	4	5
surely wouldn't get done				surely would get done

3. Think of the people with whom you come into contact daily, aside from the ones to whom you feel closest. How well do you know most of them?

1	2	3	4	5
you feel that they're strangers				you know them very well

4. Do you have the feeling that you don't really care what goes on around you?

1	2	3	4	5
very seldom or never				very often

5. Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?

1	2	3	4	5
never happened				always happened

6. Has it happened that people whom you counted on disappointed you?

1	2	3	4	5
never happened				always happened

7. Life is:

1	2	3	4	5
full of interest				completely routine

8. Until now your life has had:

1	2	3	4	5
no clear goals or purpose at all				very clear goals and purpose

9. Do you have the feeling that you're being treated unfairly?

1	2	3	4	5
very often				very seldom or never

10. In the past ten years your life has been:

1	2	3	4	5
full of changes without your knowing what will happen next				completely consistent and clear

11. Most of the things you do in the future will probably be:

1	2	3	4	5
completely fascinating				deadly boring

12. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1	2	3	4	5
very often				very seldom or never

13. What best describes how you see life:

1	2	3	4	5
one can always find a solution to painful things in life				there is no solution to painful things in life

14. When you think about your life, you very often

1	2	3	4	5
feel how good it is to be alive				ask yourself why you exist at all

15. When you face a difficult problem, the choice of a solution is:

1	2	3	4	5
always confusing and hard to find				always completely clear

16. Doing the things you do every day is:

1	2	3	4	5
a source of deep pleasure and satisfaction				a source of pain and boredom

17. Your life in the future will probably be:

1	2	3	4	5
full of changes without your knowing what will happen				completely consistent and clear

18. When something unpleasant happened in the past your tendency was:

1	2	3	4	5
"to eat yourself up" about it				to say "ok, that's that. I have to live with it," and go on

19. Do you have very mixed-up feelings and ideas?

1	2	3	4	5
very often				very seldom or never

20. When you do something that gives you a good feeling?

1	2	3	4	5
it's certain that you'll go on feeling good				it's certain that something will happen to spoil the feeling

21. Does it happen that you have feelings inside, you would rather not feel?

1	2	3	4	5
very often				very seldom or never

22. You anticipate that your personal life in the future will be:

1	2	3	4	5
totally without meaning or purpose				full of meaning and purpose

23. Do you think that there will always be people whom you'll be able to count on in the future?

1	2	3	4	5
you're certain there will be				you doubt there will be

24. Does it happen that you have the feeling that you don't know exactly what's about to happen?

1	2	3	4	5
very often				very seldom or never

25. Many people, even those with a strong character, sometimes feel like losers in certain situations. How often have you felt this way in the past?

1	2	3	4	5
never				very often

26. When something happened, have you generally found that:

1	2	3	4	5
you overestimated or underestimated its importance				you saw things in the right proportion

27. When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:

1	2	3	4	5
you will always succeed in overcoming the difficulties				you won't succeed in overcoming the difficulties

28. How often do you have the feeling that there's little meaning in the things you do in your daily life?

	1	2	3	4	5
very often					very seldom or never

29. How often do you have feelings that you're not sure you can keep under control?

	1	2	3	4	5
very often					very seldom or never

APPENDIX L

SATISFACTION WITH LIFE SCALE

Instructions: Below are five statements with which you may agree or disagree. Using the 5-point scale below, indicate your degree of agreement with each statement. Please be open and honest in your responding.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

1. In most ways my life is close to my ideal.

2. The conditions of my life are excellent.

3. I am satisfied with my life.

4. So far, I have gotten the important things I want in life.

5. If I could live my life over, I would change almost nothing.

APPENDIX M

AFFECTOMETER 2

Part I

Instructions: Here are some sentences relating to how we may feel about our lives. Using the scale below, indicate the degree to which the sentences describe how you feel about your life.

Not at all	occasionally	some of the time	often	all of the time
1	2	3	4	5

1) My life is on the right track.
2) I wish I could change some part of my life.
3) My future looks good.
4) I feel as though the best years of my life are over.
5) I like myself.
6) I feel there must be something wrong with me.
7) I can handle any problems that come up.
8) I feel like a failure.
9) I feel loved and trusted.
10) I seem to be left alone when I don't want to be.
11) I feel close to people around me.
12) I have lost interest in other people and don't care about them.
13) I feel I can do what ever I want to.
14) My life seems stuck in a rut.
15) I have energy to spare.
16) I can't be bothered doing anything.
17) I smile and laugh a lot.
18) Nothing seems very much fun anymore.
19) I think clearly and creatively.
20) My thoughts go around in useless circles.

Part II

Instructions: Here is a set of adjectives relating to how we may feel about our lives. Using the scale below, indicate the degree to which the adjective describes how you feel about your life.

1	2	3	4	5
Not at all	occasionally	some of the time	often	all of the time

21) satisfied
22) optimistic
23) useful
24) confident
25) understood
26) loving
27) free-and-easy
28) enthusiastic
29) good-natured
30) clear-headed
31) discontented
32) hopeless
33) insignificant
34) helpless
35) lonely
36) withdrawn
37) tense
38) depressed
39) impatient
40) confused