

ADOLESCENT SELF PERCEPTIONS AND
DEVELOPMENTAL THEORY

By

BRIAN KEITH SALYER

Bachelor of Science
East Central Oklahoma State University
Ada, Oklahoma
1979

Master of Science
Central Oklahoma State University
Edmond, Oklahoma
1982

Master of Science
Central Oklahoma State University
Edmond, Oklahoma
1985

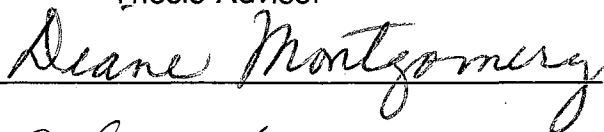
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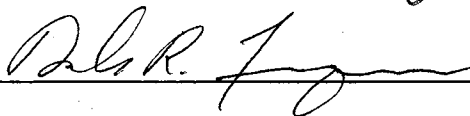
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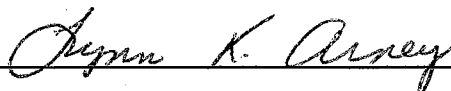
Thesis Approved:



Thesis Adviser









Dean of the Graduate College

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CHAPTER I

Introduction

The developmental period between childhood and adulthood is complex and fraught with uncertainties. This period of development that has come to be termed the adolescent years (Rousseau, 1762/1979; Hall, 1904) is perhaps the most volatile time of development. So many changes take place during the adolescent years that it is only superseded by the first three years of life in the scope of the developmental reformations that occur.

The transition from a child to an adolescent is a time of uncertainty and exploration of both the external world and the internal self. Environmental interaction and physiological maturation are the raw materials from which personal reality is constructed. During adolescence the individual gains the ability to reason abstractly; a task Piaget (1950) termed formal operational processing. The adolescent has a new set of possibilities added to his or her cognitive repertoire. Piaget showed it was not until the onset of formal operations that self constructed or individualistic theories could be generated to represent what the child had learned from episodic experiences. Therefore, as an individual gains this new cognitive ability to see the world, the possibilities for personal interaction with the environment become infinite. It is by individual experimentation that the adolescent continues the transformation to adulthood.

Adolescents' behavior changes with the onset of physical and cognitive maturation. Adolescents begin to evaluate the parental and societal truths for themselves. Inherent in the reexamination of an accepted standard is a departure from what is comfortable to search for answers in a risk-filled other world. Adolescents are therefore caught between moving out into a world for which they are primed and ready to explore, and maintaining the safety found in the familiar.

Some cultures provide a vehicle for adolescents to depart from the family ties into a peer oriented world. For example, the Samoa culture provides pubescent youth with same sex living quarters to facilitate their post-family and premarital development (Mead, 1961). The tools that cultures use to promote growth from the familiar family system to a larger societal system include educational systems, mentor and apprenticeships, and rites of passage. In the modern society of the post-industrialized age many naturally occurring and societally structured transitional options have been devalued or eliminated. The solution for adolescents is to construct another setting that provides them with the safety to experiment without the traditional family ties. Hence, the old adage that there is safety in numbers aptly applies to young adolescents as they group with other young adolescents and form a surrogate family/society of their own kind. The result is a youth culture that is meeting its own developmental needs through community, school, and socially responsible avenues, as well as through gangs, criminal affiliations, and other culturally deviant behaviors. Hartup (1993) noted that it is adolescents that are "disliked, who are aggressive and disruptive, and who cannot establish a place for

themselves in the peer culture that are developmentally at risk" (p. 3). Defining and understanding the content of this dynamic transition period is an initial step towards facilitating healthy developmental growth.

Development is a self constructing, cognitive evolution, containing dynamic shifts in focal content as each successive hierarchical stage is encountered and mastered (Inhelder, 1971). Effort is naturally concentrated toward meeting these developmental needs as they unfold. The current study investigates adolescent self-descriptive perceptions concerning the focal content of productivity, affiliation, and identity as natural developmental stages.

Rationale for the Study

Human development has been explored and reflected upon as a subject of study by a great many theorists. The major contributors to the field, such as Piaget, Erikson, Maslow, and Freud, have each left their mark in decoding the human mystery while adding to the emergence of an understanding of mankind's self portrait. And, while these theorists have provided the framework, it is the duty of those who follow to evaluate, expand, or refute their legacy.

Robert Kegan (1982), in the exploration of an evolving theory of constructive development, made use of many of the concepts noted by earlier theorists. In compiling the framework for his developmental theory, Kegan discovered that when the major theories are compared and combined the complementary components provide a more global design for development. By comparatively analyzing the developmental theories of Piaget (1936/1954),

Kohlberg (1976a), Loevinger (1976), Maslow (1943), Erikson (1950), and McClelland/Murray (1985), a confirmatory pattern evolved (Table 1.1). While Kegan's synthesis led to a six stage theory of development, the theory-specific voids in the complementing theories were left unexplored. One void Kegan (1982) noted was in Erik Erikson's (1950) psychosocial developmental theory, which has been utilized and researched extensively in educational and developmental fields.

Erikson (1950) explained human development as a continuum of eight stages: trust/mistrust, autonomy/doubt, initiative/guilt, industry/inferiority, identity/identity diffusion, intimacy/isolation, generativity/stagnation, and integrity/despair. Of these eight stages, initiative/guilt through intimacy/isolation, as noted by Kegan (1982), have direct theoretical equivalents in the developmental theories of other researchers (Table 1.1). Erikson's stages are supported to varying degrees by other theories of development. For example, the characteristics of Erikson's initiative/guilt stage can be found in Piaget's (1936/1954) preoperational stage, Kohlberg's (1976b) punishment and obedience orientation, Loevinger's (1976) impulsive stage, and Maslow's (1943) physiological satisfaction orientation. Clearly, the support for a stage containing the characteristics noted by Erikson as initiative/guilt is recognized in a theoretical sense elsewhere.

When reviewing the complementary developmental theories, Kegan hypothesized the existence of a stage that is not noted in Erikson's eight stage theory. According to Kegan (1982), the missing stage can be described as an orientation toward peers, a conforming to peer groupings, a blending into the

TABLE 1.1

THEORIES OF DEVELOPMENT

| | Stage 0 | | Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
|---------------------|------------------------------------|--------------------|--|--------------------------|--|------------------------------------|-------------------------|
| Kegan | Incorporative | | Impulsive | Imperial | Interpersonal | Institutional | Interindividual |
| Piaget | Sensorimotor | | Preoperational | Concrete operational | Early formal operational | Full formal operational | Post-formal dialectical |
| Kohlberg | | | Punishment and obedience orientation | Instrumental orientation | Interpersonal concordance orientation | Societal orientation | Principled orientation |
| Loevinger | Pre-social | | Impulsive | Opportunistic | Conformist | Conscientious | Autonomous |
| Maslow | Physiological survival orientation | | Physiological satisfaction orientation | Safety orientation | Love, affection, belongingness orientation | Esteem and self-esteem orientation | |
| McClelland & Murray | | | | Power orientation | Affiliation orientation | Achievement orientation | Intimacy orientation |
| Erikson* | Trust vs. mistrust | Autonomy vs. doubt | Initiative vs. guilt | Industry vs. inferiority | Affiliation vs. abandonment | Identity vs. identity diffusion | Intimacy vs. isolation |

*Only stages one through six of Erikson's Eight Stages of development are shown.

Adapted from Kegan (1982).

environment, and a finding of a place to belong outside the family structure. When viewed across the theoretical continuum the nature of Kegan's projected stage is one of mutuality, which others have denoted directly or indirectly. Kohlberg (1976b) notes an interpersonal concordance orientation, Loevinger (1976) cites a conformist behavior, Maslow (1954) identifies a belongingness need, Newman and Newman (1976) denotes group identity verses alienation development, and McClelland/Murray (1985) suggest an affiliation orientation. These all correspond in kind and chronological placement to support the notion that a developmental stage exists between the industry/ inferiority and the identity/identity diffusion stages of Erikson's (1950) "Eight Stages of Man." Kegan (1982) suggests that the intervening stage polarities would be labeled "affiliation/abandonment" and would have priority during the teen years.

Erikson (1950) recognized that societies contain vast differences in values and cultural traditions but maintained that all cultures were in pursuit of the same universal developmental goals. The method that a culture established for fulfilling the developmental stage needs was secondary to the evolutionary process that defined the stage. Keeping consistent with Erikson's theoretical design, a developmental orientation toward affiliation/abandonment would also have an epigenetic universal underpinning. Indeed, across primitive (Mead, 1961) to advanced cultures (Bloch & Niederhoffer, 1976) examples of the need to be peer affiliated, either through interpersonal or organizational association, can be found. The need to affiliate is met in a variety of ways (arranged grouping, formal and informal memberships, rites of passage, purpose oriented, etc.) but, the basic drive persists across cultural boundaries.

Research Purpose

The purpose of this research is to investigate self perceptions of adolescents concerning the adolescent years. Three theoretical issues derived from the literature provided content structure. The **first** content area, a productive drive common to activities like memorizing sports facts, collecting specific objects, and organizing personal belongings was suggested by the literature to have a focal point in early adolescence. The **second** issue, as noted by Kegan (1982), was mutuality or affiliation which can be related to membership in peer groups, school organizations, as well as personal friendships and is suggested to have precedence in middle adolescence. The **third** issue, intrapersonal identity development, is related to defining self preferences, pursuit of individual achievements, and setting self directed goals was suggested to occupy late adolescence. The research literature provided the concourse domain, defined as all possible perceptions regarding adolescent development, from which these issues were drawn.

This research attempts to describe the adolescent developmental period given the theoretical constructs of productivity and identity formation from Erikson's theory and mutuality from Kegan's observations. While it is recognized that affiliation with peers, organizations, communities, etc. constitute a contributing force to total satisfaction throughout life, the adolescent years may provide an optimum developmental window where the formation and membership of peer relations have developmental significance greater than at any other time in the life cycle. The self descriptive perceptions of adolescents


at three points along the chronological continuum can describe developmental characteristics and provide insight into stage tasks or crises.

The goal of this research is to describe the adolescent experience from the adolescent's perspective. By completing the research instrument the subject is sharing a personal point of view, operationalized by response, which may or may not be predictable. The self referent descriptive goal of this research does not lend its self to the traditional confirmatory, hypothesis testing strategies since the results are not predictable. Three levels of research propositions, which represent the problem under investigation and the predictions that can be made are used in lieu of hypothesis.

Level I, general proposition represents an inquiry that arises from a theory base. General proposition cannot be directly measured but provides the domain of information from which further investigation can proceed. For the current study Level I, general proposition inquiry asks:

Level I: What characteristics of adolescent development exist in the literature and research?

Level II, singular propositions represents a selected part(s) of the Level I proposition that has been sampled from the general domain. From the general domain inquiry three contents were sampled in forming the Level II proposition.

Level II:  Does there exist a focus toward productivity, mutuality, and identity formation during the adolescent years?

Level III, the induced proposition represents issues that are available only as the result of the investigation. The induced proposition cannot be

predicted beforehand since it represents the subjects' operationalization of the instrument. For this research, the Level III proposition was a represented a culmination of descriptive investigation into the self descriptive focus of early, middle, and late adolescents in addressing the induced question.

Level III: How does the self descriptive focus change across the adolescent years?

Part of the information obtained in answer to the Level III proposition could have been predicted from the information obtained at the singular level, but the full breadth of the induced proposition could not have been predicted. The nature of the research questions, methodology, and results are, as Kerlinger (1973) noted, exploratory which by design produces new ideas, new hypothesis for follow-up research.

Significance of the Study

Kegan (1982) stated that Piaget was an unrecognized genius, not only for the theories he devised, but for the manner in which his theories were constructed. Piaget actively watched children who were interacting within their natural environment, abandoning the standardized testing method with its artificial response sets in favor of an open-ended interview to capture the "spontaneous tendencies" (Piaget, 1926, p.4). Piaget's goal was to remove his adult bias about children's thinking and simply learn from the children themselves. It is this child-centered philosophy coupled with a keen power of observation that empowered Piaget's work.

Today we are still trying to describe children's development, but the methods have changed in favor of a more impersonal system of data collection. The correlation and factor-analytic approaches used in studying human behavior have typically been of an "R technique," which focuses on trait relationships. The R technique has been preferred by many researchers who believe it to be more rigorous and provide a replicable foundation for the advancement of the scientific study. Often, the researcher has to accept a loss of meaningful information in exchange for the rigor. This study attempts to bridge the gap between a quantitative measurement of the variables associated with behavioral differences among developing cohorts and a descriptive or ethnographic immersion into the characteristics of the population. A methodology known for its ability to describe subjectivity will be utilized to accomplish this task. The importance of this work is in its attempt to touch the epigenetic origins of adolescent behavior and describe it in a theoretical sense.

The implications for an accurate description of adolescent developmental needs would provide a structural base for designing and assessing the situations encountered by adolescents. Understanding the developmental needs of adolescents will provide an organizational structure from which to generate appropriate growth and intervention strategies. If developmental stages are epigenetically driven as Erikson (1950) and Piaget (1954) suggest, it is through gaining a functional understanding of the needs and tasks associated with each stage that healthy developmental growth can be nurtured.

The theoretical stage notations of Erikson (1950) for productivity and identity formation coupled with the mutuality stage suggested by Kegan (1982)

and supported by other developmentalist such as Sullivan (1953), Maslow (1943), Loevinger (1976) and Kohlberg (1976a) comprise the investigative foundation for this research. Following Piaget's empirical style, the self perceptions of the adolescent participants provide the data from which developmental stage interpretations emerge. The notion that it is natural to gravitate toward and find sanction within a developmental crisis or-task resolution provides a societal agenda by which to design organizations, activities, and facilities that would provide every child with vehicles for healthy development.

Theoretically, Kegan (1982) suggests that humans have a natural tendency during adolescence to seek affiliation. However, if society does not allow for such attachment in constructive ways, then the natural developmental tendency exists but finds its fulfillment in whatever mode of satisfaction is available. Possible options to fulfill an affiliation stage need may take on destructive characteristics in terms of societal standards simply due to a lack of other options. Harry Stack Sullivan (1953) noted that as children moved away from their parents they formed close friendships with members of the same sex which became the basis for all future relationships with persons of both sexes. If affiliation is a forerunner of what Sullivan calls "chumships," the opportunity for membership is a vital step in intervening with children who lack the opportunity, due to environmental and/or developmental voids, to develop mutual same sex and then across sex relationships. If close affiliation is a normal process of development then the social stereotyping and deterrents to such behavior can be addressed with theoretical legitimacy. An understanding

of the child's perceptions of the stages of adolescent development would lay the foundation for further development, enhancing or retarding the chances for a positive resolution.

Definition of Terms

The following terms are defined as they apply in this study.

Affiliation. Affiliation consists of a person seeing himself/herself as having membership in or being an embedded member of a personally valued group or organization. Initially the adolescent seeks same sex affiliation since this type is least threatening, and then progresses on to cross sexual bounds. Membership may take the form of any organization that the self considers to be importance or of personal value. The affiliation term denotes the act of membership but does not address the strength of that membership.

Abandonment. Abandonment is the negative polarity of affiliation. It refers to the lack of having a group with which to associate. Since school is mandatory, it might seem unlikely that any child would lack a group with which to affiliate. But affiliation is a state of mind as well as physical setting. If a student does not see himself/herself as a member of the group, he/she is likely to feel left out, excluded, rejected, or abandoned although the physical setting may be conducive to membership. While Bukowski and Hoza (1989) noted that being rejected by peers and being without friends are different attributes, for this study the distinction is not a focal point. Not being in a reciprocal relationship for an extended period regardless the psychosocial dynamics is viewed as abandonment.

Development. Development is a spontaneous yet gradual change process that builds upon previous accomplishments in a hierarchical, stairstep manner. According to Piaget (1954/1986) development involves the interplay of four factors: physiological maturation, physical knowledge, social knowledge, and equilibration. In the interplay of everyday living, these factors construct a network that increases the functionality of the person by broadening the experiences and skills that are operationally available.

Identity. Identity development is the process of knowing what self is and coming to terms with that knowledge. Self has many facets and to know those pieces empowers the person to act as an individual. This includes the development of a self trustworthiness with a sense of autonomy. These traits are exhibited by a person who has positively resolved the identity crisis.

Identity Diffusion. Identity diffusion is the negative pole of the identity/identity diffusion bipolar conflict. The traits of this resolution would include a lack of self worth, autonomy, and initiative traits. The sense "self" becomes lost in the dynamics of the environment to a point that the person has no identity outside the role(s) he/she plays.

Industry. Industry is characterized by the output or achievement of things that have cultural value. A child embedded in this stage might learn all the major league baseball statistics and be ready to recite them upon request. This task is one over which the child has control/power, is sequential in nature, logical, and will yield a positive validation for the effort. Finding and defining one's special skills and talents is a major part of this stage and crucial to positive resolution in a mentor relationship (Erikson, 1968).

Inferiority. Inferiority is the negative pole of the industry/inferiority bipolar conflict. The person in the industry/inferiority stage of development will seek to define his/her talents. These intrapersonal talents will act as the foundation for the development of a personal skill repertoire of strengths and weaknesses for daily interactions. When significant adults in a child's life assume an overtly critical role, complaining about everything the child does, aggressively pointing out mistakes while ignoring exemplary behavior; this may cause the inferiority side of the bipolar crisis to outweigh the industry. Erikson suggests that this stage roughly ranges from 6 to 12 years of age during which time the two main forces behind a resolution are parent(s) and school. If one or the other is counterproductive to a positive resolution then the child has a chance to balance the crisis by concentrating on the positive. Elkind (1981) suggests that children in contemporary society are likely to have two counterproductive or perhaps one marginally productive force at work as the norm. This is where intervention based programs can have a great impact if an appropriate fundamental model of the developmental sequence can be formulated.

General Limitations of the Study

The findings of this research can only be applied with recognition of the study's limitations. Although the introduction addresses problems associated with the developing child, concrete solutions to such problems are not sought in the design of this study. The limitations are:

1. The spectrum of development as outlined by Erikson contains eight stages. In this study we will examine two of the original eight stages and a

hypothesized ninth stage that is embedded between Erikson's industry/inferiority and identity/identity diffusion stages (Table 1.1). Erikson's theory of development is based on the notion that each preceding stage has a developmental impact on the stages that follow. By taking two stages from the middle of Erikson's continuum, some information has been lost concerning the development and resolution of previous stages.

2. The use of a Q sort for data collection is designed to explore the perceptions of the subjects concerning the subjective relationships that exist within and between each factor. Philosophically the methodology used is heuristic and exploratory, and as such is valuable in developing new hypotheses. The intraindividual nature of a Q sort study may limit the generalizability of the results.

3. A stipulation for participation in the study was made based on age. The characteristics that mark the end of a theoretical stage are quantitatively easier to define than the diversity of characteristics that one may possess at the beginning of a stage. The stage concluding attribute criteria were employed in sampling the item pool for the Q sort to reduce the number of sort items required. A small Q sort item deck was preferred due to the age of the participants comprising the young adolescent cohort. The full theoretical spectrum of development is not represented within the Q sort items which are limited contextually to resolution characteristics.

4. The subjects included within this study represent a narrow selection of the population of interest. While the subjects in the study represent a relatively equal gender distribution, other variables such as race, socioeconomic

status, parental relations, and geographic location were not equal. The population was relatively homogeneous and from a rural area. This was done purposefully to identify the developmental differences that exist in a similar population, and is not considered a shortcoming due to the descriptive nature of the question under investigation, but generalization to other populations is restricted.

CHAPTER II

LITERATURE REVIEW

The transition from childhood to adulthood is a universal phenomenon and while biological aspects of this transition process are relatively consistent throughout the global population, the cultural aspects associated with the rite of passage into adulthood can vary greatly between cultures. The movement of youth through this dynamic gauntlet of biological and cultural forces serve as a precursor for experimenting with developing physical and intellectual faculties that each person uses in constructing a sense of self. G. Stanley Hall (1904), who is credited with introducing the adolescent concept, described it as a time of turbulence, ambivalence, dangers and possibilities. Muuss (1962) went on to note that the adolescent period of development is second only to the first years of life in the quantity and rate of changes that an individual experiences in physical body and cognitive intellect. The dramatic nature of the adolescent era has led researchers (Kegan, 1982; Newman & Newman, 1991) to call for a closer examination of the attributes associated with adolescent developmental needs. It is the theoretical recognition of attributes found in the developmental sequence as the adolescent makes the transition from family affiliation to peer affiliation to individual self that the current survey is directed.

The justification of this study lies in the need for an accurate theoretical

representation, which will provide the foundation for establishing developmentally appropriate opportunities for the adolescent within a societal structure. Making developmentally appropriate opportunities available will promote, instead of inadvertently hindering the navigation of this turbulent era by taking into account the naturally occurring developmental (epigenetic) drives/needs when establishing procedural expectations within a society. After studying the island society of Samoa, Margaret Mead (1928/1961) noted, that culture is man-made and that humans are free to design it in accordance with or opposition to the needs and potentialities of humanity. She characterized primitive societies as natural and delightful, and civilized cultures as unnatural and repressive. In the United States the number of adolescent intervention programs is on the rise indicative of a society that has moved in opposition the natural needs and potentialities of adolescents. Through knowledge of the adolescent developmental era a society's civilizing process can be designed to respect and promote natural, healthy development.

This chapter will review adolescent development by systematically reviewing the current status of adolescent behavior and the life cycle theories of Piaget (1950), Selman (1980), Kohlberg (1976a), Loevinger (1976), Maslow (1943), Murray and McClelland (1985), Kegan (1982), and Erikson (1950) as they pertain to adolescent development. The basic constructs associated with Erikson's psychosocial developmental theory will then be used as a foundation in building a theoretical case to extend a stage denotation to include affiliation/abandonment. The life span theories noted above will be combined with the adolescent age specific theories of Blos (1967), Sullivan (1953), Muuss

(1962), Dunphy (1980), and Csikszentmihalyi and Lawson (1984) in establishing the theoretical support for a specific mutuality stage of development. The concluding task in this chapter will be to establish the bipolar descriptions of affiliation and abandonment.

Reaching the Current Status of Development

Since Hall's conceptual formulation of adolescence it has become one of the most highly studied, debated, and hypothesized about periods in human development. Hall (1904) originally represented adolescence as a time of turmoil and conflict, resulting as a natural extension of a biogenetic phenomenon; predetermined in nature. Other researchers contended that the driving force of adolescence was interpersonal and intrapersonal reactions to environmental cues, specifically, social demands; *tabula rosa* approaches (Bandura, 1964; Friedenberg, 1959; Muuss, 1976). The depolarization of social environment and biological predetermination positions has redirected the emphasis towards a more global approach, involving appropriate environmental experiences at appropriate biogenetic maturational points (Erikson, 1950; Havighurst, 1972; Mead, 1928/1961; Piaget, 1936/1986). The implication being that adolescence is a dynamic time that involves a multitude of variables representing physiological and cognitive development embedded within the environmental confines of family, school, peers, culture, and economics. The degree of conflict during the adolescent transition is a function of the interaction of these factors.

The adolescent developmental sequence is characterized by a

movement away from parental influences (control) to a more individualized, self-assured, autonomous position. Such things as previous experience and developmental readiness for the physical and cognitive responsibilities of an expanding social network will determine the degree to which conflict plays a role in adolescent development. Elkind (1981), noted that it is a lack of "pressure-free" time, due to the fast paced societal demands, that has deprived children of a time to experiment with their developing faculties, much less comprehend the residual effects inherent in normal growth, placing many teenagers in a developmental moratorium. The societal pressure on adolescents to grow up and assume adult roles is so great that there is little time in a secure environment where experimentation and mistakes are an allowed and encouraged step in becoming a self assured individual. When the environment is not conducive to learning, exploring, and making mistakes, optimal development cannot occur, leading to the need for remediation and intervention strategies. Daily experiences with problems allow the young adolescent to try out newly acquired intellectual and physical abilities while being supported and guided by a family network. Through physical and cognitive growth the realm of application is then expanded from the family to include a society of direct contact peers where further exploration and refinement of skills is exercised.

The adolescent period concludes as physical and intellectual maturation is accomplished and integrated with environmental experiences to provide an interpersonal and intrapersonal self, that is secure within the operational confines of society. The developmental process defined as adolescence

chronologically spans the time from the physiological onset of puberty to becoming a self-sufficient member of society. This ambiguous upper bound of adolescent development is culturally defined by the culture within which the individual is embedded. The quantity of dramatic changes experienced during adolescence led Martin Bloom (1990) to comment "It may be a good thing that most adolescents don't read the literature on adolescence or they might turn around and go back to childhood . . ." (p. 11).

Changes in family dynamics, shifts in the mobility of the peer society, and rapid changes in local as well as global culture has altered the availability of support networks for adolescent trial and error exploration further complicate adolescent development. Henggeler (1989) noted that while the family is usually the most influential system developing adolescents have membership with, extrafamilial systems such as peers, school, and ecological contexts which are influential sources of stress and turmoil. Changes in the family dynamics such as divorce, step families, and lost access to the extended family, have all had an impact on the testing ground adolescents have access to for validation of new developmental attributes. An increasing number of adolescents are turning to peers to bridge the gap left by the family, making the peer group a significant force in molding cognitive growth, emotional security, and self-esteem. Peer influences were found to be major contributors to adolescents gaining norms and morals as they provided an environment for mutual exploration and feedback (Panella, Cooper, & Henggeler, 1982). The peer testing ground is less likely to contain the direct adult influences that the family support system offers so, for adolescents who lack a functional family network

the peer group substitute may have negative consequences (Snyder, J., Dishion, T.J., & Patterson, G.R., 1986). As Howard (1982) stated, "Call it a clan, call it a network, call it a tribe, call it a family. Whatever you call it, whoever you are, you need one. You need one because you are human" (p. 203). As the adolescent moves into the early adult world there are tasks that mark the transition from pre-adulthood which Levinson (1982) summarized as:

. . . to question the nature of that world and one's place in it; to modify or terminate existing relationships with important persons, groups and institutions; to reappraise and modify the self that formed in it.

The second task is to make a preliminary step into the adult world: to explore its possibilities, to imagine oneself as a participant in it, to consolidate an initial identity, to make and test some preliminary choices for adult living. . .

(p. 104)

With the development of a self-sufficient person that is operational within the bounds of society being the end goal of adolescence, it is vital that the developmental transition from family network to peer network to intrapersonally self-sufficient individual be recognized and a path for healthy development be appropriately provided for in society.

The adolescent attributes of the life span developmental theories of Piaget (1936/1986), Selman (1980), Kohlberg (1973), Loevinger (1976), Maslow (1962), Murray and McClelland (1985), Kegan (1982), and Erikson (1968) are reviewed individually and then collectively. These theorists are joined by researchers and theorists who have specialized in the childhood and adolescent years, developing the foundation for a mutuality stage within the developmental life cycle.

Developmental Theories

Jean Piaget

Jean Piaget (1896-1980) while initially being trained as a biologist applied his scientific training to the study of children's thought patterns in problem solving situations where he took particular interest in the children's error patterns. Piaget's approach to the study of children was radically different than that of his psychological peers. He entered into the child's world, using naturally occurring objects and problems. The child's world was seen as a constantly changing, trial and error construction project, where the end product was to construct personal sense of the environment. Piaget's (1936/1986, 1974) observations on how children perceived their own construction of knowledge led to the formation of a cognitive developmental theory.

Piaget's construct of cognitive development is highly dependent on active interaction with the environment which provides the stimulus, sensory information to be "assimilated" (formation of schematic network that contains the information), "accommodated" (alter existing schematic network to fit perception of new information), and "organized" (Piaget, 1936/1986, 1963, 1972, 1974). Piaget (1962) viewed organization, or more precisely the return to equilibrium, as the ultimate cognitive goal. The manner and efficiency in which the environmental stimulus was organized would determinate what options the person could access in solving future interactions (Piaget, 1962). In a paradoxical relationship the child's interaction with the environment provides additional stimulus which must be organized in a cognitive network of

information that can then be recalled for decision making in determining further interactions with the environment.

Jean Piaget (1936/1986) hypothesized that there are four general periods of development; sensori-motor, preoperational, concrete operational, and formal operations. Piaget noted that these four periods are not maturationally defined in terms of being genetically dependent but, they are invariant in order, representing an increasingly comprehensive way of organizing and interacting with the environment. The last two of Piaget's stages, concrete operations and formal operations, are relevant to the adolescent transition period and will require exploration.

The concrete operational stage is characterized by logical thinking given that the content is related to objects and situations that are present in the child's reality frame of operations. A child at this developmental stage is concerned with how the parts fit together to create a whole, and the inter-relationships between parts and whole(s). This developmentally natural constructive drive predisposes them to prefer logical tasks that require categorization, structural hierarchy, recognition and manipulation of relationships type of cognitive processing. The concrete operational child often is absorbed with the logical manipulation and concept building to such a degree that the stimulus material is simply seen as a thing. Even people are typically categorized and related to by logical construct category.

Formal operations development follows the concrete operational stage and adds to the logical thinking strategies the ability to engage in abstract reasoning. The problem solving strategies of earlier stages are still available as

part of the child's schematic propositional network but no longer require physical representations as abstract and hypothetical reasoning become available (Piaget, 1972). Formal operations allows the child to move from the here and now thinking to consider the future and the nature of future environmental surroundings as well as the hypothetical consideration of what is and is not possible (Piaget, 1950). A major tool in adolescent development at the formal operations stage is the ability to shift between the abstract and the real in constructing new knowledge. It is this shifting ability that allows the theoretical to become real, and the real to be acted on in constructing an equilibrium state. The equilibrium is then upset by external forces which must be assimilated, accommodated and organized if equilibrium, the goal of all internal developmental forces, is to be reestablished. As an adolescent sees the possibilities, dreams/fantasizes about the opportunities, and begins to explore the possibilities, the steps are at first limited to the immediate environment. As success in using new developmental skills within the immediate environment is experienced the bounds are expanded to broader domains. This progression in environmental exposure allows the adolescent to further organize thoughts, actions, and reality through the equilibrium/disequilibrium process. Therefore, as the adolescent gains the new cognitive abilities to see the world that are afforded by formal operational thought, the possibilities become infinite. It is by individual experimentation in establishing and reestablishing equilibrium that the adolescent continues the transformation to adulthood.

The adolescent's world changes in appearance and literally becomes a

gambit of endless possibilities with the onset of formal operations. The adolescents' behavior also changes with the attainment of formal operations as they begin to formulate and test new strategies for dealing with the environment. Adolescents begin to evaluate parental/societal truths and cultural traditions for themselves. Inherent in the rejection of a standard is a departing from what has cognitively been assimilated as truth to enter a risk filled world in search of alternatives. Adolescents are hence caught in a bind between moving out into a world that they are primed and ready to explore and maintaining the safety found in the familiar. The solution for adolescents is to conjointly expand beyond the family setting, forming peer groups that provide the safety to further experiment with social skills without the traditional family constraints.

The transition from concrete to formal operations allows the categorical objects schemata to accommodate an interpersonal dimension where social interactions are added to cognitive strategies used in constructing propositions or networks. Piaget (1932/1965) noted that there is an important difference between the physical knowledge acquired with concrete operational strategies and the social understanding needed for full formal operations. He states that scientific knowledge can be evaluated using the scientific method but that social knowledge is arbitrary and determined to a large extent by the environment containing the social interaction. The onset of formal operations allows the adolescent to escape the compulsive nature of operating within the immediate and tangible domain, which can become a handicapping limitation, and move into the realm of infinite possibilities realized with abstract reasoning abilities.

While not directly addressing the shift in support from family to peer group, Piaget does provide support in his hierarchal cognitive schematic construction of reality where he notes a natural drive to construct meaning from the environment. These schematic propositional networks are then used to interact further with elements of the environment which, due to cognitive advances and physical abilities become an ever widening domain. Piaget (1932/1965) suggests that friendships are co-constructed where each participant works to form and maintain the association through mutual respect (recognizing the boundaries between self and other) and willingly conforming to the norms (dynamic shifts in the boundaries between self and other) of the friendship. This friendship co-constructed social interaction Piaget (1932/1965) contends is the building blocks of moral development which is simply the same co-constructed friendship pattern expanded to a wider domain of participants. As the participant domain broadens so does the variance in beliefs and values which further enhances assimilation/accommodation, leading Piaget (1932/1965) to declare the peer group as the most critical determinant in the development of a flexible, autonomous morality. It is through this process of cooperating within the co-constructed social system that autonomy (identity) is obtained. Piaget (1932/1965) noted autonomy not as individuality or resisting conformity, but being self-independent in thought which is possible when the boundaries between self and other is recognized and used in constructing strategies for understanding other people and be understood by others. Hence, Piaget's theoretical foundation for cognitive development is consistent and supportive of a mutuality focus in the development cycle.

Robert Selman

Selman and Byrne (1974), working from a developmental framework highly influenced by Piaget's cognitive development theory, devised a series of social perspective taking stages. Selman's stage theory of social cognition is not one construct but a composite of intrapersonal, interpersonal, and environmental variables that are interwoven to produce an outcome, action, or decision. According to Selman (1980), "Social perspective taking involves an understanding of how human points of view are related and coordinated with one another" (p. 22). The progression of an adolescent through the cognitive social stages entails structural shifts in role-taking ability, which lends empirical substance to understanding Piaget's shifting boundary concept between self and other.

Selman (1980) views development through the social cognitive stages in terms of four respective social domains; parent-child, peer-group, friendship, and individual. Corresponding to Piaget's concrete operational stage is Selman's (1980) self-reflective stage, characterized by the ability to take another person's point of view in a reciprocative nature where each person realizes that the other person can also take their point of view. The self-reflective stage first becomes evident in interactions with parents and siblings, but is also found in peer-group interactions where friendship is based on the exchange of services between members. As early formal operations is obtained Selman's mutual perspective-taking stage emerges. Selman's stage notes the adolescent's ability to take a third-person perspective by stepping out

of their perspective or any other person's perspective in the group to take a totally neutral third-person view and appreciate the global perspective of the social situation. Friendship at this level has evolved into a mutual support system that addresses personal and intimate concerns. Full formal operations corresponds to Selman's (1980) social perspective taking which he notes as an awareness of the differences between personal perspective, their social group's perspective, and the cultural perspective or society in general.

According to Byrne (1974), the cognitive development noted by Piaget, constitutes the prerequisite for the social stages which in turn are the prerequisite for the development of moral judgment. The construct of Selman's theory supports the advent of a mutuality stage by further building on Piaget's cognitive structure.

Lawrence Kohlberg

Piaget in 1950 operationalized the moral development outline postulated by John Dewey (1964) when he defined the three levels; pre-moral, behavior driven by biological and social impulses; heteronomous (conventional) level where children submit to the standards of the social group which may consist of family members, friends, or peer-groups, with little critical reflection; and the autonomous level where the purpose and consequences of an action are reciprocally considered by the individual, independent of the social group's point of view. Piaget maintained that moral development as with intellectual development requires active participation and progressively moves to higher levels in a invariant stage manner. Piaget's observations on moral development

gave rise to Kohlberg's cognitive-developmental approach to moral reasoning (Kohlberg, 1980).

Piaget's focus on the reasoning behind the child's response was maintained by Kohlberg as he elaborated on Piaget's three levels of moral reasoning (renamed preconventional, conventional, and postconventional) by identifying two hierarchical reasoning stages within each level. The orientation of the six stages as noted by Kohlberg (1976a) are, punishment and obedience, instrumental-relativist, interpersonal concordance, law and order, social-contract, and universal-ethical principle. These six stages were constructed after examining the reasoning used by subjects to resolve moral dilemmas that involved a person against a societal standard (as opposed to prosocial, person to person dilemmas).

Further discussion will be limited to stages 2, 3, and 4 which correspond to Piaget's concrete operations through full formal operations and Selman's self-reflective, mutual, and societal perspectives. Since moral reasoning is dependent and limited by the cognitive functioning level, the bounds of adolescent cognitive logic places a ceiling on the moral stage which in turn helps to define the social-cognitive domain. It should be noted that acquisition of the prerequisite cognitive intelligence ability and appropriate social exposure does not assure the development of a corresponding moral reasoning level, especially at the adolescent and adult years (Kroger, 1989). A significant implication derived from Kohlberg's work is that moral development is more directly related to the quality of active cognitive reorganization (assimilation/accommodation) than to the quantity of experiences (Kohlberg,

1973; Turiel, 1969). And while the capability to reorganize to a higher level may developmentally be available, advancement in cognitive moral schemata requires active, personalized, construction of a resolution that will reestablish equilibrium (Turiel, 1969).

Kohlberg's second stage, the instrumental-relativist orientation, is bound by the highly egocentric concrete level of cognitive logic, but having the added ability to reciprocally (as opposed to simultaneously) view another's point of view. Therefore, while having the cognitive ability to recognize that each person has an individual social perspective and set of interests, the behavioral decisions are directed at obtaining self interests and needs. The reciprocity of being socially self-reflective is actively utilized to negotiate equally beneficial exchanges of services or goods even though the developmental orientation is still concentrated on concretely meeting individual egocentric needs. Egocentric thinking and behavior diminishes throughout the instrumental-relativist (stage 2) developmental period as experience with the market exchange process expands from concrete to include abstract (formal operations) cognition.

Kohlberg's third stage, interpersonal concordance, expands the domain subject to exchange to include interpersonal objects like emotional support, feedback, trust, loyalty, respect, and validation. To fully develop an appreciation of the intrapersonal attributes central to stage 3 reasoning, adolescents need the high frequency, two-person interactions afforded by access to close friends and involved family members. Decisions at stage 3 draw on the individual's cognitive ability to view the environment (family, school, and peer groups) from a third-person, spectator's perspective and hence reflect

mutual feelings and mutual expectations. Development of the cognitive ability to view self and others simultaneously from a spectator's point of view requires that an organizational schemata be formed to address the frequently shifting boundaries that have become increasingly complex. Being able to alter behavioral role boundaries in accordance with the social role called for by the environment enables the adolescent to construct a personalized, situational reality schemata, which in turn allows for better environmental adaptation. As cognition reaches what Piaget termed, full formal operations, the adolescent develops the ability to integrate multiple perspectives into what Selman (1980), noted as a mutual societal perspective. The converging of schematic networks allows the adolescent to comprehend, develop ownership, and value the larger social organization by giving rise to a societal orientation, the content focus of Kohlberg's fourth stage.

The goal Kohlberg's social system orientation is to incorporate (cognitively organize) the individual's personalized role(s) within the confines of a larger social structure and in doing so in organizing and evaluation decision making criteria. The adolescent recognizes the collective needs and demands of a functioning society and accepts that societal roles supersede the individual roles. (Society in this context includes informal groups where the individual has a vested membership, as well as formal organizations, cultures, and societies.) Fulfilling the duties of the societal roles is carried out under the optimistic guise that doing one's part (following the concrete rules) will be reciprocated with fair and just treatment by the society. As inequities in this arrangement begin to impact the individual, equilibrium is upset and the adolescent begins to

question/reject societal authority as conditional. This leads the person to cognitively construct a new personal reality measure by which to independently judge right and wrong, while recognizing that society has an accepted "official" morality (Kohlberg & Kramer, 1969; Colby & Kohlberg, 1984). The divergent process of abstracting multiple, morally valid perspectives from the larger social system is a very important milestone in the transition from group to individual identity formation.

The implications for a mutuality stage are inherent in the adolescents' ability to take an other person's perspective, even at the concrete level where Kohlberg has theorized that moral development becomes focused on establishing interpersonal concordance. The bipolar extremes of success or failure can be described as achieving concordance and affiliating or lacking mutuality where a feeling of abandonment, disconnectedness develops. The success or failure to resolve a mutuality conflict is dynamically impacted by environment, cognitive development, moral reasoning, and social dynamics which makes this developmental crisis exceptionally volatile.

Jane Loevinger

Hierarchical movement in Jane Loevinger's (1976) developmental theory is dependent upon ego formation which she views as the master trait which all other personality traits are formed to serve. The ego serves as a screening system that taints perception to meet each individual person's unique frame of reference. Loevinger (1976) explained that using what Sullivan (1953) noted as the "self system" perception of the world, a person's role in the world is filtered

and selectively altered (assimilation & accommodation) to fit the developmental state of the ego. This is done to maintain a level of homeostasis or equilibrium which is the ego's way of fulfilling its primary function; controlling the self from becoming anxiety ridden. Given the power attributed to the ego by Loevinger, what other theorists have separated into impulse, interpersonal, conscious preoccupation, and cognitive domains are holistically viewed as a single developmental entity.

Loevinger's (1976) developmental theory emerged post hoc from an empirical investigation into mothers' attitudes about family life problems. She initially identified four hierarchical sequential steps which have been expanded to include additional stages as well as transition levels. Loevinger (1987), while noting that further levels may still be identified, listed the developmental sequence from birth to death as; presocial stage (autistic self), symbiotic stage, impulsive stage, self-protective stage, conformist stage, self-aware transition level, conscientious stage, individualistic transition level, autonomous stage, and the integrated stage. Of these stages the self-protective through the conscientious directly address the adolescent era and will be discussed in greater detail.

Loevinger was initially influenced by the psychoanalytic philosophy and later by the interpersonal analyses drawn by Harry S. Sullivan, both of which are reflected in her developmental theory. The self-protective stage or opportunistic stage begins a person's transition from dependency to independence in meeting interpersonal needs. Experiments with manipulating the environment provides opportunities to fulfill ego-centric needs

independently. The ego orientation of the self-protective stage is very similar to the goal of Kohlberg's (1976a) instrumental orientation stage in that they both are seeking ways to successfully meet ego-centric needs or wants. The success structure of the self-protective yields a pattern of individually constructed ego tainted truths concerning the operations of the environment. The recognition of rules begins at this point but are limited to the effects of immediate consequences, and bad behavior is equated to getting caught. The ego then begins to develop strategies to avoid failure (getting caught) and insure success, opening the door for what Loevinger (1976) has labeled the conformist ego.

The conformist stage sees the acquisition of the ability to relate the functioning of others (family, peers, etc.) to the functioning of self (Kohlberg's interpersonal and Selman's mutual perspective). The conformist orientation promotes following established rules which are viewed as a self benefiting strategy based on the concept that if the group benefits (initially the family, then peers, and eventually larger groups of society) all benefit. Gaining group acceptance, membership, and love are the primary needs which produce conforming behavior. The ego's need to be accepted by others leads to behavior that includes material acquisitions and preoccupation with personal appearance as part of normal affiliation behavior. A derivation of the conformist however, may include a preoccupation with material appearances as well as objects which are used to take the place of being accepted by others.

Once membership is established, maintaining approval and acceptance serves as a strong controlling factor in focusing ego conformity; stronger than

the threat of punishment which was prominent in the self-protective stage. Mutual reciprocity is available at this stage but is usually limited to highly embedded trust relationships such as with family members or a few close friends. At the conformist stage the stereotypical thinking of the membership group is generally accepted without independent consideration by the individual, trusting in the wisdom of the group.

Loevinger (1976) inserted a transition stage, self-awareness, between the conformist and conscientious stages, marking the transition from the convergent behavior of conforming to the divergent behavior of individual conscientiousness (Piaget's early formal operations). At the self-awareness level a person increases the number of role perspectives that are available. The divergence of perspectives that an adolescent can assume increases the number of resolutions that are possible for any given problem situation. Loevinger notes that the ego's ability to assume different perspectives may create a discourse (disequilibrium) between the group decision process and the individual's ego structured truth, much like Selman (1980) and Byrne (1974). Stereotypical behavior and notions of membership groups as well as society at large, are now being challenged, developing an awareness of individual differences. Prior to the conscientious stage, the person is still basically a conformist but is gaining the ability to differentiate emotions and separate the ideal self from the real self.

The conscientious stage (corresponds to Kohlberg's societal orientation, Piaget's full formal operations, and Selman's social perspective) sees the internalization of moral behavior which takes precedence over the group morals

and further separates the person from the group in forming interpersonal relations. A firm sense of right and wrong emerges in the form of individual ethical principles as the care for others becomes a major part of Loevinger's conscientious stage. Individual needs and interests are incorporated into long-term goals and strategies based on the optimistically ideal, more than pressure from the social environment, which may cause disillusionment as absolutes are replaced with contingencies and comparisons. The transition out of the conscientious stage requires the person to recognize emotional dependencies and declare emotional independence.

Loevinger's ego development stages have many of the same elements noted in the work of Piaget, Selman and Kohlberg. The general attributes associated with each of Loevinger's levels or transitions are consistent with those of the other life span theorists noted earlier. The general movement from ego-centric to mutuality to individual orientation is consistently supported. Loevinger however, does maintain a philosophically different view in that she does not consider her stages age (epigenetic) dependent and notes that higher stages do not equate to better, just different ego perceptions.

Abraham Maslow

Abraham Maslow was trained in behavioristic psychology but being a self described compassionate man turned his exploration to researching the potential humans have for growth (Hall, 1968). He concentrated on the healthy and most developed individuals in society, noting that if psychology wants to discover the true human nature of development it cannot concentrate on the

derailed individuals arrested at unhealthy stages.

Maslow's (1943, 1968, 1970) view of human development incorporates an innate biological force that drives individuals to strive for higher levels of functioning in an attempt to satisfying a set of universal needs. Maslow believed that there is a natural epigenetic drive that focuses the developmental forces within a person toward becoming a fuller human. This fullness is aimed at the acquisition of a self-actualizing state, where one is free to utilize all the acquired and innate abilities to pursues one's own potential.

Maslow defines positions along a continuum that can arrest movement towards becoming self-actualizing. Maslow's (1962/1968) hierarchy of needs are invariant and sequential, requiring the lower need be sufficiently met before addressing the next higher need, suggesting that only one need is paramount at a time. Maslow (1970) defined seven universal needs ranging along a control continuum from lowest to highest. The specific stages are, physiological (food, water, air, sleep), safety (security, stability, protection, freedom from anxiety), belonging and love (caring relationship(s) with others), esteem (interpersonal validation and intrapersonal confidence), intellectual (know and understand the environment), aesthetic (to find beauty, order, in the surroundings), and self-actualizing (following metamotivational drives to develop to the fullest). The physiological through esteem needs constitute deficit needs while the intellectual through self-actualizing are considered growth needs.

Adolescent development is especially concerned with meeting the deficit needs of safety, belonging, and esteem. The safety needs include needs for security, stability, protection, and predictability which reduce anxiety, freeing up

energy for other purposes. The safety need has typically been provided by the stability of the family or primary care giving unit, but the erosion of family stability has impacted fulfillment of the safety need for many children.

The need to belong can be met by joining a group, club, organization, or even a gang, where acceptance is reciprocated by membership. The belonging need then transforms into a need to love, reciprocally. Fulfilling the love need requires establishing an intimate, caring relationship with one other person, or a select finite number of others, where giving love is as important as receiving it. Maslow (1970) noted that the belonging and love needs are increasingly more difficult to fulfill in modern society and perhaps has given rise to the popularity of artificially structured groups like communes, cults, gangs, etc.

Maslow's esteem need is perhaps better expressed as the interaction of two esteem needs (internal and external). First is the positive force, inner esteem need that is primarily met through gaining insight into what Maslow (1962/1968) notes as an innate positive force that facilitates metacognitive growth and understanding. By understanding self, meeting the natural inner growth needs, and recognizing intraindividual strengths and weaknesses a feeling of self-worth is established. This inner self-esteem is not exceptionally strong and can be easily overpowered by the influences associated with meeting the second (external) esteem need. The external esteem is derived from feedback (positive and negative) gained by interacting with other people. The adolescent can establish a reputation, find admiration and fame, establish social success, and/or acquire material possessions that can influence social perception and acceptance. The environmental influences provide for self

evaluation based on an external perspective or point of view which can heighten or overwhelm the internal self-esteem. How others think and act impacts the external and internal esteem through learning, culture, fear, etc. (Maslow, 1962/1968). Rosenberg (1965) further defined the relationship between internal and external esteem by suggesting that a high sense of esteem is correlated with a sense of self control over one's life, and that low life satisfaction is related to the loss of control (external) to meet intraindividual (internal) needs.

Adolescents are trying to develop a sense of who they are (identity) through the fulfillment of the lower needs. In today's society it is more difficult to meet the safety and belonging/love needs as family support erodes, and the available prosocial groups become driven by forces that are not developmentally appropriate. A combination of societal forces are denying access to developmentally appropriate sources of fulfilling the lower level deficit needs, artificially prolonging adolescence.

Maslow's belonging and love needs are consistent with other research, that suggests a mutuality orientation is a precursor to developing a sense of self (identity). Maslow goes beyond some of the other researchers to state that there is a natural biological drive that moves individuals along a developmental stairstep sequence.

H. Murray and D. McClelland

Maslow's needs hierarchy has inherent in its structure a locus of control issue that suggests the nature of human development is to control (minimize)

the effects of external forces by developing and nurturing the inner growth impulses on the way to becoming a self-actualizing person. The issue of control mechanisms were explored by Henry Murray in a systematic study designed to measure human motivation. Murray (1938) used multiple methods to investigate and measure the collective motives noted by other theorists in an effort to contrast motivation with personality traits. From his research three needs (power, affiliation, and achievement) have particular interest to the field of adolescent development and have in recent years received further elaboration by McClelland (1985).

Murray (1938) noted that the need to have power over one's environment was evidenced by direct or indirect manipulation of others. McClelland (1985) suggests that the loss of status such as what would be experienced by expanding from only family membership into forming peer relations would increase the need for power (control) over one's environment in just maintaining the same level of personal stability during the transition period. The more power one has over his/her destiny, the lower the perceived risk and the more inviting active exploration (assimilation) of the environment becomes. A second need, the affiliation orientation was noted by McClelland (1985) consists of a desire to; be near peers; please others and win approval; join groups and engage in cooperative efforts that support the developmental exploration of trust, good will, affection, empathy, and other emotions. A third developmental task, achievement orientation, Murray (1938) noted as focusing on the desire to master difficult tasks in an effort to refine individual talents. The talents (whether acquired or predisposed) that lead to perceived successful

accomplishments become intrinsically motivating while raising the individual's self-esteem. The defining of personal standards and striving to reach them is intrinsically driven at this point. Fiske (1991) noted the intrinsic impact of success noting that the, "Need for achievement is need for economic rationality for its own sake, for the satisfaction of making decisions and mobilizing resources in the most effective way possible under the circumstances; that is for maximizing outcome ratios" (p. 108). Achievement is equated, much like Maslow's self-actualizing need, to pursuing what suits one's abilities, interests and talents; the ideal being a maximization of self-directed production.

Murray and McClelland's locus of control orientations for power, affiliation, and achievement are not restricted by theory to an age criteria nor are they mutually exclusive. The three elements are constantly being manipulated as a person interacts with the environment. Tannen (1990) makes an interesting observation concerning the interactive nature of these elements, "Like girls, these boys gain status by affiliation: The more influential people they (males) know, the more status they have. But the point of affiliation for them is power--they use their connections to get things done. For girls, affiliation is an end in itself" (p. 141).

Kegan (1982) has suggested that there is a disposition toward favoring one (power, affiliation, or achievement) orientation and then the others in turn, as a developmental sequence unfolds. Kegan gives initial preference to the power orientation which is useful in helping to protect and shield the self against external assaults minimizing the effect negative interactions with the environment have on the internal drive for growth. The affiliation orientation

follows the power orientation allowing the person to trust in others, developing a sense of unity and connectedness. Finally the emergence of the achievement drive defines the activities that the adolescent has a preference or inclination towards, setting the stage for developing an individual identity that is grounded in self defined talents and accomplishments.

Applying Kegan's chronological structure to Murray and McClelland's theory a confirmatory pattern begins to emerge with other theories. For example the power oriented behavior, aimed at taking more control over one's own life, is consistent with the egocentric behavior evidenced in Kohlberg's instrumental orientation stage, Loevinger's self-protective opportunistic stage, and Maslow's safety orientation. The affiliation orientation where the adolescent seeks like company in which to reform emotional attributes, is consistent with the conformity stage of Loevinger, Maslow's belonging and love need, and Kohlberg's interpersonal concordance. The achievement orientation centering on making the most of one's self, is consistent with Maslow's esteem needs, Selman's social perspective view point, Loevinger's conscientious participant. All of the above theories except Maslow, who did not directly address the cognitive issue, contain the assumption that, what Piaget termed, formal operational cognition has become functional by this stage. The achievement drive as described by McClelland (1985) is focused on interacting with a larger social or cultural society. The widening social structure is furthered by the expanding cognitive abilities (concrete to formal), this trend is also supported by the work of Selman (1980), Kohlberg (1980), Loevinger (1976), Kegan (1982), and Erikson (1950). The attributes given to power, affiliation, and achievement

are consistent with Piaget's concrete to early formal operations suggesting that the higher achievement orientation would be capable of abstract problem solving from what Selman termed multiple reciprocal perspectives.

Robert Kegan

Robert G. Kegan (1982) convinced that Piaget found more than he realized builds heavily on Piaget's cognitive theory, expanding the intrapersonal constructionistic concept to include a differentiated and undifferentiated self identity. Kegan views each person as being embedded in an intrapsychic framework from which one is unable to create distance; it is not possible to be aware of one's framework (Kroger, 1989). Through the developmental process the person differentiates from the framework a construction of the things that once were the person and have hence become properties that the person has control over. These properties that the undifferentiated framework (self) has control over are noted by Kegan (1982) as "other" and includes feelings, thoughts, constructs, relationships, etc. that a person can step away from, observe, and manipulate (Noam, Kohlberg, & Snarey, 1983). Kegan sees the evolving self as a product of the constructionistic process of making meaning and gaining control of other by experiencing personalized interaction with the environment. Kegan noted that it is not what happens to a person that defines the individual, but more precisely what is intrapersonally constructed with the things that happen to a person that provides the foundation for development.

Kegan's developmental theory centers around a zone of mediation. This zone is where a person's interactions with the environment are merged with

previous knowledge and evolutionary granted talents in constructing a Piagetian type schematic representation from which to make sense of the world. The world takes on what Selman and Loevinger collectively called an individually, ego tainted perspective, which Kegan further defines as having an undifferentiated "self" and characteristic "other". Kegan sees the construction of an environmental schematic representation as the interactive division of "self" from "other," which is in a constant state of dissolvment and restructuring. The restructuring consists of forming boundaries between what the adolescent is (self) and what the adolescent has control over (other) only to again dissolve the boundary as conflict (disequilibrium) is encountered and then reforming them as an evolutionary truce (equilibrium) is regained.

For Kegan the goal of development is to use evolutionary energy (Maslow's metamotivational force) to separate from self, through constructive meaning-making, elements, traits, and behaviors, forming a conditional state where having or discarding attributes is a decision in self identity formation (Kegan, 1983). Kegan views identity formation as a whole entity process where the separate developmental elements (cognition and affect) are constructing the bigger context. The individual elements are important, but should not be studied in isolation since it is the conjoint interaction that contains and gives rise to the significance of each element's existence.

Kegan suggests that development consists of negotiating a series of 6 meaning-making evolutionary truces. Unlike many other theorists, Kegan places great value on the transition from one developmental truce to the next, as he feels it is during this time that the formulation of the person's self-identity

is most impressionable and dynamic. Kegan's theory concentrates on the transition process between stages, the evolutionary growth (establishing equilibrium) and loss sequence (disequilibrium state) as opposed to the relatively static state between transitions. His stages consist of the growth toward and the loss of; incorporated self (stage 0), impulsive balance (stage 1), imperial balance (stage 2), interpersonal balance (stage 3), institutional balance (stage 4), and interindividual balance (stage 5). Of these stages, 2, 3, and 4 are particularly relevant to the field of adolescent development, necessitating further discussion.

The growth and loss of the imperial balance (stage 2) sees the decline in impulsivity associated with the sensory perceptions of preoperational thinking during the loss of the incorporated self (stage 1) and the growth phase of imperial self. The impulsive drives are seen as something the self has control over at the imperial stage, and in effect placing sensory impulse desires in the other, ie. "to be manipulated" category. Gaining freedom from impulse drives allows for an increase in directional efforts designed at meeting specific needs, interests, and wishes over an extended time. In establishing the imperial balance the child's social world expands from the family base to include school and eventually peer cultures. This prosocial behavior is operationalized by Piaget's concrete operational processing abilities, enabling the child to take another person's perspective. The ability to take another perspective develops an awareness of the individual differences that exist and innate a desire within the child to define individual likes (self) and dislikes (other). The self continues to divest, developing its own sense of authority while bringing into question the

validity of external authority dictates (other). This progression is aided or hindered by the contextual environment (family and school) which Kegan refers to as the holding environment. A positive holding environment provides a supportive base for the exploration and subsequent construction of a cognitive self, composed of individually defined attributes that are derived from interactions with the holding environment. The holding environment needs to be supportive and not repressive or restrictive if the developmental potential is to be optimized. Through exploration the child moves away from dependency on parents and builds the competence of self, further differentiating between self and other in roles within the family, school, and peer culture.

The imperial (stage 2) to interpersonal (stage 3) transition promotes the progressive addition of peer culture(s) to the holding network, that in effect supersedes both family and school, allowing the developing adolescent a mutual immersion source of authority. The peer culture allows the child to be immersed in situations where the authority figures are a composite of developmental contemporaries. Kegan (1982) reverently regards this self governing ability as, ". . . the first moments of a remarkable development in the evolution of meaning, for at this time the organism, which for so long has been cultured, begins itself to assume the function of culturing, a function crucial to the continued survival and enhancement of that greater life community of which it is a part" (p. 166).

Equilibrium achievement at the interpersonal stage promotes, among other things, control of self distinguished impulses, conformity, exploration of interests, role playing, and construction of a self culturing criteria for

establishing a personalized construct of reality. The interpersonal stage encompasses the transition from peer membership (mutuality) to a self concordance and personal autonomy (identity). The adolescent in the interpersonal transition, aided by movement from Piaget's concrete to early formal abilities, shifts the boundaries between self and other so that needs and interests are externalized to other, allowing the adolescent to coordinate the self properties with those of peer relations. By manipulation of the externalized interests and needs (other) adolescent development allows for an internal state (self) where mutuality can take precedence. The self, in fulfilling the need for mutual relationships, is very vulnerable to attacks from the social environment which can be devastating, even victimizing, if the holding properties of family, school, and/or peer cultures are not supportive.

Kegan (1982) noted that a person embedded in a stage cannot separate the properties of self and other for the embedded stage. This accounts for the high level of conformity at the interpersonal stage. The self fulfills the mutuality need which is dependent on peer approval, while other is bound within a conjoint reality. The gradual disintegration of the shared reality begins the transition to the institutional stage where the undifferentiated self seeks autonomy and the mutuality needs begin the transition to other. A sense of self-authorship emerges in the formation of an identity where self is psychologically its own entity, not a composite of pieces shared by the needs of the other (Kegan, Noam, & Rogers, 1982). In the institutional balance the self is not defined by the group norms that one holds membership with, but self identification serves as a selection criteria for holding membership will certain

groups. The focus is on affiliation with the larger social order and functioning in the adult world.

Kegan's developmental theory has embedded within its formal structure an interpersonal stage that directly supports the adolescent's need for mutuality. The transition towards the interpersonal stage is marked by a loss of the family embeddedness of self as the support system expands to include school and peers. According to Kegan's (1983) construct an affiliation phase in human development is inherent and will become the prominent focus as the undifferentiated self sheds the embedded identities of lower stages. Kegan's theory is holistic in scope, describing both the acquisition and transition from stage to stage.

Erik Erikson

Erik Erikson's (1950) developmental theory is a composite that reflects his psychoanalytic training and his field observations from daily life experiences with ordinary people. The ordinary person as opposed to the institutionalized person is where Erikson focused his efforts, maintaining that it is of great importance that the normal or ordinary be understood. His theory incorporated aspects of the individual's "life history," social dynamics, biological drives, along with constructs from Freudian psychoanalysis, shifting the motivational drive from psychosexual (Freudian) to a broader psychosocial emphasis in attempting to explaining normal human development (Erikson, 1968). The general objective in Erikson's psychosocial model is to develop an ego-identity. This ego identity develops from the dynamic interaction of innate biological

endowments, personal cognitive truths based on experience, information processing strategies, and the embedded cultural environment (Erikson, 1970).

According to Erikson, humans progress, over a lifetime, through eight stages which follow the epigenetic principle of development. This epigenetic principle states, ". . . anything that grows has a ground plan, and that out of this ground plan the parts arise, each part having its time of special ascendancy, until all parts have arisen to form a functional whole" (Erikson, 1968, p. 92). Erikson's (1950) Eight Stages of Man theory consists of eight specific bipolar, sequentially invariant crises which take precedence at optimum developmental times across the life span. If the conflict is resolved in a healthy manner the ego-identity is strengthened which enhances further healthy development. If the crisis is resolved towards the negative pole this resolution is also incorporated into the ego-identity, negatively impacting further psychosocial development.

The eight stages are named in reference to the positive and negative poles of the social task that is most prominent for a developmental period. This does not preclude the crisis from being addressed again at a later stage, but simply represents the chronological span that optimally matches the crisis task and maturational development. The eight crisis tasks from birth to old age are; trust/mistrust, autonomy/shame and doubt, initiative/guilt, industry/inferiority, identity/identity confusion, intimacy/isolation, generativity/stagnation, and integrity/despair (Erikson, 1950). The industry/inferiority and identity/identity confusion stages are the two developmental crises that are directly addressed during the adolescent era and hence, requires further elaboration in light of the

current review focus.

The industry/inferiority crisis takes precedence during the period between school age and the onset of puberty. This time frame, appropriately noted as the apprenticeship, is focused on the person becoming fluent in the basic skills needed for mastery of the physical environment as well as mastery of basic content that will empower the adolescent to have an active part in forming the future. Learning to manipulate the relationship between self and the environment, recognizing the need for cooperative effort, developing a limited differential perspective-taking ability, finding social value in rules, encountering the conditionality of fairness, having pride in one's work, are all developmental possibilities during the industry stage and are highly influenced by the approval and recognition of significant others within the environment. The integration of expanding individual self interests and the epigenetic drive for accomplishment are both individually and conjointly impacted by the type of recognition received from the environment, which has the potential to positively or negatively shift the resolution of the industry/inferiority crisis. The industry resolution will impact the ego-identity by intrapersonally establishing an active or passive stance in learning to master new heights (Erikson, 1968). A positive intrapersonal resolution promotes active interaction with the environment where the person seeks ways to exhibit initiative (often seen as leadership or deviance traits). The person who develops a resolution embedded in the passiveness of the inferiority side feels like a helpless pawn whose future in the conventional track is the will of the environment.

The positively resolved, active industry stage adolescent searches for

areas where he or she can be successful in activities that are of intrapersonal interest. The search for success areas (talents) may lead to exploration and mastery of activities that are outside the accepted social norms. An industry resolved youth may become highly involved in distance running which may be applied to field and track pursuits (socially acceptable) or the same active resolution may be applied to purse snatching (socially unacceptable). The adolescent is willing to risk absorption into what the adult society perceives as anti social activities such as drug use, sexual promiscuity, and violations against property in meeting the industry need for success and acceptance.

Erikson's second adolescence related crisis, identity/identity confusion, follows industry/inferiority and is marked by a dramatic change in physical as well as cognitive development. Pubescence, according to Erikson (1968) adds a physiological revolution to the psychological crisis being experienced during adolescence which further complicates the search for identity. The identity stage is directed more towards a social orientation where reciprocal behavior is needed to resolve the crisis, as opposed to the industry need where organization and object mastery through direct physical manipulation take precedence (Erikson, 1950). Identity resolution requires the person to conduct an intrapersonal assessment of strengths and weaknesses. This assessment takes into account personal history, present functions, and future expectations (made available by formal operational thought) as precursors in determining how personal strengths and weaknesses are going to be utilized in the formulation of an identity resolution.

Identity crisis resolution is the result of sustained effort towards

constructing a personalized philosophy of life that can serve as a frame of reference for deciding personal action in future events. This personalized philosophy results from past experiences (schemata) that interactively unite (propositional network) to provide a personally-constructed sense of self which then serves as a template for future problem solving. Initially the identity crisis resolution process relies heavily on the peer group for comfort, companionship, validation, and feedback. However, in establishing a mature positive resolution of the identity crisis the adolescent must separate from peer group dependency, just as movement to the peer group required separation from dependency on the family, and accept self, mentally and physically (Erikson, 1950).

Identity diffusion results in an inability to separate self from dependent relations with the family or peer group(s) where self-doubt will perpetuate the importance of what others think. Prolonged identity diffusion may result in self-destructive behavior, ego-centric preoccupation, delinquency, and psychotic personality disorganization (Muuss, 1962). Erikson noted, "Many a late adolescent, if faced with continuing diffusion, would rather be nobody or somebody bad, or indeed, dead . . . than be not quite somebody" (Erikson, 1959/1980, p. 132).

The mutuality needs noted with the other theorists are present in Erikson's identity vs identity confusion stage as precursor elements. Erikson notes that prosocial behavior is important to the healthy resolution of the identity crisis, however the importance and effects on success at higher levels of development are inconsistent, leaving a developmental gap in the continuum.

The Need For A Mutuality Stage Inclusion

Theoretical Discourse

The developmental changes noted across the theories of Piaget, Selman, Kohlberg, Loevinger, Maslow, Murray and McClelland, and Kegan are the product of an interaction of maturation and experience. Across these theories a core of common elements can be extracted, marking three points or stages in adolescent development (Table 2.1).

The onset of adolescence is characterized by concrete thinking, a movement towards independently meeting egocentric needs, and a realization that other perspectives exist separate of one's own. The second stage is marked by conformity to peer groups as adolescent exploration moves from adult controlled culture to a peer governing social state. Membership and acceptance is based on mutuality and provides a sense of safety for further exploration of self which can be perceived from a third person point of view. The exploration within the peer group promotes experiences that help to define the uniqueness of each adolescent, giving rise to individuality. The development of individuality constitutes movement toward the third and concluding stage of adolescence. Egocentric behavior is replaced with a need to identify one's place within the larger society. As the individual identity emerges, the focus is on the application of self interests and talents in impacting larger societal groups, ranging from community and work to culture and humanity.

The theoretical orientation of a three distinct stage process during the

TABLE 2.1

THEORETICAL STAGES OF DEVELOPMENT
DURING THE ADOLESCENT ERA

| Theorist | Early Adolescence | Middle Adolescence | Late Adolescence | | |
|-------------------|---|--|--|--|--|
| Piaget | Concrete operational | Early formal operational | Full formal operational | | |
| Selman | Self-reflective | Mutual perspective taking | Social perspective | | |
| Kohlberg | Instrumental orientation | Interpersonal concordance orientation | Societal orientation | | |
| Loevinger | Opportunistic | Conformist | Conscientious | | |
| Maslow | Safety orientation | Love, affection, belongingness orientation | Esteem & self-esteem orientation | | |
| McClelland/Murray | Power orientation | Affiliation orientation | Achievement | | |
| Kegan | Imperial | Interpersonal | Institutional | | |
| Erikson | Industry vs inferiority | Affiliation vs abandonment** | Identity vs identity confusion | | |
| Blos | Preadolescent | Early adolescent | Adolescent proper | | |
| Sullivan | Juvenile era | Preadolescence | Early adolescence | | |
| Dunphy | Stage 1: Pre-Crowd Isolated unisexual group | Stage 2: Early crowd Unisexual cliques | Stage 3: Maturing crowd Movement to heterosexual cliques | Stage 4: Mature crowd Heterosexual cliques | Stage 5: Crowd dissolution Groups of couples |

**Hypothesized "Missing Stage" from Erikson's life cycle theory.

adolescent developmental era is not shared by Erik Erikson, who describes the adolescent period as consisting of two bipolar developmental crises. Erikson (1950) noted the poles of each crises as industry vs. inferiority for early adolescence and identity vs. identity confusion in concluding the developmental era. This inconsistency in the basic structure of the adolescent developmental sequence has given rise to a hypothesis that Erikson may have overlooked or more accurately stated, combined two stages (affiliation/abandonment and identity/identity confusion).

Erikson (1970) conceptualizes identity as a product of intrapersonal and communal cultural experiences which are partly conscious and partly unconscious. The inclusion of the cultural experience as used by Erikson implies that social affiliation is a part of the identity formation process but is not representative of a separate stage. He even suggests that social tolerance of adolescents in their role experimentation (adjusting the role to meet a variety of social situations) will in time facilitate a healthy resolution.

As in the past the study of children's spontaneous games was neglected in favor of that of solitary play, so not the mutual 'joinedness' of adolescent clique behavior fails to be properly assessed in our concern for the individual adolescent. Children and adolescents in their presocieties provide for one another a sanctioned moratorium and joint support for free experimentation with inner and outer dangers (including those emanating from the adult world). Whether or not a given adolescent's newly acquired capacities are drawn back into infantile conflict depends to a significant extent on the quality of the opportunities and rewards available to him in his peer clique, as well as on the more formal ways in which society at large invites a transition from social play to work experimentation, and from rituals of transit to final commitments: all of which must be based on an implicit mutual contract between the individual and society.

(Erikson, 1959/1980, p. 127)

Kegan (1982) takes exception at this point to note that affiliation with social

others during the identity formation will facilitate positive resolution, but if social attachment fails to develop during the identity formation process the resolution will qualitatively change. The influence that is exerted by the mutuality precursor to identity formation has validated the need to further explore affiliation vs abandonment as a separate developmental crisis.

Theoretical Support For Affiliation vs Abandonment Stage

Darwin (1871), probably the best known modern ethologist, suggested that early humans who banded together in groups and looked out for the common good probably had a better chance of surviving. Given his theory of evolution and the human's physical prowess in relation to other species, natural selection must have favored the individuals that possessed a capacity for social behavior, increasing its prevalence in the population.

Bowlby (1973) developed an ethological theory of child development in which he notes a natural drive to develop social partnerships. He felt that throughout the childhood years this naturally occurring but unbalanced partnership (parent to child) should make a progressive shift towards equality. Then, during the adolescent years, as equality is neared, the child begins to dissolve the parental partnerships and form attachments with parental substitutes. The natural desire to seek out and develop partnerships that facilitate survival continues over the life-span, leading Bowlby (1973) to conclude that the need for close attachments is inherent in human nature.

Building on ethological and neurological research MacLean (1978) noted that human beings are social creatures by nature. He attributes the rudiments

of certain human behaviors to instinctual drives that are embedded in the autonomic nervous system. MacLean (1978) suggests that there are several instinctual categories of behavior that modern man exhibits that are direct holdovers from earlier evolutionary stages. He suggests that modern man possesses animal instincts for territoriality, preening or ritualistic behavior, nesting, maintaining a social hierarchy (pecking order), mating rituals, and flocking behaviors. In MacLean's framework the desire to maintain social connections with others (grouping) is a function of an innate and biologically driven flocking behavior. MacLean suggests that the central nervous system contains individual survival programming that is common to all species. These survival instincts are so deeply imbedded in the central nervous system that they are automatically engaged, accounting for ritualistic behavioral patterns.

The flocking behavior that MacLean has noted as a categorical survival instinct is characteristically marked by social conformity, aimed at gaining acceptance into a group for protective purposes. The adolescent struggle to satisfy this natural drive is exemplified by such things as common hairstyles, manner of dress, adherence to group standards, actively joining in a group sanctioned behavior, etc.

While MacLean suggested that instinctual or animalistic survival circuitry in the brain was responsible for the predisposition of certain developmental behaviors, others like Piaget (1950), Erikson (1950), Maslow (1943) attributed the inherent commonalities in developmental patterns to a combination of factors: maturation (biological changes including genetic influences), experience, and environmental influences. The critical issue is not necessarily

whether the drive for social attachment emerges from an evolutionary refined survival instinct, environmental cues, or specific maturational influence, rather the issue is simply that the drive to affiliate occurs as a natural part of the normal developmental sequence and as such has a chronological window for optimal developmental growth.

The epigenetic principal as operationalized by Erikson (1968) states ". . . anything that grows has a ground plan, and that out of this ground plan the parts arise, each part having its time of special ascendancy, until all parts have arisen to form a functional whole" (p. 92). From this perspective the focus is on the end product (a fully developed person) and only reflectively on the individual elements involved in optimally achieving full development. Therefore establishing that an affiliation behavior is a sequential part of the natural developmental process of forming a whole, supersedes and nullifies the etiological and point of origin issues.

Once the adolescent is accepted into the peer culture it becomes a safe haven for further experimentation. The adolescent is exposed to and encouraged to explore a wider variety of experiences in the peer culture than is offered by the family setting. It is through exploration that individual preferences are discovered, establishing the rudimentary elements for identity formation. Santrock (1993) notes that there has been a shift in the way adolescence development has been viewed:

In sum, the old model of parent-adolescent relationships suggested that, as adolescents mature, they detach themselves from parents and move into a world of autonomy apart from parents. The old model also suggested that parent-adolescent conflict is intense and stressful throughout adolescence. The new

model emphasized that parents serve as important attachment figures, resources, and support systems as adolescents explore a wider, more complex social world. The new model also emphasizes that, in the majority of families, parent-adolescent conflict is moderate rather than severe and that everyday negotiations and minor disputes are normal, serving the positive developmental function of promoting independence and identity.

(p. 206)

The support offered by the family to guide the adolescent's development toward an individualized identity is initially peer supported by providing a safe, accepting, and success promoting environment for trial and error exploration. As the adolescent continues to expand the interactional environment the peer group and family serve as support systems but in different ways. Peers help develop an appreciation for the rights of others, serves as a behavior control monitor, provides a source of cultural identification, and further personality role development (Lawhead, 1963). Brittain (1963) indicated that the peer group is more in tune with the changing social standards and encourages exploration of trends in things such as music, hair styles, clothing, and communication dialects. Blos (1941) noted that preadolescence (puberty) is typically the time when delinquent behavior begins to surface which is accompanied by a movement away from parental control and towards gang involvement. Muuss (1988) stated, "the importance of the peer group in helping the individual answer the question 'Who am I?' cannot be emphasized enough" (p. 61). He further notes that the peer groups, cliques, gangs, and even lovers help the adolescent in the identity formation search by serving as role models while, simultaneously providing social feedback.

Blos (1967) developed a six phase theory of adolescent development

that includes a preparatory latency period, followed by preadolescence, early adolescence, adolescence proper, late adolescence, and postadolescence era. The high investment in conforming to the pressures of peers during the early adolescence period is supportive of the mutuality drive observations made by Kegan (1982) in suggesting the affiliation versus abandonment stage.

Friendships take on idealized qualities during early adolescence as the adolescent possesses the formal operational ability to project valued qualities onto peers. Blos (1962) notes that at the early adolescence period same sex friendships are formed, delinquency has its onset, and the adolescent actively seeks friendship with individuals and groups that possess qualities that are novel to the historical family of origin. Blos (1979) noted that the developmental task most prevalent during the adolescence proper period is to disengage from the family system and form bonds outside the familiar family domain. In exploring new options, the projection of idealized or novel traits serve to bridge the familiar with the unfamiliar and perhaps account for adolescents initially overlooking flaws in selecting friendship affiliations. The affiliation with a group or person (if sustained) as the novel infatuation diminishes promotes the adolescent to evaluate the value of the affiliation, and either commit effort in maintaining it or discard it as an "other" (Kegan) byproduct. A loss of interest due to the effort required to maintain an association can be offset if a personalized true interest emerges. Sustained exposure reduces the initial effects of a novelty attraction as the effort to sustain an association gives way to a personally constructed reality during the identity formation process. Often the experimental groups or activities initially sought out by the adolescent are

rejected in favor of the values established in the security of the family of origin. Blois (1967) refers to this type of conflict resolution as a second individualization process which suggests that earlier formations in the personalized construction of reality are redefined to reflect insight gained by developing formal cognitive operations. The second individualization process emulates what Kegan (1982) noted as the cognitive separation of self and other at the interpersonal stage.

Muuss (1988) states that the Interpersonal Theory of Adolescent Development proposed by Harry Stack Sullivan has failed to receive the attention it deserves, and ironically, it provides the most direct theoretical support for the existence of an adolescent mutuality stage. Sullivan's (1953) theory, while being singular in its focus (interpersonal), allows for a broad integration of physiological, cognitive, intrapersonal, and environmental elements which have an effect on the whole person. Sullivan proposes anxiety as the central motivating force behind development instead of sexual (Freud), psychosocial (Erikson), or cognitive (Piaget) needs. Development is fostered by the person's need to better cope with the environment, and in doing so develop a higher degree of control over anxiety arousal. Sullivan's theory centers on interpersonal issues which he notes as being an inevitable source of anxiety. The anxiety from interpersonal issues is different from that of basic survival needs (food, shelter, etc.) or from bodily zone needs (anal, oral, etc.). It is generated from sources that are in what Sullivan (1953) termed the "interpersonal field," which has most of its anxiety control measures outside the person. Interpersonal anxiety is a manifestation of how others meet, or more often and perhaps more importantly, fail to meet the individual person's needs.

Sullivan (1964) outlined six stages of development which center around the mastery of stage specific, interpersonal tasks. Sullivan, like Erikson, suggests that the developmental accomplishments at one stage have an impact on the level of developmental achievement attained at a subsequent stage. The tasks Sullivan attached to each stage relates to the mastery of interpersonal relations derived (external to self) from the peer or group of peers that validate the adolescent attempts to define self-worth. In the process of normal development the domain of interpersonal skill progresses from simplistic infancy (child and parent) schemata to an increasingly complex and divergent propositional network of differentiated social skills appropriate for adult interactions.

Sullivan's six stages, limited in scope from birth through intimacy are: infancy, childhood, juvenile era, preadolescence, early adolescence, and late adolescence. As noted, Sullivan centered on the source that would provide self-validation when defining the nature and focus of each interindividual mastery task. With this goal in mind, the infancy stage centers on the interindividual relations with the "mother." The goal is to have one's needs met by communicating with the primary caregiver. The "mothering" person responds by meeting the child's basic needs with empathy and support which reduces anxiety and promotes trust. At this stage the anxiety provoking behaviors are transferred through body tension during physical contact as well as verbal tone (Sullivan, 1953).

Childhood, stage two begins with the acquisition of meaningful speech and broadens the child's interpersonal relationship circle to include other family

members. The childhood stage includes learning to cooperate with others, following directions, and completing requested tasks from the other members of the family. The young child being egocentric at this stage seeks to perform tasks in their own way, eliciting praise and punishment which gives rise to anxiety. The child must be able to construct a schemata for what produces praise and what elicits punishment from the primary caregivers. If such a template cannot be constructed the child becomes disoriented and withdraws or conceals actions. Sullivan attributes this withdrawal to the anxiety of being uncertain of the response that will be elicited from the individuals in the interindividual circle.

The juvenile era begins with the need to extend the interpersonal circle to include playmates outside the family and covers the early school years. The juvenile era goal is to become social outside the family. The goals of previous stages such as cooperation and communication are broadened by peer interaction. The reference group used to define behavior is also expanded beyond the family to include the peer group. The child, through interactions with the peer group, constructs an understanding of the interactional behaviors that have the least anxiety producing potential. The threat of being ostracized by a peer group or excluded from a peer group function is a major threat to self-esteem. On the positive side, the threat associated with peer acceptance promotes cooperation, compromise, and teamwork oriented behaviors which serve to promote further socialization. On the negative side, high anxiety resulting from peer pressure can promote blind acceptance of peer norms which can stifle social interactions with non-peer affiliated experiences.

Acceptance of stereotypical judgments by the over conforming peer group member limits the variety of interpersonal interactions due to a preconceived mental set (cognitive schemata) of ideas in lieu of experiences. These preconceived ideas have the potential to become a source of anxiety in later life which may result in them being dismissed or reaffirmed. Thus, Sullivan's (1953) juvenile era comes to a close as the result of maturational changes that affect physical (puberty) and cognitive (formal operations) functions.

The preadolescence stage in Sullivan's developmental theory is chronologically brief but provides for the development of some of the most important skills in the interpersonal domain. The group dynamics that provided models and feedback during the juvenile era are now refined and concentrated on making individual friends with whom personal feelings and thoughts can be shared. Coleman (1989) supports Sullivan's structural format by noting that the fear of rejection by the peer group reaches a peak during the preadolescent developmental era.

Sullivan (1953) suggests that intimate friendship (chumship) permits validation of personal worth components in a psychologically safe, low anxiety producing relationship. The development of a chumship that will foster personal worth is generally found between individuals that are similar in most respects, such as experiences, developmental level, and gender. The chumship collaboration has a goal of mutual validation which the preadolescent is able to address by actively utilizing the newly acquired cognitive abilities (formal operations) to emotionally invest in the success of another person. Chumships are based on loyalty and emotional bonding which is fostered by freely sharing

thoughts and experiences. The chumship relations provide feedback to the preadolescent, serving as a protective reality check for self-evaluations, situational conceptions, and behavioral habits before attempting the more risky application of self to the non-loyal general society.

Preadolescent individuals are critical, questioning the beliefs and perceptions of family, school, and culture. Sullivan contends that the corrective, low anxiety feedback provided by chumships are a major factor in constructing a personal reality in accordance with healthy developmental needs. Blos (1965), Erikson (1950, 1958), Csikszentmihalyi and Larson (1984), and Maslow (1962/1968) agree that intimate, same-sex friendships (Maslow was not gender specific but simply placed the emphasis on the friendship) during this developmental period greatly enhances the acquisition of a positive self-concept, as well as exposure to the prerequisite needs for intimate love. It is at this preadolescent stage that loneliness, arising from a lack of satisfying interpersonal contact, reaches a peak (Sullivan, 1964; Offer & Offer, 1980). While some loneliness is experienced by everyone in the preadolescent stage, failure to meet the interpersonal need can lead to increasing social isolation throughout the remaining lifespan.

The preadolescent stage developmentally feeds into the fostering of chumship-type relations, usually with members of the opposite sex, where physical intimacy can be obtained. The shift to opposite sex relationships is generally plagued with anxiety provoking experiences, self-doubts, and stereotypical thinking that must be overcome. The chumships of preadolescent same-sex relationships will coincide with the adolescent opposite-sex

relationships as the individual progresses toward the intimacy goal. The three competing goals of the early adolescent stage are: satisfaction of the genital drive, satisfaction of close interpersonal relationships, and satisfaction of the security need which reduces the anxiety level. These three goals necessitate the maintenance of multiple chumship quality relationships which can create conflict as one of the three needs are met over the others. Healthy development would integrate the three goals, and unhealthy development would see them split apart with one need taking precedence over the others. Healthy development results in the person overcoming loneliness, reducing anxiety, and emotionally investing in a partner. The splintered, unhealthy person usually trades one goal (sexual activity vs intimacy) to satisfy another (companionship vs loneliness).

The last of Sullivan's interpersonal stages is late adolescence which focuses on the relationship between the individual and an intimate love partner. Sullivan suggests that the development of an individual must include experimentation with the available intrapersonal elements in defining the traits involved in the adult self. The goal of an individual in the late adolescent stage is to recognize intrapersonal needs and integrate them with the intimacy needs of a partner. Movement into adulthood requires that all aspects of self become integrated into a whole entity which will provide stability, reduced anxiety, and provide a base from which an extended intimate interpersonal relationship can be maintained.

The theoretical peer affiliation pattern noted by Sullivan has been structurally supported by Dunphy's (1980) field study conducted with naturally

occurring adolescent members of community groups in Sydney, Australia. Dunphy reported a five stage progression in adolescent peer group membership patterns. Initially, at the preadolescent stage, large groups of the same sex children bonded together in what Dunphy termed the pre-crowd stage. Blos (1941) also noted that in early adolescence this gang formation (which excludes the opposite sex) promotes the establishment of norms, self-regulated by the peer group instead of an authority (family, school, law). The second stage of Dunphy's group development has male and female cliques interacting but only as groups. The specific interpersonal activities of the individual members of each same sex clique is unclear from Dunphy's research since emphasis was on the interaction between groups. The interpersonal relationship suggested by Sullivan's chumship stage is congruent with Dunphy's stage 2 structural design. Stage 3 sees the integration of males and females into specific cliques that interacts with others, yet who remain in either of the unisex groups. By stage four the cliques are smaller, more intimate in size and heterosexual in composition. Stage 5 consists of couples that join together to form small cliques as a precursor to full intimacy. Dunphy's stages of group development indicate the progression from unisexual grouping to heterosexual grouping is a natural transition in forming normal interpersonal relationships. However, Dunphy's research omitted discussion of arrested development; the non-group affiliating individuals.

The social learning theory proposed by Bandura (1977) has not been directly addressed as being supportive or nonsupportive of a mutuality drive. Many constructs of the social learning theory, such as those of modeling and

interaction contingencies, appear to be highly relevant to the study of adolescent affiliation. However, a basic difference exists in Erikson's developmental model, which has an epigenetic core emphasis, and the social learning theory as proposed by Bandura which attributes developmental growth as a function of environmental interactions. The other theorists have had a biogenetic element that was central to the developmental unfolding which was assisted or hindered by environmental influences. With this in mind a conscientious decision was made to recognize social influences but to maintain a focus consistent with Erikson's epigenetic principle of development.

Deviations From Affiliation

Being part of an age cohort initially provides membership, but that membership is temporary and artificial. Humans are inherently social animals, therefore, each individual actively constructs an intrapersonal and interpersonal strategy trying to avoid social isolation. Due to a variety of reasons, social isolation is not always avoided giving rise to an abandoned feeling.

Strommen (1988), after surveying over 7000 high school students, found that one in five reported feelings of worthlessness, self-criticism, and loneliness. Many of these students stated that they did not belong to any group outside their family, and felt that having friends was a critical need they could not fulfill. Strommen (1988) also notes that the most prominent indicators of a poor self-esteem are respectively, loneliness and self-destruction. McCall, Evahn and Kratzer (1992) reviewed the literature on adolescent underachievers noting, "The vast majority of reports indicate that underachievers have very poor peer

relationships" (p. 22). The lack of affiliation in school forces many to choose between school, where they find little success, neighborhood groups where many underachievers find they have successful attributes, or being isolated from both reference groups. Werner (1986) noted that the children in his 18 year longitudinal study most likely to engage in delinquent behavior lacked social and emotional support in their daily life which was high in stressful events. The general tendency of youth who lack support in their environment is to gravitate toward other environments where support is available (Bloch & Niederhoffer, 1976). Lefkowitz (1987) noted that the loners and isolates from affiliations within their home territory hooked up with isolates on the street. Adolescents who were outcasts found others who shared the same guilt, frustrations, and hostilities. Ironically, the impromptu street groups are comprised of the same type people that parents and officials sought to separate the alienated youth from in the first place (Lefkowitz, 1987). This group of adolescents are isolates in one social world, but hold true to values, courage, and loyalties in the social world of street life. They seek friendship with peers and adults who can provide them with corrective, nonjudgmental feedback, and direct their efforts toward success (Lefkowitz, 1987; Henggeler, 1989; Bloch & Niederhoffer, 1976).

The positive group identity found in football team membership, scholastic team participation, Boy Scouts/Girl Scouts, or any such organized group that a person elects to truly invest in, supplies an important peer environment vital to developing an individual identity. The developmental transition through the same sex groups initiates intimacy in the form of same sex "chumships,"

allowing for progression to heterosexual group interaction, to heterosexual cliques, and finally to cliques of intimate pairs. This developmental group process allows the adolescent to maintain a marginal safety level by first developing a group identity (same sex group interaction supported by intimate friendship) that is refined into an individual identity (clique of intimate pairs). Alienated adolescents can find a group identity that offers the same progression and safety features in other less socially acceptable ways such through fantasizing, passive socialization through television, drug clusters, or gang membership. Muehlbauer and Dodder (1983) stated that gangs are often formed to meet the specific needs of the membership and then progress into a goal directed organization. Taylor (1990a) discerned three types of gangs: scavenger, which is driven to form by a high need to belong; territorial, which seek to gain control over their environment; and the corporate gang that is driven by money-making activities.

Fromm (1955) suggests that struggles with identity formation between loss of the clan identity and true individual identity formation may take the form of an over identification with socially acceptable constructs such as nationality, religion, or social status. These substitutes are less personal and can serve the needs in identity formation with less risk of rejection but at the same time membership may hamper further development of self identity. Membership in a armed forces program, group directed civic organization, or a religious organization can provide amiable support for the transition to individual identity formation, however, this same group identity can hinder individual identity formation and the separation of self from other.

Keniston (1960) suggested that status of being affiliated or alienated changes along three interrelated, dependent factors: attitude (alienation vs conformism), focus (behavioral norms vs cultural values), and mode (transformation of the world vs transformation of self). The high mobility of our society forces many children to enter new neighborhoods and schools on a frequent basis, which challenges the strength of all three factors. Children who were able to affiliate in one school or neighborhood have an easier time repeating the affiliation. Some children live in isolated areas or areas that lack community resources to provide appropriate social opportunities (swimming pools, youth centers, after school programs, etc.) outside the home or school (Taylor, 1990b). While some children are simply deprived of ready access to social groups, others electively select not to belong. Kelly and Hansen (1987) categorized the research on loneliness and social isolation in adolescence into three categories; a lack of appropriate social skills, a lack of availability to participate in developmentally appropriate social interaction, and an inability to cognitively generate and apply solutions to the social problem encountered in the environment leading to rejection. This third category can be further complicated if the adolescent rotely engages an inappropriate behavior schemata to fill the void created by the inability to generate appropriate solutions. The inability to cognitively conform to the peer group leads to peer rejection and a friendless state.

The rift between the affiliated adolescent and the socially struggling adolescent will quickly widen as the peer group continues to find developmental success in refining social skills, while the socially struggling adolescent

continues to lose appropriate models, feedback, opportunity, and confidence as access to social situations diminish. The peer group members willingly conform to social standards established within the group, and will require for group membership skills which exceed the capabilities of adolescents who are having difficulty and, in effect, abandon them. Fricke (1981) exemplifies the significance of rejection as opposed to elective isolation:-

Dropping out of this group didn't cause me the mental anguish I had felt during my earlier periods of isolation. The last time, I felt more as if the world had dropped me, and it made me lonely and depressed. This time I had chose to drop out of the group for my own reasons. It didn't feel so bad. (p. 40)

Adolescents that are deprived the opportunity for social interactions due to environmental circumstances and the elective isolates fair better than those that try to affiliate but repeatedly fail. Mannarino (1976, 1978) noted that adolescents that can maintain stable membership with peer groups are more altruistic and have a higher level of self-esteem. Asher, Hymel, and Renshaw (1984) while working with adolescents that had been rejected and developmentally surpassed by the peers noted that loneliness and depression were problems central to this population.

Thornburg (1971) noted that most behavioral scientists agree that self and social identity and social maturation have to be established through working among one's own peers. When an adolescent is afraid, the safest thing is to withdraw which promotes mental perseveration of the failure and further withdrawal. Failure to be accepted by others lowers self-esteem and leads to further isolation or a renewing of family centered affiliation. Jordan (cited in Muuss, 1988) reported that adolescents that were having trouble establishing

an identity typically were detached from their environmental social groups while maintaining strong relationships with their parent(s). These parents also have been shown to be more authoritarian in their parenting style which promotes conformity instead of autonomy (Grotevant & Cooper, 1985; Jordan, cited in Muuss, 1988). The adolescent must resolve a dilemma that pits family support and safety against a need for freedom to interact with their environment. This dilemma gives further credence to tolerating adolescent experimentation as Erikson (1970) has suggested. Bloch and Niederhoffer (1976) stated that adolescents are handicapped when the adult society excludes gradual inclusion of adolescents (based on ability) into adult roles, choosing instead to use artificial determinates such as age.

The parallels between pro-social activities and anti-social activities suggest that both are driven by common developmental needs which are fulfilled by finding success in different social arenas. This notion is supported by Muehlbauer and Dodder (1983) who state, "Society plays a determinative role in the creation of deviance and deviant individuals" (p. 11). Smith (1962) emphasizes that adolescent behavior results from normal developmental drives within a given environment. He states that ". . . the problems are predefined by adult orientation and that youth behavior can be as normal a consequence of youth culture as adult behavior is of adult culture" (pp. 223-224). Cohen (1955) also points out that the adult culture that is providing the behavioral standards and values is narrowly limited to middle-class society, emphasizing Piaget's observation that no matter the developmental stage, adults and children do not cognitively think the same.

Conclusion

Social interaction is an everyday life occurrence that is essential for survival. Throughout the developmental process new social skills emerge allowing for interaction within an ever widening environmental domain. During adolescence the social demands are perhaps greater than at any other point in the life cycle considering the intrapersonal changes of advanced cognitive reasoning and physical pubescent growth coupled with the environmental demands brought about by changes in family relations, homogeneous and heterogeneous peer relations, institutional relations (departmentalized education format and employment settings), and informal social gatherings. The social demands placed on the adolescent as well as the intrapersonal needs for self-control fosters a continuation of independence or mutuality (Damon, 1983; Maslow, 1943). The need for peer relations increases as demands for mutuality and social skills exceed the capabilities or support structure available in the family network (Douban & Adelson, 1966).

Dunphy (1980) notes the peer groups progressively replace the family in guiding the adolescent, even to the point of impacting personality, and that healthy adult development can actually be impeded by a lack of appropriate peer group transition. Douvan and Adelson (1966) note that social peer groups promote social and moral growth by establishing external standards, limits, and regulations for self-control as conditions for inclusion. Group membership allows adolescents to broaden their environmental interaction domain while maintaining a familiar type of structural (if not contextual) support network.

Hartup (1983) noted that socialization with peers is not a luxury but a necessity. He suggests that the benefits of peer interaction in contributing to healthy social development dramatically outweigh any deviant byproducts of undesirable peer pressure (Hartup, 1982). Social interaction with peers becomes increasingly important to healthy development as age increases. Peers provide social support in gaining independence, regulation of aggressive impulses, experimentation with new cognitive abilities, identification of sexual role behavior, development of moral judgment, as well as the continued formulation of a healthy self-esteem and ego identity (Kegan, 1982; Kelly & Hansen, 1987).

The forming and maintaining of peer relations as well as coping with the loss of friendships is all part of the natural identity building process of adolescence. Upsetting and regaining equilibrium may provide for some awkward situations, but it is through repetition of this cycle that the developing adolescent gains mastery over the environment. There are some adolescents, however, that are unable to effectively regain a state of equilibrium causing them to experience long periods of maladjustment which can impact self-esteem and promote withdrawal from peer interactions. The problem of loneliness is commonly reported in adolescence (Zimbardo, 1977) as it is a situational element experienced by all in the disequilibrium/equilibrium cycle. The length of the loneliness feeling is highly dependent on the support group that is available to the adolescent and the reported frequency declines with age (mastery) of the social environment (Kelly & Hansen, 1987).

Hartup (1993) succinctly summarizes the underlying theme of the current

research investigation in stating, "Adolescents who are generally disliked, who are aggressive and disruptive, and who cannot establish a place for themselves in the peer culture are developmentally at risk" (p. 3). The developmental process encouraged by society and that which is embedded in the human nature can be at odds. Much of today's youth lack the support network previously found in the family unit, community, tribal loyalties, or even schools. Many adolescents develop without the benefit of a naturally occurring developmental social support network, leaving them unprepared for general society. The recognition of a naturally occurring affiliation stage during adolescence has theoretical support and is perhaps just now being addressed due to the population's disintegrating ability to fulfill the developmental task. With respect to society's role in providing appropriate interventions and healthy environmental experiences it becomes essential that an accurate theoretical understanding of the adolescence experience be established. The adolescent developmental stage progression based on a theoretical model would include productivity (industry vs inferiority), mutuality (affiliation vs abandonment), and self identity (identity formation vs identity diffusion).

CHAPTER III

METHOD AND PROCEDURES

The purpose of this study was to explore and describe how adolescents perceive themselves relative to hypothetically normal developmental tasks. This is a monumental undertaking given the volatile nature of adolescents.

Csikszentmihalyi and Larson (1984) noted that adolescents are "self-centered, yet capable of altruism; they are lazy and rude, yet loving and helpful" (p. xiii).

If one wanted to conduct a study in contradictions, the adolescent population would provide the ideal impetus. While exciting to investigate, it is this volatile spectrum of behavior that makes the "categorizing" methods found in traditional research seem self-defeating. It is the act of moving within this spectrum of behavior that becomes more important than a position assumed at any particular point. Hence, given the nature of adolescent development, the study of the subjective perceptions involved in adolescent development are equally as important as the categorical information that has found favor in the literature.

The focus of this study was the description of various adolescent perceptions about self, that is, to provide a rich understanding of responses to the question; what is it like to be a developing adolescent? The proposition, problem under investigation became to describe the subjective view of what it is like to be an adolescent from the adolescent's vantage point.

The following research propositions provided the structure for this study.

Level I - General Proposition

What characteristics of adolescent development exists in the literature and research?

Level II - Singular Proposition

Does there exist a focus towards productivity, mutuality, and identity formation during the adolescent years?

Level III - Induced Proposition

How will adolescents describe adolescence based on development?

The developmental theory of Erik Erikson (1950) provided the conceptual framework for describing the milestones, tasks, and crisis associated with adolescent development in this study. Erikson's stages of industry/inferiority and identity/identity diffusion served as chronological boundaries for participant selection and hence the theoretically infinite pool of representative statements or concourse domain from which the Q sort items were eventually derived. Use of Q technique allowed items to be selected from the concourse that emerged from age-appropriate, self-reporting individuals as well as from the relevant theory domain. It is important to note that since the concourse was defined through interacting with participants embedded within the adolescent developmental process, the domain of attributes sampled in this Q study may not exactly concur with Erikson's domain of stage defining attributes.

This chapter will include information concerning the design of the study, selection and description of the subjects, instrument development, Q sort administration procedures, post sort interview information, as well as the data analysis strategies employed.

Methodology

This study was designed to investigate the developmental nature of the adolescent experience. The literature reviewed was supportive of Erik Erikson's work in characterizing the developmental stages and relative chronological positioning. The task in this research, therefore, was to sample the age range that is represented by Erikson's industry/inferiority and identity/identity diffusion stages (10-21) and to provide an empirical method for the subjects to describe their own experiences. Kegan (1982) suggested that descriptive factors of the adolescent cohort will include a mutuality (affiliation/ abandonment) task focus imbedded chronologically between perceptions relating contextually to what Erikson termed industry/inferiority and identity/ identity diffusion.

Traditionally, social science researchers have focused on measuring traits as well as the relationship between identifiable traits in a reductionistic effort to understand the component parts of a behavior. The investigator uses personally constructed knowledge of a phenomenon in selecting the theory, forming research hypothesis, developing normative scales, analyzing data, and drawing conclusions. All of the above mentioned tasks are highly dependent on the investigator's point of view and leave the subjects relatively uninvolved. From a theoretical point Erikson (1950) reduces human development into eight general categories which have been operationalized as measurable traits, attributes, or characteristics in many normative instruments. However, if a trait or characteristic, such as the mutuality focus suggested by Kegan, is present in the global domain and not sampled by the normative scale, its presence would

be undetected. An investigative approach that philosophically focuses on the whole entity instead of investigator identified component parts would provide greater insight into the expansiveness of a domain.

Q technique and methodology is one investigative approach that maintains a focus on the relationships between traits as behavior totalities. The subjects are viewed as individual composites of behavior that is active and subjective. A subject's behavior is not defined by the investigator's concepts but by self referent interactions from which predictable and unpredictable meaning emerges. In Q methodology responses are operant, based on the assumption that intraindividual differences indicate the relative importance given to an item. The relationship between different, overall viewpoints are what Q methodology addresses. Applied to the current study it can be stated that the relationship between early, middle, and late adolescent viewpoints are under investigation.

Communication Theory

The development of what Stephenson (1969) noted as communication theory is of prime importance in this study. Communication theory is not the external transference of information from one person to another, but is the internal process of personalizing information. Piaget (1950) suggests that information is taken in by the senses and then cognitively organized so as to construct a personal understanding of the information. Communication theory is concerned with the self reference aspect of constructing intrapersonal sense and subsequent expressions of opinions, feelings, etc. Stephenson (cited in

Brown & Brenner, 1972) stated:

The basic concern is with the subjective (mental) aspects of communication, that is, with what goes on in the mind, for example in a conversation between persons, or when a person "talks to himself." Communication is measured, fundamentally, in terms of statements of opinion, expressed with reference to oneself. (1968, p. 3)

The importance of communication theory's implication for developmental research is emphasized by Piaget's (1950) research, indicating that different cognitive strategies are employed at different developmental stages. Hartup (1993) also cautioned that adolescent development cannot be appreciated out of context since many divergent variations that appear to hold unique significance in teenage development are complementing behaviors when framed in the adolescent's environmental context. Heeding Hartup's warning, if adolescent development is the topic of inquiry, provisions to allow adolescent thinking and communication strategies to be expressed is vital. Therefore, a methodology known for its ability to describe subjectivity was employed for this investigation.

Q Methodology

Stephenson (1980a) notes a fundamental law, having its basis in Sir Isaac Newton's Fifth Rule, allows that all subjectivity is transformable into an operant factor structure. The theoretical transformation process as outlined by Stephenson (1980b) for Q methodology consists of three postulate levels: general, singular, and induced. Each level is associated with specific questions, procedures, and terms.

The general proposition represents an infinite theoretical domain or Q concourse that cannot be directly tested and, hence, neither proved or disproved. The general proposition and corresponding Q concourse provide the theoretical structure from which representative items can be drawn to form a structured Q sample or the research Q sort instrument. The Q sort instrument becomes the basic element of the singular (level II) proposition, which is situationally, personally, and purposefully specific. Singular propositions are concerned with perceptions concerning specific questions or issues which can be evaluated. The evaluation tool is the Q sort, which allows each subject to construct a near normal distribution for the stimulus items based on their subjective perspective. From the Q sort data the induced proposition emerges by factoring the variables, forming factor groups sharing a common frame perspective. According to Stephenson (1980a), the resulting people factors are new in the sense that they could not be constructed beforehand, but purposeful interpretation allows meaning to emerge from the data. The factor interpretation may lead to assertions not predicted in the original design of the study. In the current study the induced proposition (Level III) addresses adolescent self descriptions of development across the adolescent era.

The application of Stephenson's levels to this study are seen in Table 3.1. The general proposition at Level I of this study contains the inexhaustible theoretical domain of all characteristics that lies within the adolescent developmental domain. This domain cannot directly be tested or even composed but, through an investigative process specific aspects of the non-testable domain can emerge and thus represented in a Q sampling. The

TABLE 3.1

Q METHODOLOGY AS A THEORETICAL FRAMEWORK FOR
DEVELOPMENTAL STAGE INVESTIGATION

| Theoretical Type | Proposition Type | Question | Procedure | Q Term |
|------------------|------------------|--|--|---------------|
| Level I | General | What does the domain of communication concourse for adolescent development contain? | Subject Interviews Erikson Psychosocial Stage Inventory | Q-Sample |
| Level II | Singular | What is the nature of the adolescent's: A. industry/inferiority (productivity) development? B. affiliation/abandonment (interpersonal mutuality) development? C. identity/identity diffusion (intrapersonal) development? | Q Sort | Q-Technique |
| Level III | Induced | How will adolescents describe adolescence based on development? | Factor Analysis | Q-Methodology |

results of a domain content investigation serves to define the singular propositions of Level II. Specifically, for this study, the adolescent developmental domain was investigated through a review of the literature and by interacting with age appropriate subjects from which three singular propositions were hypothesized. The singular propositions dealt with the tasks of being productive, mutuality (interpersonal development), and identity (intrapersonal development) issues. Stimulus items (specific development of items are discussed later under instrumentation) associated with each of the singular proposition tasks were then compiled for measurement via a Q sort.

The utilization of the Q sort procedure allowed participants N factorial (N is the number of stimulus items) unique possibilities for completing the sort. Since any item can be placed at any point in the distribution, the probability of sort duplication is statistically unlikely, except when a commonality exists among the participants. In addressing the induced proposition (Level III), each of the items were converted to a point value based on their placement along the quasi-normal distribution of the Q sort continuum. This mathematically reduced the number of unique possibilities for solution by assigning tied point values to all items that share a distribution position. The 36 item, 9 point distribution used in the current study results in $36!$ possibilities for the individual sort, which was reduced to $9!$ or 362,880 possibilities, due to the tied rank scoring, for Level III analysis. The analysis utilized the quasi-normal distribution scoring to correlate and then factor the participants. For each factor in the rotated solution an opinion "type" sort that represents the participants that loaded on that factor was generated based on a normalized distribution of the

weighted factor scores. It was from the type representative sort that the interpretation of the factor was made and the induced proposition addressed. Therefore, while the statements/items were incapable of being proved or disproved, when placed in a Q sample they yield induced proposition(s) which represent new hypotheses, and undercurrents of inherent meaning for further exploration based on the subjective views of the participants.

Rational for the Method

Normative instruments focus on the tendencies, traits, etc. that hold across subjects and situations, while Q methodology is more focused on the global relationship within and between individuals. The operational approach used in this study was prompted by the philosophical decision to utilize a subjective point of reference in investigating the developmental aspects of adolescence. Subjectivity is defined as a "person's communication of his or her point of view" (McKeown & Thomas, 1988, p. 12). Defined in this way, subjectivity is firmly grounded in a participant's personal frame of reference which attempts to examine the concourse from an internal perspective. The participants intraindividual responses provide a data base from which factor concepts emerge. Brown (1980) stated that through Q methodology "a phenomenon is observed and a concept is attached to it" as opposed to a preconceived concept being measured within a population (p. 28).

Q methodology provides procedures for direct investigation of subjects by examining their subjective thought or opinions of reality at one point. A Q sort allows the participant to express an individualized conception of "self" in

reference to a situation, event, or thing (Brown, 1980). In essence, the postulates when framed in subject-referent operants do not merely provide a description of facts, but allow for the emergence of subjective aspects (significant themes) to guide further study.

A Q sort is a model of the participant's reality as he or she conceives it to be and as such the model is subjective and self-referent. Factors represent different points of view. Simply stated, the Q method deals with an individual's subjectivity which is represented through a Q sort. The Q sort allows the individual to make fine discrimination between items by placing item 1 in a relative position to all other items. This differs from traditional R methods that attempt to measure the quantity of a trait and then rank subjects relative to trait possession. The distinctions between Q (intrapersonal), where items are viewed relative to each other and R (interpersonal) where items are measures of quantity are important in this study. Participants for this study were asked to describe themselves in terms of "Most Like Me" to "Least Like Me". Since all humans are productive, social, and has an identity, the fine discrimination of a focus toward each of these traits within participants was a vital step in investigating developmental changes.

The strengths and weaknesses of employing Q methodology have been noted by Kerlinger (1973) and are summarized below.

1. Method is not well suited to large sample studies.
2. Subjects are not randomly selected, which limits the generalizability of the results.
3. Q sorts are an ipsative, ranked ordered procedure which violates the independence assumption.

4. Q is a forced choice procedure that requires subjects to conform to what may be unnatural or unreasonable constraints.
5. The computation process (r) used in Q does not take into account mean differences between subjects which results in a loss of information.

While these issues are discussed in greater detail later in this chapter, some general comments are in order concerning Kerlinger's noted Q limitations. It is important to remember the purpose of this study is to describe adolescent development from the participants' point of view. The focal commonalities in the adolescents' contextual descriptions are what are important in the current study, not comparing adolescents to one another. From the self referent intrapersonal data, significant themes emerge and are interpreted, laying the foundation for a theoretical model. This is philosophically different for the confirmatory interpersonal research methods noted by Kerlinger.

Instrumentation

Concourse Development

The subjects in Q methodology are the variables and the resulting factors represent people who share a common perspective. Likewise, the presence of multiple factors are evidence of different points of view or, in this case, various developmental points represented by the spectrum of ages of subjects (McKeown & Thomas, 1988). Table 3.2 summarizes some of the Q methodology terms as specifically applied to this text.

The domain of possible intrapersonal feelings, attitudes, beliefs, and values that constitute a person's being are what Stephenson (1981) termed a

TABLE 3.2

Q METHODOLOGY OPERATIONALLY DEFINED TERMS FOR THIS STUDY

| Term | Q Methodology Definition | Operational Definition |
|--------------|---|---|
| Concourse | An infinite number of opinion statements that are related to a single topic. Also referred to as the "trait universe" or "population of items" in Q literature. | The domain of all possible opinion statements concerning the characteristics related to developmental changes experienced during the adolescent years. |
| P Set | The group of subjects selected to participate in the study. | Adolescents (N=600) ranging from 10 to 24 years of age. |
| P Sample | | Used to denote subjects (N=200) within each of the 3 age cohorts; (10-14, 16-18, & 21-24). |
| P Sub-Sample | | Used to denote subjects (N=66-67) in one of three randomly assigned clusters within each age cohort. |
| Proposition | They represent the problem under investigation and the predictions that can be made concerning the problem. The types or levels of propositions are, 1. general which represents an inquiry that arises from a theory base, 2. singular which represents a selected testable part of the general proposition, and 3. inquiry which represents issues that are available only as the result of the experiment. | <p>General: What does the concourse domain of adolescent development contain?</p> <p>Specific: What is the nature of the adolescent's:</p> <ul style="list-style-type: none"> a. productivity, b. interpersonal mutuality, & c. intrapersonal development? <p>Induced: How will adolescents describe adolescence based on developmental?</p> |
| Q Sample | The items selected from the concourse used in a Q sort instrument to query a level II proposition. | See Table 3.3 for an item listing. |

concourse. The definition of the concourse yields a sampling of statements which are representative of the range of opinions held about an issue. By design, the Q sample used in the Q sort represents the range of possible opinions saturating the subjects. Each participant's Q sort can then be a self-reference to his or her own point of view about a given content. It is this person by person self-reference distinction that distinguishes Q technique factoring, where factors represent participants that hold similar points of view, from traditional factors that correlate isolated traits. The differences in the item statements' placement on the Q sort form board are due to differences in the amount of relative importance the person places on one item relative to another. This structured self-reference point of view is especially important in developmental research tools involving children. As Piaget's writings so frequently point out, a child's thought process (point of view) is different than an adult's. The richness of Q method is the recognition of self descriptive individual opinions as they emerge from within concourse of the adolescent domain.

In constructing a Q study framed in developmental theory, the design must have as its goal a Q sample representative of the concourse that contains all possible descriptions of the adolescent process. The developmental concourse contains relative descriptions from all points of view framed in the language format of the subjects under investigation. With this in mind, a researcher cannot independently construct a concourse of items as it would only represent the subject's agreement or disagreement with the researcher's point of reference. So, to maximize the power of the Q sort, the Q sample

items are drawn directly or indirectly from the language used within the environment that contains the population or problem under investigation.

McKeown and Thomas (1988) note the direct and indirect Q sample selection process as either naturalistic Q samples or ready-made Q samples. Naturalistic Q samples are derived by interacting with the subjects that are under investigation and recording naturally occurring statements from within the environment being studied. The most common naturalistic method is to interview subjects in an informal method where Q sample statements can be taken directly from a real-world context. Statements representative of the concourse are then evaluated for inclusion in the Q sample used in constructing the Q sort instrument.

The second method of sampling defined by McKeown and Thomas (1988), is the ready-made sample statements. These items are derived from sources other than direct communication with members of the population in question. The ready-made sources that are most often employed are subsets of items drawn from a conventional rating scale, derived statements from the literature, or from content related standardized instruments. While on the surface the use of ready-made items seems to violate the embedded concourse criteria, in reality the standardized instruments or literature statements are representative of a common domain or concourse. The instruments designed in accordance with psychometric theory have been constructed by sampling a universe of domain specific attribute(s) in an effort to quantify their presence. Ergo, the underlying item development constructs are synonymous in Q and R methodologies, allowing items to be utilized interchangeably. With this in mind,

it can be stated that a common domain is directly drawn upon in naturalistic Q sampling and indirectly sampled in the read-made approach where the concourse or universe of items has been restricted for another instrument, which is now sampled in lieu of the universe.--

Naturalistic (informal interviews) and ready-made sampling (psychometrically developed items) techniques were both utilized in constructing the concourse and the resulting Q sample for this research. Stephenson (1953) noted that the Fisherian design is preferable, providing it gives a basis for balancing the Q sample with respect to manifest content. In the current study a hybrid composite of statements were selected to represent three theoretical stages of development; industry/inferiority, affiliation/abandonment, and identity/identity diffusion. The study design called for a balanced one by three categorical selection model representing each of the three theoretical developmental tasks equally with twelve representative items.

The evaluation of statements for inclusion in the Q sort instrument for this study were consistent with the selection criteria established by Brown (1980), Kerlinger (1973) and reported by Hoeverman (1984):

1. Relative lack of ambiguity
2. Non-redundancy
3. Behavior relevance
4. Apparent validity as revealed in the current literature
5. Representative sampling of developmental trait domain.

Collection of the statements representing adolescent development in a mutuality context were naturally derived from interacting with a group of adolescents (N=62, female=27 and male=35), ranging from 9 to 19 years of age. In addition to statements collected through observation they were

informally interviewed individually or in small groups over a three month period as to what was "most like me" and "most unlike me". The adolescents forming the naturalistic inquiry pool represented a wide spectrum of academic achievement (including learning disabled and high school dropouts) and social settings (Scout groups, schools, community mental health centers, churches, self referrals, and families). A collection of 335 representative statements were assembled directly from the interview transcripts to represent mutuality in the adolescent developmental concourse. This naturalistic sampling of items were evaluated according to the criteria established by Brown (1980) and Kerlinger (1973) noted above, yielding a Q sample of 55 statements considered to represent the hypothesized affiliation/abandonment (interpersonal) stage. These item statements were then submitted to an expert panel comprised of educational researchers, developmental experts, a psychometrician, and graduate students in educational psychology, who reduced the number of representative item statements to twelve. These twelve items were included in the final thirty-six item Q sort (Table 3.3).

The ready-made Q sample items representing industry/inferiority and identity/identity diffusion came from an existing instrument, Erikson Psychosocial Stage Inventory (EPSI) developed by Rosenthal, Gurney, and Moore (1981). The EPSI reportedly addresses the first six stages of Erikson's epigenetic theory and has an extensive collection of validation work (Rosenthal, et al., 1981; McPhail, et al., 1986). Twenty-four items from EPSI, reported to measure the stages of industry/inferiority and identity/identity diffusion were pooled and presented to a group of twenty-four adolescents who evaluated

TABLE 3.3

Q SORT ITEM SAMPLE

| Q Sample Statement | Stage |
|--|-----------------------------|
| <p>I am a hard worker. I believe I am a useful person to have around. I try hard to achieve my goals. I'm good at the things I try to do. I stick with things until they're finished. I really believe in my abilities. I don't get things finished. I am well known among my peers for what I do. I like finding out about anything new. I'm an energetic person who does a lot of things. I feel good about how I deal with problems. I don't get much done.</p> | Industry/inferiority |
| <p>I limit my dating to my group of friends. I often feel like an outsider. I feel that I am really a loner. I believe my friends often lead me astray. I often make commitments to others that I know I cannot keep. Sometimes I worry about my relationships with my friends. I feel the biggest conflict for me is dealing with peer pressure. I wish I had more friends. Making friends is a difficult job for me. I hang out at locations where I know others will be. I only hang out with people who have the same interests as I do. I follow the code set by my friends.</p> | Affiliation/Abandonment |
| <p>I cope very well. I like myself. I believe I've got my life together. I often feel mixed up. I worry about losing control of my feelings. I can't seem to make sense of my life. Things usually turn out well for me. I am often ashamed of myself. I am proud of the person I am. I'm as good as other people. I don't really know what I'm all about. I change my opinion of myself a lot.</p> | Identity/Identity Diffusion |

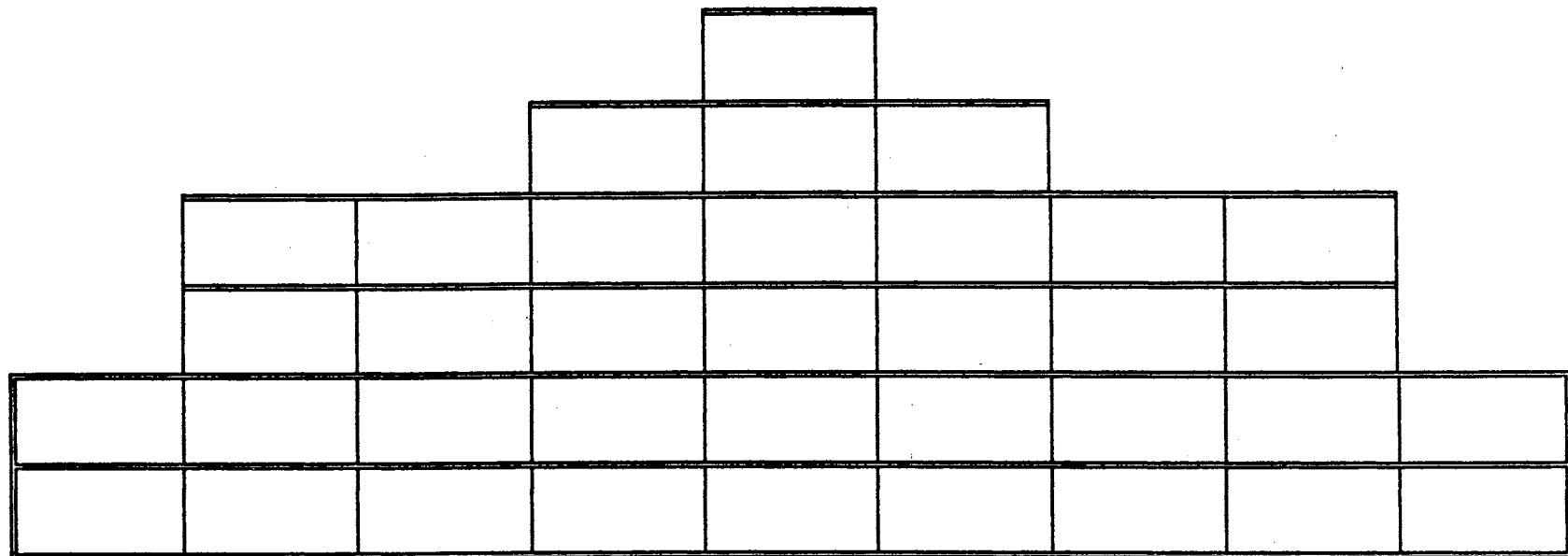
each statement for understanding, verbiage, and relevance to their realm of daily functioning. The adolescent reviewed EPSI items were then submitted to the same expert panel for review prior to including them as part of the final thirty-six item Q sort.

The drawback of using ready-made items is the potential loss of subjectivity due to the possibility that the items do not adequately reflect the concourse for the subjects under investigation. Specifically, the EPSI derived statements may or may not adequately sample the concourse defined by the population in this study. The adolescent review panel and the expert review panel, while not intended to substitute for a naturally derived Q sample, were utilized in an effort to minimize the loss of subjectivity. Utilizing the review panels, coupled with the Q methodology assumption that each item is intrapersonally bound in a Q sort thereby taking on the meaning/importance the subject attaches, the threat of subjectivity loss was minimized.

The resulting Q sample comprised of thirty-six items was then coupled with a quasi-normal nine point distribution form board template for administration. The distribution ranged from "Most Unlike Me," being at point one of the distribution to "Neutral" at point five to "Most Like Me" at point nine (Figure 3.1). The condition of instruction for the Q sort being, "Sort the items according to what is Most like/Most unlike you." Kerlinger (1973) stated that the forced choice distribution, ipsative format, could hinder analyses by violating the assumption of independence. However the quasi-normal, forced choice distribution was employed purposefully in this study to force participants into making fine discriminations that they might not make unless specifically required

FIGURE 3.1

FORM BOARD DISTRIBUTION



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| Computational Value | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---------------------|-------|--------|--------|--------|--------|--------|--------|--------|-------|
| Frequency | 2 | 4 | 4 | 5 | 6 | 5 | 4 | 4 | 2 |
| Q Sort Distribution | 5.56% | 11.11% | 11.11% | 13.89% | 16.67% | 13.89% | 11.11% | 11.11% | 5.56% |
| Normal Distribution | 0.13% | 2.14% | 13.59% | 34.13% | 34.13% | 13.59% | 2.14% | 0.13% | |

to do so. The loss of independence is not considered a severe threat for two reasons. First, since the relative positioning of the items in the extreme positions serve in defining the factor types. The second reason loss of independence is not of major concern is that between subject comparisons are not conducted in reference to the research questions addressed by this study.

Subjects

Deciding on the characteristics and number of subjects to include in a Q study requires a shift in thinking concerning the power of subject numbers. In traditional factor analysis, an instrument is constructed from a theoretical base and then the population sampling is adjusted, usually through increased frequency, to assure the statistical power desired for the inquiry. In Q methodology, however, the population of interest is identified first and, used to define the theoretical concourse as described earlier. The concourse is sampled to create the Q sample and Q sort statements which then serve the researcher in describing the population. So, the subjects become a function of the theoretical structure utilized in defining the concourse and resulting Q sort instrument, as well as the exploratory design.

Quantitatively, the number of participants to include in a Q analysis ranges from a single subject design to a complex, multiconcept, multilevel design requiring a large number of subjects. On one extreme Freeman (1974), suggests that as few as 200 subjects can be used if the researcher has some foreknowledge of the characteristics of the population. Stephenson (1953) on the other hand proposes that the interest in a Q study lay with the individual

subjects. He suggests that sample selection process be carefully and meticulously controlled so that the people who will complete the Q sort are from the population under investigation, thus representative, reducing the number of sorters required to a minimum. With this in mind, an inclusion criteria that each participant have an opinion or expressive point of view on the topic under investigation is used to optimize the definition of the subject sample or P set through control instead of volume. Q methodology further asserts the use of demographic blocking variables in lieu of limiting the response range or inflating the P set (Brown, 1978). The small P set contingency is maintained for three main reasons. First the study can be replicated with relative ease if the need arises. Secondly, the research objective for using Q methodology was to describe the P set which could be accomplished with greater efficacy with smaller, more manageable samples. The third reason for selecting the small sample was that this study utilized a simple design at three age levels in exploring the content of development, as opposed to a confirmatory approach. Kerlinger (1973) notes that the exploratory power of Q methodology allows new hypothesis to emerge, providing a starting point for empirical testing.

Hence, subjects are required only in a quantity that is sufficient to establish the existence of a factor from which between factor comparisons can be made. A P set of 30-40 is sufficient for a Q study if the inclusion criteria has been met. Brown (1980) maintains that four to six participants significantly loading on a factor is sufficient to produce a reliable type that can lead to appropriate generalizations for other subjects of the same factor defined type. It should be noted that in Q studies where the population ranges greatly, a

factor loading of as few as one may be interpretable, reliable, and significant. For example, in a study where the P set contained hospital employees, four factors were extracted with 5, 5, 2, and 1 people loading respectively (Brown, 1978). The fourth factor with only a single significant loading represented the opinion expressed by the hospital administrator and, hence, in reality, directly effected the working conditions of the other respondents. In this example, the participants had a diversity that ranged from a part-time orderly to an administrative physician and further emphasizes the need to explore the population of interest before expanding parameters to include a larger P set. The current study maintained that all subjects were equal and explored the possibility that differences in self-reference was a product of changes in intrapersonal focus or development.

For the present study the domain of adolescent development served as the general proposition with the specific Q sample items representative of three theoretical, bipolar, developmental constructs; industry (productivity), affiliation (mutuality), and identity (intrapersonal). With that in mind, the participant selection became categorical (Arnold, 1970), rather than random. The Q study consists of three age groups each with three replications and considerations for gender resulting in a (3)(3)(2) subject selection design. Table 3.4 illustrates the selected configuration, where each sub-sample within an age cohort approximates equal gender representation.

Subject Demographics

The sample for this study was drawn from age specific Early (10-14

years), Middle (16-18 years), and Late (21-24 years) adolescent populations of intact groupings in rural Oklahoma. The early and middle cohort participants were drawn primarily (78%) from 6th-8th or 11th and 12th grade classes in five rural and one suburban public school programs. The remaining (22%) was comprised of participants in youth groups such as Boy/Girl Scouts, Students Against Drunk Drivers, and Little League Athletic organizations also located in rural areas. The late adolescent (21-24) cohort was drawn from suburban area wide vocational technical education programs (21%), an urban two year community college (12%), and a rural terminal degree university (67%). The age range for each of the three cohorts represents a slight variation, due to the setting from which the intact groups were drawn. The range variation was not considered a serious threat as 93%, 99%, and 95% of the subjects representing the three age groups respectively were within a three year range (11-13, 16-18, & 22-24).

TABLE 3.4
P SET DISTRIBUTION

| P Sample Cohort | Early (10-14) P Sub Sample | | | Middle (16-18) P Sub Sample | | | Late (21-24) P Sub Sample | | | Total |
|-----------------|----------------------------|----|----|-----------------------------|----|----|---------------------------|----|----|-------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | |
| | 67 | 67 | 66 | 67 | 67 | 66 | 67 | 67 | 66 | 600 |
| Total | 200 | | | 200 | | | 200 | | | 600 |

$$\{(gender)(replications)(age groups)(sub samples)\} = (2)(33)(3)(3)$$

The ethnic, gender, and student location composition for the three age groups are reported in Table 3.5. The use of educationally related programs to

draw 86% of the total sample may have accounted for differences in ethnic composition and a skewed gender representation at the upper age group. Some P set members were lost from possible inclusion in the 16-18 year old sample due to dropping out of school. Nationally the dropout rate approximates 27% of the school population by graduation with the eighth to ninth grade transition accounting for the highest percentage by class level (Martz, 1992). Nationally minority students are proportionally over represented in the dropout population at all levels, this trend is substantiated in this study's P set ethnicity demographics (Table 3.5). The older adolescent sample, 21-24 year cohort, representing continued educational involvement at a post secondary level, contains the greatest range restriction since the college bound population is characteristically different than the public school population employed for the two younger cohorts.

TABLE 3.5
P SET DEMOGRAPHIC REPRESENTATION BY COHORT

| Cohort | Early % | Middle % | Late % |
|-----------------|------------|-------------|-----------|
| Ethnicity | | | |
| Asian | 2.0 | 1.5 | 0.5 |
| Black | 0.0 | 1.0 | 4.0 |
| Caucasian | 61.5 | 82.0 | 84.5 |
| Hispanic | 0.5 | 2.0 | 1.5 |
| Native American | 14.5 | 7.5 | 4.0 |
| Other | 12.5 | 3.5 | 0.5 |
| Undeclared | 9.0 | 2.5 | 5.0 |
| Location | | | |
| Rural | 91.0 | 71.0 | 43.5 |
| Suburban | 7.5 | 29.0 | 34.0 |
| Urban | 2.0 | 0.0 | 22.0 |
| Gender | | | |
| Female | 49.5 | 54.5 | 64.0 |
| Male | 50.5 | 45.5 | 36.0 |

The childhood location variable also shifted from a high rural (91%) with the early cohort to a more balance rural (43.5%), suburban (34%), urban (22%) split for the late adolescent cohort. The use of educationally related settings in subject clusters may account for characteristic differences between the cohorts since the population variance is not equivalent for the different age levels.

Procedures

The thirty-six item Q sort was administered in group settings within the subjects' natural environment. After receiving an introduction to the researchers and the project, an informed consent form and a demographic information sheet (See Appendix A for forms and Institutional Review Board documentation) were completed by each participant. The subjects were instructed to read each Q sort item and orient themselves to the item format (See Appendix B for Instrumentation and Administration Guide). After they were comfortable with the items, the subjects were instructed to create three categories; Most Unlike Me, Neutral, and Most Like Me. The Neutral items according to Stephenson (1980a) are statements that the subject's feelings are representative of neither extreme or are unclear, confusing, lead to uncertainty or contains contradictory meanings for the subject. After the three way general sort had been accomplished, the subjects spread out the "Most Unlike Me" pile of cards and locate the two item cards that were most unlike them and placed them on the form board in the column one position. Then the participants were instructed to spread out the "Most Like Me" pile of items and locate the two items that best represented the extreme in the Like Me direction and those two items were

then placed in the column nine position on the form board.

The selection process continued until all of the polarized items had been positioned. The center, neutral categories of columns 4-6 were completed by asking the subjects to finely discriminate the items as being slightly like them, slightly unlike them, or neutral, holding no extreme meaning. After the subjects filled all thirty-six positions on the form board, they were asked to review the entire distribution, checking to make sure the sort represented their ideas about self. When the participant was satisfied with the item placement they were instructed to transfer the item numbers from back of the item cards to the record and demographic sheet which contained a representation of the form board.

The materials were collected and a debriefing period provided. During the debriefing period certain individuals (approximately 1 of every 5 participants) were asked to participate in a post sort interview. Since the interviews followed immediately after completing the Q sort instrument, subjects were selected at random by Q sort identification numbers. Typically, the Q sorts are analyzed and the subjects that load highest on a factor are then interviewed, however, due to accessibility of the subjects at a later time the back-to-back Q sort and interview procedure was considered the best available option. The data collection process is outlined in the Data Collection Handbook contained in Appendix B.

The interviews were taped with the subject's permission or in a few instances hand recorded if the participant was uncomfortable being taped. The interview began by having the subject review his or her form board with the

items in place. The subject was then asked to reflect on what led to the decision to place certain items. Two items from each structured content area (productivity, mutuality, and intrapersonal) were queried based on the following repeating sequence.

| Interview Number | Items Queried |
|------------------|-----------------------|
| 1 | 1, 7, 13, 19, 25, 31 |
| 2 | 2, 8, 14, 20, 26, 32 |
| 3 | 3, 9, 15, 21, 27, 33 |
| 4 | 4, 10, 16, 22, 28, 34 |
| 5 | 5, 11, 17, 23, 29, 35 |
| 6 | 6, 12, 18, 24, 30, 36 |

Each participant in the interview process was also asked about the four extreme items, if not covered by the above sequence. The interview concluded with an open invitation to the subject to discuss any other item(s) followed by a query into how the subject felt about the Q sort process.

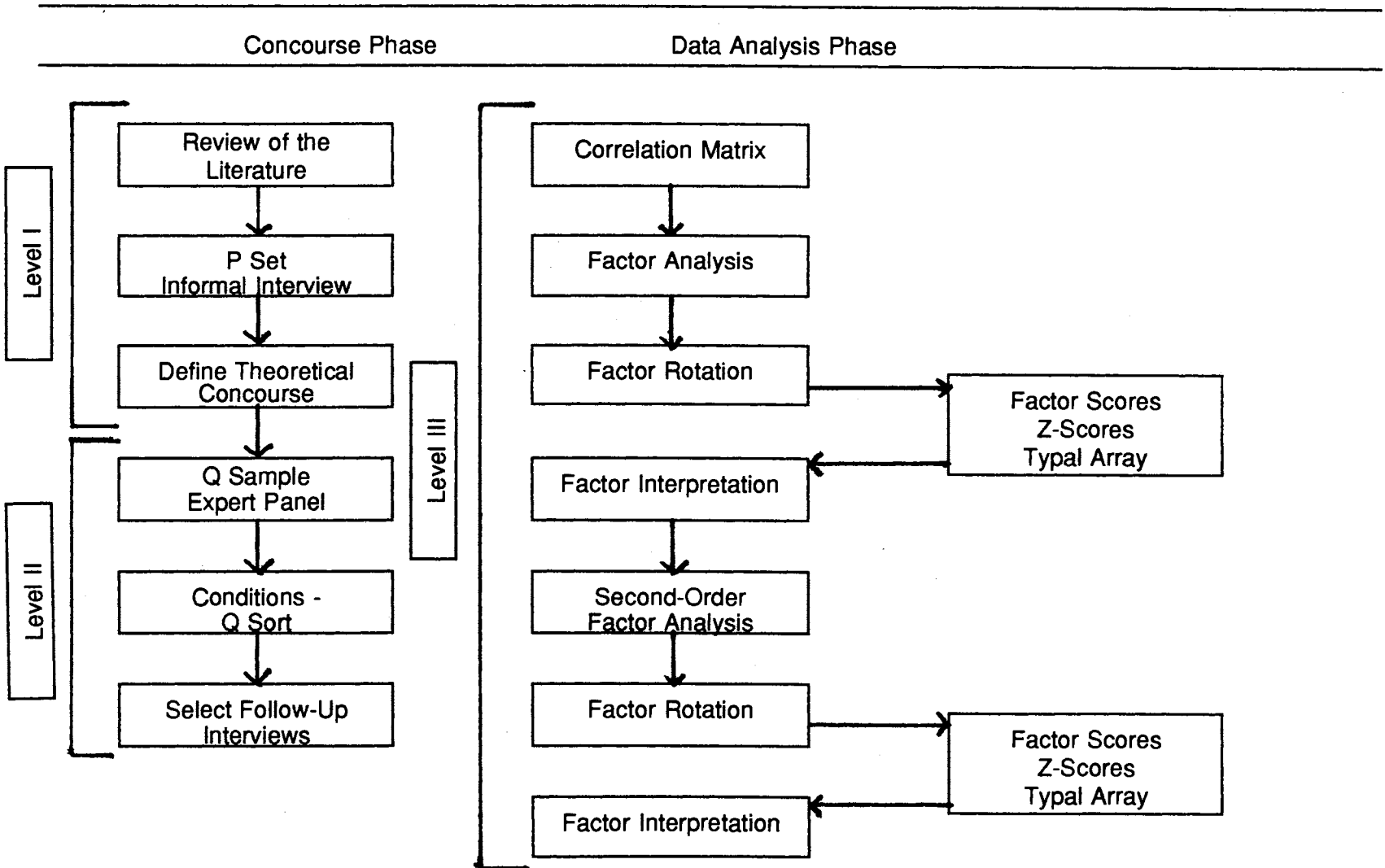
After all the individual interviews were completed the theoretical construct of Erikson's stage theory was explained, during which questions about the research project were addressed in detail. The discussion period allowed the participants to express their opinions on the validity of Erikson's adolescent crisis stages as well as other topics.

Statistical Analysis

The use of Q analysis requires a shift in thinking from a traditional R analysis. In a Q analysis the data have been seen as active, not passive, subjective impressionistic, and not just objective expressions. The process involved in a Q method study is outlined in Figure 3.2. The use of a subjective

FIGURE 3.2

DEVELOPMENTAL SEQUENCE OF THIS Q STUDY



method necessitates the inclusion of an examination of the process involved in getting to a perception or point of view, stressing that getting there is at least equally as important as the end product. When the subjects sort the items, they are representing their opinion, which can then be compared with other subjects who hold a similar prospective (similar sort). By factoring the subjects based on the placement of the Q sort items within the form board distribution, factor or "types" will emerge. Each type will be representative of a common point of view. There is no guarantee that every factor or type in the concourse will be identified, only that those that are identified do exist within the population (Brown, 1980; Thompson, 1966; Stephenson, 1953).

Freeman's (1974) recommendation of a minimum of 200 subjects was adopted to represent the upper limit with provision built into the research design to reduce the sample size as power significance was statistically established. Initially the subject variables (N=200) for each cohort were pooled and through the use of a table of random numbers (Fisher and Yates, 1963) divided into three sub-samples. Each sub-sample selection was controlled by gender so as to represent, within a 5% margin, the distribution found in the P sample age cohort. The three P sub-samples for each age cohort were then submitted to a series of one-way analyses of variance using Wilkinson's (1990) The System for Statistics (SYSTAT) computer program for the personal computer. The ANOVA series served as a confirmation that between sub-sample equality had been maintained through random assignment to the P sub-samples. This precaution was taken to neutralize situational effects since the overall P set consisted of a high percentage of intact groups. The results of the item by item ANOVA are

presented in Table 3.6. The two younger cohorts had two items each that exceeded the F critical value (3.04 at alpha of .05) while the third cohort had no statistically significant item differences. The younger cohorts were accepted as being equal across the P sub-samples as the number of statistically significant items (2 of 36) was within the five percent chance error margin. Implications of the item level analysis are further discussed in the Representative Cohort Selection section to follow.

Data were coded on a scale of +1 (Most Unlike) to +9 (Most Like) from the Q sort rankings. The use of a coding scale that centered on 5, instead of the traditional 0 centering scale for a forced choice distribution, was selected to simplify the data entry process and reduce participant confusion in item placement during the Q sort administration. Since Q sort instrumentation represents a modified forced choice distribution all sorts share the same mean (5) and standard deviation (2.2236), these computations were completed for each participant as quality control checks of the coding and data entry process.

A person by person correlation coefficient matrix was then constructed to examine similarities in the modified rank ordering of the statements between each pair of Q sorts within a sub-sample. Each entry in this correlation matrix represents one Q sort's relationship with one other Q sort, reducing the data points from (2 sorts x 36 statements) 72 raw data points to 1 correlation coefficient. The subsumptive power of correlation coefficients incorporates all the relationships among the original Q sort data points in harmony with the scientific principle of parsimony (Brown, 1980). In Q studies the correlation matrix is not usually examined in any great detail but simply used to prepare

TABLE 3.6

ITEM BETWEEN P SUB-SAMPLE DIFFERENCES

| Cohort/ Item Statements | Early F _(2,197) | Middle F _(2,197) | Late F _(2,197) |
|---|-------------------------------|--------------------------------|------------------------------|
| I am a hard worker. | 0.721 | 1.048 | 1.034 |
| I believe I am a useful person to have around. | 2.418 | 2.780 | 2.555 |
| I try hard to achieve my goals. | 0.174 | 2.901 | 0.545 |
| I'm good at the things I try to do. | 0.308 | 1.698 | 0.357 |
| I stick with things until they're finished. | 2.147 | 1.114 | 1.808 |
| I really believe in my abilities. | 1.185 | 1.645 | 0.325 |
| I don't get things finished. | 0.609 | 0.174 | 1.641 |
| I am well known among my peers for what I do. | 0.985 | 1.222 | 0.632 |
| I like finding out about anything new. | 0.300 | 7.041* (.001) | 0.724 |
| I'm an energetic person who does a lot of things. | 0.533 | 5.726* (.004) | 2.098 |
| I feel good about how I deal with problems. | 1.000 | 0.854 | 2.142 |
| I don't get much done. | 0.472 | 2.526 | 0.021 |
| I limit my dating to my group of friends. | 3.720* (.026) | 0.997 | 0.681 |
| I often feel like an outsider. | 3.544* (.031) | 0.310 | 0.048 |
| I feel that I am really a loner. | 0.500 | 1.618 | 1.102 |
| I believe my friends often lead me astray. | 1.789 | 0.632 | 0.770 |
| I often make commitments that I know I cannot keep. | 1.030 | 0.308 | 0.648 |
| Sometimes I worry about my relationships with my friends. | 0.727 | 0.015 | 0.025 |
| I feel the biggest conflict for me is dealing with peer pressure. | 1.009 | 2.707 | 2.487 |
| I wish I had more friends. | 2.727 | 0.995 | 0.136 |
| Making friends is a difficult job for me. | 0.224 | 0.228 | 1.042 |
| I hang out at locations where I know others will be. | 2.697 | 0.795 | 1.183 |
| I only hang out with people who have the same interests that I do. | 1.032 | 1.646 | 0.649 |
| I follow the code set by my friends. | 0.659 | 1.616 | 0.380 |
| I cope very well. | 0.128 | 0.087 | 0.227 |
| I like myself. | 0.445 | 1.259 | 0.578 |
| I believe I've got my life together. | 0.366 | 1.512 | 2.490 |
| I often feel mixed up. | 0.183 | 0.352 | 0.925 |
| I worry about losing control of my feelings. | 1.437 | 1.015 | 0.518 |
| I can't seem to make sense of my life. | 0.857 | 0.032 | 0.062 |
| Things usually turn out well for me. | 0.113 | 0.935 | 1.633 |
| I am often ashamed of myself. | 2.237 | 2.674 | 1.055 |
| I am proud of the person I am. | 0.324 | 0.052 | 0.931 |
| I'm as good as other people. | 0.899 | 3.016 | 0.694 |
| I don't really know what I'm all about. | 0.493 | 2.444 | 0.369 |
| I change my opinion of myself a lot. | 1.663 | 0.437 | 1.008 |

(F_(2,197) critical = 3.04 at alpha = .05)

raw data for factor analysis. Like a correlation that indicates which pairs of Q sorts are similar, the factor analysis looks for general similarities throughout the family of Q sorts. Factor analysis provides information about groups of Q sorts that appear to go together, based on share similarities, as a type. Factor analysis in general terms is a technique for determining how the participants have classified themselves into natural complexes, represented as types. Brown (1980) stated that these "natural complexes are manifestations of actual thinking defined operationally in terms of concrete human behavior. A science of behavior would have to search far and wide to find a better point at which to begin" (p. 208).

Kerlinger (1972) points out that Q methodology in computing a coefficient of correlation the mean and the standard deviation of the set of scores are lost. Q methodology is unique in that it uniformly sacrifices the mean and standard deviation by use of a forced choice distribution where all means and standard deviations are equal. This is not considered a threat when the relationships between points of view or opinion within individuals or groups, as in the current study, where the mean comparisons are unimportant.

The principal components factor analytic method was selected and followed with a Varimax (orthogonal) rotation to maximize the amount of variance accounted for by each extracted factor. Factor solutions for each of the nine sub-samples were computed in this manner utilizing QUANAL (Van Tubergen, 1980), a computer program especially designed for Q data. A factor solution was selected for each of the 9 P sub-samples which produced 24 factors total. The statistical steps followed for each Q technique analysis are

further discussed in this chapter and a complete analysis is exemplified for sub-sample 1 of the early adolescent cohort in Appendix B.

The first order factors were interpreted independently for each of the three solutions obtained in the three age groups. Then a representative solution (P sub-sample) was randomly selected from each age group for inclusion in the second order factor analysis. The interpretation of the second order factor analysis, which is discussed in detail later, followed the same strategic steps as the first order analysis.

Q Technique Analysis

Q sort data are a modified rank-order with an arbitrarily determined number of ties at each of the points along the form board exemplified previously in Figure 3.1. Spearman's Rank-Order Correlation Coefficient was used in generating the correlation matrix that served as the input for the principal component factor analysis. Brown (1980) showed that with Q sort data, Spearman's Rank-Order Correlation Coefficient and Pearson's Product Moment Correlation produce essentially the same factor structure when a .40 factor loading criteria, as has been used in this study, is maintained. The correlation coefficient matrix for each sub-sample contains n^2 entries (66^2 or 67^2) which are submitted as input data for the principal components factor analysis.

Factor analysis produces a condensation of individual Q sort correlations into factors representative of multiple Q sorts, reducing the matrix to the number in the P sample times the number of factors selected. However, there is no clear cut selection criteria for determining the number of factors to extract

for each solution. Brown (1980) notes that there are some general guidelines that are commonly used to determine the number of factors to accept in a solution but cautions against blind, rigid adherence to any single criteria.

First and perhaps the most widely accepted criterion to limit the number of factors is that all factors maintain an eigenvalue greater than 1.00. Brown (1980) cautions that strict adherence to this criteria can frequently result in the discarding of sizable residuals and possibly significant factors in terms of representing an important viewpoint. He also notes that since eigenvalues are affected by the number of participants ($EV = \text{sum of each participant's factor load squared}$), large P samples may produce spurious factors with the $EV < 1.00$ criteria.

A second, yet related criterion is to account for as much of the variance as possible when determining the number of factors. The percent of total variance accounted for by each factor is derived by solving $100(EV/n)$ where n is the number of Q sorts in the P sample. The percentage of the total variance accounted for by a solution is the sum of the variance accounted for by all selected factors. All the accepted factor solutions in the current study accounted for at least 40% of the total variance with some ranging as high as 63%.

Another method of determining the number of factors to include in a solution is that each contiguous factor accepted have a minimum of two significant loadings. For a loading to be significant at the .05 level it must exceed $1.96(SE_r)$ where SE_r is the standard error of a zero-order loading. The standard error is obtained by dividing 1 by the square root of the number of

items in the Q sort instrument. A significant loading at the .05 level for this study was calculated to be; $1.96(1/6) = .3267$, but a more stringent criteria of .40 was selected for actual use in the current study. The criteria for factor inclusion was increased from two significant loadings to a minimum of four for the current study in consideration of the larger N per sample.

A fourth criteria used in determining the number of factors is to multiply the absolute value of the two highest loads on a factor, this cross-product must exceed the SE_r (Fruchter, 1954). For the current study the cross-product of the two highest loads on each factor within a factor solution were significant in surpassing the SE_r .167 criteria.

Brown (1980) concludes that with the above criteria being taken into consideration the final determination is based on the psychosocial situation to which the emergent factors are functionally related. Tables 3.7 through 3.9 summarize how the retained factors for each factor solution met the objective criteria it should also be noted that each factor was also viewed subjectively before accepting each solution.

The participant's factor loadings were arranged by factor (perception type) and ranked ordered based on communality and factor purity. This format was selected as it does not hamper the objective evaluation of the factor structure while providing useful information for subsequent factor interpretation. The significance of communalities, h^2 is like that of eigenvalues, representing the sum of the squared factor loadings, but by participant instead of by factor. Communality is therefore the percentage of each participant's Q sort response in common to the point of view represented by each factor and subsequently

TABLE 3.7

SUMMARY CRITERIA FOR FACTOR SOLUTION
EARLY ADOLESCENT COHORT

| Cohort/ Criteria | Factor Number | Eigen Value | % of Total Variance | Cumulative % Total Variance | P Set Loading by Factor | by Solution | Total % of P Sample by Factor | by Solution |
|---------------------|------------------|----------------|------------------------|--------------------------------|----------------------------|-------------|----------------------------------|-------------|
| Sub- Sample 1 | 1 | 22.982 | 34.30 | | 43 | | 64.20 | |
| | 2 | 3.187 | 4.76 | | 7 | | 10.40 | |
| | 3 | 2.613 | 3.39 | 42.96 | 10 | 60 | 14.93 | 89.60 |
| Sub- Sample 2 | 1 | 23.416 | 34.95 | | 48 | | 71.64 | |
| | 2 | 2.456 | 5.16 | | 9 | | 13.43 | |
| | 3 | 2.737 | 4.09 | 44.20 | 6 | 63 | 8.96 | 94.03 |
| Sub- Sample 3 | 1 | 23.960 | 36.30 | | 29 | | 43.94 | |
| | 2 | 3.900 | 5.91 | | 8 | | 12.12 | |
| | 3 | 2.689 | 4.08 | 46.29 | 16 | 53 | 24.24 | 80.03 |

TABLE 3.8

SUMMARY CRITERIA FOR FACTOR SOLUTION
MIDDLE ADOLESCENT COHORT

| Cohort/ Criteria | Factor Number | Eigen Value | % of Total Variance | Cumulative % Total Variance | P Set Loading by Factor | by Solution | Total % of P Sample by Factor | by Solution |
|---------------------|------------------|----------------|------------------------|--------------------------------|----------------------------|-------------|----------------------------------|-------------|
| Sub- Sample 1 | 1 | 26.176 | 39.07 | 51.40 | 46 | 65 | 68.66 | 97.0 |
| | 2 | 5.026 | 7.50 | | 12 | | 17.91 | |
| | 3 | 3.238 | 4.83 | | 7 | | 10.45 | |
| Sub- Sample 2 | 1 | 30.272 | 45.18 | 56.24 | 49 | 63 | 73.13 | 94.00 |
| | 2 | 4.748 | 7.09 | | 10 | | 14.93 | |
| | 3 | 2.664 | 3.98 | | 4 | | 6.06 | |
| Sub- Sample 3 | 1 | 25.705 | 38.95 | 51.65 | 44 | 65 | 66.67 | 98.5 |
| | 2 | 5.527 | 8.37 | | 10 | | 15.15 | |
| | 3 | 2.860 | 4.33 | | 11 | | 16.67 | |

TABLE 3.9

SUMMARY CRITERIA FOR FACTOR SOLUTION
LATE ADOLESCENT COHORT

| Cohort/ Criteria | Factor Number | Eigen Value | % of Total Variance | Cumulative % Total Variance | P Set Loading | | Total % of P Sample | |
|---------------------|------------------|----------------|------------------------|--------------------------------|---------------|-------------|---------------------|-------------|
| | | | | | by Factor | by Solution | by Factor | by Solution |
| P Sub- Sample 1 | 1 | 39.015 | 58.23 | | 58 | | 86.57 | |
| | 2 | 3.285 | 4.90 | 63.14 | 9 | 67 | 13.43 | 100 |
| P Sub- Sample 2 | 1 | 37.626 | 56.16 | | 50 | | 74.60 | |
| | 2 | 2.937 | 4.38 | 60.54 | 17 | 67 | 25.37 | 100 |
| P Sub- Sample 3 | 1 | 36.710 | 55.62 | | 49 | | 74.24 | |
| | 2 | 2.597 | 3.93 | 63.13 | 15 | 64 | 22.73 | 96.97 |

each factor solution. How much of the variable (individual person) that is accounted for by each factor in the accepted factor solution is obtained by squaring each rotated factor loading and dividing by the communality statistic. The percentage of each participant's variability that is accounted for by the highest factor loading is noted in the "Pure" column in the rotated factor solution located in Table C-1 in Appendix C.

Each factor is then represented by a theoretical Q sort that is constructed by ordering the z scores from high to low. Comparisons between factors can now be made by calculating the z score difference between statements. The items that differ by a z of 1.0 are considered significant in defining how the perceptions or attitudes represented by one factor differ from those represented by other factors. An example of the Q technique process outlined above, principal component factor analysis with varimax rotation to factor z-score array, can be found for the early adolescent cohort, sub-sample 1, in Appendix C.

The participants that load on a factor are merged in the belief that unique traits will cancel each other while commonalities will emerge, exemplifying the underlying factor. However, the degree that each person's Q sort is representative of the underlying factor varies. A factor loading of .85 and .39 are both significantly associated with the underlying factor but the degree of association is quite different. Therefore, prior to merging the individual Q sorts the degree to which each sort approximates the underlying factor must be statistically reflected. Spearman (1927) expressed the differences in factor association through factor weights, which result from $(f / 1 - f^2)$ where f is the value of the factor loading. Conversion of the .85 and .39 factor loadings to

factor weighted scores of 3.063 and 0.459 respectfully, allowing the .39 loading to contribute 15% as much as the .85 loading in calculating the representative Q sort for the underlying factor. Brown (1980) notes that since the number of variables (people) loading significantly on each factor in a rotated factor solution varies, conversion to a normalized distribution allows for direct comparisons.

Representative Cohort Selection

The three repetitions at each age cohort was initiated as a statistical verification of the reliability of the emergent factor structure. One sample from each age cohort was selected to be interpreted for the study and eventually entered into a second order factor analysis. The use of a single sub-sample per cohort was deemed appropriate since all factor solutions by cohort were consistent in the criteria noted below.

1. factor solutions resulted in an equivalent number of factors (types).
2. all eigenvalues were greater than one and were approximate in magnitude by corresponding factors.
3. percentage of total variance accounted for by factor approximated equivalent values.
4. percent of total value accounted for by solution approximated equivalent amounts.
5. the percentage of the P sub-sample accounted for by factor and solution approximated equal proportions.
6. the minimum criteria of four significant loads per factor was met in all factor solutions.
7. each factor solution consisted of a large first factor which accounted for the majority of the variance with each of the remaining factor(s) in a solution accounting for less than ten percent of the total variance.
8. ANOVA by stimulus card failed to reject the null hypothesis that sub-sample 1 = sub-sample 2 = sub-sample 3 within each cohort (Table 3.6).

9. the sub-sample solutions when interpreted with representative point of view produced highly congruent content profiles by type.
10. factor reliability values were all consistently high.

Based on the above noted criteria of equivalency a first order factor solution for each cohort was selected at random. The selected P sub-samples (sub-samples 1, 2, and 1 from the three cohorts respectively) were further analyzed via a second order factor analysis, which followed the same statistical process as the first order analyses noted earlier.

CHAPTER IV

DATA ANALYSIS AND RESULTS

The purpose of this study was to investigate adolescents' self-perceptions concerning developmental growth. Q methodology was employed to allow self-referent, subjective, descriptions from the participants as they operationalized the developmental process. The Q sort instrument used in this study resulted from a structured concourse sampling for content statements representative of early and late adolescent tasks based on Erikson's (1950) theory (productivity and identity formation) combined with a middle stage content (mutuality) suggested by Kegan (1982) and supported by the works of Blois (1941), Dunphy (1980), Kohlberg (1973), Loevinger (1987), Maslow (1943), McClelland and Murray (1938/1985), Selman (1980), and Sullivan (1953). Results from a structured concourse sampling based on a theoretical orientation, productivity, mutuality, and intrapersonal contents were represented with a 36 item Q sort instrument.

Data from 200 adolescents were collected from each of three age cohorts (early 10-14, middle 16-18, and late 21-24) using a quasi-normal nine point distribution for the Q sort with a single condition of instruction. The data for each of the three cohorts were randomly assigned to one of three subsamples, yielding 9 data sets. Each of the three data sets within a cohort was

analyzed individually using Q methodology. The factor arrays for each cohort sub-sampling were examined and compared for structure and reliability, establishing the existence of a high degree of similarity. This conclusion was additionally supported by item level one by three ANOVA analyses which failed to demonstrate response differences between sub-samples within a cohort. Therefore, one sub-sample (Table 4.1) was randomly selected to represent each cohort in further analyses.

The randomly selected, representative factor solution for each cohort was selected and submitted to second-order factor analysis, forming an interpretable representation of self perceptions concerning development across the three stages of the adolescence era. The purpose of this chapter is to present the factor solution for each of the three cohort groups analyzed, to report the type interpretation of the first order factors, and to present the second order factor solution with type interpretation.

First Order Factor Analysis

The research focus of this study was to describe the focus of the adolescent developmental experience. From sampling the developmental concourse three theoretical (singular proposition) contents were used to construct a structured Q sort instrument. The Q sort was administered to three adolescent age cohorts that represented early, middle, and late developmental periods. The first order factor analysis and subsequent factor interpretations provide insight into the self perceptions of adolescents at each of the three age levels in addressing the Level III, induced proposition.

TABLE 4.1

SUMMARY OF FACTOR SOLUTIONS
BY COHORT

| Criteria/ Cohort | Factor Number | Eigen Value | % of Total Variance | Cumulative % Total Variance | P Set Loading by Factor | by Solution | Total % of P Sample by Factor | by Solution |
|---------------------|------------------|----------------|------------------------|--------------------------------|----------------------------|-------------|----------------------------------|-------------|
| Early Cohort | 1 | 22.982 | 34.30 | | 43 | | 64.20 | |
| | 2 | 3.187 | 4.76 | | 7 | | 10.40 | |
| | 3 | 2.613 | 3.39 | 42.96 | 10 | 60 | 14.93 | 89.60 |
| Middle Cohort | 1 | 30.272 | 45.18 | | 49 | | 73.13 | |
| | 2 | 4.748 | 7.09 | | 10 | | 14.93 | |
| | 3 | 2.664 | 3.98 | 56.24 | 4 | 63 | 6.06 | 94.00 |
| Late Cohort | 1 | 39.015 | 58.23 | | 58 | | 86.57 | |
| | 2 | 3.285 | 4.90 | 63.14 | 9 | 67 | 13.43 | 100 |

A person-by-person correlation matrix was constructed for each of the nine sub-samples and analyzed by principal component factor analysis followed by Varimax rotation. The QUANAL (Van Tubergen, 1980) program for the personal computer was used to conduct the analyses and follow-up WRAP phase of the factor solutions. The WRAP phase of QUANAL rank orders the items by z-score for each factor, computes grand means for each item and item deviations by factor and between factors to assist in the interpretation of the theoretical arrays. Interpretation for Q methodology differs from that of the traditional R methodology where the explanation, based on factor loadings, consists of scales and traits in the overall response set from a random population. In Q methodology, the factor loadings and subsequent z-score arrays allow attitudes or point of views that are present to emerge. Participants' post sort interviews which centered on the etiology of individual item placement relative to other items were reviewed for high factor weight subjects, providing type insight and clarity.

Early Adolescent Cohort

The first order analysis for each sub-sample in the early adolescent cohort resulted in a three factor solution with one factor that contained a high percentage of negative loads (Table 4.2). The negative loading subjects were extracted from the factor, made positive by reversing the Q sort pile values, and used to form an additional perspective or type for interpretational purposes. The four types are summarized in the following text by item z-score values and

TABLE 4.2

RE-ORDERED VARIMAX ROTATED FACTOR MATRIX
EARLY ADOLESCENT COHORT

| Variable | Sort | ID Code | 1 | 2 | 3 | Communality | Pure |
|--------------------------------|------|-----------|-------------------|---------------------|-----------------------|-------------|------|
| | | | Task Committed | Socially Focused | Progressive Leader | | |
| Factor Type 1 - Task Committed | | | | | | | |
| 1 | 38 | 003M12301 | .784* | -.010 | .100 | .625 | .984 |
| 2 | 55 | 002F14721 | .474* | .079 | .008 | .231 | .972 |
| 3 | 6 | 125F12541 | .422* | -.081 | -.022 | .186 | .962 |
| 4 | 22 | 149F11603 | .809* | -.043 | .179 | .689 | .951 |
| 5 | 19 | 145F12132 | .813* | -.034 | .186 | .696 | .948 |
| 6 | 80 | 044M13402 | .650* | .124 | .170 | .467 | .905 |
| 7 | 40 | 080F13292 | .756* | -.161 | .192 | .635 | .901 |
| 8 | 42 | 072M13252 | .675* | -.178 | .192 | .525 | .869 |
| 9 | 27 | 093F12112 | .733* | .283 | -.055 | .621 | .866 |
| 10 | 1 | 100M11422 | .664* | -.159 | .225 | .517 | .853 |
| 11 | 18 | 176M11231 | .490* | -.024 | .203 | .282 | .852 |
| 12 | 2 | 084M13511 | -.815* | .178 | -.293 | .781 | .850 |
| 13 | 50 | 042F12001 | .808* | .147 | .317 | .775 | .842 |
| 14 | 71 | 054M12421 | .746* | .210 | .254 | .665 | .837 |
| 15 | 3 | 128M13003 | .534* | .055 | .235 | .344 | .830 |
| 16 | 46 | 168M13102 | .318 | -.134 | .058 | .122 | .826 |
| 17 | 16 | 025M12911 | .656* | .210 | .237 | .530 | .811 |
| 18 | 64 | 130M11541 | .751* | .187 | .319 | .701 | .805 |
| 19 | 49 | 022M13501 | .436* | -.035 | .213 | .236 | .804 |
| 20 | 12 | 116F13902 | .640* | .135 | .288 | .511 | .802 |
| 21 | 13 | 091F13001 | .472* | -.092 | .225 | .282 | .790 |
| 22 | 45 | 137M12112 | -.498* | -.157 | -.209 | .316 | .784 |
| 23 | 14 | 083M13321 | .677* | .197 | .306 | .591 | .775 |
| 24 | 5 | 098M12521 | .555* | .263 | .188 | .412 | .747 |
| 25 | 26 | 196F13433 | .618* | -.088 | .390 | .542 | .706 |
| 26 | 28 | 020F12501 | .688* | .351 | .276 | .673 | .703 |
| 27 | 47 | 055F12503 | .650* | .369 | .292 | .644 | .656 |
| 28 | 21 | 153M11201 | (.655) | .238 | (.422) | .665 | .646 |
| 29 | 20 | 162F11301 | .437* | .044 | .325 | .298 | .640 |
| 30 | 29 | 053M13201 | .460* | .245 | .255 | .337 | .629 |
| 31 | 30 | 035M13311 | (.597) | .075 | (.482) | .595 | .599 |
| 32 | 57 | 088F12401 | .474* | -.101 | .390 | .387 | .580 |
| 33 | 61 | 030F12212 | .474* | .391 | .136 | .397 | .568 |
| 34 | 60 | 184M12401 | (.632) | (.532) | .221 | .732 | .546 |
| 35 | 35 | 013F12411 | .404* | .045 | .370 | .303 | .541 |
| 36 | 43 | 065M13231 | (.672) | .012 | (.627) | .844 | .534 |
| 37 | 56 | 070M13233 | .163 | .050 | .149 | .051 | .520 |
| 38 | 34 | 111F13821 | (.533) | .195 | (.476) | .549 | .517 |
| 39 | 39 | 135F12543 | (.571) | .369 | (.410) | .630 | .517 |
| 40 | 31 | 062M12113 | (.609) | .114 | (.581) | .721 | .515 |
| 41 | 4 | 118M14301 | .442* | .394 | .219 | .399 | .490 |
| 42 | 23 | 004M12303 | (.508) | .193 | (.500) | .546 | .474 |
| 43 | 32 | 174M11901 | .404* | .269 | .355 | .362 | .452 |
| 44 | 59 | 078M13303 | .418* | .350 | .323 | .401 | .435 |
| 45 | 51 | 006M14221 | (.510) | .391 | (.434) | .601 | .433 |

TABLE 4.2 (Continued)

RE-ORDERED VARIMAX ROTATED FACTOR MATRIX
EARLY ADOLESCENT COHORT

| Variable | Sort | ID Code | 1 Task Committed | 2 Socially Focused | 3 Progressive Leader | Communality | Pure |
|--|------|-----------|------------------------|--------------------------|----------------------------|--------------|------|
| Factor Type 2 - Socially Focused (bipolar)** | | | | | | | |
| 46 | 54 | 089M13121 | .058 | -.224 | -.024 | .054 | .928 |
| 47 | 44 | 105F12703 | .096 | -.510* | .165 | .297 | .877 |
| 48 | 41 | 087M13201 | .141 | -.456* | .121 | .243 | .858 |
| 49 | 9 | 005F13322 | -.170 | -.476* | -.112 | .268 | .845 |
| 50 | 53 | 126F13101 | .003 | -.368 | .217 | .183 | .741 |
| 51 | 24 | 200F13231 | .257 | .381 | .093 | .220 | .659 |
| 52 | 10 | 195M13501 | -.126 | -.337 | -.245 | .190 | .599 |
| 53 | 52 | 136F13512 | (.453) | (-.539) | -.140 | .515 | .563 |
| 54 | 25 | 032F12713 | .060 | .207 | .204 | .088 | .486 |
| Factor Type 3 - Progressive Leader | | | | | | | |
| 55 | 11 | 186M12113 | .049 | .068 | .584* | .348 | .980 |
| 56 | 37 | 194F14941 | -.007 | -.004 | -.053 | .003 | .974 |
| 57 | 62 | 171M12982 | .080 | .094 | .484* | .249 | .939 |
| 58 | 66 | 054M12301 | .289 | .030 | .699* | .573 | .853 |
| 59 | 48 | 159M11403 | .072 | -.243 | .562* | .380 | .831 |
| 60 | 36 | 017F13201 | .356 | .130 | .526* | .420 | .659 |
| 61 | 63 | 129M11441 | .232 | .307 | .480* | .378 | .609 |
| 62 | 67 | 177F12513 | .371 | .028 | .450* | .341 | .594 |
| 63 | 58 | 122F13642 | .221 | -.139 | .304 | .160 | .576 |
| 64 | 15 | 048F12113 | .349 | .003 | .383 | .268 | .547 |
| 65 | 17 | 108F13411 | (.551) | .130 | (.622) | .708 | .546 |
| 66 | 33 | 142F11821 | .285 | -.089 | .314 | .188 | .525 |
| 67 | 65 | 187M12101 | -.356 | -.161 | .376 | .294 | .480 |
| TOTAL VAR - PER FACTOR | | | .2617 | .0575 | .1104 | Total .4296 | |
| - CUMULATIVE | | | .2617 | .3192 | .4296 | | |
| COM. VAR. - PER FACTOR | | | .6091 | .1338 | .2571 | Total 1.0000 | |
| - CUMULATIVE | | | .6091 | .7429 | 1.0000 | | |

* Significant loadings (greater than or equal to .40) are noted with an * and split loads (greater than or equal to .40 on two or more factors) are noted with ().

** Factor 2 is 37.49 percent negative. Negative items are extracted, made positive and formed into added type 4 (Insecure Loner).

deviations from the grand mean as well as deviations between individual factors. Descending z-score arrays, by type and item, are presented in their entirety in Appendix D (Tables D-1 to D-4).

The selected factor solution for the sample randomly selected for further analysis from the early adolescent cohort was a three factor solution. It accounted for 89.60% of the subjects and 42.96% of the total variance. A summary was presented in Table 4.1 along with the selected cohort factor solutions for the middle and late adolescent cohorts. Each factor approximated equal gender representation (42% to 58%) but differed in the self reported number of close friends, grade point average, and birth order position (Table 4.3).

Type one, representing 64% of the participants in the cohort sample accounted for 34.3% of the total variance. This type is consistent with what Erikson described as developmentally normal, exhibiting characteristics found in a positive resolution of the industry stage crisis. Type one's self description has six items in the twelve extreme positions that suggest a focus on achievement. The z-scores range 3.28 points from +1.75 to -1.53, representing the smallest z-score variance in typical array of the four types.

Type one, entitled Task Committed Worker, is indicative of those who perceive themselves as being successful and purposeful with a positive outlook. The Task Committed person has a good conception of how the relative physical environment works and is rule-abiding in maintaining the interactive power/responsibility balance. This type perceives academic activities as a means of achieving personal success while having the added benefit of

TABLE 4.3

MEAN DEMOGRAPHIC INFORMATION BY COHORT AND TYPE

| Cohort Type | Early | | | | Middle | | | Late | |
|-------------------------|-------|--------|-------|-------|--------|-------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 1 | 2 |
| N | 43 | 3 | 10 | 4 | 49 | 13 | 4 | 58 | 9 |
| Age | 12-0 | 12-8 | 12-0 | 12-4 | 16-10 | 16-9 | 16-8 | 22-10 | 23-1 |
| Birth Order Percentages | | | | | | | | | |
| First | 62.79 | 100.00 | 50.00 | 55.55 | 52.17 | 56.25 | 20.00 | 44.82 | 37.50 |
| Middle | 20.90 | 0.00 | 16.67 | 33.33 | 21.74 | 6.25 | 40.00 | 13.79 | 37.50 |
| Youngest | 16.27 | 0.00 | 33.33 | 11.11 | 26.09 | 37.50 | 40.00 | 41.37 | 25.00 |
| Number of Friends | | | | | | | | | |
| Mean | 4.50 | 4.67 | 4.08 | 3.11 | 4.62 | 3.06 | 6.60 | 6.62 | 3.88 |
| Mode | 5 | 7 | 1,4 | 1 | 3 | 2,5 | 5,7 | 4,5 | 5 |
| Academic Average | B | A/B | B- | C+ | B+ | B+ | A | A/B | A |
| Failing or Near Failing | | | | | | | | | |
| % Of Type | 13.95 | 0.00 | 16.00 | 22.00 | 4.34 | 6.25 | 0.00 | 0.00 | 0.00 |
| % Of Cohort | 8.95 | 0.00 | 2.98 | 2.98 | 2.98 | 1.49 | 0.00 | 0.00 | 0.00 |
| Number of Moves | | | | | | | | | |
| Mean | 1.48 | 1.67 | 1.80 | 0.67 | 0.86 | 0.63 | 0.60 | 0.69 | 0.38 |
| Gender | | | | | | | | | |
| % by type | | | | | | | | | |
| Female | 44.2 | 66.7 | 50.0 | 44.4 | 58.7 | 50.0 | 60.0 | 63.8 | 75.0 |
| Male | 55.8 | 33.3 | 50.0 | 55.6 | 41.3 | 50.0 | 60.0 | 36.2 | 25.0 |
| % by cohort | | | | | | | | | |
| Female | 46.3 | | | | 56.7 | | | 69.1 | |
| Male | 57.7 | | | | 43.3 | | | 30.9 | |
| Ethnicity | | | | | | | | | |
| by Type | | | | | | | | | |
| African American | 7.0 | 0.0 | 0.0 | 0.0 | 4.4 | 0.0 | 0.0 | 6.9 | 0.0 |
| Caucasian | 60.5 | 66.7 | 75.0 | 66.7 | 76.1 | 100.0 | 100.0 | 82.8 | 100.0 |
| Hispanic | 9.3 | 0.0 | 8.3 | 0.0 | 6.5 | 0.0 | 0.0 | 1.7 | 0.0 |
| Native American | 11.6 | 33.3 | 8.3 | 0.0 | 10.9 | 0.0 | 0.0 | 3.5 | 0.0 |
| by Cohort | | | | | | | | | |
| African American | 4.5 | | | | 3.0 | | | 6.0 | |
| Caucasian | 64.2 | | | | 83.6 | | | 85.1 | |
| Hispanic | 7.5 | | | | 4.5 | | | 1.5 | |
| Native American | 10.4 | | | | 7.5 | | | 3.0 | |

providing a social setting to validate status acquisition. The Task Committed Worker was noted in the post sort interviews to justify item placement by citing specific examples. This type's full array, presented in Appendix D (Table D-1), is characterized by items such as:

| Item | z-Score | Difference |
|-----------------------------------|---------|------------|
| I try hard to achieve my goals. | 1.75 | 0.435 |
| I really believe in my abilities. | 1.36 | 0.336 |
| I'm a hard worker. | 1.30 | 0.755 |
| I wish I had more friends. | -0.62 | -1.117 |
| I feel that I am really a loner. | -1.26 | -0.300 |
| I am often ashamed of myself. | -1.33 | -0.646 |
| I don't get things finished. | -1.53 | -0.437 |

Type two noted as the Socially Connected Peer, represents 4.47% of the sample population with a z-score range of 3.43 points. The Socially Connected Peer placed peer related items in eight of the twelve extreme positions, indicating the relative importance of social association over product and self formation related items. The Socially Connected person perceives self as being involved with peers to a point that self worth is defined by how others see them. Individual self confidence is seen as low, which may promote this type to follow the pack instead of risking individual assertions. Peers are perceived by this type as a validating force, where yielding to an external locus of control is the norm.

Where the Task Committed person held the view that internally controlled attributes like self organization and effort were central, the Peer Connected person is influenced more by external attributes related to peers. The peer group is egocentrically viewed as a whole entity (me and them) by the

Social Connected Peer type. The peer group is seen as a collection of smaller factions, where organization and effort attributes are focused on creating or filling a place in the social structure. The Socially Connected person perceives success with peer relations and individual friendships as equal to if not more important than academic success. Some descriptive items from the Socially Connected Peer type, drawn from the complete typal array presented in Appendix D (Table D-2), include:

| Item | z-Score | Difference |
|--|---------|------------|
| I only hang out with people who have the same interests as I do. | 1.60 | 1.126 |
| I like myself. | 1.54 | 0.126 |
| I hang out at locations where I know others will be. | 1.25 | 1.096 |
| I don't get things finished. | 1.08 | 1.446 |
| I follow the code set by my friends. | 1.11 | 1.415 |
| I try hard to achieve my goals. | -0.68 | -1.763 |
| I feel that I am really a loner. | -1.53 | -0.277 |
| I'm as good as other people. | -1.57 | -1.271 |
| Making friends is a difficult job for me. | -1.72 | -0.527 |

Type three accounted for 3.39% of the total variance and 14.9% of the cohort subjects. The esteem related items occupied half the extreme positions indicating an increased focus in the relative importance of these items. This third factor type, named Progressive Leader, perceives self as more group independent. They are comfortable following their own interests but are equally able to function within a peer group. This type is self confident, on the way to defining themselves as individuals, and is less influenced by peers in decision making. Items from the complete typal array presented in Appendix D (Table D-3) that are representative of this type include:

| Item | z-Score | Difference |
|---|---------|------------|
| I like find out about anything new. | 1.71 | 0.752 |
| I am proud of the person I am. | 1.71 | .0204 |
| I cope very well. | 1.32 | 0.805 |
| I feel the biggest conflict for me is dealing with peer pressure. | -1.24 | -0.727 |
| I don't get much done. | -1.55 | 0.119 |
| I follow the code set by my friends. | -2.01 | -1.005 |

The Progressive Leader type is highly related to type one (Task Committed) as evidenced by a correlation of .668 and the number of items means where the two types deviate less than one standard deviation. The nine non-consensus items, presented below, suggest that the Progressive Leader is less influenced by peers in personal convictions and decision making.

| Item | z-Score Type 1 | z-Score Type 3 | Difference |
|--|-------------------|-------------------|------------|
| I follow the code set by my friends. | -0.30 | -2.02 | 1.718 |
| I'm as good as other people. | 1.61 | -0.30 | 1.368 |
| I am well known among my peers for what I do. | 0.81 | -.52 | 1.323 |
| I feel that I am really a loner. | -1.26 | -0.25 | 1.010 |
| I only hang out with people who have the same interests as I do. | -0.55 | 0.48 | 1.027 |
| I don't get things finished. | -1.53 | -0.36 | 1.172 |
| I wish I had more friends. | -0.62 | 0.56 | 1.175 |
| I often make commitments to others that I know I cannot keep | -1.03 | 0.36 | 1.395 |
| I am often ashamed of myself. | -1.33 | 0.35 | 1.683 |

The Task Committed Worker and Progressive Leader types did not greatly differ on achievement and identity related items; a difference was noted in the post sort interview content. The interviews revealed that the Task Committed type mentally framed many items in terms of school issues where

the Progressive Leader justified the item placement in more general, abstract terms. For example, item 19 "Things usually turn out well for me," has z-scores of 0.65 and 0.56 for type one and three respectively. The justification from type one (Task Committed) contextually related item placement to studying and grades, while type three (Progressive Leader) related the placement to peer, family, and personal issues.

Type four represents the opposite perception from factor two. Since the Q sort factor contains both negative and positive loadings, interpretation is simplified by extracting the bipolar solutions separately. The significance of extracting the bipolar loads separately can be exemplified by comparing the items. From Table 4.4 where the factor two types are presented by z-score array, the bipolar factor can be seen. For example type 2, Socially Connected Peer, placed item 11, "I only hang out with people who have the same interests as I do," in Q sort pile 9, the extreme "Most Like Me" position while type four, Insecure Loner type, placed item 11 in pile 1 the extreme "Most Unlike Me" position. Twenty-three of the thirty-six items exhibit this inverse relationship item placement between the two types. From reviewing the item means it is clear that the Socially Connected person is more satisfied with peer relations and esteem issues than the Insecure Loner.

Insecure Loner, type four, comprises 75% of the subjects that make up factor two. Demographically, the bipolar types (Socially Connected Peer and Insecure Loner) do not differ greatly in mean ages (12-8 & 12-4) however, the factor mean age (12-7) exceeds that of factor one and three, which are both 12-0. Other notable demographic differences (Table 4.3) include the Socially

Connected Peer leading the cohort in number of friends while the Insecure Loner recorded the fewest. The Loner has the lowest academic average of the four types and per capita has the highest frequency of middle born contrasted with the Socially Connected Peer which consists only of first born children.

TABLE 4.4

FACTOR TWO BIPOLAR SOLUTION WITH SEPARATE TYPE EXTRACTION:
 SOCIALLY CONNECTED PEER (TYPE 2) AND INSECURE LONER (TYPE 4)
 TYPAL Z-SCORE ARRAY

| Item # | Item Description | Type 2 | Type 4 | Difference |
|--------|--|--------|--------|------------|
| 11. | I only hang out with people who have the same interests as I do | 1.602 | -2.225 | 3.827 |
| 19. | Things usually turn out well for me | .869 | -1.956 | 2.825 |
| 14. | I like myself | 1.545 | -.952 | 2.496 |
| 10. | I hang out at locations where I know others will be | 1.253 | -1.089 | 2.342 |
| 21. | I am proud of the person I am | 1.503 | -.712 | 2.215 |
| 31. | I don't get things finished | 1.086 | -1.095 | 2.181 |
| 12. | I follow the code set by my friends | 1.116 | -1.011 | 2.127 |
| 23. | I don't really know what I'm all about | .945 | -.980 | 1.925 |
| 36. | I don't get much done | -.120 | -1.854 | 1.734 |
| 35. | I feel good about how I deal with problems | .414 | -.683 | 1.097 |
| 29. | I stick with things until they're finished | .816 | -.123 | .939 |
| 26. | I believe I am a useful person to have around | -.194 | -.569 | .375 |
| 18. | I can't seem to make sense of my life | .615 | .301 | .313 |
| 16. | I often feel mixed up | .809 | .496 | .313 |
| 30. | I really believe in my abilities | .315 | .029 | .285 |
| 15. | I believe I've got my life together | .000 | -.253 | .253 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | 1.181 | 1.104 | .077 |
| 13. | I cope very well | -.444 | -.330 | .114 |
| 1. | I limit my dating to my group of friends | -.527 | -.331 | .197 |
| 33. | I like finding out about anything new | -.129 | .068 | .197 |
| 2. | I often feel like an outsider | .798 | 1.010 | .212 |
| 8. | I wish I had more friends | .501 | 1.033 | .532 |
| 3. | I feel that I am really a loner | -1.533 | -.919 | .614 |
| 28. | I'm good at the things I try to do | -.927 | .136 | 1.063 |
| 32. | I am well known among my peers for what I do | -.555 | .553 | 1.108 |
| 34. | I'm an energetic person who does a lot of things | -.460 | .734 | 1.194 |
| 25. | I'm a hard worker | -.726 | .522 | 1.247 |
| 20. | I am often ashamed of myself | -.687 | .656 | 1.343 |
| 6. | Sometimes I worry about my relationships with my friends | -.023 | 1.321 | 1.345 |
| 22. | I'm as good as other people | -1.572 | .112 | 1.684 |
| 27. | I try hard to achieve my goals | -.684 | 1.079 | 1.763 |
| 24. | I change my opinion of myself a lot | -.361 | 1.677 | 2.038 |
| 9. | Making friends is a difficult job for me | -1.716 | .482 | 2.197 |
| 4. | I believe my friends often lead me astray | -1.211 | 1.432 | 2.644 |
| 5. | I often make commitments to others that I know I cannot keep | -1.826 | .922 | 2.749 |
| 17. | I worry about losing control of my feelings | -1.674 | 1.412 | 3.086 |

The Insecure Loner is more inclined toward conformity, often yielding personal preferences in favor of the peer group norms. The Socially Connected Peer's self perceptions are highly influenced by peer group assessment, but the Insecure Loner carries the peer group influence further, to a point where personal beliefs and behavior are altered to represent those of any group willing to accept the individual. This type perceived themselves as uncommitted, on the outskirts looking in. Once membership is gained, the individual tends to over-identify with the peer faction or to disengage, unable to sustain membership due to external circumstances. One subject (136M13512) encountered in a lunchroom line after participating in the research project summarized the situation as:

"We have to eat at assigned tables with our homeroom class. It's suppose to make our homeroom class stick together, you know, friend-like. All the brains like it, they're in class juicing each other anyway. The gangbangers are all in Hardings' class and they love it, they rule it. The rest of us are wannabes or don't wannabes. . . . I put in my time, go home and get on with my friends. . . . I do with Chris or Kelly and sometimes we do with other guys, but I'm not like in demand. . . . I'm not really me except with Chris and Kelly, they are real friends, not like 'just to be cool'."

Subject (136M13512)

All of the post sort interviews conducted with participants loading on type four, Insecure Loner, contained comments like, "it is hard for me to get good grades," and "school is not really my thing," indicating that they had not experienced the individual success through the school years that typified the Task Committed type. Where the Task Committed person is successful in industry related tasks, the Insecure Loner lacks self recognized achievements or strengths. The Insecure Loner has limited concrete success experiences

before encountering the social realm where peer rejection is common and detrimental to achievement motives. The Insecure Loner type indicated that they possessed talents that they were proud of but, that these talents were not appreciated by parents, teachers, and in some cases even peers. A common theme in many responses was stated by one respondent, "I get along with my computer a lot better than I do with guys at school. If I make a mistake the IBM just tells me to try again. No real pressure to out do anybody. . . . I met a lot of my friends by having detention together. We don't do too well in school." (070M13233W). From the complete z-score array in Appendix D (Table D-4) the Insecure Loner type is revealed by item placements such as:

| Item | z-Score | Difference |
|--|---------|------------|
| I change my opinion of myself a lot. | 1.677 | 2.038 |
| I believe my friends often lead me astray. | 1.432 | 2.247 |
| I feel good about how I deal with problems. | -0.683 | -1.097 |
| I like myself. | -0.952 | -2.155 |
| Things usually turn out well for me. | -1.956 | -2.512 |
| I only hang out with people who have the same interests as I do. | -2.225 | -1.673 |

Only one item "I limit my dating to my group of friends," deviated less than ± 1.00 z-score value when compared across the four types. The lack of variance for this item is understandable since many rural 10-14 year olds do not formally date.

Middle Adolescent Cohort

The middle adolescent cohort factor solution summarized in Table 3.8 contains three factors and three types (Appendix D, Tables D-5, D-6, & D-7) since none of the factors yielded a bipolar split. There were no significant

demographic differences in gender or age (mean = 16-8 to 16-10) between the three types (Table 4.3). Type three had the fewest number of first born, the highest reported number of friends, the highest academic average, and the lowest number per capita of failing students of the three factor types. The three type solution accounted for 56.24% of the total variance and 63 of the 67 subjects (Table 4.5).

Type one accounts for 45.18% of the total variance and 49 of the 67 subjects. The extreme positions on type one's item array contained equal representation of achievement, mutuality, and identity formation items. Type one, entitled the Take Charge Idealist, perceives themselves as self confident with a self-deterministic attitude about the future. This type is interactive within the environment, finding success with self directed interests, goal setting, and peer relations in a variety of settings. The Take Charge Idealist gets along with peers but is more directed by accomplishments. Abstract thought in reasoning through situations was evident in the post sort interviews with this type. The following items highlight the Take Charge Idealist complete typical array presented in Appendix D (Table D-5).

| Item | z-Score | Difference |
|--|---------|------------|
| I am proud of the person I am. | 1.64 | 0.133 |
| I like myself. | 1.43 | 0.615 |
| I am an energetic person who does a lot of things. | 1.25 | 0.994 |
| Making friends is a difficult job for me. | -1.31 | 0.000 |
| I am often ashamed of myself. | -1.41 | -0.153 |
| I feel that I am really a loner. | -1.55 | -0.094 |

The Take Charge Idealist with a z-score range of +1.64 to -1.55, had no items with a z-score difference greater than ± 1.00 from the cohort item mean

TABLE 4.5

RE-ORDERED VARIMAX ROTATED FACTOR MATRIX
MIDDLE ADOLESCENT COHORT

| Variable | Sort | ID Code | 1 Take Charge Idealist | 2 Cautious Participant | 3 Coming of Age | Communality | Pure |
|--------------------------------------|------|------------|------------------------------|------------------------------|-----------------------|-------------|------|
| Factor Type 1 - Take Charge Idealist | | | | | | | |
| 1 | 17 | 241F16303S | .616* | .113 | .018 | .393 | .967 |
| 2 | 19 | 244M16703S | .794* | .186 | .008 | .665 | .948 |
| 3 | 23 | 263F18403S | .831* | .197 | -.069 | .734 | .941 |
| 4 | 8 | 226M16423S | .779* | .196 | .113 | .658 | .922 |
| 5 | 31 | 278F17523S | .869* | .121 | .230 | .823 | .918 |
| 6 | 21 | 257M17133S | -.667* | .231 | -.005 | .499 | .893 |
| 7 | 22 | 258F16703S | .838* | .183 | .272 | .810 | .868 |
| 8 | 38 | 300F17603S | .743* | .277 | .109 | .641 | .862 |
| 9 | 61 | 354F16313W | .672* | -.051 | .271 | .527 | .856 |
| 10 | 25 | 267F17423S | .792* | .327 | -.006 | .735 | .854 |
| 11 | 3 | 205F16303M | .681* | .287 | .094 | .555 | .836 |
| 12 | 49 | 327M17523S | .669* | .213 | .223 | .543 | .826 |
| 13 | 32 | 291F17906S | .805* | .280 | .246 | .787 | .824 |
| 14 | 20 | 250M17503S | .683* | .293 | .143 | .573 | .814 |
| 15 | 7 | 224M16103S | .711* | .125 | .319 | .624 | .811 |
| 16 | 1 | 202F18233B | .725* | .024 | .368 | .662 | .795 |
| 17 | 62 | 358F16703W | .623* | .117 | .311 | .499 | .779 |
| 18 | 14 | 233M16503S | .705* | .121 | .389 | .663 | .749 |
| 19 | 34 | 293M17786S | .643* | .010 | .373 | .553 | .748 |
| 20 | 44 | 317F18405S | .628* | .248 | .269 | .528 | .747 |
| 21 | 60 | 353M17243W | .706* | .404 | -.085 | .669 | .745 |
| 22 | 42 | 311M18203S | .709* | .395 | .164 | .685 | .733 |
| 23 | 43 | 315F17503S | .639* | .283 | .272 | .563 | .726 |
| 24 | 66 | 377F16403W | .703* | .426 | .119 | .690 | .717 |
| 25 | 28 | 274M17103S | .736* | .470 | .098 | .772 | .701 |
| 26 | 2 | 203M18635B | .623* | .393 | .115 | .555 | .698 |
| 27 | 51 | 330F17803S | .691* | .340 | .301 | .683 | .698 |
| 28 | 65 | 370M17503W | .718* | .226 | .423 | .745 | .691 |
| 29 | 52 | 333M16903S | .583* | .374 | .115 | .493 | .689 |
| 30 | 64 | 368F17005W | .751* | .126 | .502 | .832 | .678 |
| 31 | 41 | 309M18403S | .651* | .385 | .230 | .625 | .677 |
| 32 | 48 | 325M18723S | .581* | .016 | .419 | .514 | .657 |
| 33 | 37 | 298M17300S | .521* | .279 | .263 | .418 | .648 |
| 34 | 63 | 362M18363W | .557* | .198 | .360 | .478 | .648 |
| 35 | 18 | 243F16313S | -.417* | .107 | .290 | .269 | .646 |
| 36 | 59 | 350M17203W | (.664) | (.494) | .012 | .686 | .643 |
| 37 | 13 | 232F16416S | (.706) | (.510) | .152 | .782 | .637 |
| 38 | 57 | 348F17113W | (-.568) | (.429) | .024 | .508 | .636 |
| 39 | 46 | 320F18305S | (.655) | (.422) | .263 | .676 | .635 |
| 40 | 27 | 271F16603S | .623* | .350 | .318 | .612 | .634 |
| 41 | 11 | 230M17201S | .463* | .292 | .286 | .381 | .562 |
| 42 | 33 | 292F18303S | (.618) | (.549) | .013 | .684 | .559 |
| 43 | 29 | 275F17303S | .424* | -.232 | .308 | .328 | .547 |
| 44 | 50 | 328M18503S | (.569) | -.314 | (.428) | .605 | .534 |
| 45 | 54 | 336F17903S | (.645) | (.549) | .334 | .829 | .502 |

TABLE 4.5 (Continued)

RE-ORDERED VARIMAX ROTATED FACTOR MATRIX
MIDDLE ADOLESCENT COHORT

| Variable | Sort | ID Code | 1 Take Charge Idealist | 2 Cautious Participant | 3 Coming of Age | Communality | Pure |
|--------------------------------------|------|------------|------------------------------|------------------------------|-----------------------|----------------|------|
| Factor Type 1 (Continued) | | | | | | | |
| 46 | 4 | 404F16313S | (.602) | .357 | (.483) | .723 | .501 |
| 47 | 53 | 334F17601S | (.530) | (.471) | .244 | .563 | .500 |
| 48 | 9 | 227F16315S | (.477) | (.403) | .303 | .482 | .472 |
| 49 | 26 | 270F18103S | (.583) | (.543) | .326 | .741 | .458 |
| Factor Type 2 - Cautious Participant | | | | | | | |
| 50 | 36 | 296F18213S | .054 | .580* | .008 | .339 | .991 |
| 51 | 39 | 302M17023S | .090 | .673* | -.165 | .488 | .928 |
| 52 | 56 | 345M17303S | .178 | .665* | -.069 | .479 | .924 |
| 53 | 16 | 238M16003S | -.026 | .362 | .113 | .144 | .908 |
| 54 | 15 | 237M16503S | .063 | .327 | .111 | .123 | .869 |
| 55 | 5 | 219F16203S | .318 | .649* | .102 | .532 | .791 |
| 56 | 30 | 277F18423S | .375 | .640* | .011 | .550 | .744 |
| 57 | 40 | 304M18203S | -.254 | .459* | .107 | .287 | .736 |
| 58 | 67 | 378M17503W | .292 | .382 | .062 | .235 | .621 |
| 59 | 10 | 228M16503S | (.494) | (.613) | .190 | .657 | .573 |
| 60 | 58 | 349F17903W | (.449) | (.514) | .133 | .483 | .547 |
| 61 | 24 | 264F17303S | (.443) | (.591) | .373 | .685 | .510 |
| 62 | 35 | 294F17113S | (.532) | (.582) | .223 | .672 | .505 |
| 63 | 12 | 231F16403S | -.346 | .376 | .366 | .395 | .358 |
| Factor Type 3 - Coming of Age | | | | | | | |
| 64 | 6 | 223F16903S | .084 | .001 | .497* | .254 | .972 |
| 65 | 45 | 318M17893S | .108 | .121 | .732* | .562 | .953 |
| 66 | 55 | 343F17503S | .133 | .169 | .522* | .319 | .855 |
| 67 | 47 | 324M18723S | .296 | -.147 | .552* | .414 | .736 |
| Total Variance Per Factor | | | .3471 | .1373 | .0781 | Total = 0.5624 | |
| Cumulative | | | .3471 | .4843 | .5624 | | |
| Com. Var. - Per Factor | | | .6170 | .2441 | .1389 | Total = 1.0000 | |
| Cumulative | | | .6170 | .8611 | 1.0000 | | |

* Significant loading (greater than or equal to .40) are noted with an * and split loads (greater than or equal to .40 on two or more factors) are noted with ().

(grand mean). This lack of variance indicates that the subjects comprising the Take Charge type are more in unity on item placement. The other types in this factor solution contained greater variety, having items (4 and 9 respectively) differ as much as 2.6 standard deviations.

Type two, accounting for 7.1% of the total variance and consisting of 19.40% of the cohort population, reported the fewest (mean of 3.06) friends. The second factor, termed Cautious Participant represents a highly productive type that is reserve in interacting with others in the environment. The Cautious Participant typically elected to trust their own abilities and followed independent pursuits. This type is self confident in things where the control is internal (individual tasks). External control issues, especially in social situations, see the Cautious Participant holding back and withdrawing from an active role. On initial inspection of this type it appears to consist of a "loner" attitude which is deceptive. The Cautious Participant type tend to self exclude initially, but given time to observe and analyze the situation, their inclination is to enter a group and slowly return to an active role. The Cautious Participant type is more pessimistic than the Take Charge Idealist, type one, and seems to have a hard time dealing with balancing multiple tasks (maintaining friendships, obtaining goals, etc.) that involve abstract external relationships. The data for the Cautious Participant type is presented in a complete item array in Appendix D (Table D-6) and includes:

| Item | z-Score | Difference |
|---------------------------------|---------|------------|
| I'm a hard worker. | 1.58 | 0.342 |
| I try hard to achieve my goals. | 1.52 | 0.111 |

| | | |
|--|-------|--------|
| I really believe in my abilities. | 1.21 | 0.000 |
| I often feel like an outsider. | 1.16 | 1.880 |
| Making friends is a difficult job for me. | 0.98 | 2.295 |
| I feel that I am really a loner. | 0.39 | 1.854 |
| I am well known among my peers for what I do. | -1.34 | -1.788 |
| I don't get much done. | -1.43 | -0.561 |
| I often make commitments to others that I know I cannot keep. | -1.52 | -0.000 |
| I don't get things finished. | -1.70 | -0.635 |

The Cautious Participant differs from the other types in this cohort on items that deal with making friends, being a loner, and feeling like an outsider. The Cautious Participant is inexperienced in interpersonal skills compared to the Take Charge Idealist, and is building on a solid self perceived success ratio of achievements.

Type three representing 6% of the cohort accounts for 3.98% of the total variance. This type demographically reports high academic achievements, the highest mean number of friends, a gender ratio of 60% female to 40% male, and contains the fewest first born of the cohort. The subjects defining type three were self reported to have the highest percentage of working participants, averaging 22 hours a week on the job.

Type three named, Coming of Age, is represented by a less self assured but responsible individual. This type makes concerted effort to organize and accomplish things but these efforts are often met with disappointing results from a personal point of view. The relationship between internal control factors (interest and effort) and end product success rates are increasingly affected by external forces as the Coming of Age type redefines personal boundaries. External influences such as peers, family, and situational factors that have

previously been a guiding influence are now causing intrapersonal doubts as the Coming of Age type begins to yield to personal preferences. The number of friends noted with this type, like the Take Charge Idealist, is perceived to be numerous (mean = 6.6). The Take Charge type perceives friends to be more generic, having a focus on meeting external and cooperative needs; pulling together like a team where there is a common focus that encourages participation. The Coming of Age type, focuses more on intrapersonal needs (Sullivan called chumship), where friends and peer groups are being selected for personal fulfillment. The Coming of Age type is uncertain or confused about what role to fulfill as the transition is made from peer driven decisions toward individuality. This type is aware of an incongruence between personal preference and what brings success from peers, raising the degree of self-doubt. The Coming of Age type is reflective and conscious of other's feelings. The complete item array for the Coming of Age type is presented in Appendix D (Table D-7) and highlighted below:

| Item | z-Score Difference | |
|---|--------------------|--------|
| I change my opinion of myself a lot. | 2.13 | 2.607 |
| I often feel mixed up. | 1.60 | 1.586 |
| I can't seem to make sense of my life. | 1.33 | 2.067 |
| I am proud of the person I am. | 0.41 | -1.097 |
| I am often ashamed of myself. | 0.08 | 1.335 |
| I'm a hard worker. | -0.38 | -1.652 |
| I try hard to achieve my goals. | -0.53 | -1.717 |
| I stick with things until they're finished. | -0.65 | -1.401 |
| I feel that I am really a loner. | -1.46 | 0.000 |
| I wish I had more friends. | -1.69 | -0.948 |
| Making friends is a difficult job for me. | -1.92 | -0.608 |

Post interviews with representatives of this type were characterized by

an eagerness to participate, but their responses were vague and non-personal. Participant (318M17893S), with a factor load of .732 (communality=.562; pure to type=.953) was the most significant (factor weight=1.579) in defining the type. When asked to recall his thoughts in deciding placement of various items on the form board, he made statements like, "I don't know, it just seemed to fit best there," and "I moved that one several times but it really fit there today. Last week it would have been here (lower). . ." This type is represented by the smallest number of participants but was free of split loadings with other factors.

The three, middle adolescence factor types had consensus or unity on 17 items. The consensus items differed by less than ± 1 standard deviation (Table D-10) from the other types. From the content and relative position of the items, this cohort as a whole tries to please others, takes pride in accomplishments, gets along with peers, is egocentric, and concentrates on their abilities.

Late Adolescent Cohort

The accepted factor solution for the late adolescent cohort consisted of two factors accounting for 63.14% of the total variance and 98.5% of the subjects (Table 4.1). The defining participants for both factors were consistent (36% male, 64% female and 25% male, 75% female) with the overall gender split (31% male, 69% female) for the cohort. Demographically, 93% of the people defining this cohort were enrolled in some form of a post secondary education program (vocational training, technical training, or college), raising the academic average of this age group.

Type one, proportionally representing the factor central to 57 subjects or 86.57% of the cohort, perceives themselves as being self reliant individuals (Table 4.6). Type one of this cohort is confident, has a high self esteem, and maintains a positive outlook (Appendix D, Table D-8). This type, entitled Independent Self, has defined personal preferences and is actively refining and/or pursuing them. In the post sort interviews phrases like, "I like to take charge . . ." and "being the leader," were frequently recorded. The Independent Self type perceived themselves as having good peer relations, but were more focused on individual preferences in making decisions, although the effect on others was a consideration. Q sort items that were significant in describing the Independent Self type included:

| Item | z-Score | Difference |
|----------------------------------|---------|------------|
| I like myself. | 1.61 | 1.296 |
| I am proud of the person I am. | 1.55 | 1.793 |
| I try hard to achieve my goals. | 1.40 | -0.303 |
| I feel that I am really a loner. | -1.31 | -1.898 |
| I am often ashamed of myself. | -1.56 | -1.807 |

The Independent Self type gave the impression that their purpose in life was clear and that successful progress was being made in achieving their goals. Type two, noted as Insecure Associate, also described themselves as having a purpose but, where the Independent Self type was framed more in future terms, the Insecure Associate type was more oriented to the present time. The Insecure Associate type was more inclined to doubt their own efforts, seeking validation from select peers or content directed groups. The Insecure Associate type was more likely to describe themselves as a loner when

TABLE 4.6

RE-ORDERED VARIMAX ROTATED FACTOR MATRIX
LATE ADOLESCENT YEAR COHORT

| Variable | Sort | ID Code | 1 Independent Self | 2 Insecure Associate | Communality | Pure |
|----------------------------------|------|------------|--------------------------|----------------------------|-------------|-------|
| Factor Type 1 - Independent Self | | | | | | |
| 1 | 5 | 584M20401S | .683* | -.013 | .467 | 1.000 |
| 2 | 52 | 457M21123S | .652* | .045 | .427 | .995 |
| 3 | 2 | 595M22503S | .883* | -.062 | .783 | .995 |
| 4 | 57 | 444M24403S | .810* | .109 | .668 | .982 |
| 5 | 62 | 433F21903S | .853* | .117 | .741 | .982 |
| 6 | 27 | 520M22903S | .850* | -.125 | .738 | .979 |
| 7 | 61 | 437F21403S | .763* | .136 | .601 | .969 |
| 8 | 35 | 498M20903S | .830* | .230 | .742 | .928 |
| 9 | 6 | 577M20901S | .790* | .241 | .682 | .915 |
| 10 | 49 | 463F20603S | .840* | .265 | .776 | .909 |
| 11 | 25 | 522F21903S | .835* | .275 | .773 | .902 |
| 12 | 29 | 514F22332S | .663* | .221 | .489 | .900 |
| 13 | 38 | 492M23903S | .342 | -.114 | .130 | .900 |
| 14 | 15 | 556F28901S | .670* | .225 | .499 | .899 |
| 15 | 44 | 475F20901S | .805* | .290 | .733 | .885 |
| 16 | 23 | 528F20602S | .821* | .313 | .771 | .873 |
| 17 | 46 | 473F29913S | .819* | .314 | .765 | .871 |
| 18 | 45 | 474M27202S | .722* | .291 | .606 | .860 |
| 19 | 50 | 462F22701S | .781* | .323 | .714 | .854 |
| 20 | 48 | 464M21301S | .801* | .337 | .754 | .850 |
| 21 | 41 | 480M19601S | .733* | .315 | .637 | .844 |
| 22 | 13 | 562F35501S | .676* | .292 | .542 | .843 |
| 23 | 54 | 450F22501S | .785* | .362 | .747 | .825 |
| 24 | 53 | 451F20403S | .779* | .364 | .740 | .821 |
| 25 | 12 | 566F21601S | .783* | .371 | .750 | .816 |
| 26 | 1 | 599F32203S | .790* | .375 | .765 | .816 |
| 27 | 64 | 427F21402S | .745* | .359 | .684 | .812 |
| 28 | 10 | 573M24301S | .754* | .368 | .704 | .807 |
| 29 | 47 | 466F21301S | .753* | .371 | .705 | .805 |
| 30 | 17 | 549M22901S | .761* | .375 | .720 | .805 |
| 31 | 16 | 552M22901S | .765* | .377 | .727 | .805 |
| 32 | 24 | 525M22513S | .714* | .360 | .640 | .798 |
| 33 | 28 | 518F20531S | .761* | .384 | .727 | .797 |
| 34 | 60 | 439F21403S | .604* | .307 | .459 | .794 |
| 35 | 51 | 459M26503S | .570* | .291 | .410 | .793 |
| 36 | 65 | 572M21352X | .713* | .365 | .641 | .792 |
| 37 | 63 | 428F22301S | .676* | .347 | .577 | .791 |
| 38 | 58 | 442F21501S | (.784) | (.412) | .784 | .784 |
| 39 | 55 | 448F21833S | (.771) | (.406) | .759 | .783 |
| 40 | 31 | 512F20542S | .743* | .399 | .711 | .777 |
| 41 | 66 | 488F19403K | (.747) | (.405) | .722 | .773 |
| 42 | 43 | 476F21901S | (.785) | (.447) | .817 | .755 |
| 43 | 19 | 540F22601S | (.746) | (.425) | .737 | .754 |
| 44 | 3 | 594F20601S | .644* | .369 | .551 | .753 |
| 45 | 42 | 478M19601S | (.734) | (.427) | .720 | .747 |

TABLE 4.6 (Continued)

RE-ORDERED VARIMAX ROTATED FACTOR MATRIX
LATE ADOLESCENT COHORT

| Variable | Sort | ID Code | 1 Independent Self | 2 Insecure Associate | Communality | Pure |
|------------------------------------|------|------------|--------------------------|----------------------------|---------------|------|
| Factor Type 1 (Continued) | | | | | | |
| 46 | 22 | 529F21401S | (.707) | (.414) | .672 | .745 |
| 47 | 59 | 441F21501S | (.712) | (.440) | .700 | .723 |
| 48 | 36 | 494F22302S | (.731) | (.453) | .740 | .722 |
| 49 | 40 | 487F21603S | .575* | .376 | .472 | .701 |
| 50 | 4 | 592F35951S | (.638) | (.440) | .601 | .678 |
| 51 | 26 | 521F22802S | (.687) | (.515) | .738 | .641 |
| 52 | 9 | 574M23903S | (.640) | (.519) | .680 | .603 |
| 53 | 39 | 491F34501S | (.478) | (.418) | .403 | .567 |
| 54 | 20 | 539F40801S | (.678) | (.626) | .852 | .540 |
| 55 | 14 | 557M30601S | (.588) | (.546) | .643 | .537 |
| 56 | 30 | 513F24781S | (.631) | (.588) | .743 | .535 |
| 57 | 33 | 501F19402S | (.495) | (.463) | .459 | .533 |
| 58 | 37 | 493M21401S | (.695) | (.660) | .919 | .526 |
| Factor Type 2 - Insecure Associate | | | | | | |
| 59 | 34 | 499F23503S | .035 | .720* | .520 | .998 |
| 60 | 32 | 508F35202S | -.049 | .499* | .251 | .991 |
| 61 | 7 | 576M22302S | .134 | .585* | .360 | .950 |
| 62 | 18 | 544F22501S | .175 | .532* | .313 | .902 |
| 63 | 11 | 571F19403S | -.247 | .487* | .298 | .795 |
| 64 | 56 | 447F20431S | .268 | .523* | .345 | .792 |
| 65 | 8 | 575F20501S | .315 | .574* | .428 | .768 |
| 66 | 21 | 531M24302S | (.420) | (.707) | .677 | .739 |
| 67 | 67 | 426M19223X | (.485) | (.644) | .650 | .638 |
| Total Variance Per Factor | | | .4680 | .1633 | Total= 0.6314 | |
| Cumulative | | | .4680 | .6314 | | |
| Com. Var. - Per Factor | | | .7413 | .2587 | Total= 1.0000 | |
| Cumulative | | | .7413 | 1.0000 | | |

* Significant loadings (greater than or equal to .40) are noted with an * and split loads (greater than or equal to .40 on two or more factors) are noted with ().

removed from their immediate context. One subject (499F23503S) summarized the loner sentiment expressed by many as:

This (school) is my whole world. I don't like to go home for weekends or on breaks, I don't really have any friends there. . . . Once my classes get started and I find out who I will be with I'm not as anxious about the new semester. . . .My friends don't change too much anymore since we are mostly taking the same classes. I don't have many friends who are not in (college of) education.

Group projects and presentations were preferred by type two where type one was more inclined to individually express their ideas and work. A complete item placement array of the Insecure Associate type is presented in Appendix D (Table D-9) from which characteristic items and z-scores include:

| Item | z-Score | Difference |
|---|---------|------------|
| I'm a hard worker. | 1.89 | 0.728 |
| I try hard to achieve my goals. | 1.70 | 0.303 |
| I believe I am a useful person to have around. | 1.45 | 0.365 |
| I change my opinion of myself a lot. | 0.32 | -1.092 |
| I often make commitments to others that I know I cannot keep. | -1.69 | -0.473 |
| I believe my friends often lead me astray. | -2.03 | -1.095 |
| I feel the biggest conflict for me is dealing with peer pressure. | -2.178 | -1.262 |

The late adolescence cohort indicated across types that they tried hard to achieve their goals, were useful to have around, did not make commitments to others that they knew they could not keep, were hard workers, and not overly conforming to friends. The 21-24 year old group had the greatest unity within the achievement related items where 11 of the 12 items were within a ± 1 standard deviation range.

The third cohort contained twenty-five consensus items that failed to deviate from the mean by ± 1.00 z-score compared to one and seventeen from early and middle adolescence cohorts respectively (Appendix D, Table D-10). The older the cohort, the greater the number of consensus items, trend is consistent with Erikson's construct that variance will diminish as a developmental crisis issue is resolved.

SECOND ORDER FACTOR ANALYSIS

The Level II, singular proposition concerning the existence of a developmental focus towards productivity, mutuality, and identity formation was addressed in the communication concourse domain sampling that resulted in the structured Q sort instrument. The Level III, induced proposition concerning how adolescents describe adolescence based on development is described by age cohort analyses from the first order and subsequently across cohorts by a second order factor analysis. The second order factor analysis utilized the results of the three first order solutions (8 factors, 9 types) as raw data in the input phase and then followed the same statistical procedures as the first order analysis. The factor solutions from the first order analyses were assigned a pile rank on a form board based on the first order typical z-score array. The form board representing each factor (Appendix D, Figure D-1) was then coded and entered as raw data input for further analysis. The correlation matrix (Table 4.7) was submitted to a principal components factor analysis with Varimax rotation.

TABLE 4.7
CORRELATION MATRIX OF FIRST ORDER FACTORS

| Cohort Factor # Type | Early | | | | Middle | | | Late | |
|----------------------------|------------------------|----------------------------|----------------------------|------------------------|------------------------------|------------------------------|-----------------------|-----------------------|----------------------------|
| | 1 Task Committed | 2 Socially Connected | 3 Progressive Leader | 4 Insecure Loner | 1 Take-Charge Idealist | 2 Cautious Participant | 3 Coming Of Age | 1 Independ Self | 2 Insecure Associate |
| Task Committed | 1.0000 | | | | | | | | |
| Socially Connected | .1011 | 1.0000 | | | | | | | |
| Progressive | .6685 | .0449 | 1.0000 | | | | | | |
| Insecure Loner | .0787 | -.5337 | -.0562 | 1.0000 | | | | | |
| Take Charge Idealist | .8427 | .1348 | .7079 | -.1067 | 1.0000 | | | | |
| Cautious Participant | .6067 | -.1404 | .6180 | .0618 | .5506 | 1.0000 | | | |
| Coming of Age | .3876 | .1966 | .2022 | -.1180 | .3820 | .2079 | 1.0000 | | |
| Independent Self | .8820 | .2191 | .7079 | -.1348 | .9607 | .5843 | .3652 | 1.0000 | |
| Insecure Associate | .5674 | -.1629 | .5449 | .0506 | .4944 | .7079 | .4157 | .5281 | 1.0000 |

The three factor rotated solution accounted for 65.92% of the total variance with eight of the nine sorts loading on one factor. Using an N=36 and a .05 probability a significant factor loading $[1.96(1/6)]$ is .326 but a minimum value of .40 was used to maintain consistency with the first order analyses (Table 4.8).

The third extracted factor has an eigenvalue less than the traditionally accepted 1.0 value of an R method analysis. However, the factor was extracted for interpretation realizing that this factor does not account for a large percentage of the total variance. The perceptions represented by this factor are representative of only 8.46 percent of the participants from the P sample, but based on information from the first order factor analysis, a significant theme is present in this second order factor. Brown (1978) states, "the significance of Q factors is not defined objectively (i.e., statistically), but theoretically in terms of the social-psychological situation to which the emergent factors are functionally related" (p.118). He also notes that the arbitrary use of the 1.0 can "frequently

result in leaving behind sizable residuals and significant factors (Brown, 1980, p. 222). Hence, a type that accounts for a relatively small percentage of the total variance can be significant in understanding the perspectives in a developmental era.

TABLE 4.8
SECOND ORDER ROTATED FACTOR SOLUTION

| Variable | Factor Loads | | | Communality | Pure | Factor Weight |
|---|---------------------|-------------|-----------------|-------------|------|---------------|
| | 1 Self Satisfied | 2 Social | 3 Productive | | | |
| Factor Type 1 (Self Satisfied Achiever) | | | | | | |
| Take Charge Idealist (C2F1) | .921* | .149 | .243 | .929 | .913 | 6.072 |
| Independent Self (C3F1) | .924* | .208 | .275 | .972 | .878 | 6.314 |
| Task Committed (C1F1) | .841* | .005 | .345 | .826 | .856 | 2.869 |
| Progressive Leader (C1F3) | .658* | .008 | .390 | .585 | .740 | 1.161 |
| Factor Type 2 (Social) | | | | | | |
| Loner (C1F4) | .015 | -.656* | -.032 | .432 | .997 | 1.153 |
| Socially Connected (C1F2) | .096 | .730* | -.093 | .551 | .967 | 1.562 |
| Factor Type 3 (Productive Friend) | | | | | | |
| Insecure Associate (C3F2) | .373 | -.126 | .747* | .714 | .782 | 1.692 |
| Cautious Participant (C2F2) | (.487) | -.180 | (.659) | .641 | .579 | .968 |
| Coming/Age (C2F3) | .226 | .268 | .394 | .283 | .566 | .477 |
| Eigenvalue | 4.31 | 1.19 | 0.43 | | | |
| Variance Explained | | | | | | |
| Total | 47.93 | 13.21 | 4.78 | | | |
| Cumulative | 47.93 | 61.14 | 65.92 | | | |

*Represents a significant load, meeting or exceeding the .40 critical level, at .05 probability level. The () indicates that the type loads significantly on two factors.

Type One: Self Satisfied Achiever

Type one, Self Satisfied Achiever, containing four significant factor loads accounting for approximately 80% of the adolescent P sample used in this study based on first order factor representations. This type accounted for 47.93% of the total variance with a typical array range of +1.80 to -1.67 z-scores.

It consists of the Task Committed and Progressive Leader types from the early adolescent cohort, the Take Charge type for the middle adolescent cohort and the Independent Self type from the late adolescent cohort. The Self Satisfied Achiever is committed to developing individual talents and strengths. The self perception is that of a strong achiever, one that takes pride in self and is socially competent in a variety of situations. The full typal array is presented in Appendix D (Table D-11).

| Item | z-Score | Difference |
|--|---------|------------|
| I am proud of the person I am. | 1.80 | .451 |
| I like myself. | 1.77 | .010 |
| I try hard to achieve my goals. | 1.49 | .141 |
| I really believe in my abilities. | 1.49 | .564 |
| I cope very well. | .68 | 1.074 |
| I often feel mixed up. | -.47 | -.920 |
| I often feel like an outsider. | -1.05 | -1.213 |
| I can't seem to make sense of my life. | -1.41 | -.760 |
| I feel that I am really a loner. | -1.67 | -.318 |
| I am often ashamed of myself. | -1.67 | -.768 |

Based on the twelve items that comprise the extreme positions of the sort, five of them are indicating strong self-esteem characteristics followed by four positive peer relation items and three achievement items. This type, by placing these stimulus items in the polarized extreme positions, is self defined as being successful in meeting needs in each of the content areas of industry, mutuality, and identity formation.

Type Two: Socially Connected Peer

Factor two consists of the Socially Connected Peer factor (positive) and

the Insecure Loner factor (negative) from the early adolescent cohort. Since the factor is 41.32% negative for interpretation purposes, the negative load was extracted, made positive, and presented below as type four. Factor two comprises approximately 6% of the P sample with type two accounting for 1.5% and type four 4.5% of the total participants.

Type two, termed Socially Connected Peer, is highly influenced by peers and other external forces in making decisions. Eight of the twelve extreme positions on the form board were associated peer mutuality issues while the other four were self esteem related. This type gains validation from the perceptions of others, allowing the peer group to set the standards for appropriate behavior. Maintaining group membership or friends is more important than achieving success in personal talent/interest areas, making this type feel insecure in their own abilities in a phenomenon that Csikszentmihalyi, Rathunde, and Whalen (1993) termed as disengaging. Type two typical array presented in Appendix D (Table D-12) is characterized by items like:

| Item | z-Score | Difference |
|---|---------|------------|
| I only hang out with people who have the same interests as I do. | 1.80 | 1.848 |
| I like myself. | 1.80 | .032 |
| I feel the biggest conflict for me is dealing with peer pressure. | 1.35 | .000 |
| I follow the code set by my friends. | 1.35 | 2.185 |
| I don't get things finished. | .90 | 1.617 |
| I try hard to achieve my goals. | -.90 | -2.249 |
| I'm a hard worker. | -.90 | -1.349 |
| I'm as good as other people. | -1.35 | -1.349 |
| Making friends is a difficult job for me. | -1.80 | -.420 |
| I often make commitments to others that I know I cannot keep. | -1.80 | -.233 |

These items and the relative placement in describing self for the Socially Connected Peer person indicates a strong preference for conforming to peer influences above the needs for individual achievement. Much of the energy that was being expended to organize objects in the physical environment has been refocused on more abstract issues. This type, in relation to type four, uses the forces of group membership and peer relations to further internal esteem, using the group to refine personal growth in contrast to type four which is more inclined to be used by the group.

Type Three: Productive Friend

Type three consists of two, first order factors representing approximately 13% of the P sample. The first order types comprising this factor are Cautious Participant from the middle adolescent cohort and the Insecure Associate type from the late adolescent cohort. Seven of the twelve extreme positions in the defining sort for type three are associated with achievement related items, four are peer related, and one esteem item. The embedded mutuality perceived by the Socially Connected Peer type from factor two is also an influential in the third type's self perception, thus entitled Productive Friend. The Productive Friend is more responsive to achievement opportunities and through these acquires acceptance by peers. Type three is comfortable with group situations as groups provide protection and anonymity, but intrapersonal friendships are a more important focus than peer groups. The Productive Friend seeks what Sullivan (1953) noted as chumships, where individual traits are appreciated on a one-to-one personal level. For the Socially Connected Peer type, drawing

attention to themselves individually is a high risk activity so, the anonymity of groups is more comfortable. The Productive Friend is achievement oriented and confident in group peer relations, but heavily reliant on specific peer friendships for social validation in defining what is acceptable. The tasks being attempted by this type are egocentrically evaluated as high-risk or low-risk based on how it will be perceived by a specific peer or group of specific peers. The Productive Friend typal array, which includes the below noted type defining items, is presented in Appendix D (Table D-13).

| Item | z-Score | Difference |
|---|---------|------------|
| I'm a hard worker. | 1.70 | .357 |
| I try hard to achieve my goals. | 1.70 | .208 |
| I'm as good as other people. | 1.58 | .735 |
| I feel that I am really a loner. | .49 | 1.389 |
| I don't get much done. | -1.50 | -.147 |
| I often make commitments to others that I know I cannot keep. | -1.58 | -.524 |
| I believe my friends often lead me astray. | -1.70 | -.348 |
| I feel the biggest conflict for me is dealing with peer pressure. | -2.02 | -1.245 |

The Productive Friend type has experienced achievement success, has been able to maintain a positive support group membership(s), and is passively or actively refining some individual interest area(s). This type is content with the present and optimistic about the future.

Type Four: Insecure Loner

Type four, a separate extraction of the bipolar solution from factor two represents approximately 4.5% of the P sample. The Insecure Loner type is

characterized by a desire to have more friends and peer involvement. This type seeks companionship passively, following and allowing others to use them, which often results in them being placed in situations that individually would not have pursued. The Insecure Loner's esteem is evaluated in terms of what the external peer group validates which is capricious at times. Six of the twelve extreme positions are occupied with peer relationship items, followed by three achievement and three esteem items. The peer relationship items indicate that making and keeping friends are difficult tasks which are compounded by low self esteem and a tendency to isolate from peer activities. The Insecure Loner type does not perceive self as being successful in peer relations or in achievement areas even though the effort level is self defined as high. The effort is present but the failure rate is high leading to personal insecurities and a less than optimistic outlook. Items from the complete typal array (Appendix D, Table D-13) that exemplify the perceptions of the Insecure Loner type include:

| Item | z-Score | Difference |
|---|---------|------------|
| I believe my friends often lead me astray. | 1.80 | 2.691 |
| I change my opinion of myself a lot. | 1.80 | 1.359 |
| Sometimes I worry about my relationships with my friends. | 1.35 | .986 |
| I feel the biggest conflict for me is dealing with peer pressure. | 1.35 | .001 |
| I worry about losing control of my feelings. | 1.35 | 1.646 |
| I try hard to achieve my goals. | 1.35 | -.144 |
| I often make commitments to others I cannot keep | .90 | 1.955 |
| I like myself. | -.90 | -1.505 |
| I am proud of the person I am. | -.90 | -1.182 |
| I hang out at locations where I know others will be. | -1.35 | -.337 |
| I don't get much done. | -1.35 | .000 |
| Things usually turn out well for me. | -1.80 | -2.269 |
| I only hang out with people who have the same interests as I do. | -1.80 | -1.312 |

Looking specifically at items that discriminate between type two (Socially Connected Peer) and type four (Insecure Loner) a major theme emerges. The polarized characteristic, as self described by each type, is related to support. The Insecure Loner lacks support avenues and finds that success is elusive and unpredictable regardless of the degree of effort exerted. The Socially Connected Peer person is supported by peers and family and finds success easy to predict, taking it almost for granted at times. The Socially Connected Peer person is optimistic, actively interacting with peers and gaining esteem, where the Insecure Loner is pessimistic, gaining esteem from following and validating others. The Insecure Loner gives in to external controls, allowing others to define interests, goals, friends, and self worth. Items that discriminate between the Socially Connected Peer and Insecure Loner types from factor two include:

| Item | z-Score Type 2 | z-Score Type 4 | Difference |
|--|-------------------|-------------------|------------|
| I only hang out with people who have the same interests as I do. | 1.80 | -1.80 | 3.598 |
| I like myself. | 1.80 | -.90 | 2.698 |
| I hang out at locations where I know others will be. | 1.35 | -1.35 | 2.698 |
| I follow the code set by my friends. | 1.35 | -1.35 | 2.698 |
| Things usually turn out well for me. | .90 | -1.80 | 2.698 |
| I am proud of the person I am. | 1.35 | -.90 | 2.249 |
| I change my opinion of myself a lot. | -.45 | 1.80 | -2.249 |
| Making friends is a difficult job for me. | -1.80 | .45 | -2.249 |
| I believe my friends often lead me astray. | -1.35 | 1.80 | -3.148 |

Second Order Factor Analysis Summary

The eight factors, nine types that emerged from a factor analysis

conducted on data from each of the three age cohorts yielded a three factor (four types) solution. The four types accounted for 65.92% of the total variance and 8 of the 9 first order types. The four second order types were summarized in terms of behavior traits (Self Satisfied Achiever, Socially Connected Peer, Productive Friend, and Insecure Loner) and are presented by item in a z-scores typal array in Table 4.9. The z-scores from the factor loadings ranged from +1.80 to -1.67 for factor one, +1.80 to -1.80 for factor two (types two and four), and +1.70 to -2.02 for factor three. The second order solution produced only two consensus items that deviated less than ± 1.00 z-score from the grand mean. The consensus items are:

| Item | Average z-Score |
|---|-----------------|
| I am well known among my peers for what I do. | -.09 |
| I limit my dating to my group of friends. | -.43 |

The correlation coefficient matrix of the second order types (Table 4.10) shows the high correlation between type one (Self Satisfied Achiever) and type three (Productive Friend), and the inverse relationship between the two types (Socially Connected Peer and Insecure Loner) from factor two. It is also interesting to note the relative strength of the between factor correlations is suggestive of a pattern commonly found in hierarchial relationships.

TABLE 4.9
SECOND ORDER FACTOR SOLUTION
TYPAL Z-SCORE ARRAY

| Item # | Item Description | Type 1* | Type 2* | Type 3* | Type 4* |
|--------|--|---------|---------|---------|---------|
| | | N=4 | N=1 | N=3 | N=1 |
| 1. | I limit my dating to my group of friends | -0.2 | -0.4 | -0.6 | -0.4 |
| 2. | I often feel like an outsider | -1.0 | 0.4 | 0.2 | 0.9 |
| 3. | I feel that I am really a loner | -1.7 | -1.3 | 0.5 | -0.9 |
| 4. | I believe my friends often lead me astray | -0.9 | -1.3 | -1.7 | 1.8 |
| 5. | I often make commitments to others that I know I cannot keep | -1.1 | -1.8 | -1.6 | 0.9 |
| 6. | Sometimes I worry about my relationships with my friends | 0.0 | 0.0 | 0.4 | 1.3 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -0.8 | 1.3 | -2.0 | 1.3 |
| 8. | I wish I had more friends | -0.2 | 0.4 | -0.3 | 0.9 |
| 9. | Making friends is a difficult job for me | -1.4 | -1.8 | -0.6 | 0.4 |
| 10. | I hang out at locations where I know others will be | -0.1 | 1.3 | -1.0 | -1.3 |
| 11. | I only hang out with people who have the same interests as I do | -0.0 | 1.8 | -0.5 | -1.8 |
| 12. | I follow the code set by my friends | -0.8 | 1.3 | -1.5 | -1.3 |
| 13. | I cope very well | 0.7 | -0.4 | -0.4 | -0.4 |
| 14. | I like myself | 1.8 | 1.8 | 0.6 | -0.9 |
| 15. | I believe I've got my life together | 1.1 | 0.0 | 0.2 | -0.4 |
| 16. | I often feel mixed up | -0.5 | 0.4 | 0.6 | 0.4 |
| 17. | I worry about losing control of my feelings | -0.3 | -1.3 | -0.4 | 1.3 |
| 18. | I can't seem to make sense of my life | -1.4 | 0.4 | -0.7 | 0.0 |
| 19. | Things usually turn out well for me | 0.5 | 0.9 | 0.8 | -1.8 |
| 20. | I am often ashamed of myself | -1.7 | -0.9 | -0.3 | 0.4 |
| 21. | I am proud of the person I am | 1.8 | 1.3 | 0.3 | -0.9 |
| 22. | I'm as good as other people | 0.8 | -1.3 | 1.6 | 0.0 |
| 23. | I don't really know what I'm all about | -1.2 | 0.9 | -0.3 | -0.9 |
| 24. | I change my opinion of myself a lot | -0.5 | -0.4 | 0.4 | 1.8 |
| 25. | I'm a hard worker | 1.3 | -0.9 | 1.7 | 0.4 |
| 26. | I believe I am a useful person to have around | 0.7 | 0.0 | 1.2 | -0.4 |
| 27. | I try hard to achieve my goals | 1.5 | -0.9 | 1.7 | 1.3 |
| 28. | I'm good at the things I try to do | 1.0 | -0.9 | 1.0 | 0.0 |
| 29. | I stick with things until they're finished | 0.5 | 0.9 | 1.1 | 0.0 |
| 30. | I really believe in my abilities | 1.5 | 0.0 | 0.9 | 0.0 |
| 31. | I don't get things finished | -0.7 | 0.9 | -1.4 | -1.3 |
| 32. | I am well known among my peers for what I do | 0.0 | -0.4 | -0.4 | 0.4 |
| 33. | I like finding out about anything new | 0.7 | 0.0 | 1.1 | 0.0 |
| 34. | I'm an energetic person who does a lot of things | 1.0 | -0.4 | -0.2 | 0.9 |
| 35. | I feel good about how I deal with problems | 0.4 | 0.4 | 1.1 | -0.4 |
| 36. | I don't get much done | -1.0 | 0.0 | -1.5 | -1.3 |

*Type 1 = Self Satisfied Achiever, Type 2 = Socially Connected Peer, Type 3 = Productive Friend, and Type 4 = Insecure Loner.

TABLE 4.10

CORRELATIONS BETWEEN SECOND ORDER TYPES

| | Self Satisfied Achiever | Socially Connected | Productive Friend | Insecure Loner |
|-------------------------|----------------------------|-----------------------|----------------------|-------------------|
| Self Satisfied Achiever | 1.000 | | | |
| Socially Connected Peer | .162 | 1.000 | | |
| Productive Friend | .631 | -.118 | 1.000 | |
| Insecure Loner | -.085 | -.534 | .033 | 1.000 |

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to describe adolescent perceptions based on development. Participants, selected to chronologically represent early, middle, and late adolescence, provided self reflecting data concerning theory based developmental tasks. Q methodology was the research strategy selected for discovering the emerging perceptions concerning the developmental era. Erikson's (1950) developmental theory provided a base structure for early and late adolescence to which a middle construct, hypothesized by Kegan (1982), concerning affiliation with peers was added. Items from Rosenthal, Gruney, and Moore's (1981) Erikson Psychosocial Inventory were adapted for Q sort use to represent the upper and lower bounds of the developmental era. The mutuality items were taken from individual and group interviews with age appropriate adolescents.

Participants from three age cohorts performed Q sorts consisting of statements structured around three developmental constructs (achievement, mutuality, and identity) which were framed in language consistent with the participant's functional environment. The Q sort data were correlated, subjected to principal component factor analysis followed by Varimax rotation and then z-score standardized into factor arrays using the QUANAL (Van

Tubergen, 1980) program for the personal computer. The resulting 8 factor, 9 type array of the first order analysis was submitted to a second order factor analysis. A three factor array with four types emerged from the second order analysis to provide descriptions of developmental crises perceived during the adolescent era. The factor descriptions for each cohort and across the cohorts are summarized below.

Research Propositions

The goal of this research is to describe the adolescent experience from the adolescent's perspective. By completing the research instrument the subject is sharing a personal point of view, operationalized by response, which may or may not be predictable. The self referent descriptive goal of this research does not lend its self to the traditional confirmatory, hypothesis testing strategies since the results are not predictable. Three levels of research propositions, which represent the problem under investigation and the predictions that can be made are used in lieu of hypothesis.

The Level I, general proposition under investigation in this study concerned the communication concourse of all possible descriptive statements relevant to adolescent development. A review of the literature combined with field interviews suggested three content areas with developmental focal points during the adolescent years. Level II, singular propositions concerning the nature of adolescent productivity, interpersonal mutuality, and intrapersonal identity development provided a structured Q sampling of the communication concourse yielded representative statements as they contextually related to the

adolescent domain. A Q sort instrument was constructed and completed by subjects selected to represent early, middle, and late adolescence cohorts in an effort to answer the question of how adolescents describe adolescence based on development.

Data from each developmental cohort in the adolescent domain were analyzed separately to provide descriptions of how development was perceived at each of the three cohort levels in partial answer to the induced proposition before being subjected to a second order factor analysis.

Early Adolescent Cohort

The early cohort contained the most diverse population in terms of self reported academic abilities and demographics such as age and ethnicity. Four types emerged from the 10-14 age group. The first type described themselves as highly committed to task achievement and meeting their concrete goals. The Task Committed type described self worth in terms of accomplishments, which were generally related to school success, family characteristics, and possessions. The Progressive Leader also related self-esteem to accomplishments and while the two types share many descriptive features they are characteristically different. The Task Committed Worker perceives the environment (social and physical) as an object to work on, where the Progressive Leader defines their role as being interactive with the environment. The self descriptions of these two types are characteristically similar to the descriptions Piaget observed and noted as concrete operational and early formal operational levels of cognitive development. The Progressive Leader

recognizes and manipulates abstract relationships and focuses on divergent exploratory extremes in describing self.

The other two types in this cohort represent a bipolar factor that is highly peer influenced. One pole, the Socially Connected type, seeks out peer interaction, finding peer situations to be comfortable and personally productive. The Insecure Loner is uncomfortable in social situations, has a lower esteem level, is more self critical, and is more likely to follow others or become isolated instead of being assertive and risking a confrontation.

The early cohort is the only age to have a factor emerge that is so heavily influenced by peer and social perceptions. The middle and late adolescent cohorts each describe social influences as being an integral part of achievement or self, which is theoretically consistent with Erikson's belief that each developmental crisis is subsumed and integrated into the resolution of higher stages. The Insecure Loner pole of the social factor is inclined to conform to peer demands and exhibits lower self worth in academic achievement. The Insecure Loner perception is common in many school dropouts and may not be present in the older cohorts as a function of the participant selection being restricted to academic settings.

Affiliation related self perceptions are found in the early teen years during the end of the early adolescent period from which point peer relations become an integrated part of further defining self. The adolescents emphasis on mutuality diminished as the adolescents chronologically advanced, although all emergent factors past early adolescence consisted of at least 25% mutuality related content in the extreme positions.

Middle Adolescent Cohort

The middle cohort resulted in three factor types. The first type, Take Charge Idealist, is hard working, socially content, self assured, and inclined to be independent. This type is more likely to openly make mistakes which are an accepted part of independence and achieving goals. The second type, Cautious Participant, is like the Take Charge Idealist in work ethic and goal directed behavior, but the Cautious Participant is less independent and more socially self conscious. The Cautious Participant is more influenced in decision making by what others think or will think, leading this type to often feel like an outsider. Given time and experience, the Cautious Participant, does engage in achievement and social type situations. The third type, Coming of Age, is competent in social situations, content with the number and quality of peer relations, but is less self confident. The Coming of Age person is less achievement oriented, not so much from a lack of drive, but more from poorly defined personal interests on which to focus. This type is insecure, reflective, and exploratory as self opinion changes and personal sense of purpose forms. The Coming of Age person is developmentally the most advanced according to Erikson's template.

The Take Charge Idealist and the Coming of Age's self descriptions contain traits Erikson associated with the identity vs identity diffusion crisis. The Coming of Age person exhibits more of what Piaget noted as formal operational or abstract thinking where the Take Charge Idealist is cognitively concrete operational and rule bound. The Take Charge Idealist and Coming of

Age types are less peer influenced than the Cautious Participant type who is industrious yet egocentric in their perceptions.

Late Adolescent Cohort

The late adolescent cohort yielded two types. The first type, Independent Self, has a positive outlook, a high esteem level, is confident, goal directed, and oriented towards the future. This type is highly self descriptive of Erikson's identity resolved person. Following Erikson's hierarchical stage design the participants from this factor have reached a ceiling (evidenced by the reduced variability and greater unity in consensus items) since content from the next stage, intimacy, was not included in the Q sampling.

The second type, Insecure Associate, is a hard worker, persistent, gets along well with peers, and is directed toward meeting the demands of the present time. The Independent Self is more self reliant and intrapersonally confident, where the Insecure Associate relies more heavily on peer relations to validate and accomplish goals. The heavy reliance on peer validation and conformity may result from participant restriction of range. Since the majority of the participants in the late cohort were enrolled in post secondary programs, their descriptions of development may differ from that found in the general population. Academic programs generally value high production levels and conformity which may artificially hinder epigenetic development towards affiliation and self due to structure of the situation. This may explain why the Insecure Associate is more likely to be confronted with feelings of being alone and uncertain without being able to specify the reason(s) for such feelings.

These two types reflect many of the same perceptions but the etiology appears to be dramatically different. The Insecure Associate changes their opinion of self due to peer influences while the Independent Self is exploring skills and interests. The Insecure Associate tries to achieve their goals at a concrete level and are generally reinforced by the peer group for accomplishments where the Independent Self is directed by an intrinsic desire to accomplish something that is of interest. The Insecure Associate is developmentally behind the Independent Self in cognitive problem solving strategies and environmental experiences.

Adolescent Era

Responding further to the Level III, induced proposition's query as to how adolescents would describe adolescence based on development, the 8 factors, 9 types from the above cohorts were entered into a second order factor analysis. The across cohort solution produced 3 factors, 4 types. The first, Self-Satisfied Achiever, takes pride in accomplishments, is confident in abilities, gets along with peers in social situations, and has a sense of self purpose. The Self Satisfied Achiever typically has a good self image and is not threatened by a challenging situation. The second, Socially Connected Peer, is influenced by others and much more likely to make decisions based on external influences. The Socially Connected peer finds security and validation in peer associations and is more likely to passively follow the peer groups' lead, where the Self-Satisfied Achiever is more likely to actively follow individual interests. The third type, Productive Friend, is a hard worker that achieves at a high level and is

socially competent with peer groups. However, this type responds more to certain specific interindividual friendships than to peer pressure in general. The Productive Friend perceives things egocentrically and makes decisions based on how it will be perceived by certain significant others. Maintaining chumships with a few significant peers is a major goal and, since exhibiting individual talent might affect friendship acceptance, the Productive Friend adjusts the self performance criteria to maintain a balance.

The fourth type, Insecure Loner, has a low esteem level and a more pessimistic outlook. The Insecure Loner is not perceived as being successful in peer relations or in achievement areas even though the effort level is self defined as high. This type is likely to follow along and be used by peer groups, gaining little personal benefit from the interaction. The Insecure Loner and the Socially Connected Peer are unsuccessful and successful representations of the same factor.

The across adolescent era factor structure produced three factors of which the second, a bipolar factor, directly addresses mutuality. The Socially Connected Peer and Insecure Loner, which emerged from the second factor are egocentric and their behavior is highly influenced by peer perceptions. The Socially Connected Peer type defines self intrapersonally by interacting with peers and gaining personally from the interactions, while the Insecure Loner type is more likely to interpersonally define self by what peer association is maintained. The Insecure Loner gives to the group, but intrapersonally does not gain much from the association. Both of the types on this factor are at high risk for academic failure since the peer affiliation is more important than

productive academic achievement. The Insecure Loner is more likely to dropout of school since they are not being successful academically or socially and the advantages of attending school are out weighed by the adversities.

Discussion

The Level II singular proposition, based on the adolescent developmental literature, suggested that a theoretical focus during the adolescent years if focused towards three constructs; productivity, interpersonal mutuality, and intrapersonal identity formation: Based on this structure the Level III induced results adolescent participants do indeed describe themselves as having a contextual focus towards productivity, peer mutuality, and individualized identity formation. These constructs are described as being an integral part in the adolescent process but are only partially able to explain the developmental dynamics.

The cohort level results were consistent in producing a first factor that was characterized by a production or achievement orientation. The differences in the age cohort descriptions across these factors centered around two elements; cognition and integration. First, the degree of cognitive abstract reasoning associated with a stimulus statement increased with the age of the cohort. And second, the degree that social and intrapersonal statements were integrated into the productive self description also increased with age. The social and individualized statements became integrated with the achievement statements in describing self, which is consistent with the hierarchial, interactional structure described by Erikson.

The young adolescent cohort produced a factor (bipolar) of participants that directly described themselves as being oriented towards mutuality. The Socially Connected and Insecure Loner, which described themselves with peer related perceptual statements and contextual issues were highly influenced by peer relations and adjusted behavior, self perceptions and attitudes accordingly.

The middle adolescence cohort had no one factor that directly focused on mutuality, but instead peer perceptions permeated the self descriptions of two of the three factor types. The Take Charge Idealist was balanced in self defining content between achievement, mutuality, and individuality. The Take Charge Idealist perceived self as being an interactive product of peers, personal preferences, and talent. The Coming of Age participants also described a strong mutuality awareness. They were comfortable with peer relations, but there was a focused perception separate from peers, on individuality present for the Coming of Age type.

From the late adolescent cohort, Independent Self and Insecure Associate both perceived peer relations as an intricate part in defining self, although neither factor directly describes mutuality as the main focus. Achievement is also common to both with the Insecure Associate type being more concrete in cognitive operations and conforming to peer group influences. The Independent Self participants are more cognitively abstract and perceived self in terms of individuality.

Reviewing the cohort level data an intuitive sense of order or a structural hierarchy seems to emerge. A flow from an achievement orientation, based on concrete object manipulation at the early cohort level, to an achievement

directive that is more abstract and includes concrete as well as social variables is evidenced. Erikson's belief that the resolution of earlier stages can hinder or facilitate development at later stages is supported by the findings from this research in that the Singular Proposition content is clearly integrated within each factor. There is a strong correlation between the degree of contextual integration and age, but from other indices age may better be defined as experience. Human development theoretically (Piaget, 1936/1954; Erikson, 1968) consists of biological maturation, cognitive organizational structures, and experiences with the environment, three variables that in today's post-modern society are perhaps varying to greater degrees than ever before. Thus, the stage characteristics noted by Erikson are being spread out over greater periods due to a lack of developmental unity. One thing is clear, the developmental needs as described by the factors in this study are not being met for a great number of adolescents.

The second order factors suggest that three contextual orientations are used by adolescents in describing their adolescent developmental experience. The three factor types are theoretically compatible with Erikson's (industry vs inferiority and identity vs identity diffusion stages) and Kegan's (affiliation vs abandonment) stage notations. And while there does appear to be a hierarchical relationship between the factors the nature of that relationship is not clear. The theory base provided by Erikson's adolescent stages even with the addition of Kegan's suggested mutuality stage only partially provide an explanation of the dynamics represented in the adolescent self descriptive factors that emerged from this research.

Limitations

The theoretically derived typal arrays that emerged from the factor analysis of the adolescent developmental period are not normative data. The item stimulus selection was not exhaustive or even representative of the full range of adolescent perceptions. The items were a sampling considered to be representative of three theoretical constructs from the adolescent domain. The possibility of additional stages are not discounted by the developmental structure presented in this study. The use of the developmental types defined in this study are self perceptions related to the participants' lives and developmental experiences which make generalization of these findings to dissimilar adolescents inappropriate.

The quantity and age of subjects used in this study (N=600) constricted the quality, depth, and quantity of the post sort interviews. Post sort interviews were only conducted with approximately 20% of the participants which limited investigative comprehension in interpreting the factors. The importance of the post interview process can be exemplified by reviewing item 27, "I try hard to achieve my goals," across three respondents from the middle adolescence group. Subject (337M17523), Take Charge type, stated "I raise my own calves and sell them every fall. I have to figure out how to get the most (profit) out of each one, when to sell, and all that. I'm good at figuring out problems like that, so I put it here (pile 8)." Subject (340M18203), Cautious type when asked about the placement of item 35 (pile 7), responded, "Well, I do try to make good grades. . . . It is important to my mom that I go to college." The third

participant (343F17503), Coming of Age type responded, "I don't really know what I want to be yet, so, I don't have any real goal." She placed item 35 in pile 5, neutral. The researcher gained data from these interviews concerning the cognitive (concrete or formal) process and influences (internal desires and environmental pressures) that led to the item placement in each of these three people. When combined with information from all or at least several other type representative subjects, the interpretative conclusions for each type, as well as between types, are more replete.

The subjects for this study were selected by specific age groups that theoretically centered on the end of a developmental age or crisis. This was done as the characteristics that mark the end of a stage, theoretically, are converging toward an end goal. For research purposes dividing the adolescent years into three age clusters facilitated stage identification, but the lack of equal representation throughout the adolescent era limits the findings to stage tasks at three points in the developmental cycle. The intervening years are not represented and a clear conception of the transitional periods between stages is unclear for the current study.

Recommendations

Further research is needed into how the mutuality factor impacts the young adult stage (Intimacy vs Isolation) of Erikson's developmental theory. Erikson indicated that resolution of crisis at one stage will impact the degree of successful resolution encountered at a later stage. He also noted that less than ideal resolutions can be reworked at a later time and enhanced, thus impacting

the quality of the crisis resolution of subsequent stages. The implications for both positive and negative mutuality stage resolution's impact on Erikson's Intimacy vs Isolation stage might provide insight into factors leading to marital distress with young adults and further explore the theoretical concepts of Erikson's eight stages.

The impact that an adolescent mutuality crisis has on specific samples such as street gang members, school dropouts, career criminals, etc. may provide insight into breaking the self-destructive cycle that many adolescents describe as controlling them. The inclusion of more than one condition of instruction (Most Like You In School, Most Like You At Home, Most Like The Ideal You, etc.) for these restricted samples would provide insight into behavioral changes that are associated with different affiliations within the environment. Understanding the situation from the youth's perspective and comprehending the benefits obtained from these behaviors will provide a beginning point for effective intervention strategies. Q methodology provides a way of discovering both individual perceptions and perceptual patterns within a group, providing a dual benefit in designing intervention strategies.

The further exploration of the theoretical crisis associated with the adolescent developmental era should be investigated. By selecting a smaller sample size that collectively represents the full spectrum of adolescence and utilization of a full set of Q sort items selected from a naturally, emically derived concourse, perceptions of developmental tasks as well as relationships during the transitional periods would be revealed.

Conclusion

The adolescents of today find they are the subject of movements for educational reform, juvenile justice measures, service programs, and much more. The measures that are being taken often lack a consistent theoretical focus and are short lived, creating a succession of new, then discarded and then recycled programs. The public and patrons of many programs are becoming callused to the endless procession of reforms.

Through understanding of the developmental needs, plans can be formulated to promote and foster the epigenetic drive towards fulfillment in a socially beneficial way instead of impeding development. The epigenetic needs will be fulfilled and if there is no socially acceptable way then these needs will be met through socially unacceptable means. Adolescent development can be likened to a plant that is placed in a Skinnerian type box. It will continue to grow, winding around the blocks towards the light, unless the maze becomes too constricting. The resulting plant is less than an ideal specimen, often malformed, and production will most assuredly be reduced. The goal of this research is to identify the natural needs of adolescents. Through understanding the developmental needs of the adolescent, society can begin to offer interventions that reduce the maze, capitalize on inherent drives, and foster hope.

The relevance of the stages under review in this study provide a structure for facilitating adolescent development. First, productivity points out the importance of providing an environment where each person can explore

and discover natural talents, inclinations, and interests. Through guided practice the adolescent develops into a confident achiever and a productive member of the culture. Social affiliation promotes individuals to try out skills acquired in the Industry exploration and to seek positions within a peer structure. Providing an environment that allows peers to develop these social skills and expand the application of their personal Industry talents while still providing authoritative guidance is vital to facilitating natural, healthy development. An intrapersonal identity is formed from discovering and refining talents through the apprenticeship and peer affiliation experiences.

The social assistance organizations, schools, correctional programs, etc. will find this research has important implications in defining the methods employed in retaining at-risk adolescents. Punitive measures do not meet epigenetic drives, only incite the adolescent to deviate around another block in meeting a need. An epigenetic need requires authoritative guidance that diminishes over time and the removal of impediments. The topics that this research suggest as currently overlooked as growth opportunities include; human errors, the social implications of structured settings, modeling, and self directed goal setting. The ability to define the epigenetic drives will also define the mission of organizations that deal with the adolescent populations as well as childcare and parenting practices.

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APPENDIXES

APPENDIX A

RESEARCH FORMS AND INSTITUTIONAL REVIEW

BOARD DOCUMENTATION

Oklahoma State University
ABSED GRADUATE STUDY
YOUTH CONSENT FORM

I _____, have been asked by Keith Salyer, or his co-worker to be part of a research project. Taking part in this project will include the following:

1. I will be asked to supply basic information (age, gender, number of brothers/sisters, etc.) about myself, but my name will **not** be used in anyway.
2. I will be given a Q-Sort to complete by reading each of the 36 item cards and placing them in order on a form board by how they describe me.
3. I will complete a survey by reading each of the 83 items and marking whether I agree, disagree, or are undecided about each statement.
4. It is very important that I follow the directions and complete the items honestly. If I have any questions I **will** ask the researcher for help.
5. I may volunteer to take part in a follow-up, one-on-one interview with a researcher that will take about 20 minutes. I realize that by being part of the first (Q-Sort and Survey) session I do not have to take part in the interview.
6. I realize that participating in the research will take about 1 hour.
7. I accept the risks involved in this project, that is that I may get tired.
8. I understand that I do not have to be part of this research and that if I begin I may quit at any time after telling the researcher. I know there is no penalty for not participating. There is also no reward or cost for being part of the research.
9. I may contact B. Keith Salyer at (405) 744-6040 or Dr. Kay Bull, ABSED at (405) 744-6036 if I want further information about the research study.

I have read and understand this consent form. I sign it freely and am willing to be part of this research project.

Date _____ / _____ / _____ Time _____ (A.M./P.M.)

Signed _____

(Signature)

I certify that I have orally explained all elements of this form to the subject before requesting the subject to participate by signing the form.

Signed _____

(Graduate Researcher)

Oklahoma State University
ABSED GRADUATE STUDY
PARENTAL CONSENT FORM*

Dear Parent(s):

Your child has the opportunity to participate in a graduate research study being conducted by doctoral student(s) and faculty from Oklahoma State University. The purpose of this study is to examine the relationship of adolescents' psychosocial developmental needs at three different ages (10-12, 16-18, & 22-24). If specific, identifiable pattern(s) exist then interventions in schools and communities can be devised to better attend to the needs of today's youth. By understanding human development from early adolescent to early adulthood, healthy provisions to meet their needs can be explored.

The participants will be given a 36 item Q-Sort instrument based on Erik Erikson's theory of development as well as a survey instrument that addresses the everyday events associated with adolescent life. Your child will be asked to provide demographic information (age, gender, birth order, etc.), but his/her name will **not** be used in any way and the information will remain completely confidential. Some participants will be asked to participate in a follow-up interview at a later date. However your child is not obligated to take part in the interview phase of the research by your signature on this form.

Your signature on this form gives the researchers permission to ask your child to participate in the research project. In accordance with your permission your child will have the research project explained, and then be given the opportunity to take part or withdraw by signing a participant consent form. As participation is voluntary, there is no penalty for refusing to take part, and the child is free to withdraw his/her consent/participation at any time without penalty by notifying the researcher. With this in mind the parent(s) and child freely accept the risks that might be involved in this research, mainly that of fatigue. It will take approximately 1 hour of to complete the demographic information, Q-Sort instrument, and the survey items.

This project is designed to be confidential and your child's name or individual responses will not be made available to anyone without your written permission. A summary report will be compiled but no subject's names will be included in the document.

The research instruments will be available for your inspection, at the location listed below, two weeks prior to the research data being collected. If you have questions you may contact: 1. local coordinator listed below, 2. Keith Salyer, Applied Behavioral Studies, Graduate Research Assistant at (405) 744-6040, or 3. Dr. Kay Bull, Applied Behavioral Studies Professor, at (405) 744-6036.

Site Location: _____

Local Coordinator: _____ Phone: _____

Date Available: ___/___/___ Data Collection Date: ___/___/___

I _____, hereby authorize B. Keith Salyer, or associates to include my child as a possible participant in the ongoing developmental research project. I understand that this consent form does not obligate my child to participate, and that my child or I may withdraw permission at any time. I understand that the child will not receive compensation for participating, nor will there be a cost to my child or me to participate.

I have read and fully understand this consent form. I sign it freely and voluntarily giving permission for my child to participate in the adolescent developmental research project.

Date: ____/____/____ Time: _____ (A.M./P.M.)

Parent: _____
(Signature)

Child's Name: _____

**Please keep the second copy of this form for your information and return the top form by the data collection date listed above.

**OKLABOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
FOR HUMAN SUBJECTS RESEARCH**

Proposal Title: A NEW DEVELOPMENTAL STAGE IN ERICKSON'S THEORY: AFFILIATION
vs. ABANDONMENT

Principal Investigator: DR. KAY BILL / B. KEITH SALYER

Date: JUNE 22, 1992 IRB # ED-92-071

This application has been reviewed by the IRB and

Processed as: Exempt [] Expedite Full Board Review []

Renewal or Continuation []

Approval Status Recommended by Reviewer(s):

Approved

Deferred for Revision []

Approved with Provision []

Disapproved []

Approval status subject to review by full Institutional Review Board at next meeting, 2nd and 4th Thursday of each month.

Comments, Modifications/Conditions for Approval or Reason for Deferral or Disapproval:

PROVISIONS RECEIVED AND APPROVED

Signature: _____

Chair of Institutional Review Board

Date: _____

8-25-92

Marina S. Tilley

APPENDIX B

Q SORT ADMINISTRATION AND INSTRUMENTATION MATERIAL

I believe my friends often lead me astray.

I feel that I am really a loner.

I often feel like an outsider.

I limit my dating to my group of friends.

I wish I had more friends.

I feel the biggest conflict for me is dealing with peer pressure.

Sometimes I worry about my relationships with my friends.

I often make commitments to others that I know I cannot keep.

I follow the code set by my friends.

I only hang out with people who have the same interests as I do.

I hang out at locations where I know others will be.

Making friends is a difficult job for me.

I often feel mixed up.

I believe I've got my life together.

I like myself.

I cope very well.

I am often ashamed of myself.

Things usually turn out well for me.

I can't seem to make sense of my life.

I worry about losing control of my feelings.

I change my opinion of myself a lot.

I don't really know what I'm all about.

I'm as good as other people.

I am proud of the person I am.

I'm good at the things I try to do.

I try hard to achieve my goals.

I believe I am a useful person to have around.

I'm a hard worker.

I am well known among my peers for what I do.

I don't get things finished.

I really believe in my abilities.

I stick with things until they're finished.

I don't get much done.

I feel good about how I deal with problems.

I'm an energetic person who does a lot of things.

I like finding out about anything new.

Eriksonian

Data Collection Handbook
for Administration of the Instruments

The following instructions are designed to standardize the collection of data as much as possible. The less fluctuation occurring in administering the instruments, the greater the accuracy of the findings.

Purpose of the Study:

The data collected will be used to better understand the developmental changes that occur between the ages of 10 and 24. Your participation will allow us as educational researchers to better define the developmental issues that are effecting your life on a daily basis. If we understand your development during these important years, better plans and considerations can be proposed to meet your needs.

Procedure

After introducing yourself and putting the students at ease, pass out the consent forms. You should read the form to/with the subjects. You should stress the fact that this is a voluntary participation project and that any subject is free to decline or quit the survey at any time without penalty. If the subjects have any questions, answer them directly and to the best of your abilities without compromising the study. The form should be completed and returned to you with the rest of the materials at the end of the survey session.

The demographic page (on the back of the Q-Sort record form) should then be passed out to all of the subjects who signed the consent form. The demographics should be completed by the subjects. The following notes apply to the demographic information.

3. "Close" friend is defined as someone you see on a regular basis and with whom you share many of your feelings. (Doogie and Vennie)
4. Number of times your family has moved. Clarify this with the following notations based on the age of the subjects with whom you are working.

10-14 year odds - since the first year of school.

16-18 year odds - since the first year of school.

During the post sort interview determine the number since age ten if possible.

21-24 year odds - during your high school years.

6. The birth order may be confusing for some children. We do not need names, only the sex and age of the oldest to the youngest child. Include step-children if they live(d) with the subject during the times noted in question 4 above. If possible, note the step siblings with an asterisk (*) or "s". Make sure the subject filling out the survey circles his/her position.

10. Have the subjects specify any organized social/athletic/school groups in which they are an active member:
 - i.e. church youth group, choir, band, boy/girl scouts, team sports, university organization, gangs, etc.

*A yes or no notation on an affiliation with a church is sufficient. Knowledge of their particular membership will add nothing to this research.

Q-Sort Directions

Have the subjects take the deck of cards and place them face up in front of themselves. They are to read each card and place it in one of the three boxes Most Unlike, Neutral, or Most Like on the demographic sheet. The cards do not have to be distributed equally among the boxes.

After the subjects have divided the cards into three piles, have them use the big white form board to sort the cards in the following manner.

Take the "Most Like Me" pile and have the subject find the two that are the most like them and place them on the white form board in the boxes above the 9. Then have the subjects spread out all the "Most Unlike Me" cards and after surveying all of them locate the two that represent the extreme position and place them in column 1 on the form board. Then the subjects should locate the four items that represent the next extreme position in both directions. The process is continued until all the polarized cards have been positioned. (Note: the location within a column has no quantitative difference so the four cards in column 2 are all of equal positioning and value for analysis purposes.)

The neutral pile can then now be sorted to fill in the center with each item being evaluated as being more like them, more unlike them or as truly neutral. (Neutral is defined by Stevenson (1980: 196) as being:

"Statements that the subject feels are neither characteristic nor uncharacteristic, but may also include statements which are unclear, meaningless or contradictory to him, or about which he is doubtful or uncertain."

After all items have been placed, have the subject review the cards and see if there are any they wish to change. When the subject is satisfied with the placement of all the cards, have the subject flip the cards over and, using the form board record sheet printed on the back of their demographic sheet, record the number printed on the back of each card in the corresponding location on the form board.

Collect all the materials from each subjects and clip them all together. For each subject you should have a consent form, ivory form board/demographic sheet, and the Q-sort cards.

A discussion of the experience should be allowed so subjects can voice their opinions and/or concerns. The focus of this time is to make the subjects as comfortable with the project as possible and to note any concerns they may have. Their feedback is vital and should be noted for future consideration.

Post sort interviews will be conducted with approximately 1 out of every 5 participants. The interview is totally voluntary and will center on the etiology for item placement on the form board. (Query about 2 items from each of the 3 sets of items.) The following sequence should be followed in the post interview process.

| | | | | | | |
|----|-----|-----|-----|-----|----|------------------|
| 1, | 7, | 13, | 19, | 25, | 31 | first interview |
| 2, | 8, | 14, | 20, | 26, | 32 | second interview |
| 3, | 9, | 15, | 21, | 27, | 33 | third interview |
| 4, | 10, | 16, | 22, | 28, | 34 | fourth interview |
| 5, | 11, | 17, | 23, | 29, | 35 | fifth interview |
| 6, | 12, | 18, | 24, | 30, | 36 | sixth interview |

(Repeat Sequence)

The participants may wish to discuss other items as well. Record all dialogue with the following introduction:

"I would like to tape our interview to help in the accuracy of your comments and to let me concentrate on what you are saying instead of having to try write out everything. Are you comfortable with our conversation being recorded?" (Subject response is recorded.) "This is an interview with participant number ____" (use ID # from form board).

If the subject is not willing to be taped then note their comments in written form as accurately as possible.

APPENDIX C

Q TECHNIQUE DATA ANALYSIS EXAMPLE

EARLY ADOLESCENT COHORT,

SUB-SAMPLE ONE

TABLE C-1

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 100M11422S | 1.0000 | -.6685 | .2528 | .3876 | .4775 | .3820 | .5674 | .4326 | -.0674 | -.1461 | .2528 | .2416 | .4045 |
| 2 084M13511W | -.6685 | 1.0000 | -.3820 | -.4270 | -.5112 | -.2921 | -.7247 | -.4831 | .1404 | .2135 | -.2079 | -.5393 | -.3708 |
| 3 128M13003S | .2528 | -.3820 | 1.0000 | .1011 | .3202 | .3146 | .4382 | .4719 | -.0225 | -.1292 | .1517 | .5618 | .2809 |
| 4 118M14301S | .3876 | -.4270 | .1011 | 1.0000 | .5056 | .0281 | .5674 | .6011 | -.4045 | -.2247 | .3202 | .2247 | .2809 |
| 5 098M12521S | .4775 | -.5112 | .3202 | .5056 | 1.0000 | .2360 | .5337 | .3202 | -.2640 | -.1798 | .2360 | .3539 | .0169 |
| 6 125F12541S | .3820 | -.2921 | .3146 | .0281 | .2360 | 1.0000 | .3034 | .2303 | .0225 | .0562 | .0337 | .3483 | .0393 |
| 7 154M12421H | .5674 | -.7247 | .4382 | .5674 | .5337 | .3034 | 1.0000 | .5899 | -.1742 | -.0955 | .1180 | .4888 | .1629 |
| 8 044M13402W | .4326 | -.4831 | .4719 | .6011 | .3202 | .2303 | .5899 | 1.0000 | -.3146 | -.2360 | .1854 | .3989 | .4270 |
| 9 005F13322W | -.0674 | .1404 | -.0225 | -.4045 | -.2640 | .0225 | -.1742 | -.3146 | 1.0000 | .1067 | -.0899 | -.0787 | .0000 |
| 10 195M13501K | -.1461 | .2135 | -.1292 | -.2247 | -.1798 | .0562 | -.0955 | -.2360 | .1067 | 1.0000 | -.1236 | -.0955 | -.4101 |
| 11 186M12113H | .2528 | -.2079 | .1517 | .3202 | .2360 | .0337 | .1180 | .1854 | -.0899 | -.1236 | 1.0000 | .1685 | .2360 |
| 12 116F13902S | .2416 | -.5393 | .5618 | .2247 | .3539 | .3483 | .4888 | .3989 | -.0787 | -.0955 | .1685 | 1.0000 | .3652 |
| 13 091F13001W | .4045 | -.3708 | .2809 | .2809 | .0169 | .0393 | .1629 | .4270 | .0000 | -.4101 | .2360 | .3652 | 1.0000 |
| 14 083M13321W | .4326 | -.4663 | .6404 | .3483 | .5225 | .3539 | .5843 | .5618 | -.2865 | -.1966 | .1461 | .6798 | .2978 |
| 15 048F12113W | .3034 | -.3483 | .0618 | .2809 | .1798 | -.1966 | .2753 | .3427 | -.1910 | -.1910 | .3596 | .2247 | .5787 |
| 16 025M12911W | .3427 | -.6236 | .3764 | .3539 | .5674 | .2697 | .5618 | .3539 | -.1798 | -.2247 | .1573 | .5225 | .3371 |
| 17 108F13411S | .4101 | -.6124 | .5562 | .3933 | .4607 | .2360 | .7022 | .4831 | -.3315 | -.2865 | .3652 | .6124 | .3371 |
| 18 176M11201H | .2472 | -.4551 | .2303 | .3596 | .3090 | .0955 | .4607 | .4382 | -.2022 | .1011 | .0393 | .4607 | .3202 |
| 19 145F12132H | .5787 | -.6742 | .3090 | .3258 | .4663 | .1685 | .6348 | .3989 | -.1236 | .0000 | .1067 | .6011 | .4888 |
| 20 162F11301H | .4719 | -.4888 | .3034 | .1742 | .3483 | .3876 | .2303 | .1067 | -.0843 | -.0393 | .3427 | .5337 | .2135 |
| 21 153M11201H | .5000 | -.5955 | .5393 | .5393 | .5562 | .1910 | .7753 | .6798 | -.3876 | -.2921 | .2079 | .5674 | .2865 |
| 22 149F11603H | .6517 | -.7022 | .4551 | .3989 | .6180 | .2921 | .6854 | .5225 | -.0730 | -.1910 | .1348 | .4494 | .4270 |
| 23 004M12303W | .3876 | -.6404 | .3989 | .3315 | .3483 | .2303 | .5393 | .4045 | -.1348 | -.1629 | .3146 | .5787 | .3652 |
| 24 200F13231K | .1348 | -.2303 | .0899 | .1124 | .1798 | .2135 | .3146 | .2247 | .0787 | -.2978 | .1236 | .3989 | .0281 |
| 25 032F12713W | -.0337 | -.0618 | .0225 | .3202 | .2640 | -.0618 | .2753 | .0899 | -.3146 | -.0225 | .2247 | .0730 | .0337 |
| 26 196F13433K | .6011 | -.5730 | .3820 | .4494 | .5056 | .3708 | .5000 | .5562 | -.1124 | -.1854 | .5112 | .4663 | .3652 |
| 27 093F12112S | .3596 | -.4944 | .3315 | .3652 | .3539 | .2809 | .4213 | .6124 | -.2921 | -.3652 | .0393 | .4775 | .4213 |
| 28 020F12501W | .3315 | -.5393 | .4607 | .4551 | .4157 | .1910 | .6236 | .5449 | -.3315 | -.2809 | .2865 | .6067 | .3764 |
| 29 053M13201W | .2809 | -.3652 | .2921 | .3708 | .3708 | .4663 | .5281 | .3315 | -.3371 | -.1236 | .1124 | .4888 | .0449 |
| 30 035M13311W | .4663 | -.5843 | .4775 | .3596 | .4944 | .1798 | .6348 | .4831 | -.2247 | -.0281 | .2247 | .5955 | .2865 |
| 31 062M12113W | .5281 | -.6124 | .4382 | .5506 | .4326 | .1461 | .6404 | .5000 | -.2191 | -.1124 | .4888 | .6011 | .3427 |
| 32 174M11901H | .1966 | -.4270 | .2865 | .2978 | .3708 | .0225 | .3596 | .3483 | -.2416 | -.3427 | .2247 | .4663 | .3933 |
| 33 142F11821H | .0393 | -.1742 | .2640 | -.0618 | .1910 | .0899 | .3371 | .1573 | -.1461 | .0000 | -.0112 | .4045 | .1067 |
| 34 111F13821S | .4831 | -.4888 | .4551 | .3202 | .4438 | .1124 | .5449 | .5281 | -.4775 | -.3652 | .3315 | .4607 | .4157 |
| 35 013F12411W | .3034 | -.3820 | .3258 | .2753 | .1854 | .1910 | .4888 | .4326 | -.1966 | -.0281 | .1966 | .3764 | .2360 |
| 36 017F13201W | .4326 | -.4831 | .4101 | .4944 | .3876 | .0169 | .4551 | .3652 | -.2416 | -.1629 | .5056 | .4551 | .2472 |
| 37 194F14941K | -.0955 | .2472 | .1629 | .0843 | .1629 | .1910 | -.0618 | -.0899 | -.0393 | .1573 | .0393 | -.0225 | -.1124 |
| 38 003M12301W | .4157 | -.6404 | .4382 | .2921 | .3258 | .1292 | .5955 | .5449 | -.1124 | -.2921 | .0674 | .5225 | .5674 |
| 39 135F12543H | .3876 | -.5506 | .2753 | .5506 | .4607 | .1236 | .5112 | .4831 | -.1798 | -.4944 | .3596 | .4213 | .4551 |
| 40 080F13292W | .5056 | -.6404 | .5169 | .1798 | .4157 | .2472 | .5730 | .4719 | -.0393 | -.1685 | .0112 | .4831 | .4607 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 41 087M13201W | .2360 | -.3371 | -.1124 | .0787 | -.1348 | .0449 | .2135 | .0506 | .1067 | .1742 | -.0730 | .0393 | .1573 |
| 42 072M13252W | .5000 | -.6404 | .4551 | .4663 | .3258 | .4157 | .6573 | .4213 | .0112 | .0056 | .1798 | .4944 | .2921 |
| 43 065M13231W | .6742 | -.7640 | .4944 | .3989 | .4551 | .2528 | .6966 | .4831 | -.1292 | -.2079 | .4157 | .5449 | .4326 |
| 44 105F12703S | .1236 | -.2809 | .1011 | -.1966 | .0787 | -.0281 | -.0337 | -.0618 | .0393 | .1742 | -.0112 | .1742 | .1854 |
| 45 137M12112S | -.3034 | .4045 | -.3427 | -.2191 | -.3315 | -.2191 | -.3483 | -.3820 | .2921 | .2022 | -.1517 | -.4663 | -.3933 |
| 46 168M13102H | .1067 | -.1798 | .4326 | -.0449 | .1067 | .1629 | .1798 | .1124 | .1461 | -.2022 | .0562 | .2528 | .3989 |
| 47 055F12503W | .4775 | -.5730 | .3090 | .5506 | .5787 | .1573 | .5169 | .4270 | -.4775 | -.2921 | .2697 | .5169 | .3989 |
| 48 159M11403H | .2416 | -.3315 | .2022 | .1404 | .1124 | .1067 | .2921 | .2303 | -.1292 | -.0730 | .3315 | .1742 | .0730 |
| 49 022M13501W | .4270 | -.3146 | .2472 | .2416 | .0674 | .1573 | .2697 | .3708 | -.1404 | -.3371 | .2303 | .2022 | .6124 |
| 50 042F12001W | .6404 | -.7921 | .5787 | .4719 | .6348 | .2022 | .7472 | .5730 | -.3315 | -.2247 | .1798 | .6124 | .4270 |
| 51 006M14221W | .4382 | -.5337 | .4157 | .5506 | .4382 | .2360 | .5674 | .4438 | -.4045 | -.4382 | .1573 | .4888 | .3427 |
| 52 136F13512H | .4101 | -.3427 | .1236 | .1011 | .0899 | .3090 | .2584 | .2528 | .2360 | .2135 | -.0056 | .0618 | .2247 |
| 53 126F13101S | .4045 | -.2247 | -.0056 | -.1404 | .0449 | -.1180 | .1404 | .0955 | .1011 | .0787 | .0281 | -.1629 | -.0225 |
| 54 089M13121W | .0562 | -.1292 | .3258 | -.2135 | -.1292 | .3989 | -.0618 | .0056 | .0112 | .0337 | -.0562 | .0618 | -.0281 |
| 55 002F14721W | .2079 | -.3202 | .3989 | .0899 | .3989 | .4438 | .3258 | .1236 | -.0337 | -.0562 | -.1517 | .3315 | .1011 |
| 56 070M13233W | .2584 | -.1461 | -.0169 | .1180 | .1966 | -.1236 | .1854 | -.0056 | .1180 | -.3371 | .0787 | -.1461 | .1629 |
| 57 088F12401W | .2978 | -.5506 | .4438 | .1910 | .3258 | .2528 | .3315 | .2472 | -.2865 | -.0112 | .1461 | .5056 | .1798 |
| 58 122F13642S | .2921 | -.3652 | .1966 | .1067 | -.0225 | .1461 | .1966 | .1404 | -.0730 | -.0674 | .1573 | .2640 | .3989 |
| 59 078M13303W | .2416 | -.3483 | .4213 | .3933 | .3989 | .1685 | .3427 | .2809 | -.2135 | -.1461 | .2303 | .4101 | .2640 |
| 60 184M12401H | .4438 | -.5449 | .3427 | .5393 | .5000 | .2809 | .5955 | .6685 | -.3933 | -.3539 | .1067 | .4831 | .3371 |
| 61 030F12212W | .5112 | -.5169 | .2247 | .5393 | .3202 | .2472 | .6461 | .6011 | -.2865 | -.1461 | .2303 | .3146 | .0899 |
| 62 171M12982H | .0843 | -.2303 | .3202 | .0562 | .0674 | .0730 | .1124 | .0955 | -.0730 | -.4494 | .1966 | .1348 | .1236 |
| 63 129M11441H | .1798 | -.4382 | .2640 | .2584 | .2584 | -.0112 | .3989 | .1629 | -.1685 | -.2416 | .2472 | .4944 | .2303 |
| 64 130M11541H | .5674 | -.6292 | .3596 | .4663 | .3483 | .4382 | .6180 | .5169 | -.3427 | -.1629 | .1629 | .6180 | .4382 |
| 65 187M12101H | -.0730 | .0281 | -.0337 | -.3371 | -.0787 | -.1798 | -.2303 | -.4101 | .0393 | -.0955 | .3596 | -.2584 | -.1742 |
| 66 054M12301W | .3146 | -.3820 | .4607 | .2978 | .3258 | .1573 | .3090 | .2697 | -.1854 | -.2697 | .2584 | .4326 | .2978 |
| 67 177F12513H | .2865 | -.2528 | .4213 | .2640 | .2528 | .2584 | .5000 | .3876 | -.1292 | .1067 | .4101 | .4551 | .1404 |
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 1 100M11422S | .4326 | .3034 | .3427 | .4101 | .2472 | .5787 | .4719 | .5000 | .6517 | .3876 | .1348 | -.0337 | .6011 |
| 2 084M13511W | -.4663 | -.3483 | -.6236 | -.6124 | -.4551 | -.6742 | -.4888 | -.5955 | -.7022 | -.6404 | -.2303 | -.0618 | -.5730 |
| 3 128M13003S | .6404 | .0618 | .3764 | .5562 | .2303 | .3090 | .3034 | .5393 | .4551 | .3989 | .0899 | .0225 | .3820 |
| 4 118M14301S | .3483 | .2809 | .3539 | .3933 | .3596 | .3258 | .1742 | .5393 | .3989 | .3315 | .1124 | .3202 | .4494 |
| 5 098M12521S | .5225 | .1798 | .5674 | .4607 | .3090 | .4663 | .3483 | .5562 | .6180 | .3483 | .1798 | .2640 | .5056 |
| 6 125F12541S | .3539 | -.1966 | .2697 | .2360 | .0955 | .1685 | .3876 | .1910 | .2921 | .2303 | .2135 | -.0618 | .3708 |
| 7 154M12421H | .5843 | .2753 | .5618 | .7022 | .4607 | .6348 | .2303 | .7753 | .6854 | .5393 | .3146 | .2753 | .5000 |
| 8 044M13402W | .5618 | .3427 | .3539 | .4831 | .4382 | .3989 | .1067 | .6798 | .5225 | .4045 | .2247 | .0899 | .5562 |
| 9 005F13322W | -.2865 | -.1910 | -.1798 | -.3315 | -.2022 | -.1236 | -.0843 | -.3876 | -.0730 | -.1348 | .0787 | -.3146 | -.1124 |
| 10 195M13501K | -.1966 | -.1910 | -.2247 | -.2865 | .1011 | .0000 | -.0393 | -.2921 | -.1910 | -.1629 | -.2978 | -.0225 | -.1854 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 11 186M12113H | .1461 | .3596 | .1573 | .3652 | .0393 | .1067 | .3427 | .2079 | .1348 | .3146 | .1236 | .2247 | .5112 |
| 12 116F13902S | .6798 | .2247 | .5225 | .6124 | .4607 | .6011 | .5337 | .5674 | .4494 | .5787 | .3989 | .0730 | .4663 |
| 13 091F13001W | .2978 | .5787 | .3371 | .3371 | .3202 | .4888 | .2135 | .2865 | .4270 | .3652 | .0281 | .0337 | .3652 |
| 14 083M13321W | 1.0000 | .2865 | .5843 | .6292 | .3427 | .5899 | .3820 | .7022 | .6517 | .5730 | .2360 | .1910 | .4663 |
| 15 048F12113W | .2865 | 1.0000 | .3090 | .3933 | .5056 | .5449 | .2978 | .4382 | .4831 | .3820 | .0562 | .1798 | .4663 |
| 16 025M12911W | .5843 | .3090 | 1.0000 | .4831 | .2921 | .6742 | .3146 | .4775 | .6236 | .5787 | .2472 | .4157 | .3708 |
| 17 108F13411S | .6292 | .3933 | .4831 | 1.0000 | .2809 | .5112 | .3483 | .6910 | .5618 | .6798 | .2697 | .1629 | .5899 |
| 18 176M11231H | .3427 | .5056 | .2921 | .2809 | 1.0000 | .4663 | .3146 | .5225 | .4438 | .2640 | .1461 | .2360 | .3989 |
| 19 145F12132H | .5899 | .5449 | .6742 | .5112 | .4663 | 1.0000 | .4494 | .5393 | .7247 | .5112 | .1461 | .2809 | .5112 |
| 20 162F11301H | .3820 | .2978 | .3146 | .3483 | .3146 | .4494 | 1.0000 | .3539 | .3427 | .4045 | .4101 | -.0169 | .5225 |
| 21 153M11201H | .7022 | .4382 | .4775 | .6910 | .5225 | .5393 | .3539 | 1.0000 | .5730 | .4101 | .3146 | .2584 | .5843 |
| 22 149F11603H | .6517 | .4831 | .6236 | .5618 | .4438 | .7247 | .3427 | .5730 | 1.0000 | .4944 | .1236 | .0393 | .5393 |
| 23 004M12303W | .5730 | .3820 | .5787 | .6798 | .2640 | .5112 | .4045 | .4101 | .4944 | 1.0000 | .3371 | .0955 | .3427 |
| 24 200F13231K | .2360 | .0562 | .2472 | .2697 | .1461 | .1461 | .4101 | .3146 | .1236 | .3371 | 1.0000 | -.0112 | .2978 |
| 25 032F12713W | .1910 | .1798 | .4157 | .1629 | .2360 | .2809 | -.0169 | .2584 | .0393 | .0955 | -.0112 | 1.0000 | .1517 |
| 26 196F13433K | .4663 | .4663 | .3708 | .5899 | .3989 | .5112 | .5225 | .5843 | .5393 | .3427 | .2978 | .1517 | 1.0000 |
| 27 093F12112S | .6067 | .3652 | .6461 | .3034 | .2135 | .5112 | .2472 | .4607 | .5730 | .4663 | .2528 | .0899 | .3539 |
| 28 020F12501W | .6292 | .4157 | .6685 | .6742 | .2360 | .6292 | .2753 | .5393 | .6517 | .6966 | .2978 | .2135 | .4045 |
| 29 053M13201W | .6180 | .0787 | .3258 | .5843 | .2472 | .3090 | .1742 | .4213 | .4888 | .4438 | .0899 | -.0674 | .3427 |
| 30 035M13311W | .6461 | .4157 | .4944 | .6685 | .4101 | .6292 | .3427 | .6742 | .6966 | .6292 | .1404 | .1067 | .4101 |
| 31 062M12113W | .5843 | .4326 | .5112 | .6966 | .4326 | .5899 | .4494 | .6124 | .5169 | .7191 | .2865 | .2584 | .6067 |
| 32 174M11901H | .3483 | .3989 | .5056 | .5169 | .2809 | .3258 | .3315 | .4775 | .3989 | .4831 | .4382 | -.0112 | .2809 |
| 33 142F11821H | .2921 | .3652 | .1180 | .4831 | .3539 | .4045 | .2079 | .3933 | .3371 | .2697 | .0618 | .0730 | .0506 |
| 34 111F13821S | .6854 | .5843 | .3539 | .7079 | .3371 | .4944 | .2809 | .7584 | .5281 | .5281 | .1742 | .1348 | .4888 |
| 35 013F12411W | .3315 | .3989 | .5000 | .4663 | .5225 | .4270 | .3483 | .5393 | .3427 | .3258 | .2135 | .3371 | .3539 |
| 36 017F13201W | .4101 | .2753 | .2978 | .6067 | .1461 | .3146 | .3764 | .5899 | .2978 | .3933 | .1685 | .0674 | .4944 |
| 37 194F14941K | .0056 | -.2135 | .1011 | -.0674 | -.0562 | -.1404 | -.0562 | .0225 | -.0225 | -.2303 | -.1629 | .2079 | -.0169 |
| 38 003M12301W | .4944 | .5674 | .6067 | .4551 | .4270 | .6573 | .3090 | .5506 | .6573 | .5056 | .2865 | .0562 | .4551 |
| 39 135F12543H | .3708 | .5618 | .5506 | .5955 | .2584 | .5112 | .3989 | .5899 | .5056 | .5730 | .3933 | .1685 | .6011 |
| 40 080F13292W | .4494 | .4831 | .6011 | .5674 | .3652 | .6966 | .3090 | .5787 | .6910 | .5000 | .1742 | .0056 | .4607 |
| 41 087M13201W | -.1798 | .1742 | -.0562 | -.0225 | .3989 | .1461 | .0000 | .0618 | .1742 | -.0393 | -.1404 | -.0674 | .1124 |
| 42 072M13252W | .5056 | .1910 | .5056 | .5225 | .2191 | .5393 | .3258 | .5169 | .4888 | .4438 | -.0225 | .0843 | .5393 |
| 43 065M13231W | .6517 | .5056 | .7135 | .7135 | .4101 | .6854 | .5562 | .6573 | .6910 | .7528 | .3596 | .2528 | .6124 |
| 44 105F12703S | .0169 | .1966 | -.0506 | .1685 | .2303 | .1854 | .0899 | .0899 | .1124 | .0730 | -.3258 | .0562 | .2135 |
| 45 137M12112S | -.4663 | -.3034 | -.4438 | -.4663 | -.3708 | -.3371 | -.2921 | -.3933 | -.4045 | -.4888 | -.2416 | -.0899 | -.1461 |
| 46 168M13102H | .2697 | .1517 | .1685 | .2865 | .2022 | .1966 | .0056 | .1348 | .3989 | .2416 | .0506 | .0281 | .0787 |
| 47 055F12503W | .5674 | .4438 | .5730 | .5449 | .3820 | .6910 | .5618 | .5955 | .5899 | .4775 | .1798 | .1629 | .4551 |
| 48 159M11403H | .1742 | .1966 | .1742 | .3596 | .3708 | .0506 | .0618 | .3820 | .1742 | .1348 | -.1404 | .2135 | .2809 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 49 022M13501W | .3876 | .4438 | .2865 | .2809 | .3371 | .3146 | .1348 | .3708 | .4101 | .3034 | .1404 | .1629 | .2865 |
| 50 042F12001W | .6404 | .3876 | .6404 | .7135 | .4438 | .7022 | .3933 | .7303 | .7079 | .6348 | .2191 | .1966 | .5730 |
| 51 006M14221W | .5281 | .2584 | .4101 | .5449 | .3483 | .3989 | .3764 | .6517 | .3652 | .4494 | .2921 | .0618 | .3876 |
| 52 136F13512H | .0674 | .2472 | .1685 | .0506 | .1236 | .4213 | .1517 | .1629 | .4607 | -.1180 | -.2753 | -.1292 | .3989 |
| 53 126F13101S | -.1180 | .0730 | -.0955 | .0281 | .0112 | .1404 | -.0730 | .1124 | .0618 | -.0112 | -.1798 | -.0056 | .1180 |
| 54 089M13121W | .0955 | -.2921 | .0169 | .0506 | -.2360 | -.1348 | .1629 | -.0393 | -.0843 | -.1348 | .0169 | -.2247 | .1292 |
| 55 002F14721W | .3933 | .1124 | .4438 | .2360 | .3034 | .3539 | .2697 | .2303 | .4382 | .3652 | .0562 | .0730 | .2360 |
| 56 070M13233W | .1404 | .2584 | .2528 | .2303 | -.2022 | .1236 | -.1124 | .0674 | .3596 | .1685 | .0955 | .0281 | .1067 |
| 57 088F12401W | .5506 | .1966 | .3596 | .4888 | .3596 | .3708 | .3427 | .3989 | .4494 | .4888 | -.0056 | -.1348 | .3371 |
| 58 122F13642S | .0730 | .0674 | .3989 | .3539 | -.1348 | .3371 | .1011 | .1180 | .0899 | .3483 | -.0169 | .1517 | .1573 |
| 59 078M13303W | .5000 | .1461 | .5337 | .4494 | .2416 | .3933 | .2528 | .2528 | .3876 | .6236 | .1461 | .1685 | .3202 |
| 60 184M12401H | .4438 | .3933 | .5337 | .4775 | .4775 | .4382 | .2921 | .6573 | .4775 | .5281 | .3933 | .1461 | .4213 |
| 61 030F12212W | .3539 | .1798 | .2584 | .3764 | .2865 | .3820 | .2697 | .5562 | .3989 | .3820 | .3596 | .1011 | .4326 |
| 62 171M12982H | .1124 | .2416 | .1966 | .3764 | .0618 | -.0562 | .3539 | .2303 | .1124 | .3652 | .1517 | -.1629 | .1573 |
| 63 129M11441H | .2584 | .2978 | .2978 | .4663 | .3933 | .2921 | .4101 | .3989 | .1798 | .5393 | .3764 | .2921 | .2191 |
| 64 130M11541H | .6742 | .3427 | .6236 | .5787 | .4551 | .6798 | .4494 | .5506 | .6067 | .6629 | .2978 | .1348 | .4663 |
| 65 187M12101H | -.2303 | .0562 | -.1573 | .0112 | -.1910 | -.1798 | .0562 | -.2753 | -.1517 | -.0899 | -.2472 | .0056 | .0112 |
| 66 054M12301W | .5955 | .3034 | .3371 | .6517 | .1404 | .2416 | .2865 | .4045 | .3764 | .6292 | .1180 | -.0112 | .4382 |
| 67 177F12513H | .4045 | .2809 | .3483 | .5506 | .3146 | .4494 | .2584 | .4719 | .3258 | .3146 | .2022 | .2978 | .5899 |
| | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 1 100M11422S | .3596 | .3315 | .2809 | .4663 | .5281 | .1966 | .0393 | .4831 | .3034 | .4326 | -.0955 | .4157 | .3876 |
| 2 084M13511W | -.4944 | -.5393 | -.3652 | -.5843 | -.6124 | -.4270 | -.1742 | -.4888 | -.3820 | -.4831 | .2472 | -.6404 | -.5506 |
| 3 128M13003S | .3315 | .4607 | .2921 | .4775 | .4382 | .2865 | .2640 | .4551 | .3258 | .4101 | .1629 | .4382 | .2753 |
| 4 118M14301S | .3652 | .4551 | .3708 | .3596 | .5506 | .2978 | -.0618 | .3202 | .2753 | .4944 | .0843 | .2921 | .5506 |
| 5 098M12521S | .3539 | .4157 | .3708 | .4944 | .4326 | .3708 | .1910 | .4438 | .1854 | .3876 | .1629 | .3258 | .4607 |
| 6 125F12541S | .2809 | .1910 | .4663 | .1798 | .1461 | .0225 | .0899 | .1124 | .1910 | .0169 | .1910 | .1292 | .1236 |
| 7 154M12421H | .4213 | .6236 | .5281 | .6348 | .6404 | .3596 | .3371 | .5449 | .4888 | .4551 | -.0618 | .5955 | .5112 |
| 8 044M13402W | .6124 | .5449 | .3315 | .4831 | .5000 | .3483 | .1573 | .5281 | .4326 | .3652 | -.0899 | .5449 | .4831 |
| 9 005F13322W | -.2921 | -.3315 | -.3371 | -.2247 | -.2191 | -.2416 | -.1461 | -.4775 | -.1966 | -.2416 | -.0393 | .1124 | -.1798 |
| 10 195M13501K | -.3652 | -.2809 | -.1236 | -.0281 | -.1124 | -.3427 | .0000 | -.3652 | -.0281 | -.1629 | .1573 | -.2921 | -.4944 |
| 11 186M12113H | .0393 | .2865 | .1124 | .2247 | .4888 | .2247 | -.0112 | .3315 | .1966 | .5056 | .0393 | .0674 | .3596 |
| 12 116F13902S | .4775 | .6067 | .4888 | .5955 | .6011 | .4663 | .4045 | .4607 | .3764 | .4551 | -.0225 | .5225 | .4213 |
| 13 091F13001W | .4213 | .3764 | .0449 | .2865 | .3427 | .3933 | .1067 | .4157 | .2360 | .2472 | -.1124 | .5674 | .4551 |
| 14 083M13321W | .6067 | .6292 | .6180 | .6461 | .5843 | .3483 | .2921 | .6854 | .3315 | .4101 | .0056 | .4944 | .3708 |
| 15 048F12113W | .3652 | .4157 | .0787 | .4157 | .4326 | .3989 | .3652 | .5843 | .3989 | .2753 | -.2135 | .5674 | .5618 |
| 16 025M12911W | .6461 | .6685 | .3258 | .4944 | .5112 | .5056 | .1180 | .3539 | .5000 | .2978 | .1011 | .6067 | .5506 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 17 108F13411S | .3034 | .6742 | .5843 | .6685 | .6966 | .5169 | .4831 | .7079 | .4663 | .6067 | -.0674 | .4551 | .5955 |
| 18 176M11231H | .2135 | .2360 | .2472 | .4101 | .4326 | .2809 | .3539 | .3371 | .5225 | .1461 | -.0562 | .4270 | .2584 |
| 19 145F12132H | .5112 | .6292 | .3090 | .6292 | .5899 | .3258 | .4045 | .4944 | .4270 | .3146 | -.1404 | .6573 | .5112 |
| 20 162F11301H | .2472 | .2753 | .1742 | .3427 | .4494 | .3315 | .2079 | .2809 | .3483 | .3764 | -.0562 | .3090 | .3989 |
| 21 153M11201H | .4607 | .5393 | .4213 | .6742 | .6124 | .4775 | .3933 | .7584 | .5393 | .5899 | .0225 | .5506 | .5899 |
| 22 149F11603H | .5730 | .6517 | .4888 | .6966 | .5169 | .3989 | .3371 | .5281 | .3427 | .2978 | -.0225 | .6573 | .5056 |
| 23 004M12303W | .4663 | .6966 | .4438 | .6292 | .7191 | .4831 | .2697 | .5281 | .3258 | .3933 | -.2303 | .5056 | .5730 |
| 24 200F13231K | .2528 | .2978 | .0899 | .1404 | .2865 | .4382 | .0618 | .1742 | .2135 | .1685 | -.1629 | .2865 | .3933 |
| 25 032F12713W | .0899 | .2135 | -.0674 | .1067 | .2584 | -.0112 | .0730 | .1348 | .3371 | .0674 | .2079 | .0562 | .1685 |
| 26 196F13433K | .3539 | .4045 | .3427 | .4101 | .6067 | .2809 | .0506 | .4888 | .3539 | .4944 | -.0169 | .4551 | .6011 |
| 27 093F12112S | 1.0000 | .6854 | .3876 | .3315 | .3539 | .3820 | .0337 | .4831 | .1910 | .2360 | -.1236 | .6910 | .5056 |
| 28 020F12501W | .6854 | 1.0000 | .5337 | .6685 | .6854 | .5225 | .3708 | .5337 | .3876 | .4270 | .0281 | .5618 | .6854 |
| 29 053M13201W | .3876 | .5337 | 1.0000 | .4888 | .4607 | .1854 | .2528 | .4551 | .1629 | .2921 | -.1124 | .1798 | .3146 |
| 30 035M13311W | .3315 | .6685 | .4888 | 1.0000 | .6629 | .5281 | .5899 | .5562 | .3933 | .3876 | -.0337 | .4382 | .4888 |
| 31 062M12113W | .3539 | .6854 | .4607 | .6629 | 1.0000 | .2978 | .2528 | .5337 | .4607 | .6461 | .0843 | .4157 | .5562 |
| 32 174M11901H | .3820 | .5225 | .1854 | .5281 | .2978 | 1.0000 | .2753 | .4551 | .3820 | .2697 | -.1685 | .4551 | .5843 |
| 33 142F11821H | .0337 | .3708 | .2528 | .5899 | .2528 | .2753 | 1.0000 | .3820 | .3876 | .0787 | -.0112 | .2753 | .2247 |
| 34 111F13821S | .4831 | .5337 | .4551 | .5562 | .5337 | .4551 | .3820 | 1.0000 | .3202 | .5112 | -.1910 | .4270 | .4663 |
| 35 013F12411W | .1910 | .3876 | .1629 | .3933 | .4607 | .3820 | .3876 | .3202 | 1.0000 | .3764 | .0674 | .3483 | .4382 |
| 36 017F13201W | .2360 | .4270 | .2921 | .3876 | .6461 | .2697 | .0787 | .5112 | .3764 | 1.0000 | .1348 | .3090 | .4719 |
| 37 194F14941K | -.1236 | .0281 | -.1124 | -.0337 | .0843 | -.1685 | -.0112 | -.1910 | .0674 | .1348 | 1.0000 | -.2247 | -.1011 |
| 38 003M12301W | .6910 | .5618 | .1798 | .4382 | .4157 | .4551 | .2753 | .4270 | .3483 | .3090 | -.2247 | 1.0000 | .5618 |
| 39 135F12543H | .5056 | .6854 | .3146 | .4888 | .5562 | .5843 | .2247 | .4663 | .4382 | .4719 | -.1011 | .5618 | 1.0000 |
| 40 080F13292W | .4888 | .5899 | .2022 | .6011 | .5169 | .4607 | .4607 | .4775 | .4888 | .2640 | .0169 | .6910 | .6011 |
| 41 087M13201W | -.0562 | -.1180 | -.0169 | .1854 | .1404 | -.0281 | .1461 | .0000 | .0843 | .0000 | .0000 | .1180 | -.1180 |
| 42 072M13252W | .4382 | .4438 | .4831 | .4382 | .4719 | .1573 | .0506 | .3146 | .3090 | .5169 | -.0056 | .5449 | .4831 |
| 43 065M13231W | .4551 | .6629 | .3427 | .6629 | .7978 | .4719 | .2528 | .5787 | .6517 | .5843 | -.0393 | .6236 | .6236 |
| 44 105F12703S | -.1629 | -.2247 | -.1629 | .1685 | .0674 | -.1685 | .1573 | .1798 | -.0955 | .1011 | .0281 | .0449 | -.1236 |
| 45 137M12112S | -.4494 | -.4719 | -.1685 | -.2809 | -.3596 | -.5000 | -.3202 | -.5112 | -.4494 | -.2640 | -.1067 | -.3764 | -.2640 |
| 46 168M13102H | .1854 | .2640 | .2022 | .1348 | .2865 | -.0730 | .2247 | .2640 | .0056 | .0843 | .1348 | .2809 | .0730 |
| 47 055F12503W | .5674 | .6573 | .5393 | .5674 | .5955 | .4607 | .3371 | .5449 | .3146 | .4326 | -.1292 | .4719 | .6404 |
| 48 159M11403H | -.0562 | .0056 | .2865 | .3371 | .3371 | .1404 | .1910 | .3034 | .5562 | .3146 | -.1124 | .0281 | .0899 |
| 49 022M13501W | .4101 | .3427 | .1798 | .3034 | .4831 | .0955 | .1067 | .4270 | .1573 | .1629 | .0618 | .4101 | .2247 |
| 50 042F12001W | .5843 | .6742 | .3820 | .6292 | .6180 | .5056 | .2697 | .6910 | .4213 | .6011 | -.0506 | .6629 | .5955 |
| 51 006M14221W | .4831 | .4775 | .5225 | .3483 | .5843 | .4101 | .1685 | .6573 | .3146 | .5843 | -.0337 | .3708 | .5393 |
| 52 136F13512H | .1854 | .0899 | .0225 | .2079 | .0337 | -.0225 | .0674 | -.0169 | .1966 | .0112 | .0674 | .3202 | .1854 |
| 53 126F13101S | -.1292 | -.1236 | -.2247 | .1854 | .1854 | -.0506 | .1180 | .1292 | .0730 | -.0393 | -.1966 | .0281 | -.1180 |
| 54 089M13121W | .1011 | -.1348 | .0056 | -.2022 | -.1292 | -.0618 | -.2640 | -.0730 | -.0899 | .2191 | .0955 | .0506 | -.1742 |
| 55 002F14721W | .3708 | .4045 | .3596 | .3876 | .3315 | .1966 | .2921 | .1067 | .0562 | -.0955 | .2247 | .4270 | .2921 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-------|--------|--------|--------|
| 56 070M13233W | .1517 | .2697 | .0674 | .1180 | .1461 | .3090 | -.0674 | .1742 | .1067 | .2303 | -.0169 | .1854 | .3371 |
| 57 088F12401W | .2416 | .3933 | .5506 | .6629 | .4944 | .3989 | .2921 | .4326 | .1742 | .3427 | -.0562 | .2079 | .2472 |
| 58 122F13642S | .1124 | .3427 | -.0730 | .2247 | .3258 | .2303 | -.0112 | .1011 | .3427 | .4213 | .1292 | .2247 | .2697 |
| 59 078M13303W | .3034 | .5843 | .4831 | .3989 | .7079 | .2697 | -.0169 | .3090 | .1966 | .2303 | .1124 | .1685 | .3989 |
| 60 184M12401H | .6517 | .6742 | .3483 | .4719 | .5056 | .5506 | .2640 | .5449 | .5449 | .4045 | -.0337 | .5674 | .6742 |
| 61 030F12212W | .3989 | .4944 | .3427 | .3258 | .4157 | .3034 | .0506 | .4551 | .4438 | .3989 | -.2303 | .3315 | .4944 |
| 62 171M12982H | .1461 | .2191 | .2472 | .2303 | .2528 | .3539 | .2416 | .1966 | .3371 | .2079 | -.1742 | .2472 | .4775 |
| 63 129M11441H | .1910 | .4663 | .1292 | .3427 | .6011 | .3539 | .2640 | .3539 | .2809 | .4270 | -.0506 | .3708 | .3371 |
| 64 130M11541H | .5730 | .7472 | .6742 | .6629 | .7247 | .4157 | .2697 | .5000 | .4944 | .3989 | -.0843 | .4326 | .5674 |
| 65 187M12101H | -.2697 | -.1517 | -.0393 | -.2079 | -.0281 | -.0787 | -.0112 | .0000 | -.1067 | .0056 | -.2079 | -.1742 | -.1236 |
| 66 054M12301W | .2360 | .4438 | .5337 | .5730 | .6124 | .4270 | .1348 | .4944 | .1910 | .5000 | -.0787 | .2528 | .4494 |
| 67 177F12513H | .1685 | .5056 | .3258 | .4270 | .6011 | .2472 | .3539 | .3764 | .5674 | .3483 | .2416 | .2303 | .4101 |

| | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 100M11422S | .5056 | .2360 | .5000 | .6742 | .1236 | -.3034 | .1067 | .4775 | .2416 | .4270 | .6404 | .4382 | .4101 |
| 2 084M13511W | -.6404 | -.3371 | -.6404 | -.7640 | -.2809 | .4045 | -.1798 | -.5730 | -.3315 | -.3146 | -.7921 | -.5337 | -.3427 |
| 3 128M13003S | .5169 | -.1124 | .4551 | .4944 | .1011 | -.3427 | .4326 | .3090 | .2022 | .2472 | .5787 | .4157 | .1236 |
| 4 118M14301S | .1798 | .0787 | .4663 | .3989 | -.1966 | -.2191 | -.0449 | .5506 | .1404 | .2416 | .4719 | .5506 | .1011 |
| 5 098M12521S | .4157 | -.1348 | .3258 | .4551 | .0787 | -.3315 | .1067 | .5787 | .1124 | .0674 | .6348 | .4382 | .0899 |
| 6 125F12541S | .2472 | .0449 | .4157 | .2528 | -.0281 | -.2191 | .1629 | .1573 | .1067 | .1573 | .2022 | .2360 | .3090 |
| 7 154M12421H | .5730 | .2135 | .6573 | .6966 | -.0337 | -.3483 | .1798 | .5169 | .2921 | .2697 | .7472 | .5674 | .2584 |
| 8 044M13402W | .4719 | .0506 | .4213 | .4831 | -.0618 | -.3820 | .1124 | .4270 | .2303 | .3708 | .5730 | .4438 | .2528 |
| 9 005F13322W | -.0393 | .1067 | .0112 | -.1292 | .0393 | .2921 | .1461 | -.4775 | -.1292 | -.1404 | -.3315 | -.4045 | .2360 |
| 10 195M13501K | -.1685 | .1742 | .0056 | -.2079 | .1742 | .2022 | -.2022 | -.2921 | -.0730 | -.3371 | -.2247 | -.4382 | .2135 |
| 11 186M12113H | .0112 | -.0730 | .1798 | .4157 | -.0112 | -.1517 | .0562 | .2697 | .3315 | .2303 | .1798 | .1573 | -.0056 |
| 12 116F13902S | .4831 | .0393 | .4944 | .5449 | .1742 | -.4663 | .2528 | .5169 | .1742 | .2022 | .6124 | .4888 | .0618 |
| 13 091F13001W | .4607 | .1573 | .2921 | .4326 | .1854 | -.3933 | .3989 | .3989 | .0730 | .6124 | .4270 | .3427 | .2247 |
| 14 083M13321W | .4494 | -.1798 | .5056 | .6517 | .0169 | -.4663 | .2697 | .5674 | .1742 | .3876 | .6404 | .5281 | .0674 |
| 15 048F12113W | .4831 | .1742 | .1910 | .5056 | -.1966 | -.3034 | .1517 | .4438 | .1966 | .4438 | .3876 | .2584 | .2472 |
| 16 025M12911W | .6011 | -.0562 | .5056 | .7135 | -.0506 | -.4438 | .1685 | .5730 | .1742 | .2865 | .6404 | .4101 | .1685 |
| 17 108F13411S | .5674 | -.0225 | .5225 | .7135 | .1685 | -.4663 | .2865 | .5449 | .3596 | .2809 | .7135 | .5449 | .0506 |
| 18 176M11231H | .3652 | .3989 | .2191 | .4101 | .2303 | -.3708 | .2022 | .3820 | .3708 | .3371 | .4438 | .3483 | .1236 |
| 19 145F12132H | .6966 | .1461 | .5393 | .6854 | .1854 | -.3371 | .1966 | .6910 | .0506 | .3146 | .7022 | .3989 | .4213 |
| 20 162F11301H | .3090 | .0000 | .3258 | .5562 | .0899 | -.2921 | .0056 | .5618 | .0618 | .1348 | .3933 | .3764 | .1517 |
| 21 153M11201H | .5787 | .0618 | .5169 | .6573 | .0899 | -.3933 | .1348 | .5955 | .3820 | .3708 | .7303 | .6517 | .1629 |
| 22 149F11603H | .6910 | .1742 | .4888 | .6910 | .1124 | -.4045 | .3989 | .5899 | .1742 | .4101 | .7079 | .3652 | .4607 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 23 004M12303W | .5000 | -.0393 | .4438 | .7528 | .0730 | -.4888 | .2416 | .4775 | .1348 | .3034 | .6348 | .4494 | -.1180 |
| 24 200F13231K | .1742 | -.1404 | -.0225 | .3596 | -.3258 | -.2416 | .0506 | .1798 | -.1404 | .1404 | .2191 | .2921 | -.2753 |
| 25 032F12713W | .0056 | -.0674 | .0843 | .2528 | .0562 | -.0899 | .0281 | .1629 | .2135 | .1629 | .1966 | .0618 | -.1292 |
| 26 196F13433K | .4607 | .1124 | .5393 | .6124 | .2135 | -.1461 | .0787 | .4551 | .2809 | .2865 | .5730 | .3876 | .3989 |
| 27 093F12112S | .4888 | -.0562 | .4382 | .4551 | -.1629 | -.4494 | .1854 | .5674 | -.0562 | .4101 | .5843 | .4831 | .1854 |
| 28 020F12501W | .5899 | -.1180 | .4438 | .6629 | -.2247 | -.4719 | .2640 | .6573 | .0056 | .3427 | .6742 | .4775 | .0899 |
| 29 053M13201W | .2022 | -.0169 | .4831 | .3427 | -.1629 | -.1685 | .2022 | .5393 | .2865 | .1798 | .3820 | .5225 | .0225 |
| 30 035M13311W | .6011 | .1854 | .4382 | .6629 | .1685 | -.2809 | .1348 | .5674 | .3371 | .3034 | .6292 | .3483 | .2079 |
| 31 062M12113W | .5169 | .1404 | .4719 | .7978 | .0674 | -.3596 | .2865 | .5955 | .3371 | .4831 | .6180 | .5843 | .0337 |
| 32 174M11901H | .4607 | -.0281 | .1573 | .4719 | -.1685 | -.5000 | -.0730 | .4607 | .1404 | .0955 | .5056 | .4101 | -.0225 |
| 33 142F11821H | .4607 | .1461 | .0506 | .2528 | .1573 | -.3202 | .2247 | .3371 | .1910 | .1067 | .2697 | .1685 | .0674 |
| 34 111F13821S | .4775 | .0000 | .3146 | .5787 | .1798 | -.5112 | .2640 | .5449 | .3034 | .4270 | .6910 | .6573 | -.0169 |
| 35 013F12411W | .4888 | .0843 | .3090 | .6517 | -.0955 | -.4494 | .0056 | .3146 | .5562 | .1573 | .4213 | .3146 | .1966 |
| 36 017F13201W | .2640 | .0000 | .5169 | .5843 | .1011 | -.2640 | .0843 | .4326 | .3146 | .1629 | .6011 | .5843 | .0112 |
| 37 194F14941K | .0169 | .0000 | -.0056 | -.0393 | .0281 | -.1067 | .1348 | -.1292 | -.1124 | .0618 | -.0506 | -.0337 | .0674 |
| 38 003M12301W | .6910 | .1180 | .5449 | .6236 | .0449 | -.3764 | .2809 | .4719 | .0281 | .4101 | .6629 | .3708 | .3202 |
| 39 135F12543H | .6011 | -.1180 | .4831 | .6236 | -.1236 | -.2640 | .0730 | .6404 | .0899 | .2247 | .5955 | .5393 | .1854 |
| 40 080F13292W | 1.0000 | .1573 | .4326 | .6573 | .1742 | -.4944 | .4101 | .4719 | .1461 | .4326 | .6629 | .3876 | .4719 |
| 41 087M13201W | .1573 | 1.0000 | .2079 | .1067 | .3708 | .0169 | .0281 | -.1011 | .3764 | .2584 | .1124 | .1236 | .3315 |
| 42 072M13252W | .4326 | .2079 | 1.0000 | .5562 | .1292 | -.1404 | .0112 | .4270 | .2416 | .1517 | .6011 | .4607 | .5112 |
| 43 065M13231W | .6573 | .1067 | .5562 | 1.0000 | .0674 | -.4775 | .2247 | .5393 | .3596 | .4607 | .7640 | .4888 | .1629 |
| 44 105F12703S | .1742 | .3708 | .1292 | .0674 | 1.0000 | -.0449 | .1966 | -.1124 | .2416 | .0899 | .2079 | -.1292 | .2191 |
| 45 137M12112S | -.4944 | .0169 | -.1404 | -.4775 | -.0449 | 1.0000 | -.3652 | -.3146 | -.1404 | -.4101 | -.5112 | -.4157 | .0000 |
| 46 168M13102H | .4101 | .0281 | .0112 | .2247 | .1966 | -.3652 | 1.0000 | .1236 | .0506 | .6236 | .1966 | .1798 | .0056 |
| 47 055F12503W | .4719 | -.1011 | .4270 | .5393 | -.1124 | -.3146 | .1236 | 1.0000 | .0899 | .2921 | .6067 | .6798 | .1236 |
| 48 159M11403H | .1461 | .3764 | .2416 | .3596 | .2416 | -.1404 | .0506 | .0899 | 1.0000 | .2135 | .1629 | .2247 | .1348 |
| 49 022M13501W | .4326 | .2584 | .1517 | .4607 | .0899 | -.4101 | .6236 | .2921 | .2135 | 1.0000 | .2865 | .3427 | .0730 |
| 50 042F12001W | .6629 | .1124 | .6011 | .7640 | .2079 | -.5112 | .1966 | .6067 | .1629 | .2865 | 1.0000 | .6180 | .1292 |
| 51 006M14221W | .3876 | .1236 | .4607 | .4888 | -.1292 | -.4157 | .1798 | .6798 | .2247 | .3427 | .6180 | 1.0000 | -.0787 |
| 52 136F13512H | .4719 | .3315 | .5112 | .1629 | .2191 | .0000 | .0056 | .1236 | .1348 | .0730 | .1292 | -.0787 | 1.0000 |
| 53 126F13101S | .2978 | .3539 | -.0618 | .1404 | .2584 | .0281 | -.0225 | -.0618 | .3708 | .1404 | .0674 | -.0618 | .2640 |
| 54 089M13121W | -.0112 | .0169 | .2640 | .0000 | .0955 | -.0056 | .0056 | -.1011 | .0281 | .0281 | .0225 | .1292 | .2022 |
| 55 002F14721W | .5112 | .1011 | .2865 | .3315 | -.0281 | -.1517 | .2528 | .3708 | -.1067 | .2809 | .3652 | .3034 | .1124 |
| 56 070M13233W | .2360 | -.0618 | .0506 | .3146 | -.2079 | -.1348 | .1404 | .0449 | .0787 | .1236 | .1461 | .1348 | .1292 |
| 57 088F12401W | .3820 | .3539 | .4213 | .4888 | .2079 | -.2135 | .0787 | .4157 | .3596 | .2416 | .4775 | .4831 | .0899 |
| 58 122F13642S | .3539 | -.0056 | .3146 | .4213 | .1404 | -.2303 | -.0169 | .1180 | .0899 | .1292 | .3764 | .1517 | .1461 |
| 59 078M13303W | .3596 | -.1966 | .2247 | .4944 | -.1517 | -.2753 | .3427 | .5393 | .0449 | .3034 | .3820 | .4888 | -.1348 |
| 60 184M12401H | .5674 | -.0056 | .3483 | .5506 | -.2022 | -.5562 | .0562 | .5393 | .1404 | .3034 | .7079 | .6236 | .0169 |
| 61 030F12212W | .3034 | -.0281 | .3483 | .4944 | -.2865 | -.2697 | -.1180 | .3876 | .1180 | .0337 | .5843 | .4719 | .1124 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 62 171M12982H | .2584 | -.0674 | .1966 | .3371 | -.1404 | -.1011 | .0000 | .3427 | .3539 | .1124 | .1685 | .3708 | -.1180 |
| 63 129M11441H | .2079 | -.0225 | .0843 | .4663 | .0618 | -.3708 | .2303 | .3989 | .1292 | .2640 | .4326 | .4157 | -.3315 |
| 64 130M11541H | .5112 | .1348 | .5449 | .7191 | -.1573 | -.3876 | .1685 | .7135 | .2416 | .4551 | .6180 | .6517 | .1348 |
| 65 187M12101H | -.1798 | -.0056 | -.2079 | -.0225 | .0169 | .1966 | -.0056 | -.0169 | .2697 | -.1292 | -.1742 | -.0506 | -.1236 |
| 66 054M12301W | .3202 | -.0169 | .3820 | .5618 | .0955 | -.1742 | .1573 | .3596 | .3371 | .2865 | .4382 | .4888 | -.1011 |
| 67 177F12513H | .4775 | .1461 | .4101 | .5506 | -.0787 | -.2584 | .1011 | .2697 | .2809 | .1685 | .4326 | .2978 | .2303 |
| | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
| 1 100M11422S | .4045 | .0562 | .2079 | .2584 | .2978 | .2921 | .2416 | .4438 | .5112 | .0843 | .1798 | .5674 | -.0730 |
| 2 084M13511H | -.2247 | -.1292 | -.3202 | -.1461 | -.5506 | -.3652 | -.3483 | -.5449 | -.5169 | -.2303 | -.4382 | -.6292 | .0281 |
| 3 128M13003S | -.0056 | .3258 | .3989 | -.0169 | .4438 | .1966 | .4213 | .3427 | .2247 | .3202 | .2640 | .3596 | -.0337 |
| 4 118M14301S | -.1404 | -.2135 | .0899 | .1180 | .1910 | .1067 | .3933 | .5393 | .5393 | .0562 | .2584 | .4663 | -.3371 |
| 5 098M12521S | .0449 | -.1292 | .3989 | .1966 | .3258 | -.0225 | .3989 | .5000 | .3202 | .0674 | .2584 | .3483 | -.0787 |
| 6 125F12541S | -.1180 | .3989 | .4438 | -.1236 | .2528 | .1461 | .1685 | .2809 | .2472 | .0730 | -.0112 | .4382 | -.1798 |
| 7 154M12421H | .1404 | -.0618 | .3258 | .1854 | .3315 | .1966 | .3427 | .5955 | .6461 | .1124 | .3989 | .6180 | -.2303 |
| 8 044M13402W | .0955 | .0056 | .1236 | -.0056 | .2472 | .1404 | .2809 | .6685 | .6011 | .0955 | .1629 | .5169 | -.4101 |
| 9 005F13322W | .1011 | .0112 | -.0337 | .1180 | -.2865 | -.0730 | -.2135 | -.3933 | -.2865 | -.0730 | -.1685 | -.3427 | .0393 |
| 10 195M13501K | .0787 | .0337 | -.0562 | -.3371 | -.0112 | -.0674 | -.1461 | -.3539 | -.1461 | -.4494 | -.2416 | -.1629 | -.0955 |
| 11 186M12113H | .0281 | -.0562 | -.1517 | .0787 | .1461 | .1573 | .2303 | .1067 | .2303 | .1966 | .2472 | .1629 | .3596 |
| 12 116F13902S | -.1629 | .0618 | .3315 | -.1461 | .5056 | .2640 | .4101 | .4831 | .3146 | .1348 | .4944 | .6180 | -.2584 |
| 13 091F13001W | -.0225 | -.0281 | .1011 | .1629 | .1798 | .3989 | .2640 | .3371 | .0899 | .1236 | .2303 | .4382 | -.1742 |
| 14 083M13321W | -.1180 | .0955 | .3933 | .1404 | .5506 | .0730 | .5000 | .4438 | .3539 | .1124 | .2584 | .6742 | -.2303 |
| 15 048F12113W | .0730 | -.2921 | .1124 | .2584 | .1966 | .0674 | .1461 | .3933 | .1798 | .2416 | .2978 | .3427 | .0562 |
| 16 025M12911W | -.0955 | .0169 | .4438 | .2528 | .3596 | .3989 | .5337 | .5337 | .2584 | .1966 | .2978 | .6236 | -.1573 |
| 17 108F13411S | .0281 | .0506 | .2360 | .2303 | .4888 | .3539 | .4494 | .4775 | .3764 | .3764 | .4663 | .5787 | .0112 |
| 18 176M11231H | .0112 | -.2360 | .3034 | -.2022 | .3596 | -.1348 | .2416 | .4775 | .2865 | .0618 | .3933 | .4551 | -.1910 |
| 19 145F12132H | .1404 | -.1348 | .3539 | .1236 | .3708 | .3371 | .3933 | .4382 | .3820 | -.0562 | .2921 | .6798 | -.1798 |
| 20 162F11301H | -.0730 | .1629 | .2697 | -.1124 | .3427 | .1011 | .2528 | .2921 | .2697 | .3539 | .4101 | .4494 | .0562 |
| 21 153M11201H | .1124 | -.0393 | .2303 | .0674 | .3989 | .1180 | .2528 | .6573 | .5562 | .2303 | .3989 | .5506 | -.2753 |
| 22 149F11603H | .0618 | -.0843 | .4382 | .3596 | .4494 | .0899 | .3876 | .4775 | .3989 | .1124 | .1798 | .6067 | -.1517 |
| 23 004M12303W | -.0112 | -.1348 | .3652 | .1685 | .4888 | .3483 | .6236 | .5281 | .3820 | .3652 | .5393 | .6629 | -.0899 |
| 24 200F13231K | -.1798 | .0169 | .0562 | .0955 | -.0056 | -.0169 | .1461 | .3933 | .3596 | .1517 | .3764 | .2978 | -.2472 |
| 25 032F12713W | -.0056 | -.2247 | .0730 | .0281 | -.1348 | .1517 | .1685 | .1461 | .1011 | -.1629 | .2921 | .1348 | .0056 |
| 26 196F13433K | .1180 | .1292 | .2360 | .1067 | .3371 | .1573 | .3202 | .4213 | .4326 | .1573 | .2191 | .4663 | .0112 |
| 27 093F12112S | -.1292 | .1011 | .3708 | .1517 | .2416 | .1124 | .3034 | .6517 | .3989 | .1461 | .1910 | .5730 | -.2697 |
| 28 020F12501W | -.1236 | -.1348 | .4045 | .2697 | .3933 | .3427 | .5843 | .6742 | .4944 | .2191 | .4663 | .7472 | -.1517 |
| 29 053M13201W | -.2247 | .0056 | .3596 | .0674 | .5506 | -.0730 | .4831 | .3483 | .3427 | .2472 | .1292 | .6742 | -.0393 |
| 30 035M13311W | .1854 | -.2022 | .3876 | .1180 | .6629 | .2247 | .3989 | .4719 | .3258 | .2303 | .3427 | .6629 | -.2079 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 31 062M12113W | .1854 | -.1292 | .3315 | .1461 | .4944 | .3258 | .7079 | .5056 | .4157 | .2528 | .6011 | .7247 | -.0281 |
| 32 174M11901H | -.0506 | -.0618 | .1966 | .3090 | .3989 | .2303 | .2697 | .5506 | .3034 | .3539 | .3539 | .4157 | -.0787 |
| 33 142F11821H | .1180 | -.2640 | .2921 | -.0674 | .2921 | -.0112 | -.0169 | .2640 | .0506 | .2416 | .2640 | .2697 | -.0112 |
| 34 111F13821S | .1292 | -.0730 | .1067 | .1742 | .4326 | .1011 | .3090 | .5449 | .4551 | .1966 | .3539 | .5000 | .0000 |
| 35 013F12411W | .0730 | -.0899 | .0562 | .1067 | .1742 | .3427 | .1966 | .5449 | .4438 | .3371 | .2809 | .4944 | -.1067 |
| 36 017F13201W | -.0393 | .2191 | -.0955 | .2303 | .3427 | .4213 | .2303 | .4045 | .3989 | .2079 | .4270 | .3989 | .0056 |
| 37 194F14941K | -.1966 | .0955 | .2247 | -.0169 | -.0562 | .1292 | .1124 | -.0337 | -.2303 | -.1742 | -.0506 | -.0843 | -.2079 |
| 38 003M12301W | .0281 | .0506 | .4270 | .1854 | .2079 | .2247 | .1685 | .5674 | .3315 | .2472 | .3708 | .4326 | -.1742 |
| 39 135F12543H | -.1180 | -.1742 | .2921 | .3371 | .2472 | .2697 | .3989 | .6742 | .4944 | .4775 | .3371 | .5674 | -.1236 |
| 40 080F13292W | .2978 | -.0112 | .5112 | .2360 | .3820 | .3539 | .3596 | .5674 | .3034 | .2584 | .2079 | .5112 | -.1798 |
| 41 087M13201W | .3539 | .0169 | .1011 | -.0618 | .3539 | -.0056 | -.1966 | -.0056 | -.0281 | -.0674 | -.0225 | .1348 | -.0056 |
| 42 072M13252W | -.0618 | .2640 | .2865 | .0506 | .4213 | .3146 | .2247 | .3483 | .3483 | .1966 | .0843 | .5449 | -.2079 |
| 43 065M13231W | .1404 | .0000 | .3315 | .3146 | .4888 | .4213 | .4944 | .5506 | .4944 | .3371 | .4663 | .7191 | -.0225 |
| 44 105F12703S | .2584 | .0955 | -.0281 | -.2079 | .2079 | .1404 | -.1517 | -.2022 | -.2865 | -.1404 | .0618 | -.1573 | .0169 |
| 45 137M12112S | .0281 | -.0056 | -.1517 | -.1348 | -.2135 | -.2303 | -.2753 | -.5562 | -.2697 | -.1011 | -.3708 | -.3876 | .1966 |
| 46 168M13102H | -.0225 | .0056 | .2528 | .1404 | .0787 | -.0169 | .3427 | .0562 | -.1180 | .0000 | .2303 | .1685 | -.0056 |
| 47 055F12503W | -.0618 | -.1011 | .3708 | .0449 | .4157 | .1180 | .5393 | .5393 | .3876 | .3427 | .3989 | .7135 | -.0169 |
| 48 159M11403H | .3708 | .0281 | -.1067 | .0787 | .3596 | .0899 | .0449 | .1404 | .1180 | .3539 | .1292 | .2416 | .2697 |
| 49 022M13501W | .1404 | .0281 | .2809 | .1236 | .2416 | .1292 | .3034 | .3034 | .0337 | .1124 | .2640 | .4551 | -.1292 |
| 50 042F12001W | .0674 | .0225 | .3652 | .1461 | .4775 | .3764 | .3820 | .7079 | .5843 | .1685 | .4326 | .6180 | -.1742 |
| 51 006M14221W | -.0618 | .1292 | .3034 | .1348 | .4831 | .1517 | .4888 | .6236 | .4719 | .3708 | .4157 | .6517 | -.0506 |
| 52 136F13512H | .2640 | .2022 | .1124 | .1292 | .0899 | .1461 | -.1348 | .0169 | .1124 | -.1180 | -.3315 | .1348 | -.1236 |
| 53 126F13101S | 1.0000 | -.1124 | -.0112 | .1292 | .0506 | .0730 | -.0449 | -.0393 | .0169 | -.0506 | .0562 | -.0449 | .3034 |
| 54 089M13121W | -.1124 | 1.0000 | .0787 | .0506 | .2191 | .2978 | -.1404 | -.1348 | -.1180 | .0787 | -.1011 | .0056 | .1573 |
| 55 002F14721W | -.0112 | .0787 | 1.0000 | .0337 | .4663 | .0169 | .4719 | .3483 | .0281 | .2978 | .2303 | .4382 | .0281 |
| 56 070M13233W | .1292 | .0506 | .0337 | 1.0000 | .0674 | .1629 | .1404 | .0674 | .0393 | .0730 | .0337 | .1629 | .2360 |
| 57 088F12401W | .0506 | .2191 | .4663 | .0674 | 1.0000 | .1236 | .4270 | .2416 | .1180 | .2753 | .1348 | .6236 | .0955 |
| 58 122F13642S | .0730 | .2978 | .0169 | .1629 | .1236 | 1.0000 | .2022 | .2865 | .2135 | .0449 | .2978 | .3258 | -.0843 |
| 59 078M13303W | -.0449 | -.1404 | .4719 | .1404 | .4270 | .2022 | 1.0000 | .3427 | .2022 | .2247 | .4045 | .6292 | .0225 |
| 60 184M12401H | -.0393 | -.1348 | .3483 | .0674 | .2416 | .2865 | .3427 | 1.0000 | .6798 | .3090 | .4831 | .6236 | -.3427 |
| 61 030F12212W | .0169 | -.1180 | .0281 | .0393 | .1180 | .2135 | .2022 | .6798 | 1.0000 | .0506 | .2584 | .4775 | -.1910 |
| 62 171M12982H | -.0506 | .0787 | .2978 | .0730 | .2753 | .0449 | .2247 | .3090 | .0506 | 1.0000 | .2472 | .2360 | .3034 |
| 63 129M11441H | .0562 | -.1011 | .2303 | .0337 | .1348 | .2978 | .4045 | .4831 | .2584 | .2472 | 1.0000 | .3764 | .1124 |
| 64 130M11541H | -.0449 | .0056 | .4382 | .1629 | .6236 | .3258 | .6292 | .6236 | .4775 | .2360 | .3764 | 1.0000 | -.1966 |
| 65 187M12101H | .3034 | .1573 | .0281 | .2360 | .0955 | -.0843 | .0225 | -.3427 | -.1910 | .3034 | .1124 | -.1966 | 1.0000 |
| 66 054M12301W | .0000 | .1685 | .3764 | .4270 | .7022 | .2472 | .5674 | .2809 | .0899 | .4438 | .3315 | .5618 | .1292 |
| 67 177F12513H | .1629 | -.1292 | .2528 | .0618 | .3202 | .1348 | .3539 | .3202 | .3652 | .0674 | .0899 | .4607 | .0056 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 66 | 67 |
|---------------|--------|--------|
| 1 100M11422S | .3146 | .2865 |
| 2 084M13511W | -.3820 | -.2528 |
| 3 128M13003S | .4607 | .4213 |
| 4 118M14301S | .2978 | .2640 |
| 5 098M12521S | .3258 | .2528 |
| 6 125F12541S | .1573 | .2584 |
| 7 154M12421H | .3090 | .5000 |
| 8 044M13402W | .2697 | .3876 |
| 9 005F13322W | -.1854 | -.1292 |
| 10 195M13501K | -.2697 | .1067 |
| 11 186M12113H | .2584 | .4101 |
| 12 116F13902S | .4326 | .4551 |
| 13 091F13001W | .2978 | .1404 |
| 14 083M13321W | .5955 | .4045 |
| 15 048F12113W | .3034 | .2809 |
| 16 025M12911W | .3371 | .3483 |
| 17 108F13411S | .6517 | .5506 |
| 18 176M11231H | .1404 | .3146 |
| 19 145F12132H | .2416 | .4494 |
| 20 162F11301H | .2865 | .2584 |
| 21 153M11201H | .4045 | .4719 |
| 22 149F11603H | .3764 | .3258 |
| 23 004M12303W | .6292 | .3146 |
| 24 200F13231K | .1180 | .2022 |
| 25 032F12713W | -.0112 | .2978 |
| 26 196F13433K | .4382 | .5899 |
| 27 093F12112S | .2360 | .1685 |
| 28 020F12501W | .4438 | .5056 |
| 29 053M13201W | .5337 | .3258 |
| 30 035M13311W | .5730 | .4270 |
| 31 062M12113W | .6124 | .6011 |
| 32 174M11901H | .4270 | .2472 |
| 33 142F11821H | .1348 | .3539 |
| 34 111F13821S | .4944 | .3764 |
| 35 013F12411W | .1910 | .5674 |
| 36 017F13201W | .5000 | .3483 |
| 37 194F14941K | -.0787 | .2416 |
| 38 003M12301W | .2528 | .2303 |
| 39 135F12543H | .4494 | .4101 |

TABLE C-1 (Continued)

PERSON BY PERSON CORRELATION MATRIX FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Variable ID | 66 | 67 |
|---------------|--------|--------|
| 40 080F13292W | .3202 | .4775 |
| 41 087M13201W | -.0169 | .1461 |
| 42 072M13252W | .3820 | .4101 |
| 43 065M13231W | .5618 | .5506 |
| 44 105F12703S | .0955 | -.0787 |
| 45 137M12112S | -.1742 | -.2584 |
| 46 168M13102H | .1573 | .1011 |
| 47 055F12503W | .3596 | .2697 |
| 48 159M11403H | .3371 | .2809 |
| 49 022M13501W | .2865 | .1685 |
| 50 042F12001W | .4382 | .4326 |
| 51 006M14221W | .4888 | .2978 |
| 52 136F13512H | -.1011 | .2303 |
| 53 126F13101S | .0000 | .1629 |
| 54 089M13121W | .1685 | -.1292 |
| 55 002F14721W | .3764 | .2528 |
| 56 070M13233W | .4270 | .0618 |
| 57 088F12401W | .7022 | .3202 |
| 58 122F13642S | .2472 | .1348 |
| 59 078M13303W | .5674 | .3539 |
| 60 184M12401H | .2809 | .3202 |
| 61 030F12212W | .0899 | .3652 |
| 62 171M12982H | .4438 | .0674 |
| 63 129M11441H | .3315 | .0899 |
| 64 130M11541H | .5618 | .4607 |
| 65 187M12101H | .1292 | .0056 |
| 66 054M12301W | 1.0000 | .2753 |
| 67 177F12513H | .2753 | 1.0000 |

TABLE C-2

PRINCIPAL COMPONENT VARIMAX ROTATED FACTOR MATRIX
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Sort | ID Code | Factor 1 | Factor 2 | Factor 3 |
|------|------------|----------|----------|----------|
| 1 | 100M11422S | .664* | -.159 | .225 |
| 2 | 084M13511W | -.815* | .178 | -.293 |
| 3 | 128M13003S | .534* | .055 | .235 |
| 4 | 118M14301S | .442* | .394 | .219 |
| 5 | 098M12521S | .555* | .263 | .188 |
| 6 | 125F12541S | .422* | -.081 | -.022 |
| 7 | 154M12421H | .746* | .210 | .254 |
| 8 | 044M13402W | .650* | .124 | .170 |
| 9 | 005F13322W | -.170 | -.476* | -.112 |
| 10 | 195M13501K | -.126 | -.337 | -.245 |
| 11 | 186M12113H | .049 | .068 | .584* |
| 12 | 116F13902S | .640* | .135 | .288 |
| 13 | 091F13001W | .472* | -.092 | .225 |
| 14 | 083M13321W | .677* | .197 | .306 |
| 15 | 048F12113W | .349 | .003 | .383 |
| 16 | 025M12911W | .656* | .210 | .237 |
| 17 | 108F13411S | (.551) | .130 | (.622) |
| 18 | 176M11231H | .490* | -.024 | .203 |
| 19 | 145F12132H | .813* | -.034 | .186 |
| 20 | 162F11301H | .437* | .044 | .325 |
| 21 | 153M11201H | (.655) | .238 | (.422) |
| 22 | 149F11603H | .809* | -.043 | .179 |
| 23 | 004M12303W | (.508) | .193 | (.500) |
| 24 | 200F13231K | .257 | .381 | .093 |
| 25 | 032F12713W | .060 | .207 | .204 |
| 26 | 196F13433K | .618* | -.088 | .390 |
| 27 | 093F12112S | .733* | .283 | -.055 |
| 28 | 020F12501W | .688* | .351 | .276 |
| 29 | 053M13201W | .460* | .245 | .255 |
| 30 | 035M13311W | (.597) | .075 | (.482) |
| 31 | 062M12113W | (.609) | .114 | (.581) |
| 32 | 174M11901H | .404* | .269 | .355 |
| 33 | 142F11821H | .285 | -.089 | .314 |
| 34 | 111F13821S | (.533) | .195 | (.476) |
| 35 | 013F12411W | .404* | .045 | .370 |
| 36 | 017F13201W | .356 | .130 | .526* |
| 37 | 194F14941K | -.007 | -.004 | -.053 |
| 38 | 003M12301W | .784* | -.010 | .100 |
| 39 | 135F12543H | (.571) | .369 | (.410) |
| 40 | 080F13292W | .756* | -.161 | .192 |
| 41 | 087M13201W | .141 | -.456* | .121 |
| 42 | 072M13252W | .675* | -.178 | .192 |
| 43 | 065M13231W | (.672) | .012 | (.627) |
| 44 | 105F12703S | .096 | -.510* | .165 |
| 45 | 137M12112S | -.498* | -.157 | -.209 |

TABLE C-2 (Continued)

PRINCIPAL COMPONENT VARIMAX ROTATED FACTOR MATRIX
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Sort | ID Code | Factor 1 | Factor 2 | Factor 3 |
|------|------------|----------|----------|----------|
| 46 | 168M13102H | .318 | -.134 | .058 |
| 47 | 055F12503W | .650* | .369 | .292 |
| 48 | 159M11403H | .072 | -.243 | .562* |
| 49 | 022M13501W | .436* | -.035 | .213 |
| 50 | 042F12001W | .808* | .147 | .317 |
| 51 | 006M14221W | (.510) | .391 | (.434) |
| 52 | 136F13512H | (.453) | (-.539) | -.140 |
| 53 | 126F13101S | .003 | -.368 | .217 |
| 54 | 089M13121W | .058 | -.224 | -.024 |
| 55 | 002F14721W | .474* | .079 | .008 |
| 56 | 070M13233W | .163 | .050 | .149 |
| 57 | 088F12401W | .474* | -.101 | .390 |
| 58 | 122F13642S | .221 | -.139 | .304 |
| 59 | 078M13303W | .418* | .350 | .323 |
| 60 | 184M12401H | (.632) | (.532) | .221 |
| 61 | 030F12212W | (.474) | .391 | .136 |
| 62 | 171M12982H | .080 | .094 | .484* |
| 63 | 129M11441H | .232 | .307 | .480* |
| 64 | 130M11541H | .751* | .187 | .319 |
| 65 | 187M12101H | -.356 | -.161 | .376 |
| 66 | 054M12301W | .289 | .030 | .699* |
| 67 | 177F12513H | .371 | .028 | .450* |

INITIAL CRITERION = 771.6289000

SOLUTION OPTIMIZED AFTER 5 ITERATIONS. FINAL CRITERION = 961.9017000

Significant loadings (greater than or equal to .40) are noted with an * and split loadings (person loads greater than or equal to .40 on two or more factors) are noted with ().

TABLE C-3

VARIABLE ASSIGNMENTS WITH FACTOR WEIGHTS BY TYPE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| | Sort | ID Code | Factor Weight |
|-------------------|------|-----------|---------------|
| TYPE 1 (N= 43) | 1 | 100M11422 | 1.1866 |
| | 3 | 128M13003 | .7468 |
| | 4 | 118M14301 | .5498 |
| | 5 | 098M12521 | .8019 |
| | 6 | 125F12541 | .5142 |
| | 7 | 154M12421 | 1.6839 |
| | 8 | 044M13402 | 1.1268 |
| | 12 | 116F13902 | 1.0840 |
| | 13 | 091F13001 | .6071 |
| | 14 | 083M13321 | 1.2475 |
| | 16 | 025M12911 | 1.1501 |
| | 18 | 176M11231 | .6459 |
| | 19 | 145F12132 | 2.3926 |
| | 20 | 162F11301 | .5399 |
| | 21 | 153M11201 | 1.1489 |
| | 22 | 149F11603 | 2.3470 |
| | 23 | 004M12303 | .6853 |
| | 26 | 196F13433 | 1.0017 |
| | 27 | 093F12112 | 1.5864 |
| | 28 | 020F12501 | 1.3054 |
| | 29 | 053M13201 | .5834 |
| | 30 | 035M13311 | .9283 |
| | 31 | 062M12113 | .9691 |
| | 32 | 174M11901 | .4832 |
| | 34 | 111F13821 | .7439 |
| | 35 | 013F12411 | .4836 |
| | 38 | 003M12301 | 2.0374 |
| | 39 | 135F12543 | .8460 |
| | 40 | 080F13292 | 1.7646 |
| | 42 | 072M13252 | 1.2411 |
| | 43 | 065M13231 | 1.2235 |
| | 46 | 168M13102 | .3537 |
| | 47 | 055F12503 | 1.1272 |
| | 49 | 022M13501 | .5381 |
| | 50 | 042F12001 | 2.3271 |
| | 51 | 006M14221 | .6894 |
| | 55 | 002F14721 | .6112 |
| | 56 | 070M13233 | .1680 |
| | 57 | 088F12401 | .6105 |
| | 59 | 078M13303 | .5061 |
| | 60 | 184M12401 | 1.0526 |
| | 61 | 030F12212 | .6123 |
| | 64 | 130M11541 | 1.7217 |

TABLE C-3 (Continued)

VARIABLE ASSIGNMENTS WITH FACTOR WEIGHTS BY TYPE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| | Sort | ID Code | Factor Weight |
|-------------------|------|-----------|---------------|
| TYPE 2 (N= 3) | 2 | 084M13511 | .1839 |
| | 24 | 200F13231 | .4451 |
| | 25 | 032F12713 | .2163 |
| TYPE 3 (N= 12) | 11 | 186M12113 | .8860 |
| | 15 | 048F12113 | .4489 |
| | 17 | 108F13411 | 1.0135 |
| | 33 | 142F11821 | .3481 |
| | 36 | 017F13201 | .7277 |
| | 48 | 159M11403 | .8222 |
| | 58 | 122F13642 | .3349 |
| | 62 | 171M12982 | .6318 |
| | 63 | 129M11441 | .6232 |
| | 65 | 187M12101 | .4373 |
| | 66 | 054M12301 | 1.3668 |
| | 67 | 177F12513 | .5640 |
| TYPE 4 (N= 9) | 9 | 005F13322 | .6161 |
| | 10 | 195M13501 | .3806 |
| | 37 | 194F14941 | .0045 |
| | 41 | 087M13201 | .5761 |
| | 44 | 105F12703 | .6893 |
| | 45 | 137M12112 | .1612 |
| | 52 | 136F13512 | .7586 |
| | 53 | 126F13101 | .4256 |
| | 54 | 089M13121 | .2363 |

TABLE C-4

ITEM DESCRIPTION TYPAL ARRAY Z'S FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Q Sort Statements | 1 | 2 | 3 | 4 |
|---|------|------|------|------|
| | N=43 | N=3 | N=12 | N=9 |
| 1. I limit my dating to my group of friends | -.9 | -.5 | -.7 | -.3 |
| 2. I often feel like an outsider | -.9 | .8 | -.1 | 1.0 |
| 3. I feel that I am really a loner | -1.3 | -1.5 | -.3 | -.9 |
| 4. I believe my friends often lead me astray | -.8 | -1.2 | -1.4 | 1.4 |
| 5. I often make commitments to others that I know I cannot keep | -1.0 | -1.8 | .4 | .9 |
| 6. Sometimes I worry about my relationships with my friends | .1 | -.0 | .1 | 1.3 |
| 7. I feel the biggest conflict for me is dealing with peer pressure | -.5 | 1.2 | -1.2 | 1.1 |
| 8. I wish I had more friends | -.6 | .5 | .6 | 1.0 |
| 9. Making friends is a difficult job for me | -1.2 | -1.7 | -1.1 | .5 |
| 10. I hang out at locations where I know others will be | .2 | 1.3 | -.8 | -1.1 |
| 11. I only hang out with people who have the same interests as I do | -.6 | 1.6 | .5 | -2.2 |
| 12. I follow the code set by my friends | -.3 | 1.1 | -2.0 | -1.0 |
| 13. I cope very well | .5 | -.4 | 1.3 | -.3 |
| 14. I like myself | 1.2 | 1.5 | 1.4 | -1.0 |
| 15. I believe I've got my life together | 1.0 | .0 | .6 | -.3 |
| 16. I often feel mixed up | -.6 | .8 | -.5 | .5 |
| 17. I worry about losing control of my feelings | -.7 | -1.7 | -.4 | 1.4 |
| 18. I can't seem to make sense of my life | -1.3 | .6 | -1.3 | .3 |
| 19. Things usually turn out well for me | .6 | .9 | .6 | -2.0 |
| 20. I am often ashamed of myself | -1.3 | -.7 | .3 | .7 |
| 21. I am proud of the person I am | 1.2 | 1.5 | 1.7 | -.7 |
| 22. I'm as good as other people | 1.1 | -1.6 | -.3 | .1 |
| 23. I don't really know what I'm all about | -1.1 | .9 | -1.5 | -1.0 |
| 24. I change my opinion of myself a lot | -.5 | -.4 | -1.4 | 1.7 |
| 25. I'm a hard worker | 1.3 | -.7 | .5 | .5 |
| 26. I believe I am a useful person to have around | .9 | -.2 | .8 | -.6 |
| 27. I try hard to achieve my goals | 1.8 | -.7 | 1.3 | 1.1 |
| 28. I'm good at the things I try to do | 1.2 | -.9 | .9 | .1 |
| 29. I stick with things until they're finished | 1.1 | .8 | .4 | -.1 |
| 30. I really believe in my abilities | 1.4 | .3 | 1.0 | .0 |
| 31. I don't get things finished | -1.5 | 1.1 | -.4 | -1.1 |
| 32. I am well known among my peers for what I do | .8 | -.6 | -.5 | .6 |
| 33. I like finding out about anything new | 1.0 | -.1 | 1.7 | .1 |
| 34. I'm an energetic person who does a lot of things | .9 | -.5 | .7 | .7 |
| 35. I feel good about how I deal with problems | .5 | .4 | .6 | -.7 |
| 36. I don't get much done | -1.4 | -.1 | -1.5 | -1.9 |

TABLE C-5

ITEM Q SORT PLACEMENT BY FACTOR TYPE FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| Item Statement | Type 1 | Type 2 | Type 3 | Type 4 |
|---|--------|--------|--------|--------|
| 1. I limit my dating to my group of friends | 7 | 6 | 7 | 6 |
| 2. I often feel like an outsider | 7 | 4 | 5 | 3 |
| 3. I feel that I am really a loner | 8 | 8 | 5 | 7 |
| 4. I believe my friends often lead me astray | 6 | 8 | 8 | 1 |
| 5. I often make commitments to others that I know I cannot keep | 7 | 9 | 5 | 3 |
| 6. Sometimes I worry about my relationships with my friends | 5 | 5 | 5 | 2 |
| 7. I feel the biggest conflict for me is dealing with peer pressure | 5 | 2 | 7 | 2 |
| 8. I wish I had more friends | 6 | 4 | 4 | 3 |
| 9. Making friends is a difficult job for me | 8 | 9 | 7 | 4 |
| 10. I hang out at locations where I know others will be | 5 | 2 | 7 | 8 |
| 11. I only hang out with people who have the same interests as I do | 6 | 1 | 4 | 9 |
| 12. I follow the code set by my friends | 5 | 2 | 9 | 8 |
| 13. I cope very well | 4 | 6 | 2 | 6 |
| 14. I like myself | 2 | 1 | 2 | 7 |
| 15. I believe I've got my life together | 3 | 5 | 3 | 6 |
| 16. I often feel mixed up | 6 | 4 | 6 | 4 |
| 17. I worry about losing control of my feelings | 6 | 8 | 6 | 2 |
| 18. I can't seem to make sense of my life | 8 | 4 | 8 | 5 |
| 19. Things usually turn out well for me | 4 | 3 | 4 | 9 |
| 20. I am often ashamed of myself | 8 | 7 | 5 | 4 |
| 21. I am proud of the person I am | 2 | 2 | 1 | 7 |
| 22. I'm as good as other people | 3 | 8 | 6 | 5 |
| 23. I don't really know what I'm all about | 7 | 3 | 8 | 7 |
| 24. I change my opinion of myself a lot | 5 | 6 | 8 | 1 |
| 25. I'm a hard worker | 2 | 7 | 4 | 4 |
| 26. I believe I am a useful person to have around | 4 | 5 | 3 | 6 |
| 27. I try hard to achieve my goals | 1 | 7 | 2 | 2 |
| 28. I'm good at the things I try to do | 2 | 7 | 3 | 5 |
| 29. I stick with things until they're finished | 3 | 3 | 5 | 5 |
| 30. I really believe in my abilities | 1 | 5 | 2 | 5 |
| 31. I don't get things finished | 9 | 3 | 6 | 8 |
| 32. I am well known among my peers for what I do | 4 | 6 | 6 | 4 |
| 33. I like finding out about anything new | 3 | 5 | 1 | 5 |
| 34. I'm an energetic person who does a lot of things | 4 | 6 | 3 | 3 |
| 35. I feel good about how I deal with problems | 5 | 4 | 4 | 6 |
| 36. I don't get much done | 9 | 5 | 9 | 8 |

TABLE C-6

CORRELATION BETWEEN FACTOR TYPES FOR THE
EARLY ADOLESCENT COHORT, SUB-SAMPLE 1

| | 1 | 2 | 3 | 4 |
|---|-------|-------|-------|-------|
| 1 | 1.000 | | | |
| 2 | .068 | 1.000 | | |
| 3 | .680 | .042 | 1.000 | |
| 4 | -.014 | -.480 | -.062 | 1.000 |

APPENDIX D

FIRST ORDER TYPAL Z-SCORE ARRAYS

FIRST ORDER FACTOR SOLUTION FORM BOARDS

SECOND ORDER TYPAL Z-SCORE ARRAYS

TABLE D-1

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
TASK COMMITTED WORKER (TYPE 1) OF THE
EARLY ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 27. | I try hard to achieve my goals | 1.75 |
| 30. | I really believe in my abilities | 1.36 |
| 25. | I'm a hard worker | 1.30 |
| 14. | I like myself | 1.20 |
| 28. | I'm good at the things I try to do | 1.18 |
| 21. | I am proud of the person I am | 1.15 |
| 29. | I stick with things until they're finished | 1.12 |
| 22. | I'm as good as other people | 1.07 |
| 15. | I believe I've got my life together | .99 |
| 33. | I like finding out about anything new | .96 |
| 34. | I'm an energetic person who does a lot of things | .93 |
| 26. | I believe I am a useful person to have around | .88 |
| 32. | I am well known among my peers for what I do | .81 |
| 19. | Things usually turn out well for me | .65 |
| 13. | I cope very well | .52 |
| 35. | I feel good about how I deal with problems | .51 |
| 10. | I hang out at locations where I know others will be | .16 |
| 6. | Sometimes I worry about my relationships with my friends | .09 |
| 12. | I follow the code set by my friends | -.30 |
| 24. | I change my opinion of myself a lot | -.50 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -.51 |
| 11. | I only hang out with people who have the same interests as I do | -.55 |
| 8. | I wish I had more friends | -.62 |
| 16. | I often feel mixed up | -.64 |
| 17. | I worry about losing control of my feelings | -.72 |
| 4. | I believe my friends often lead me astray | -.81 |
| 1. | I limit my dating to my group of friends | -.87 |
| 2. | I often feel like an outsider | -.92 |
| 5. | I often make commitments to others that I know I cannot keep | -1.03 |
| 23. | I don't really know what I'm all about | -1.09 |
| 9. | Making friends is a difficult job for me | -1.19 |
| 3. | I feel that I am really a loner | -1.26 |
| 18. | I can't seem to make sense of my life | -1.32 |
| 20. | I am often ashamed of myself | -1.33 |
| 36. | I don't get much done | -1.43 |
| 31. | I don't get things finished | -1.53 |

TABLE D-2

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
 SOCIALLY CONNECTED PEER (TYPE 2) OF THE
 EARLY ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 11. | I only hang out with people who have the same interests as I do | 1.60 |
| 14. | I like myself | 1.54 |
| 21. | I am proud of the person I am | 1.50 |
| 10. | I hang out at locations where I know others will be | 1.25 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | 1.18 |
| 12. | I follow the code set by my friends | 1.12 |
| 31. | I don't get things finished | 1.09 |
| 23. | I don't really know what I'm all about | .95 |
| 19. | Things usually turn out well for me | .87 |
| 29. | I stick with things until they're finished | .82 |
| 16. | I often feel mixed up | .81 |
| 2. | I often feel like an outsider | .80 |
| 18. | I can't seem to make sense of my life | .61 |
| 8. | I wish I had more friends | .50 |
| 35. | I feel good about how I deal with problems | .41 |
| 30. | I really believe in my abilities | .31 |
| 15. | I believe I've got my life together | .00 |
| 6. | Sometimes I worry about my relationships with my friends | -.02 |
| 36. | I don't get much done | -.12 |
| 33. | I like finding out about anything new | -.13 |
| 26. | I believe I am a useful person to have around | -.19 |
| 24. | I change my opinion of myself a lot | -.36 |
| 13. | I cope very well | -.44 |
| 34. | I'm an energetic person who does a lot of things | -.46 |
| 1. | I limit my dating to my group of friends | -.53 |
| 32. | I am well known among my peers for what I do | -.55 |
| 27. | I try hard to achieve my goals | -.68 |
| 20. | I am often ashamed of myself | -.69 |
| 25. | I'm a hard worker | -.73 |
| 28. | I'm good at the things I try to do | -.93 |
| 4. | I believe my friends often lead me astray | -1.21 |
| 3. | I feel that I am really a loner | -1.53 |
| 22. | I'm as good as other people | -1.57 |
| 17. | I worry about losing control of my feelings | -1.67 |
| 9. | Making friends is a difficult job for me | -1.72 |
| 5. | I often make commitments to others that I know I cannot keep | -1.83 |

TABLE D-3

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
PROGRESSIVE LEADER (TYPE 3) OF THE
EARLY ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 33. | I like finding out about anything new | 1.71 |
| 21. | I am proud of the person I am | 1.71 |
| 14. | I like myself | 1.42 |
| 13. | I cope very well | 1.32 |
| 27. | I try hard to achieve my goals | 1.32 |
| 30. | I really believe in my abilities | 1.03 |
| 28. | I'm good at the things I try to do | .94 |
| 26. | I believe I am a useful person to have around | .79 |
| 34. | I'm an energetic person who does a lot of things | .70 |
| 15. | I believe I've got my life together | .64 |
| 35. | I feel good about how I deal with problems | .59 |
| 8. | I wish I had more friends | .56 |
| 19. | Things usually turn out well for me | .56 |
| 25. | I'm a hard worker | .54 |
| 11. | I only hang out with people who have the same interests as I do | .48 |
| 29. | I stick with things until they're finished | .40 |
| 5. | I often make commitments to others that I know I cannot keep | .36 |
| 20. | I am often ashamed of myself | .35 |
| 6. | Sometimes I worry about my relationships with my friends | .11 |
| 2. | I often feel like an outsider | -.10 |
| 3. | I feel that I am really a loner | -.25 |
| 22. | I'm as good as other people | -.30 |
| 31. | I don't get things finished | -.36 |
| 17. | I worry about losing control of my feelings | -.41 |
| 32. | I am well known among my peers for what I do | -.51 |
| 16. | I often feel mixed up | -.54 |
| 1. | I limit my dating to my group of friends | -.67 |
| 10. | I hang out at locations where I know others will be | -.83 |
| 9. | Making friends is a difficult job for me | -1.14 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -1.24 |
| 18. | I can't seem to make sense of my life | -1.31 |
| 24. | I change my opinion of myself a lot | -1.36 |
| 4. | I believe my friends often lead me astray | -1.44 |
| 23. | I don't really know what I'm all about | -1.49 |
| 36. | I don't get much done | -1.55 |
| 12. | I follow the code set by my friends | -2.02 |

TABLE D-4

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
INSECURE LONER (TYPE 4) OF THE EARLY
ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 24. | I change my opinion of myself a lot | 1.68 |
| 4. | I believe my friends often lead me astray | 1.43 |
| 17. | I worry about losing control of my feelings | 1.41 |
| 6. | Sometimes I worry about my relationships with my friends | 1.32 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | 1.10 |
| 27. | I try hard to achieve my goals | 1.08 |
| 8. | I wish I had more friends | 1.03 |
| 2. | I often feel like an outsider | 1.01 |
| 5. | I often make commitments to others that I know I cannot keep | .92 |
| 34. | I'm an energetic person who does a lot of things | .73 |
| 20. | I am often ashamed of myself | .66 |
| 32. | I am well known among my peers for what I do | .55 |
| 25. | I'm a hard worker | .52 |
| 16. | I often feel mixed up | .50 |
| 9. | Making friends is a difficult job for me | .48 |
| 18. | I can't seem to make sense of my life | .30 |
| 28. | I'm good at the things I try to do | .14 |
| 22. | I'm as good as other people | .11 |
| 33. | I like finding out about anything new | .07 |
| 30. | I really believe in my abilities | .03 |
| 29. | I stick with things until they're finished | -.12 |
| 15. | I believe I've got my life together | -.25 |
| 13. | I cope very well | -.33 |
| 1. | I limit my dating to my group of friends | -.33 |
| 26. | I believe I am a useful person to have around | -.57 |
| 35. | I feel good about how I deal with problems | -.68 |
| 21. | I am proud of the person I am | -.71 |
| 3. | I feel that I am really a loner | -.92 |
| 14. | I like myself | -.95 |
| 23. | I don't really know what I'm all about | -.98 |
| 12. | I follow the code set by my friends | -1.01 |
| 10. | I hang out at locations where I know others will be | -1.09 |
| 31. | I don't get things finished | -1.09 |
| 36. | I don't get much done | -1.85 |
| 19. | Things usually turn out well for me | -1.96 |
| 11. | I only hang out with people who have the same interests as I do | -2.22 |

TABLE D-5

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
TAKE CHARGE IDEALIST (TYPE 1) OF THE
MIDDLE ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 21. | I am proud of the person I am | 1.64 |
| 14. | I like myself | 1.43 |
| 34. | I'm an energetic person who does a lot of things | 1.25 |
| 25. | I'm a hard worker | 1.24 |
| 30. | I really believe in my abilities | 1.23 |
| 27. | I try hard to achieve my goals | 1.19 |
| 22. | I'm as good as other people | 1.12 |
| 28. | I'm good at the things I try to do | 1.00 |
| 15. | I believe I've got my life together | .99 |
| 13. | I cope very well | .89 |
| 26. | I believe I am a useful person to have around | .87 |
| 33. | I like finding out about anything new | .82 |
| 29. | I stick with things until they're finished | .76 |
| 35. | I feel good about how I deal with problems | .74 |
| 19. | Things usually turn out well for me | .71 |
| 32. | I am well known among my peers for what I do | .67 |
| 10. | I hang out at locations where I know others will be | .35 |
| 6. | Sometimes I worry about my relationships with my friends | .06 |
| 11. | I only hang out with people who have the same interests as I do | -.45 |
| 17. | I worry about losing control of my feelings | -.52 |
| 1. | I limit my dating to my group of friends | -.63 |
| 16. | I often feel mixed up | -.64 |
| 24. | I change my opinion of myself a lot | -.74 |
| 8. | I wish I had more friends | -.74 |
| 31. | I don't get things finished | -.81 |
| 36. | I don't get much done | -.87 |
| 4. | I believe my friends often lead me astray | -.88 |
| 5. | I often make commitments to others that I know I cannot keep | -.94 |
| 23. | I don't really know what I'm all about | -1.05 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -1.08 |
| 18. | I can't seem to make sense of my life | -1.10 |
| 12. | I follow the code set by my friends | -1.12 |
| 2. | I often feel like an outsider | -1.12 |
| 9. | Making friends is a difficult job for me | -1.31 |
| 20. | I am often ashamed of myself | -1.41 |
| 3. | I feel that I am really a loner | -1.55 |

TABLE D-6

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
CAUTIOUS PARTICIPANT (TYPE 2) OF THE
MIDDLE ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 25. | I'm a hard worker | 1.58 |
| 27. | I try hard to achieve my goals | 1.52 |
| 21. | I am proud of the person I am | 1.51 |
| 22. | I'm as good as other people | 1.38 |
| 30. | I really believe in my abilities | 1.21 |
| 35. | I feel good about how I deal with problems | 1.16 |
| 2. | I often feel like an outsider | 1.16 |
| 9. | Making friends is a difficult job for me | .98 |
| 33. | I like finding out about anything new | .88 |
| 29. | I stick with things until they're finished | .87 |
| 28. | I'm good at the things I try to do | .83 |
| 14. | I like myself | .67 |
| 15. | I believe I've got my life together | .57 |
| 26. | I believe I am a useful person to have around | .55 |
| 3. | I feel that I am really a loner | .39 |
| 6. | Sometimes I worry about my relationships with my friends | .21 |
| 17. | I worry about losing control of my feelings | .06 |
| 16. | I often feel mixed up | .01 |
| 13. | I cope very well | -.04 |
| 8. | I wish I had more friends | -.18 |
| 11. | I only hang out with people who have the same interests as I do | -.29 |
| 19. | Things usually turn out well for me | -.34 |
| 23. | I don't really know what I'm all about | -.44 |
| 24. | I change my opinion of myself a lot | -.48 |
| 34. | I'm an energetic person who does a lot of things | -.59 |
| 10. | I hang out at locations where I know others will be | -.63 |
| 1. | I limit my dating to my group of friends | -.67 |
| 18. | I can't seem to make sense of my life | -.73 |
| 4. | I believe my friends often lead me astray | -.90 |
| 20. | I am often ashamed of myself | -1.25 |
| 32. | I am well known among my peers for what I do | -1.34 |
| 12. | I follow the code set by my friends | -1.39 |
| 36. | I don't get much done | -1.43 |
| 5. | I often make commitments to others that I know I cannot keep | -1.52 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -1.63 |
| 31. | I don't get things finished | -1.70 |

TABLE D-7

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
COMING OF AGE (TYPE 3) OF THE
MIDDLE ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 24. | I change my opinion of myself a lot | 2.13 |
| 16. | I often feel mixed up | 1.60 |
| 18. | I can't seem to make sense of my life | 1.33 |
| 22. | I'm as good as other people | 1.28 |
| 33. | I like finding out about anything new | 1.16 |
| 28. | I'm good at the things I try to do | 1.10 |
| 23. | I don't really know what I'm all about | 1.08 |
| 26. | I believe I am a useful person to have around | 1.06 |
| 14. | I like myself | .82 |
| 30. | I really believe in my abilities | .73 |
| 19. | Things usually turn out well for me | .61 |
| 6. | Sometimes I worry about my relationships with my friends | .54 |
| 11. | I only hang out with people who have the same interests as I do | .45 |
| 32. | I am well known among my peers for what I do | .45 |
| 21. | I am proud of the person I am | .41 |
| 34. | I'm an energetic person who does a lot of things | .25 |
| 35. | I feel good about how I deal with problems | .13 |
| 20. | I am often ashamed of myself | .08 |
| 10. | I hang out at locations where I know others will be | .00 |
| 15. | I believe I've got my life together | -.08 |
| 1. | I limit my dating to my group of friends | -.31 |
| 25. | I'm a hard worker | -.38 |
| 13. | I cope very well | -.50 |
| 17. | I worry about losing control of my feelings | -.51 |
| 27. | I try hard to achieve my goals | -.53 |
| 29. | I stick with things until they're finished | -.64 |
| 2. | I often feel like an outsider | -.72 |
| 12. | I follow the code set by my friends | -.74 |
| 36. | I don't get much done | -.82 |
| 31. | I don't get things finished | -1.06 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -1.10 |
| 4. | I believe my friends often lead me astray | -1.13 |
| 3. | I feel that I am really a loner | -1.46 |
| 5. | I often make commitments to others that I know I cannot keep | -1.62 |
| 8. | I wish I had more friends | -1.69 |
| 9. | Making friends is a difficult job for me | -1.92 |

TABLE D-8

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
INDEPENDENT SELF (TYPE 1) OF THE
LATE ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 14. | I like myself | 1.61 |
| 21. | I am proud of the person I am | 1.56 |
| 27. | I try hard to achieve my goals | 1.40 |
| 30. | I really believe in my abilities | 1.30 |
| 25. | I'm a hard worker | 1.17 |
| 15. | I believe I've got my life together | 1.17 |
| 26. | I believe I am a useful person to have around | 1.09 |
| 28. | I'm good at the things I try to do | 1.04 |
| 34. | I'm an energetic person who does a lot of things | .96 |
| 22. | I'm as good as other people | .94 |
| 19. | Things usually turn out well for me | .93 |
| 13. | I cope very well | .85 |
| 35. | I feel good about how I deal with problems | .84 |
| 29. | I stick with things until they're finished | .76 |
| 33. | I like finding out about anything new | .66 |
| 32. | I am well known among my peers for what I do | .48 |
| 10. | I hang out at locations where I know others will be | .03 |
| 11. | I only hang out with people who have the same interests as I do | -.29 |
| 6. | Sometimes I worry about my relationships with my friends | -.33 |
| 1. | I limit my dating to my group of friends | -.35 |
| 8. | I wish I had more friends | -.56 |
| 16. | I often feel mixed up | -.60 |
| 17. | I worry about losing control of my feelings | -.76 |
| 24. | I change my opinion of myself a lot | -.78 |
| 12. | I follow the code set by my friends | -.79 |
| 31. | I don't get things finished | -.88 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -.92 |
| 4. | I believe my friends often lead me astray | -.93 |
| 2. | I often feel like an outsider | -.99 |
| 36. | I don't get much done | -1.03 |
| 9. | Making friends is a difficult job for me | -1.13 |
| 18. | I can't seem to make sense of my life | -1.14 |
| 5. | I often make commitments to others that I know I cannot keep | -1.22 |
| 23. | I don't really know what I'm all about | -1.22 |
| 3. | I feel that I am really a loner | -1.31 |
| 20. | I am often ashamed of myself | -1.56 |

TABLE D-9

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
INSECURE ASSOCIATE (TYPE 2) FOR THE
LATE ADOLESCENT COHORT

| Item # | Item Description | z-Score |
|--------|--|---------|
| 25. | I'm a hard worker | 1.89 |
| 27. | I try hard to achieve my goals | 1.70 |
| 26. | I believe I am a useful person to have around | 1.45 |
| 19. | Things usually turn out well for me | 1.22 |
| 29. | I stick with things until they're finished | 1.19 |
| 22. | I'm as good as other people | .98 |
| 28. | I'm good at the things I try to do | .92 |
| 33. | I like finding out about anything new | .91 |
| 35. | I feel good about how I deal with problems | .73 |
| 3. | I feel that I am really a loner | .58 |
| 16. | I often feel mixed up | .42 |
| 30. | I really believe in my abilities | .41 |
| 6. | Sometimes I worry about my relationships with my friends | .36 |
| 24. | I change my opinion of myself a lot | .32 |
| 14. | I like myself | .31 |
| 8. | I wish I had more friends | .30 |
| 20. | I am often ashamed of myself | .25 |
| 15. | I believe I've got my life together | .15 |
| 2. | I often feel like an outsider | .14 |
| 34. | I'm an energetic person who does a lot of things | .03 |
| 32. | I am well known among my peers for what I do | -.00 |
| 13. | I cope very well | -.03 |
| 21. | I am proud of the person I am | -.24 |
| 17. | I worry about losing control of my feelings | -.36 |
| 1. | I limit my dating to my group of friends | -.47 |
| 23. | I don't really know what I'm all about | -.49 |
| 18. | I can't seem to make sense of my life | -.53 |
| 9. | Making friends is a difficult job for me | -.56 |
| 11. | I only hang out with people who have the same interests as I do | -.61 |
| 31. | I don't get things finished | -.83 |
| 36. | I don't get much done | -1.23 |
| 10. | I hang out at locations where I know others will be | -1.42 |
| 12. | I follow the code set by my friends | -1.60 |
| 5. | I often make commitments to others that I know I cannot keep | -1.69 |
| 4. | I believe my friends often lead me astray | -2.03 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -2.18 |

FIGURE D-1
FIRST ORDER FACTOR SOLUTION

EARLY ADOLESCENT COHORT

TYPE 1

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| | | | | 35 | | | | |
| | | | 11 | 10 | 34 | | | |
| | 9 | 1 | 8 | 6 | 26 | 29 | 25 | |
| | 3 | 2 | 16 | 12 | 32 | 22 | 14 | |
| 36 | 18 | 5 | 17 | 24 | 19 | 15 | 28 | 27 |
| 31 | 20 | 23 | 4 | 7 | 13 | 33 | 21 | 30 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

TYPE 2

| | | | | | | | | |
|---|----|----|----|----|----|----|----|----|
| | | | | 30 | | | | |
| | | | 24 | 15 | 16 | | | |
| | 4 | 27 | 13 | 6 | 2 | 31 | 21 | |
| | 3 | 20 | 34 | 36 | 18 | 23 | 10 | |
| 9 | 22 | 25 | 1 | 33 | 8 | 19 | 7 | 11 |
| 5 | 17 | 28 | 32 | 26 | 35 | 29 | 12 | 14 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

FIGURE D-1 (Continued)

FIRST ORDER FACTOR SOLUTION

EARLY ADOLESCENT COHORT (Continued)

TYPE 3

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| | | | | 29 | | | | |
| | | | 22 | 5 | 35 | | | |
| | 18 | 1 | 31 | 20 | 8 | 28 | 14 | |
| | 24 | 10 | 17 | 6 | 19 | 26 | 13 | |
| 36 | 4 | 9 | 32 | 2 | 25 | 34 | 27 | 33 |
| 12 | 23 | 7 | 16 | 3 | 11 | 15 | 30 | 21 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

TYPE 4

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| | | | | 18 | | | | |
| | | | 15 | 28 | 20 | | | |
| | 12 | 21 | 13 | 22 | 32 | 8 | 17 | |
| | 10 | 3 | 1 | 33 | 25 | 2 | 6 | |
| 19 | 31 | 14 | 26 | 30 | 16 | 5 | 7 | 24 |
| 11 | 36 | 23 | 35 | 29 | 9 | 34 | 27 | 4 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

FIGURE D-1 (Continued)

FIRST ORDER FACTOR SOLUTION

MIDDLE ADOLESCENT COHORT

TYPE 1

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|--|
| | | | | 32 | | | | | |
| | | | 16 | 10 | 26 | | | | |
| | 18 | 4 | 24 | 6 | 33 | 22 | 34 | | |
| | 12 | 5 | 8 | 11 | 29 | 28 | 25 | | |
| 20 | 2 | 23 | 31 | 17 | 35 | 15 | 30 | 21 | |
| 3 | 9 | 7 | 36 | 1 | 19 | 13 | 27 | 14 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

TYPE 2

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|--|
| | | | | 6 | | | | | |
| | | | 19 | 17 | 28 | | | | |
| | 32 | 1 | 23 | 16 | 14 | 2 | 21 | | |
| | 12 | 18 | 24 | 13 | 15 | 9 | 22 | | |
| 7 | 36 | 4 | 34 | 8 | 26 | 33 | 30 | 25 | |
| 31 | 5 | 20 | 10 | 11 | 3 | 29 | 35 | 27 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

FIGURE D-1 (Continued)

FIRST ORDER FACTOR SOLUTION

MIDDLE ADOLESCENT COHORT (Continued)

TYPE 3

| | | | | | | | | | |
|---|---|----|----|----|----|----|----|----|--|
| | | | | 34 | | | | | |
| | | | 25 | 35 | 19 | | | | |
| | 7 | 2 | 13 | 20 | 6 | 23 | 18 | | |
| | 4 | 12 | 17 | 10 | 11 | 26 | 22 | | |
| 8 | 3 | 36 | 27 | 15 | 32 | 14 | 33 | 24 | |
| 9 | 5 | 31 | 29 | 1 | 21 | 30 | 28 | 16 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |

FIGURE D-1 (Continued)

FIRST ORDER FACTOR SOLUTION

LATE ADOLESCENT COHORT

TYPE 1

| | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| | | | | 8 | | | | |
| | | | 31 | 1 | 33 | | | |
| | 23 | 36 | 12 | 6 | 29 | 22 | 15 | |
| | 5 | 2 | 24 | 11 | 35 | 34 | 25 | |
| 20 | 18 | 4 | 17 | 10 | 13 | 28 | 30 | 21 |
| 3 | 9 | 7 | 16 | 32 | 19 | 26 | 27 | 14 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

TYPE 2

| | | | | | | | | |
|---|----|----|----|----|----|----|----|----|
| | | | | 32 | | | | |
| | | | 23 | 34 | 14 | | | |
| | 5 | 31 | 1 | 2 | 24 | 3 | 22 | |
| | 12 | 11 | 17 | 15 | 6 | 35 | 29 | |
| 7 | 10 | 9 | 21 | 20 | 30 | 33 | 19 | 27 |
| 4 | 36 | 18 | 13 | 8 | 16 | 28 | 26 | 25 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

TABLE D-10

CONSENSUS ITEMS FROM FIRST ORDER FACTOR SOLUTIONS:
ITEMS BY COHORT

| Item # | Q Sort Statements | Cohort Mean | | |
|--------|--|-------------|--------|-------|
| | | EARLY | MIDDLE | LATE |
| 1. | I limit my dating to my group of friends | -.60 | -.54 | -.41 |
| 2. | I often feel like an outsider | | | |
| 3. | I feel that I am really a loner | | | |
| 4. | I believe my friends often lead me astray | | -.97 | |
| 5. | I often make commitments to others that I know I cannot keep | -1.36 | | -1.46 |
| 6. | Sometimes I worry about my relationships with my friends | .27 | | .01 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -1.27 | | |
| 8. | I wish I had more friends | | | -.13 |
| 9. | Making friends is a difficult job for me | | | -.84 |
| 10. | I hang out at locations where I know others will be | -.09 | | |
| 11. | I only hang out with people who have the same interests as I do | -.10 | | -.45 |
| 12. | I follow the code set by my friends | -1.08 | | -1.20 |
| 13. | I cope very well | | | .41 |
| 14. | I like myself | | .97 | |
| 15. | I believe I've got my life together | | | |
| 16. | I often feel mixed up | | | |
| 17. | I worry about losing control of my feelings | -.32 | | -.56 |
| 18. | I can't seem to make sense of my life | | | -.84 |
| 19. | Things usually turn out well for me | | | 1.08 |
| 20. | I am often ashamed of myself | | | |
| 21. | I am proud of the person I am | | | |
| 22. | I'm as good as other people | 1.26 | | .96 |
| 23. | I don't really know what I'm all about | | | -.86 |
| 24. | I change my opinion of myself a lot | | | |
| 25. | I'm a hard worker | | | 1.53 |
| 26. | I believe I am a useful person to have around | .82 | | 1.27 |
| 27. | I try hard to achieve my goals | | | 1.55 |
| 28. | I'm good at the things I try to do | .98 | | .98 |
| 29. | I stick with things until they're finished | | | .98 |
| 30. | I really believe in my abilities | 1.06 | | .86 |
| 31. | I don't get things finished | -1.19 | | -.85 |
| 32. | I am well known among my peers for what I do | | | .24 |
| 33. | I like finding out about anything new | .82 | | .79 |
| 34. | I'm an energetic person who does a lot of things | | | .50 |
| 35. | I feel good about how I deal with problems | | | .78 |
| 36. | I don't get much done | -1.13 | | -1.08 |
| | Total | 1 | 17 | 25 |

TABLE D-11

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
THE SECOND ORDER FACTOR SOLUTION:
SELF SATISFIED ACHIEVER
(TYPE 1)

| Item # | Item Description | z-Score |
|--------|--|---------|
| 21. | I am proud of the person I am | 1.80 |
| 14. | I like myself | 1.77 |
| 27. | I try hard to achieve my goals | 1.49 |
| 30. | I really believe in my abilities | 1.49 |
| 25. | I'm a hard worker | 1.35 |
| 15. | I believe I've got my life together | 1.12 |
| 34. | I'm an energetic person who does a lot of things | 1.03 |
| 28. | I'm good at the things I try to do | 1.02 |
| 22. | I'm as good as other people | .84 |
| 13. | I cope very well | .71 |
| 26. | I believe I am a useful person to have around | .68 |
| 33. | I like finding out about anything new | .65 |
| 29. | I stick with things until they're finished | .52 |
| 19. | Things usually turn out well for me | .47 |
| 35. | I feel good about how I deal with problems | .39 |
| 32. | I am well known among my peers for what I do | .05 |
| 6. | Sometimes I worry about my relationships with my friends | .00 |
| 11. | I only hang out with people who have the same interests as I do | -.05 |
| 10. | I hang out at locations where I know others will be | -.07 |
| 8. | I wish I had more friends | -.22 |
| 1. | I limit my dating to my group of friends | -.23 |
| 17. | I worry about losing control of my feelings | -.30 |
| 24. | I change my opinion of myself a lot | -.45 |
| 16. | I often feel mixed up | -.47 |
| 31. | I don't get things finished | -.72 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -.78 |
| 12. | I follow the code set by my friends | -.84 |
| 4. | I believe my friends often lead me astray | -.89 |
| 36. | I don't get much done | -1.00 |
| 2. | I often feel like an outsider | -1.05 |
| 5. | I often make commitments to others that I know I cannot keep | -1.06 |
| 23. | I don't really know what I'm all about | -1.16 |
| 9. | Making friends is a difficult job for me | -1.38 |
| 18. | I can't seem to make sense of my life | -1.41 |
| 3. | I feel that I am really a loner | -1.67 |
| 20. | I am often ashamed of myself | -1.67 |

TABLE D-12

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
THE SECOND ORDER FACTOR SOLUTION:
SOCIALY CONNECTED PEER
(TYPE 2)

| Item # | Item Description | z-Score |
|--------|--|---------|
| 11. | I only hang out with people who have the same interests as I do | 1.80 |
| 14. | I like myself | 1.80 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | 1.35 |
| 10. | I hang out at locations where I know others will be | 1.35 |
| 12. | I follow the code set by my friends | 1.35 |
| 21. | I am proud of the person I am | 1.35 |
| 19. | Things usually turn out well for me | .90 |
| 23. | I don't really know what I'm all about | .90 |
| 29. | I stick with things until they're finished | .90 |
| 31. | I don't get things finished | .90 |
| 2. | I often feel like an outsider | .45 |
| 16. | I often feel mixed up | .45 |
| 18. | I can't seem to make sense of my life | .45 |
| 8. | I wish I had more friends | .45 |
| 35. | I feel good about how I deal with problems | .45 |
| 6. | Sometimes I worry about my relationships with my friends | .00 |
| 26. | I believe I am a useful person to have around | .00 |
| 30. | I really believe in my abilities | .00 |
| 33. | I like finding out about anything new | .00 |
| 15. | I believe I've got my life together | .00 |
| 36. | I don't get much done | .00 |
| 1. | I limit my dating to my group of friends | -.45 |
| 24. | I change my opinion of myself a lot | -.45 |
| 13. | I cope very well | -.45 |
| 32. | I am well known among my peers for what I do | -.45 |
| 34. | I'm an energetic person who does a lot of things | -.45 |
| 27. | I try hard to achieve my goals | -.90 |
| 28. | I'm good at the things I try to do | -.90 |
| 25. | I'm a hard worker | -.90 |
| 20. | I am often ashamed of myself | -.90 |
| 4. | I believe my friends often lead me astray | -1.35 |
| 3. | I feel that I am really a loner | -1.35 |
| 17. | I worry about losing control of my feelings | -1.35 |
| 22. | I'm as good as other people | -1.35 |
| 9. | Making friends is a difficult job for me | -1.80 |
| 5. | I often make commitments to others that I know I cannot keep | -1.80 |

TABLE D-13

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
THE SECOND ORDER FACTOR SOLUTION:
PRODUCTIVE FRIEND
(TYPE 3)

| Item # | Item Description | z-Score |
|--------|--|---------|
| 25. | I'm a hard worker | 1.70 |
| 27. | I try hard to achieve my goals | 1.70 |
| 22. | I'm as good as other people | 1.58 |
| 26. | I believe I am a useful person to have around | 1.17 |
| 33. | I like finding out about anything new | 1.13 |
| 29. | I stick with things until they're finished | 1.09 |
| 35. | I feel good about how I deal with problems | 1.05 |
| 28. | I'm good at the things I try to do | .97 |
| 30. | I really believe in my abilities | .93 |
| 19. | Things usually turn out well for me | .77 |
| 14. | I like myself | .61 |
| 16. | I often feel mixed up | .60 |
| 3. | I feel that I am really a loner | .49 |
| 24. | I change my opinion of myself a lot | .44 |
| 6. | Sometimes I worry about my relationships with my friends | .36 |
| 21. | I am proud of the person I am | .28 |
| 2. | I often feel like an outsider | .16 |
| 15. | I believe I've got my life together | .16 |
| 34. | I'm an energetic person who does a lot of things | -.16 |
| 23. | I don't really know what I'm all about | -.29 |
| 8. | I wish I had more friends | -.32 |
| 20. | I am often ashamed of myself | -.32 |
| 13. | I cope very well | -.36 |
| 17. | I worry about losing control of my feelings | -.36 |
| 32. | I am well known among my peers for what I do | -.41 |
| 11. | I only hang out with people who have the same interests as I do | -.49 |
| 9. | Making friends is a difficult job for me | -.56 |
| 1. | I limit my dating to my group of friends | -.61 |
| 18. | I can't seem to make sense of my life | -.65 |
| 10. | I hang out at locations where I know others will be | -1.01 |
| 31. | I don't get things finished | -1.38 |
| 12. | I follow the code set by my friends | -1.50 |
| 36. | I don't get much done | -1.50 |
| 5. | I often make commitments to others that I know I cannot keep | -1.58 |
| 4. | I believe my friends often lead me astray | -1.70 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | -2.02 |

TABLE D-14

DESCENDING ARRAY OF Z-SCORES AND ITEM DESCRIPTIONS FOR
THE SECOND ORDER FACTOR SOLUTION:
INSECURE LONER
(TYPE 4)

| Item # | Item Description | z-Score |
|--------|--|---------|
| 4. | I believe my friends often lead me astray | 1.80 |
| 24. | I change my opinion of myself a lot | 1.80 |
| 6. | Sometimes I worry about my relationships with my friends | 1.35 |
| 7. | I feel the biggest conflict for me is dealing with peer pressure | 1.35 |
| 17. | I worry about losing control of my feelings | 1.35 |
| 27. | I try hard to achieve my goals | 1.35 |
| 8. | I wish I had more friends | .90 |
| 5. | I often make commitments to others that I know I cannot keep | .90 |
| 2. | I often feel like an outsider | .90 |
| 34. | I'm an energetic person who does a lot of things | .90 |
| 16. | I often feel mixed up | .45 |
| 20. | I am often ashamed of myself | .45 |
| 9. | Making friends is a difficult job for me | .45 |
| 25. | I'm a hard worker | .45 |
| 32. | I am well known among my peers for what I do | .45 |
| 18. | I can't seem to make sense of my life | .00 |
| 22. | I'm as good as other people | .00 |
| 28. | I'm good at the things I try to do | .00 |
| 29. | I stick with things until they're finished | .00 |
| 30. | I really believe in my abilities | .00 |
| 33. | I like finding out about anything new | .00 |
| 1. | I limit my dating to my group of friends | -.45 |
| 13. | I cope very well | -.45 |
| 26. | I believe I am a useful person to have around | -.45 |
| 15. | I believe I've got my life together | -.45 |
| 35. | I feel good about how I deal with problems | -.45 |
| 3. | I feel that I am really a loner | -.90 |
| 14. | I like myself | -.90 |
| 21. | I am proud of the person I am | -.90 |
| 23. | I don't really know what I'm all about | -.90 |
| 31. | I don't get things finished | -1.35 |
| 10. | I hang out at locations where I know others will be | -1.35 |
| 12. | I follow the code set by my friends | -1.35 |
| 36. | I don't get much done | -1.35 |
| 19. | Things usually turn out well for me | -1.80 |
| 11. | I only hang out with people who have the same interests as I do | -1.80 |

VITA 2

Brian Keith Salyer

Candidate for the Degree of

Doctor of Philosophy

Thesis: ADOLESCENT SELF PERCEPTIONS AND DEVELOPMENTAL THEORY

Major Field: Applied Behavioral Studies

Education: Graduated from Ardmore High School, Ardmore, Oklahoma, in May, 1976; Bachelor of Science Degree in Education from East Central Oklahoma State University, Ada, Oklahoma, May, 1979; Master of Science in Education degree from Central Oklahoma State University, Edmond, Oklahoma, August, 1983, (Special Education); Master of Science in Education from Central Oklahoma State University, Edmond, Oklahoma, May, 1985, (Counseling Psychology); completed requirements for the Doctor of Philosophy degree at Oklahoma State University, Stillwater, Oklahoma, May, 1994.

Professional Experience: Physical Education and Recreation Director, Age 5-Adult, Residential Special Education Program, McCall's Chapel School, Ada, Oklahoma, September, 1978, to May, 1979; Camp Director, Gifted and Talented Youth Camp, East Central Oklahoma State University, Ada, Oklahoma, Summer, 1978, and Summer, 1979; Teacher, Grade K-5, Special Education, South Kitsap Schools, Port Orchard, Washington, August, 1979, to June, 1980; Teacher, Grades K-6, Special Education Resource Room and Educational Psychometrist, North Mason Schools, Belfair, Washington, August, 1979, to June, 1981; Teacher, Grades 5-8, Remedial Education and Educational Psychometrist, Jones Public Schools, Jones, Oklahoma, August, 1981, to May, 1983; Graduate Assistant, Psychometry and Counseling Psychology Programs, Central State University, Edmond, Oklahoma, June, 1983, to May, 1985; Teacher, Grades 6-8; Core Content for High-Risk Students, Luther Public Schools, Luther, Oklahoma, August, 1983, to May, 1988; Teacher, Grade 3, Integrated Curriculum Model Program, Edmond Public Schools, Edmond, Oklahoma, August, 1988, to May, 1989; Director of Teaching Associates Instructional Improvement Grants, Graduate College of Education, Oklahoma State University, Stillwater, Oklahoma, July, 1991, to December, 1993; Graduate Teaching and Research Assistant, Applied Behavioral Studies in Education Department, Teaching Assistant and Student Teacher Supervisor, Curriculum and Instruction in Education Department, Oklahoma State University, Stillwater, Oklahoma, August, 1989, to December, 1993.