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Predicting Positive Youth Development Outcomes Using the Social Development Model

Jeanne A. M. Ryan

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

University of Washington

2000

Program Authorized to Offer Degree: School of Social Work

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Doctoral Dissertation

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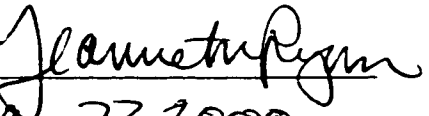
Signature 

Date May 22, 2000

University of Washington
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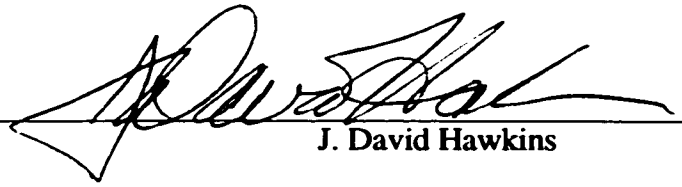

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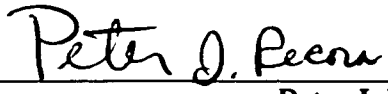

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Abstract

Predicting Positive Youth Development Outcomes
Using the Social Development Model

by Jeanne Ann-Marie Ryan

Chairperson of the Supervisory Committee:
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Many researchers and practitioners in the prevention field have been advocating for a shift in focus from programs designed solely to reduce problem behaviors toward programs that focus upon enhancing youth competency and positive development. Such advocates have provided recommendations for what they believe falls under the rubric of an assets-based approach and have gone so far as to evaluate existing programs for their adherence to such concepts (Catalano, et al., 1998). The aims of this dissertation all fall under the broader goal of providing empirical support to the positive youth development arena. This study is intended to provide evidence that could be used in ultimately coming to a clear consensus on what positive youth development constructs and outcomes are. It is also intended to contribute to our understanding of both: (1) the relationships of risk and protective factors with positive outcomes, and (2) comprehensive theoretical models that predict positive outcomes. Using a longitudinal data set collected for the Seattle Social Development Project, this study used structural equation modeling to examine the ability of the Social Development Model (Hawkins & Weis, 1985; Catalano & Hawkins, 1996) to predict positive outcome behaviors. Although an adequate model fit was

achieved, only 2-8% of the total variance was explained for the positive outcome variables. Limitations of this study and implications are discussed.

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ACKNOWLEDGMENTS

I am honored to acknowledge a few of the many people who supported me in this process. First, I would like to thank my committee chair, Mary Rogers Gillmore, for her valuable guidance and input throughout this process. One of the biggest predictors of success in the dissertation process is the support of one's committee chair, and in this regard I am very thankful for Mary's outstanding performance in this role. Every doctoral student should be so lucky. I would also like to thank my reading committee members J. David Hawkins and Peter J. Pecora for their thorough and important input. On the school front, I was fortunate to have a very supportive (and fun) doctoral cohort: Lynn Behar, Michael Ferguson, Jan Gaylord, Todd Herrenkohl, Sunah Kim and Wooksoo Kim. I would also like to thank my patient, humorous and kind friends Lisa Berglund, Tim Beauchamp, and Vince Payne for listening to all my trials and tribulations throughout this process. It will take a long time to properly thank the very special James Tjoa for being sweeter and sweeter as I got more and more nervous as the end of this process got closer and closer. I am most thankful and blessed by my own PYD upbringing and bonding with my parents Florence and Joseph Ryan and my wonderful brothers and sisters: Kim, Joe, Rebecca, David, John, Jack, Mary, Rachel, James, Timothy and Elizabeth.

DEDICATION

This dissertation is dedicated to my parents, Florence and Joseph Ryan.

INTRODUCTION

This dissertation attempts to provide theoretically driven empirical support to what has been termed the 'positive youth development (PYD)' movement. The PYD movement represents an approach where interventions and outcomes focus first upon strengths and assets of youth. The reduction of problem behaviors is viewed as a related but secondary goal. Heretofore, most of the support for this approach has been either philosophical or built upon the extensive experience of practitioners who have gravitated toward assets based, comprehensive interventions, based upon their first-hand observations of what works and what does not. Although the wisdom and passion of such advocates was enough to persuade me to work in and support this movement, empirical support is the best way to justify (or refute) the call being made by many in the prevention field to shift funding away from programs that are geared solely around reducing problem behaviors toward prevention and promotion programs that focus upon enhancing youth competency. This is relevant to social work as our field has long been interested in the empowerment of clients and communities (Saleeby, 1997). Practitioners working with youth, as well as researchers in the field of prevention science, have been advocating for the use of positively framed approaches when working with young people (cf. Benson, 1993; Pittman & Zeldin 1994; Pittman, O'Brien & Kimball 1993; Weissberg & Greenberg, 1997). Instead of continuing to focus upon individual problem behaviors such as drug abuse or teen pregnancy, many of these same people are promoting approaches that consider the needs of the "whole" youth. As the Administration for Children and Families, Family and Youth Services Bureau (1996), a pioneer in the PYD movement, pointed out,

> "Many social movements, both those productive and dangerous, have built agendas around an enemy, whether individual, organizational, or conceptual...Obviously, adopting this approach for promoting positive social change, such as an overall reduction in drunk driving, can be effective. Yet when applied to certain social-justice movements, such as improving services to young people, the concept falters. In such efforts, focusing on an enemy, such as academic failure or teen pregnancy, detracts from the ability to view young people in a holistic fashion as individuals with problems, strengths, hopes and dreams (p. 3)."

Pittman & Wright (1991) articulated a similar sentiment several years earlier, claiming "...the broad adoption of positive youth development as the goal of any policies or programs for youth is necessary to reduce stigmatized and ineffective programming and will assist in the development of cohesive strategies for addressing youth issues (p. 1)." Pittman & Wright (1991) also provided the following arguments for why it is preferable for organizations working with young people to adopt a positive youth development approach rather than the more common practice of focusing upon specific problem areas. Organizations should take this approach in order to:

> - situate their current goals and activities within a broad context of youth needs so that they can see the connections between their goals (e.g., youth employment) and others' efforts (e.g., pregnancy prevention or recreation);
>
> - avoid continued fragmentation focusing on youth problems; to press for more holistic examination of youth needs;
>
> - avoid the continued mentality that leads us to define youth solely as a service-needy population that in the short-run incurs costs and provides few payoffs; to demonstrate the critical role that schools play in the overall delivery of services to youth and in the broader development of supports and opportunities for youth;
>
> - address head-on, the underlying issues of class and race that suggest that not all youth are worth developing; and
>
> - forestall the creation of a two-tier system of supports for youth that based on class and race, offers some youth participation and enrichment, and others social services and case management.

The arguments above stem from a movement that can be traced back for at least 25 years, with an ebb and flow of popular support along the way. A renewed surge of interest emerged in the early 90's with the work of Karen Pittman who perhaps more than any other scholar in this field has taken on the mantel of "Positive Youth Development champion." Although it has been argued that deficits based models lead to victim-blaming (Karls & Wandrei, 1994), powerlessness (Kurtz, 1997), and are not a fair articulation of what most parents want for their children (Moore & Glei, 1995), the theoretical and empirical evidence to support those who argue for moving toward more positively framed approaches is still at a relatively undeveloped stage (Pittman & Wright, 1991). It is not necessary, however, to start PYD research from scratch. A number of theories that have been used to describe normative development can be used to form a working definition of what PYD outcomes look like and how they might be measured. Furthermore, a number of proponents in the PYD arena, such as Pittman and Wright (1991) and Benson (1990), have provided their recommendations for competencies and assets that should be developed in all youth. The initial phase of this dissertation builds on this work by examining several of the leading developmental theories such as Erikson's theory of personality development, Kohlberg's theory of moral development and Piaget's theory of cognitive development to identify a set of normative milestones that a person in the United States should achieve by early adulthood. These milestones or outcomes are compared against the lists of competencies and assets described by Pittman and Wright (1991), Benson (1990), Havighurst (1972) and others to determine a common set of core components that could be measured in an effort to evaluate whether or not an individual has made a positive transition to adulthood.

The second major task of this dissertation is to test the ability of a well known theoretical model to predict the positive youth outcomes identified during the first phase

of the dissertation. The model is the Social Development Model (SDM, Hawkins & Weis, 1985; Catalano & Hawkins, 1996) which specifies a set of causal paths theorized to predict both positive and negative outcome behaviors. A brief description of this theory and its applicability to PYD is included later in this dissertation. To date, however, all tests of this model have focused on its ability to predict negative outcomes such as substance abuse (Catalano et al., 1996) and alcohol use (Lonczak, in review).

Both of these tasks fall under the broader goal of providing empirical evidence to support the nascent field of positive youth development research. The specific aims of this dissertation are to provide empirical support in each of the following areas: (1) The lack of a clear consensus on what positive youth development constructs and outcomes are; (2) The limited amount empirical research examining the relationships of risk and protective factors with positive outcomes (with the possible exception of academic achievement), and (3) The lack of empirical studies testing comprehensive theoretical models that predict positive outcomes.

To fulfill these aims, this dissertation addresses the following research questions:

1. What is the definition of positive youth development and how can the associated constructs be operationalized? To address this question it was necessary to: (a) Provide a conceptual model of normative development, (b) Differentiate between PYD predictors and outcomes, (c) Define the core components of a positive transition to adulthood that have fairly widespread consensus in American society, e.g., "good citizenship," or economic self-sufficiency, and (d) Determine how to measure these components. Because this is an emerging, exploratory area, this study sought to understand broad-based measures of PYD rather than focusing upon each individual component of PYD. Once the mechanisms of how the "whole" youth becomes a

"whole" adult are better understood, further analyses can examine the individual components.

2. How do previously tested risk and protective factors for problem behaviors individually relate to positive youth development outcomes? In other words, what are the bivariate relationships between individual Social Development Model constructs and PYD outcomes?

3. How well does the Social Development Model predict positive youth development outcomes? This question goes beyond examining the individual relationships that are addressed in research question #2 by looking at the multivariate relationships and pathways between SDM constructs and their collective ability to predict PYD outcomes.

In certain pockets of the country and in particular government funded programs, the principles of PYD are already being promulgated, evangelized and replicated. Indeed, Donna Shalala has already advocated to congress for increasing the implementation of PYD approaches (Shalala, 1999). Dollars will be spent whether or not rigorous research is available to back up these principles. Lest we end up with more federally funded programs such as DARE, which has so much momentum behind it that it continues being replicated despite recent research showing it to be ineffective (Glass, 1997; Ringwalt et al., 1994), or worse yet, miss opportunities to generate momentum behind truly worthy programs because funders are waiting for "guarantees" of success, the time is ripe for conducting research that contributes to what by all appearances seems to be a promising approach toward improving the lives of young people in this country.

CHAPTER 1: LITERATURE REVIEW

This literature review examines several bodies of existing theoretical work with a PYD lens. In addition, it summarizes empirical work that, while not conducted to support PYD per se, helps identify potentially fruitful paths for PYD researchers to pursue. For example, one of the primary principles stated by those promoting positive youth development is that youth should be looked at in a holistic fashion (Pittman & Cahill, 1991), an approach that suggests that prevention programs need to be comprehensive. This is further supported by more recent calls to arms for comprehensive programs such as full service schools (Dryfoos, 1994, 1998).

A comprehensive, multi-domain focus for PYD is congruent with ecological frameworks upon which much current intervention research is based. It is also supported by the empirical work that has been conducted in the epidemiological analysis of risk and protective factors related to problem behaviors (Hawkins, Catalano & Miller, 1992) that has led researchers to arrive at a point where they are advocating for comprehensive preventive interventions. Although risk and protective factors have been studied to determine their association with negative outcomes, many of the findings may also be relevant to the development of models that predict positive outcomes. For example, according to a number of researchers, risk and protective factors occur across multiple domains including the individual, family, peers and the community (Benson, 1993; Dryfoos, 1990; Farrington, 1996; Hawkins, Catalano & Miller, 1992; Institute of Medicine, 1994). These factors also vary in salience across developmental stages (Benson, 1993; Dryfoos, 1990; Farrington, 1996; Hawkins, Catalano & Miller, 1992; Institute of Medicine, 1994). Again, one sees support for promoting comprehensive

prevention programs; however, exactly how risk and protective factors are related to positive outcomes has yet to be described thoroughly in the prevention literature.

An area of research closely related to the study of risk factors centers on developing an understanding of resiliency by focusing upon protective factors (Benard, 1993; Garmezy, 1983; Rutter, 1983, 1987, 1990; Werner, 1990, 1992; Werner & Smith, 1982). This research perspective assumes that risk is present at varying levels for different youth and seeks to identify and understand moderating variables that buffer the risk. Currently, researchers in this area are calling for more work to be done in order to determine how well protective processes work for youth at little or no risk (Bogenschneider, 1996). Despite this, it is worth noting that Bogenschneider herself lists limitations of a protective process focus that include: (1) a protective factor approach could merely be semantically different from risk factors research (Rutter, 1987), (2) protective factors research has a tendency to focus too much on individual youth rather than the environment, i.e., inoculation rather than reducing risks, (3) some research suggests that it is more cost effective to target youth who face the greatest number of risks (Rutter, 1987), and (4) it is easier to mobilize policymakers around problems or crises. While some of Bogenschneider's criticisms could be leveled at positive youth development programs as well, it should be noted that protective or resiliency models thus far have focused on the association between protective factors and negative outcomes. How such factors relate to positive outcomes remains to be studied.

In order to perform research on positive youth development, it is necessary to define what positive youth development outcomes are. As yet, there is no consensus in the field; however, many of the recommendations made by researchers and practitioners on what to strive for in positive youth development programs share some common

themes and provide a basis from which to begin. To operationalize outcome variables for inclusion in this dissertation, the published work of theorists, researchers and practitioners was analyzed to identify several major components that could be used to define a successful transition to adulthood.

Identifying outcomes for this dissertation began with a literature review of positive youth development. There were three published works that included recommendations for a classification scheme for PYD. These included Pittman & Wright (1991), Moore & Glei (1995) and Benson (1993). Using these sources, initial categories were created that would allow each potential PYD outcome construct to be placed into a single category. The categories were based upon the areas of development and achievement most often mentioned in the literature as well as their face validity regarding the major areas of functioning that society assesses when determining whether or not a young adult is succeeding. The second phase of the literature review focused upon refining these categories with work that was closely related to PYD, such as Havighurst's list of developmental tasks (1972) and the Ansell-Casey Life Skills Assessment Tool (Downs et al., 1996; Downs et al., 1997; Nollan et al., 1997). The third phase consisted of identifying theorists whose published work met the following criteria: (1) posited outcomes in any of the categories developed in the first phase of the literature review, (2) posited outcomes that should be achieved by early adulthood, and (3) used a developmental focus, i.e., specified that there were different outcomes for different developmental stages.

Once a categorization scheme was created. It was used to organize PYD constructs with the intent of identifying common outcomes that could and should be measured in conducting an empirical study where a successful transition to adulthood would be the dependent variable(s). The next phase of the literature review sought to

identify a theory that (a) reflected the major tenets of PYD advocates, and (b) could be empirically tested to evaluate its ability to predict PYD outcomes. As stated earlier, the theory that met these criteria was the Social Development Model, which will be described later in this chapter. Theoretical work supporting this model and its potential ability to predict PYD outcomes will also be discussed.

CURRENT COMPONENTS OF POSITIVE YOUTH DEVELOPMENT SUGGESTED BY PRACTITIONERS AND RESEARCHERS

As mentioned above, the framework for this literature review began with recommendations and definitions of PYD outcomes that have been proposed by a number of researchers and practitioners in the positive youth development arena. Pittman and Wright (1991) defined the following five competency areas that PYD programs should seek to develop: Health/Physical, Personal/Social, Cognitive/Creative, Vocational and Citizenship (ethics and participation). They defined positive youth development agents as (1) helping meet youth's basic physical and social needs, and (2) helping build the individual assets or competencies necessary to participate successfully and fully in adolescent and adult life. The basic human needs they referred to included: (1) a sense of safety/structure, (2) a sense of belonging/group membership, (3) a sense of self-worth/contributing, (4) a sense of independence/control over one's life, (5) a sense of closeness/relationships, (6) a sense of competency/mastery, and (7) a sense of self-awareness. They also identified four early adolescent needs: (1) need for diversity in opportunities/expectations, (2) need to explore self and environment, (3) need for physical activity, and (4) need for supervision.

Peter Benson (1993) constructed a list of desirable PYD outcomes which he refers to as "developmental assets." His work in this area began with an a priori list of

30 developmental assets that were used in a survey conducted by the Search Institute of over 250,000 youth in 450 communities across the US. Their goal was to assess the extent to which youth were developing these assets and were being given the means for doing so. Subsequent work by the Search Institute has expanded and refined the list to 40 assets (designated as either "external" or "internal") which have been used to survey thousands of Minneapolis youth. Benson's definition of external assets is comprised of four categories that include: (1) support (family support, positive family communication, other adult relationships, caring neighborhood, caring school climate, and parent involvement in schooling); (2) empowerment (how communities value youth, whether youth are viewed as resources, community service, and safety); (3) boundaries and expectations (family boundaries, school boundaries, neighborhood boundaries, adult role models, positive peer influence, and high expectations); and, (4) time use (creative activities, youth programs, religious community, and time at home) (Benson, 1993). For this dissertation, the types of assets that Benson describes as *external* will be examined as possible *predictors* of PYD outcomes because they are closely aligned with constructs in the Social Development Model (SDM), which will be described later.

Benson also defines a category of developmental assets which he calls "internal." Benson classifies internal assets into the following categories: (1) educational commitment (achievement motivation, school performance, homework, bonding to school, and reading for pleasure); (2) positive values (caring, equality and social justice, integrity, honesty, responsibility, and restraint); (3) social competence (planning and decision-making, interpersonal competence, cultural competence, resistance skills, and peaceful conflict resolution); and (4) positive identity (personal power, self esteem, sense of purpose, and positive view of personal future) (Benson,

1993). This second category is in line with what others in this field might describe as PYD outcomes and is how they will be categorized for this dissertation.

Moore and Glei (1995) sought to develop and test a definition of positive youth development. They claimed that a successful transition to adulthood is comprised of two prongs -- one being the avoidance of what are commonly viewed as 'missteps' and the other being the development of strengths that reflect positive well-being. The missteps are defined as any of the following behaviors occurring before the age of 18: use of hard drugs, running away from home, voluntary premarital sex, premarital birth and dropping out of high school. Their proposed measure of positive well-being was comprised of variables reflecting life satisfaction, low or no depression, community involvement, religiosity, closeness with parents, and placement of importance on correcting social and economic inequalities.

There are a number of other researchers and reports that have also summarized what youth must achieve to transition into adulthood in our society. This includes the work of James Coleman and others, in the Report of the Panel on Youth (1974), who listed the following objectives for youth: personal competence, social maturity, and a sense of identity and self-esteem. Wynn et al. (1987) identified four capacities that adolescents must acquire to function in society. These include: physical vitality, ability to sustain caring relationships, resourcefulness and social connectedness. The Carnegie Council on Adolescent Development (1989) listed five characteristics of a competent 15-year-old that included: An intellectually reflective person, a person en route to a lifetime of meaningful work, a good citizen, a caring and ethical individual, and a healthy person.

More detailed research in this area was conducted by Robert Havighurst (1972), who published a list of principal developmental tasks that he claimed had to be mastered

during adolescence (between the ages of 12 and 18, at the "teachable moment") in order for youth to make the transition to a satisfying and productive adulthood. These tasks are: (1) Achieving new and more mature relations with age-mates of both sexes, (2) Achieving a masculine or feminine social role, (3) Accepting one's physique and using the body effectively, (4) Achieving emotional independence of parents and other adults, (5) Preparing for marriage and family life, (6) Preparing for an economic career, (7) Acquiring a set of values and an ethical system as a guide to behavior -- developing an ideology, and (8) Desiring and achieving socially responsible behavior. The next stage described by Havighurst is early adulthood which he estimates occurs between the ages of 18 and 30. During this period the developmental tasks include: (1) Selecting a mate, (2) Learning to live with a marriage partner, (3) Starting a family, (4) Rearing children, (5) Managing a home, (6) Getting started in an occupation, (7) Taking civic responsibility, and (8) Finding a congenial social group.

Finally, related research has been conducted in the area of independent living assessment, particularly in the out-of-home care arena. This work has been performed in large part to comply with The Independent Living Initiative of 1986 (Public Law 99-272) that requires an assessment of self-sufficiency skills for youth in out-of-home care by age 16. Although independent living assessment tools have generally been tested with youth living in foster care, the skills it measures are compatible with those being mentioned by PYD practitioners. One instrument that covers a broad range of the types of skills and competencies we expect all youth to demonstrate in order to live independently as adults is the Ansell-Casey Life Skills Assessment Tool (Downs et al., 1996; Downs et al., 1997; Nollan et al., 1997). It was designed to be completed by both youth and caregivers and to be appropriate for children in all types of living situations although, to date, research on the reliability and validity of this instrument has focused

upon youth in foster care (Nollan et al., 1997). The life skills areas addressed by this instrument are: Personal care and appearance, Health and safety concerns, Food and nutrition, Decision-making skills, Study skills, Work habits, Career planning and employment, Emotional well-being and self-awareness, Social relationships, Communication skills, Sexuality and intimacy, Pregnancy and parenting awareness, Leisure time, Money management, Household maintenance, Transportation and mobility, and Values and legal rights (Downs et al., 1996).

THEORIES RELATED TO POSITIVE YOUTH DEVELOPMENT

ERIKSON'S THEORY OF PERSONALITY DEVELOPMENT

One of the most widely known and referenced theories in the area of child and adult development is that proposed by Erikson (1968). His theory posits that personality develops over the course of one's lifetime, moving through a series of psychosocial "stages" which roughly correspond to physiological maturation but that are also shaped by the culture or society within which one lives. During each stage, one must resolve the "dilemma" or "crisis" of that stage which subsequently leads to the development of an "ego quality" such as initiative or trust. Failure to develop each ego quality does not prevent progression to the next stage, however, it does limit the likelihood of resolving the dilemmas of subsequent stages and thus affects one's chances for full healthy development. It bears noting that although "dilemma" and "crisis" typically connote pathology in everyday vernacular, in Erikson's theory this is not the case. What he described were normative processes that every person must go through as he or she matures. In all, Erikson described eight stages, five of which transpire by the time a person reaches early adulthood. We can look at the crisis faced in each of the first five stages and the desired outcome of each stage to generate a list of positive youth

outcomes that one should achieve by early adulthood as predicted by Erikson's theory. Further, we can examine the subsequent crisis occurring in early adulthood to make some inferences about what a successful young adult might do to prepare for resolving this dilemma.

The first stage identified by Erikson is that of Basic Trust versus Basic Mistrust. It occurs from birth until age one and is similar to the main premise of Bowlby's attachment theory in that a healthy infant should develop a bond with his or her parents or primary caretakers which, in turn, allows it to securely set forth and explore the world. The dilemma is whether the infant will learn to trust, via the bond, or learn to distrust. The second stage, Autonomy versus Shame and Doubt, takes place between the ages of two and three years. The desired outcome for this stage is a sense self-control and self-worth. Repeated failures during this stage could instead lead to a sense of doubt or shame. Around the age of four or five, a child must resolve the dilemma of Initiative versus Guilt. Here, the challenge is for children to use their natural inquisitiveness and curiosity to push the bounds of what they can do without going so far afield that they end up feeling guilty for unacceptable behavior.

The next stage, Industry versus Inferiority, occurs between the ages of six and twelve. During this time, the child begins to acquire the general skills that society expects of him or her such as reading and writing. The risk here is that the child will develop a sense of inferiority if such skills are not being developed at a pace perceived to be within range of one's peers. The next stage, Identity versus Role Confusion occurs sometime between the ages of 13 and 18, taking the adolescent to the brink of adulthood. During this time, the young person is presented with many possible roles, such as gender and future occupation.

The goal here is to integrate these roles into an individual identity. The age ranges for this stage described by Erikson have been challenged by researchers such as James Marcia (1966, 1976) who showed in his research that many youth do not successful complete "identity achievement" until their late teens or twenties. Waterman, Geary & Waterman (1974) provided support for this expanded age range as well. The sixth stage, Intimacy versus Isolation, is hypothesized to occur roughly between the ages of 19 and 25. While this could be construed as occurring beyond the transition period into adulthood, it bears mentioning since the young adult should be preparing to deal with the dilemma of this stage. The successful resolution of this dilemma is that one will be able to unite his or her identity with that of another. The remaining two stages postulated by Erikson, Generativity versus Stagnation (ages 26-40) and Ego Integrity versus Despair (age 41+), both fall solidly into adulthood and therefore will not be used to develop positive youth development outcomes for this dissertation.

Although Erikson's theory has been a hallmark in the area of personality development research, it does have several limitations that have been cited by other researchers. For example, Bee (1981) notes that the theory is vague regarding the particular experiences at each stage and their effects and that it blends both cognitive and personality development. Nonetheless, it provides some useful guidelines for identifying what types of assets a youth should have developed by early adulthood if he or she is to function successfully in our society. Other critics of Erikson's theory contend that it is dominated by the male experience (Gilligan, 1982) and does not go far enough in addressing issues of racial and minority identity (Spencer & Markstrom-Adams, 1990). Both of these issues focus more upon expanding the definitions of Erikson's stages to include the perspectives of females and racial minorities rather than an abandonment of the stages themselves. Further, much of Gilligan's critique focuses upon the mid-life

stages of the theory which are beyond the scope of interest in this study. Therefore, Erikson's theory was still included in this literature review.

In trying to tie Erikson's theory to that of PYD practitioners and other researchers, one can see that the Identity versus Role Confusion stage of Erikson's theory is reflected in the recommendations of several PYD advocates regarding measures of PYD. For example, Benson (1993) includes "positive identity" as one of his internal developmental assets. The Ansell/Casey Life Skills Assessment Tool (Downs et al., 1996; Downs et al., 1997; Nollan et al., 1997) includes emotional well-being as a dimension of self-sufficiency. Havighurst (1972) postulated that by young adulthood one should have achieved a masculine or feminine social role and emotional independence from parents or other caretakers. He also identified preparation for marriage and family life as a developmental task to be mastered. This is line with Erikson's stage of Intimacy versus Isolation as is the Ansell/Casey Life Skills Assessment Tool that includes Sexuality and Intimacy as an assessment area.

Piaget's Theory of Cognitive Development

Piaget's work has been a dominant voice in the quest for understanding how children develop cognitively. He was the first theorist to look at cognition in terms of *how* humans think rather than *what* they know. He postulated that how we think, usually demonstrated by the types of problem solving strategies we use, varies systematically across developmental stages (Piaget, 1952; Piaget & Inhelder, 1969). Although the *order* through which one traverses Piaget's described stages is consistent from person to person, the environment affects the *rate* at which children go through each stage. Stages are characterized by the types of thinking strategies that are used. In Piaget's terms, at the most fundamental level we "organize" our experiences with the environment and

"adapt" accordingly. Organization can be as simple as combining information from several senses about an object such as remembering that a ball is both smooth and the color red. More developed organizational schemes allow us to classify our knowledge so that new input can be assimilated into our existing cognitive schemes and when it cannot, we must accommodate our cognitive schema to handle the new information. Adaptation, or adjusting to the environment, begins in utero when we use the nutrients from our mother to grow into full-term infants and continues on as we learn to survive in a world of hot stoves and cold winters.

Using these fundamental concepts, Piaget outlined the following cognitive stages, all of which should be traversed by the time one reaches adulthood. It should be noted that while Piaget included rough age estimates for when each stage should occur, other researchers have challenged their accuracy (for example, see Martorano, 1977). The bottom line appears to be that the specific age range for each stage varies across children and the rate of cognitive development varies in relation to a number of other factors. However, as mentioned above, the sequence of stages remains fairly consistent (Bee, 1981). Therefore, the following ages proposed by Piaget should be construed only as rough guidelines.

Piaget's theory begins with the sensorimotor stage, which he described as occurring from birth to age two. During that time, an infant gets used to his body and its sensory organs by practicing cause and effect of various interactions with the environment. For example, "If I cry, I get fed." The next stage is what Piaget termed "Preoperational" thought and it ranges from age two to age six. This stage is characterized by primitive or intuitive reasoning. Although the child is beginning to think logically, there are limitations in the ability to reason, for example, assuming causality

given simultaneous events. ("If I wear shorts, it will be hot outside.") The next stage of thought is characterized by "concrete operations" such as addition, subtraction, multiplication, division, and serial ordering. This stage typically occurs from ages six to twelve. During this stage, the child begins to use inductive reasoning, develops an understanding of concepts such as transitivity and reversibility, begins to employ mnemonic strategies, and learns to classify objects.

The final cognitive level described by Piaget is achieved when one uses thinking strategies called "formal operations." This type of thinking is typically developed from the age of twelve on and is characterized by expanding one's thinking strategies from the concrete to the abstract. Using formal operations, one begins to employ systematic problem solving and deductive logic. According to Piaget's theoretical perspective, we would expect youth who have developed normally to have cumulatively acquired all of the aforementioned thinking strategies by adulthood. However, other researchers have shown that many youth and young adults have not developed formal operations (Martorano, 1977). In the United States, especially with advent of ubiquitous technology, it seems unlikely that persons in our society will be able to gain employment and function successfully without acquiring some basic formal thinking strategies. Therefore, in the categorization scheme developed from this literature review, the cognitive goal for positive youth development, using Piaget's theory as a basis, is to be able to employ formal operational thought.

Piaget's stages of both concrete and formal operations correspond to Pittman & Wright's cognitive assets, specifically in the areas of problem solving, analytical skills, and the ability to learn. Likewise, the Ansell/Casey Life Skills Assessment Tool includes decision-making skills as an assessment area. Benson also includes decision-making as

a developmental asset; however, he classifies it as a dimension of social competence. Concrete and formal operations also correspond indirectly to the areas of educational and vocational achievement put forth by Pittman & Wright (1991) and Havighurst (1972) in that the abilities to learn and solve problems are critical to academic success and necessary for many, if not most, occupations.

Kohlberg's Theory of Moral Development

In the area of moral development, some of the best known and widely cited theoretical work comes from Lawrence Kohlberg (1978) who defined three major levels of moral development, each consisting of two substages. The first level, "preconventional morality" begins with children doing what is right simply to avoid punishment. The second stage in this level is still self-serving, with children doing the right thing in anticipation of what will garner them the best results. The second level in Kohlberg's theory is "conventional morality" which contains substages three and four. Substage three is characterized by people behaving morally in an effort to maintain relationships with those they care about. Substage four is based upon an adherence to law and order. The highest level in Kohlberg's scheme is "postconventional" or "principled morality". The fifth substage is morality based upon a social contract and individual rights and the sixth and final substage is morality based upon universal ethical principles. The theory postulates that most adults never get beyond stage five and many do not get beyond stage four. The stages are cumulative and one cannot progress to the next stage without achieving the stages below it.

There have been a number of criticisms of Kohlberg's theory by other researchers, particularly around the highest level in Kohlberg's hierarchy, postconventional morality. For example, Murphy & Gilligan (1980) contended that

empirical data did not support a one-way progression from stage four morality to stage-five. They claimed that too many subjects appeared to be regressing in their early 20's according to Kohlberg's scheme. Murphy and Gilligan postulated that this was in fact due to more developed cognitive abilities that put Kohlberg's moral dilemmas in a relativistic light. Another critique of Kohlberg's theory is that the highest stages reflect a perspective oriented around justice and rights rather than care and response which often results in scoring that is biased towards males over females (Gilligan, 1982).

Due to these criticisms as well as the fact that many adults do not get beyond stage four of Kohlberg's scheme, for the purpose of this PYD classification, we would expect youth to have achieved at least stage four morality and possibly stage five according to Kohlberg's theory. Stage four morality is congruent with Pittman's notion of citizenship, the Ansell/Casey assessment of how well a youth values legal rights and responsibilities and Havighurst's ethical guide to behavior.

The highlights of this literature review are summarized in Table 1. Based upon the theoretical and empirical work reviewed above and shown in Table 1, several areas emerged as those that should be addressed in evaluating whether a young person has successfully developed into a healthy adult. As stated earlier, the commonalties that emerged across theory, research and practice, provided the basis for classifying these areas into categories. Further, these categories each break down into several major dimensions. The categories and their dimensions are depicted in Table 2. Although examining each category and dimension separately has research merit, the desire of this study is to identify a broad measure that is easily understandable, has high face validity, and captures the core of what it means to make a successful transition into adulthood. It should also be noted that these categories are likely culture-bound and while there seems

Table 1. Theories and Constructs Related to Positive Youth Development.

Author	*Social*	*Vocational/Education/Avocational*	*Ethical/Moral*	*Physical/Health*	*Cognitive*	*Personality*	*Other*
Erikson						Sense of identity	
Piaget					Concrete Operations, Formal Operations		
Kohlberg			Approval, Law & Order, democratic contrast				
Pittman	Personal/Social competence: interpersonal skills (ability to understand personal emotions, have self-discipline); interpersonal skills (ability to work with others, develop friendships and relationships through communication, cooperation, empathizing, negotiating); coping/system skills (ability to adapt, be flexible, assume responsibility); judgment skills (ability to plan, evaluate, make decisions, solve problems)	Vocational competence: broad understanding/awareness of vocational (and avocational) options and of steps needed to act on choices; adequate preparation for chosen career, understanding of value and function of work (and leisure)	Citizenship (ethics and participation): understanding the history and values of one's nation and community and the desire to be involved in efforts that contribute to the nation and community.	Health/Physical competence: evidence of appropriate knowledge, attitudes and behaviors that will ensure future health (e.g., exercise, good diet/nutrition, effective contraceptive practices)	Cognitive, Creative: broad base of knowledge, ability to appreciate and participate in areas of creative expression; good oral, written language skills, problem solving and analytical skills, ability to learn/interest in learning and achieving.		
Ansell/Casey	Social relationships, communication skills, sexuality and intimacy	Work habits, leisure time, career planning and employment, basic education	Values, legal rights and responsibilities	Physical development: personal care and appearance, health and medical concerns, food & nutrition, pregnancy and parenting awareness	Decision making skills	Emotional well-being	Money management, household management, transp & mobility, community resources.
Moore & Glei	Closeness with parents		Community involvement, religiosity, importance of correcting social and economic inequities			Life satisfaction, low or no depression	No missteps
Benson	Social competence, cultural competence	Educational commitment	Positive values			Positive identity	

Theories and Constructs Related to Positive Youth Development (continued).

Author	*Social*	*Vocational/Education/Avocational*	*Ethical/Moral*	*Physical/Health*	*Cognitive*	*Personality*	*Other*
Havighurst	Prepared for marriage and family life, Mature relations with age-mates of both sexes, have developed socially acceptable behavior.	Prepared for an economic career	Acquired a set of values and an ethical guide to behavior	Acceptance of one's physique and ability to use one's body effectively		Achieved a masculine or feminine social role, Emotional independence of parents and other adults	
Wynn	Social connectedness, ability to sustain caring relationships			Physical vitality	Resourcefulness		
Carnegie Council		A person en route to a lifetime of meaningful work	A good citizen, a caring and ethical individual	A healthy person	An intellectually reflective person		

to be consensus among theorists, researchers and practitioners, a different set of outcomes is conceivable in cultures very different from ours.

Based upon the analyses described above, one common factor that kept emerging and which is seen in several of the categories above is that of productive engagement. It is an aggregate construct that measures the extent to which a young adult is spending his or her time in activities that facilitate progress along educational, vocational or avocational paths. Because it appears to be a core outcome when integrating the work of practitioners, theorists and researchers, it arose early as the PYD outcome that would be the primary focus of the proceeding analysis. There were a number of other factors that drove the decision to ultimately make this the primary outcome of interest.

First was the scope of the dissertation. Given the desire to test the Social Development Model, which is a fairly large model that would require the creation of a large number of constructs, the aim was to limit the outcome variables to one or two key constructs of interest. The second issue was that it was necessary to identify outcomes that were measurable. Productive Engagement, as measured by work and school variables available in the data set that was ultimately chosen, made it the most quantifiable of the outcome areas. Finally, there was the issue of predictors versus outcomes. The SDM, which will be described in the next section, specifies a number of predictors that can be viewed as proximal outcomes on the path toward other more distal outcomes. In an effort to hold true to the model, if a PYD construct occurred as a predictor in the SDM, that is where it remained. In other words, the causal ordering specified by the model was maintained. Further discussion of this topic can be found in Chapter Two.

Table 2. Categories and Dimensions of PYD Outcomes.

Category	Dimensions
Social	Prosocial orientation; Social behaviors; Social Competence, Intimacy
Vocational	Vocational preparation, Vocational involvement, Job satisfaction; Economic Self-sufficiency; Avocational development
Educational	Educational status/completion; Educational commitment
Ethical/Moral	Belief in the moral order, Religiosity/ Spirituality, Community Involvement
Physical	Healthy behaviors, Responsible sexual behavior
Cognitive	Problem solving skills, academic achievement
Personality/Psychology	Prosocial personality, Sense of cultural identity
Other	Avoidance of problem behaviors

THEORIES THAT OUTLINE MECHANISMS OR PATHWAYS FOR DEVELOPING POSITIVE BEHAVIORS

The Social Development Model

As stated above, this dissertation examines predictors of positive behaviors based upon the Social Development Model. This theory was originally developed by J. David Hawkins and Joseph Weis (Hawkins & Weis, 1985) and is based upon an integration of the theories of social control (Hindelang, 1973; Hirschi, 1969; Kornhauser, 1978), differential association (Sutherland, 1947; Matsueda, 1988; Sutherland & Cressey, 1970) and social learning (Akers, 1977, 1985; Bandura, 1977). A brief description of each theory's highlights is provided as follows.

The central thesis of social control theory (Hirschi, 1969), is that the greater one is bonded or attached to conventional social agents, the less likely that person will be to

commit a crime. When faced with the opportunity to commit a criminal act, the person's level of commitment to the beliefs of the socializing agents will act as a deterrent if commission of the crime is perceived as threatening the attachment. The primary constructs of the original theory included attachment, commitment and involvement. However, including involvement, in the causal ordering specified by Hirschi, has not been supported empirically (Elliott, Huizinga, & Ageton, 1982; Kempf, 1993, Thornberry, 1987). Therefore, although the SDM uses social control theory to define causal constructs, it postulates some important additions and re-ordering that will be described below.

Differential association theory (Sutherland, 1947; Matsueda, 1988; Sutherland & Cressey, 1970) posits that criminal behavior is learned both from the perspective of "how" to commit the acts as well as learning definitions of legal codes that are either favorable or unfavorable to committing a crime. If definitions favorable to criminal behavior outweigh definitions favorable to prosocial behavior, a person is hypothesized to become delinquent. People learn these behaviors and definitions from the persons with whom they most frequently associate. Unlike social control theory, this is deemed to hold true for associations with both prosocial and anti-social agents. The SDM makes use of these parallel associations to hypothesize predictive relationships for both pro- and anti-social behaviors based upon both pro- and anti-social socialization.

Finally, social learning theory (Akers, 1977, 1985; Bandura, 1977) provides an approach to understanding the mechanisms behind the acquisition of behavior. The premise is that behaviors are learned both through modeling and then reinforcement. Initially, conventional or deviant acts are modeled or imitated. Whether or not they are repeated depends upon the rewards and costs following the act. These rewards can also

be perceived vicariously in that observation of someone else being rewarded for a conventional or deviant act can also serve as reinforcement. This theory further postulates that behaviors will be learned cumulatively, based upon a child's cognitive stage of development (Bandura, 1977). The SDM integrates this theory with the others above to provide a mechanism for how involvement with pro or anti-social others can lead to behaviors that are modeled by these social agents. Although social learning theory cannot be used to specify exactly what the positive outcomes of adolescence should be, it provides one manner of explaining how such outcomes are developed and it includes an emphasis on environmental factors.

As mentioned above, the SDM depicts separate paths for developing both delinquent and non-delinquent behaviors and postulates that if youth are provided with: (1) opportunities to be involved in prosocial institutions such as school, (2) the skills necessary to succeed in these institutions, and (3) reinforcement for positive involvement, they will increase their involvement with prosocial agents and thus develop greater commitment to these agents. This commitment is hypothesized to lead to an internalization of the positive values of these social agents, such as achievement, and subsequently builds belief in the social moral order. This belief, in conjunction with associations with prosocial others, is hypothesized to lead to prosocial behaviors. A parallel path exists for involvement and bonding with anti-social agents, ultimately leading to negative behaviors.

More recently, the Social Development Model was expanded by Catalano and Hawkins (Catalano & Hawkins, 1996) to incorporate a developmental focus. They divided the general model into four sub-models, one for each stage of the child's development, which roughly correspond to school stage -- preschool, elementary, middle,

high. The general paths and constructs occur in a similar manner across each stage; however, various paths take on more salience at different stages and the behaviors predicted as end points for one stage act as predictors for the next stage of development. The general model is shown in Figure 1.

Thus far, the Social Development Model has been shown to adequately predict negative behaviors such as drug abuse (Catalano et al., 1996), early anti-social behavior (Catalano et al., 1999) and alcohol use (Lonczak et al., in review). As yet, the Social Development Model has not been tested for its predictive ability for positive behaviors; however, other research has shown significant associations between several of the individual constructs included in the Social Development Model and positive outcomes. For example, an association has been shown between teacher praise (congruent with the "prosocial reward" construct in SDM) and school work (Staines, 1958; Beez, 1978; Rosenthal & Jacobson, 1968). Girls with a close identification with their fathers ("bonding to prosocial others" construct in SDM) have later shown higher levels of success, independence and self-esteem (Baruch & Barnett, 1975; Hennig & Jardim, 1976; Rivers, Barnett & Baruch, 1979).

Although very little has been done empirically to tie positive youth development constructs to a spectrum of both risk and protective factors, one study does stand out. In research designed to develop and test a measure of positive youth development, Moore and Glei (1995) developed and then performed a validity and reliability analysis of two scales: The Missteps Scale and the Positive Well-Being Scale. As mentioned earlier, they argued that the definition of successful transition to adulthood is comprised of two prongs -- one being the avoidance of what are commonly viewed as 'missteps' and the other being the development of strengths that reflect positive well-being. The missteps

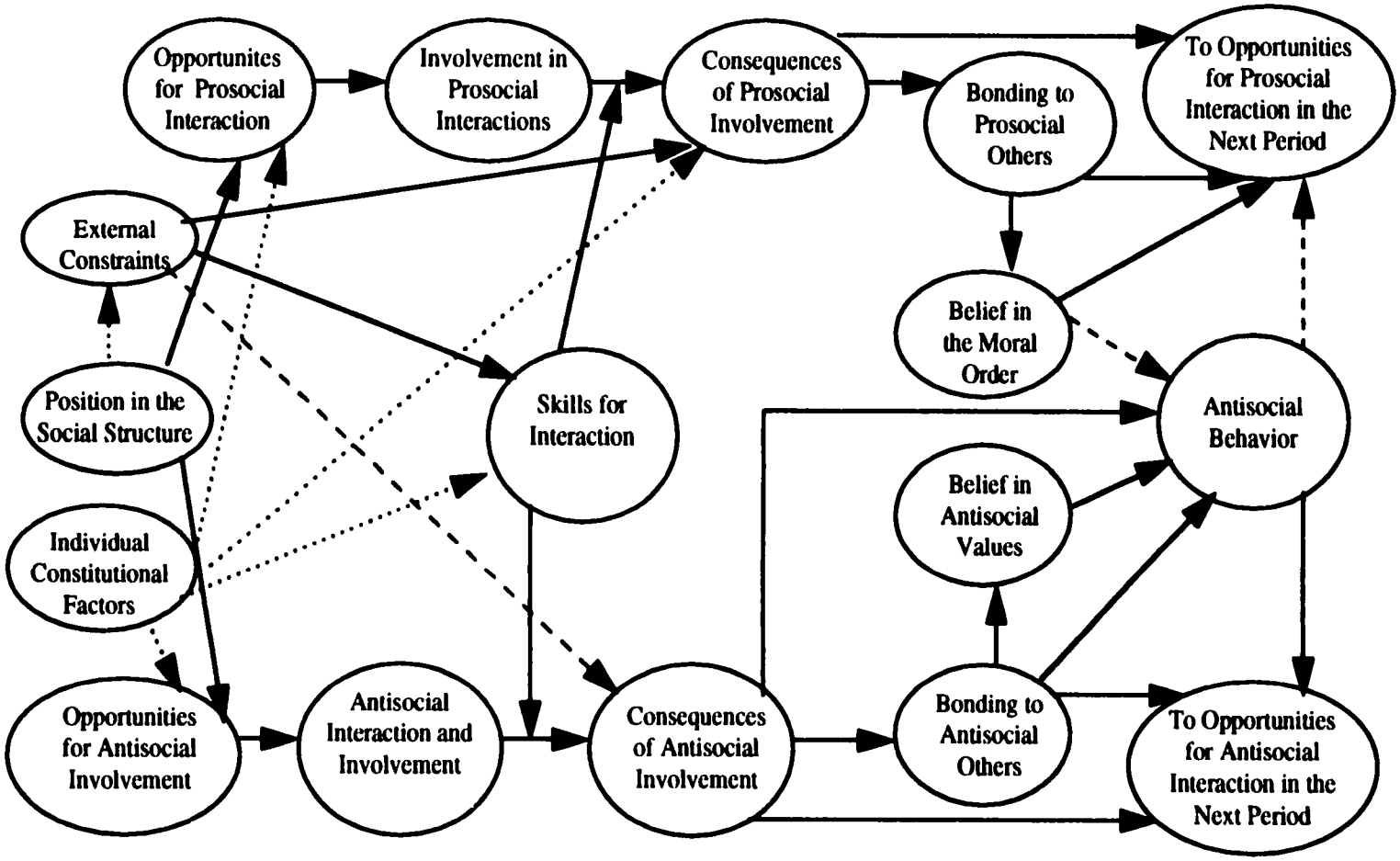

Figure 1. The General Social Development Model (source: Catalano & Hawkins, 1996, page 159)

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are defined as any of the following behaviors occurring before the age of 18: use of hard drugs, running away from home, voluntary premarital sex, premarital birth and dropping out of high school. The positive well-being scale is made up of variables reflecting life satisfaction, low or no depression, community involvement, religiosity, closeness with parents, and placement of importance on correcting social and economic inequalities.

Moore and Glei used these scales to examine data from the National Survey of Children to identify associations between each scale and selected risk and protective factors. They found that net of other variables there was less chance of making a misstep and a greater sense of well-being for youth who experienced fewer family disruptions, were closer to their parents (SDM bonding), whose parents were better educated (SDM exogenous construct: position in the social structure), who had fewer behavior problems in elementary school (SDM prior problem behavior) and who were not from high-poverty neighborhoods. African-American youth showed an 83% higher probability of positive well-being than youth of other ethnicities. Further analysis showed that this association was the result of higher concern with social inequality (SDM belief in the moral order) and greater religiosity (which might bear a relation to the SDM "belief in the moral order" construct). This was an important study in the effort to begin an empirical base for PYD and more work along these lines should be performed. However, the definition of a positive transition to adulthood used in this study was missing several components that hold wide consensus in our society, such as being enrolled in post-secondary education or being employed full time. Further, the components making up their scale of positive well-being require further examination in terms of their appropriateness and validity. In terms of face validity, one must question an instrument that suggests higher well-being for an ethnic group that is over-represented in terms of environmental risk factors (neighborhood disorganization, poverty and lack of positive

opportunities, i.e., quality education and employment), that have shown to be related to problem behavior. Nonetheless, the evidence provided by Moore and Glei's study, in addition to that described in the other studies included above, begins to provide a body of support for the contention that the Social Development Model could indeed be used to predict positive outcomes. In addition, theoretical support for such a contention can be found by looking to work published by Bronfenbrenner (1979, 1995) and Bowlby (1969).

Ecological Perspective

A related approach described by Bronfenbrenner takes an ecological perspective and is compatible with the risk and protective factors research. Its premise is that in order to understand or analyze behavior, one must take the social-ecological-cultural contexts into account (Bronfenbrenner, 1979; Bronfenbrenner & Crouter, 1983; Bronfenbrenner, 1995). These contexts have been classified by Bronfenbrenner and begin with the microsystem. This is the most immediate context with which an individual interacts and includes components such as family members, friends, the school or the neighborhood. The next level of context is the mesosystem, which consists of the interactions between microsystems such as the links between families and schools or between parents and a child's peer group, e.g., parental monitoring. The next contextual level is the exosystem, which, while not directly interacting with an individual, does have an indirect impact upon his or her development. The exosystem includes situations in the social structure such as the quality of the parents' marriage, economic stresses that lead to restricted access to other family members or opportunities, changes in the legal system, such as in definitions of neglect or abuse, or program guidelines in the mass media controlling the amount of violence on television (Weissberg & Greenberg, 1997).

The SDM specifically accounts for variables in both the microsystem and exosystem. The microsystem interactions between individuals and their peers or families is at the heart of the SDM and its constructs of interactions with pro- and anti-social agents. These interactions lead to rewards for such interaction and subsequently to bonding with these same agents. The exosystem variables are represented in the SDM by its inclusion of three exogenous variables: position in the social structure (SES, race, gender, age), constitutional or physiological factors (cognitive ability, low central and autonomic nervous system arousal levels), and external constraints ("explicit clarity of rules, laws, and norms, and the degree of consistency and immediacy of the sanctions imposed" (Catalano & Hawkins, 1996, p. 162)). All of these exosystem constructs are postulated to be fully mediated by the endogenous SDM variables (Catalano & Hawkins, 1996).

Finally, the broadest level context is the macrosystem that encompasses "broad ideological and institutional patterns and events that define a culture or subculture". This would include entities such as historical events or changes in the social structure such as increasing lifespans or a decreasing valuation of the US dollar (Weissberg & Greenberg, 1997, p. 12).

Attachment Theory

Another body of work that links components of the Social Development Model with positive outcomes is Attachment Theory (Bowlby, 1969). This theory specifies that attachment behaviors between children and their primary caregivers have a biological basis and are thus instinctive. The instinctive patterns with which we come into the world make us sensitive to particular "triggers" that can be internal, such as pain or hunger, or external, such as aspects of another's facial expressions. These triggers lead to behavior

in infants such as smiling or crying. How these behaviors are responded to by others influences the future patterns of behavior in the child and his or her bond to these people. Although Bee (1981) argues that Bowlby's postulates do not constitute a full fledged theory since they do not describe attachment processes and mechanisms beyond early infancy, other researchers have provided some evidence that infants who are securely attached show leadership behaviors and confidence with other children four years later (Lieberman, 1977; Sroufe, 1978; Walters, Wippman & Sroufe, 1979). Again, one can see the linkage between a Social Development Model construct, in this case "bonding to prosocial others", and a positive youth development outcome such as social competence.

The theories and empirical evidence described above have been intentionally focused upon desirable outcomes for youth. While this is intended to provide justification for the research methods to be discussed in the next chapter, it bears noting that a comprehensive definition of what our society characterizes as a successful transition to adulthood would not be complete without the absence of problem behaviors. As Hawkins, Catalano & Haggerty (1993) note in their discussion of risk and protective factors, it is not sufficient to advise smokers to exercise without also encouraging them to stop smoking. This dissertation is not intended to negate the desire to avoid pitfalls; however, including a broad range of both positive and negative outcomes is beyond its scope. Because the bias to date has been for research focused upon negative outcomes, this analysis will attempt to provide some balance by examining factors hypothesized to be related to positive youth development.

In summary, the purpose of this chapter was to review the literature base in order to create a taxonomy of PYD constructs. Once this was created, the discussion turned to an examination of the validity and ability of SDM for predicting positive youth development outcomes. Given the theoretical and empirical work supporting key

mechanisms of this model that do indeed support a PYD approach, the next chapter moves to a discussion of the analysis methods used to test the SDM with PYD outcomes.

CHAPTER 2: METHODS

Because the processes depicted in the Social Development Model are theorized to occur over time, the most appropriate way to test the paths it specifies is to use a longitudinal data set where the predictors are measured at an earlier time point than the outcomes. The outcomes of interest should be measured in early adulthood in order to examine whether a successful transition is being made or has just been made. Young adults in the United States often spend from several years to a decade making the transition from their family's or guardian's households to their own household. Therefore, it is ideal to examine PYD outcomes measured between the ages of 21 and 27. While the National Longitudinal Survey of Youth spans these ages and includes many of the measures of interest that will be described below, it does not include as thorough an assessment of Social Development Model constructs as the data collected for The Seattle Social Development Project (SSDP), a prospective longitudinal study conducted in conjunction with a multi-domain intervention to prevent delinquency and other problem behaviors (Hawkins et al., 1997; O'Donnell et al., 1995). Therefore, data from the SSDP was used for this study.

The tradeoff in using the SSDP data set is that the measures of outcomes items available were assessed in 1996, at age 21, a time when many youths have not made a complete transition into adulthood. However, because most of the outcomes of interest were to be constructed as continuous and cumulative measures, it should be possible to determine if by age 21 the youth in this sample are moving on the trajectories predicted by Social Development Model. All of the Social Development Model predictors were

taken from the survey administered in 1993 when the study participants were approximately 18 years old. This time-point represents a culmination where the constructs of all earlier time-points should be reflected. As mentioned above, outcome measures were from a data set that included self-report surveys administered to study participants in 1996 when they were about 21 years old. Because the general SDM was geared toward problem behaviors, a modified version of if was used for this analysis. It is shown in Figure 2. The exogenous constructs included in the general SDM are beyond the scope of this dissertation since the purpose here was to determine if the SDM in general could predict PYD, leaving hypotheses concerning external factors and various population sub-groups for a follow-up set of analyses.

SUBJECTS

The SSDP data were collected from youth in 18 Seattle area elementary schools that were chosen to overrepresent students from high crime, urban, multi-ethnic neighborhoods. The youth were followed beginning in the fifth grade in 1985 with approximately one survey of youth per year (no survey was administered in the 11th grade). Annual surveys of the students' parents were administered through 1991 and annual surveys of the students' teachers were conducted through 1989. Data from school, police and court records were also collected. The study population in fifth grade included 1053 students. Of this population, 808 (77%) youth consented along with their parents to participate in the study. This primary sample of 808 youth consisted of 396 (49%) female, 374 (46.3%) European-American, 192 (23.8%) African-American, 171 (21.2%) Asian, and 71 (8.7%) Native American or 'other' ethnicity youth. Just over 40% (n=314) of the youth were eligible for a free lunch program. Thus this sample was diverse in terms of gender and ethnicity. This panel also had a high retention rate with

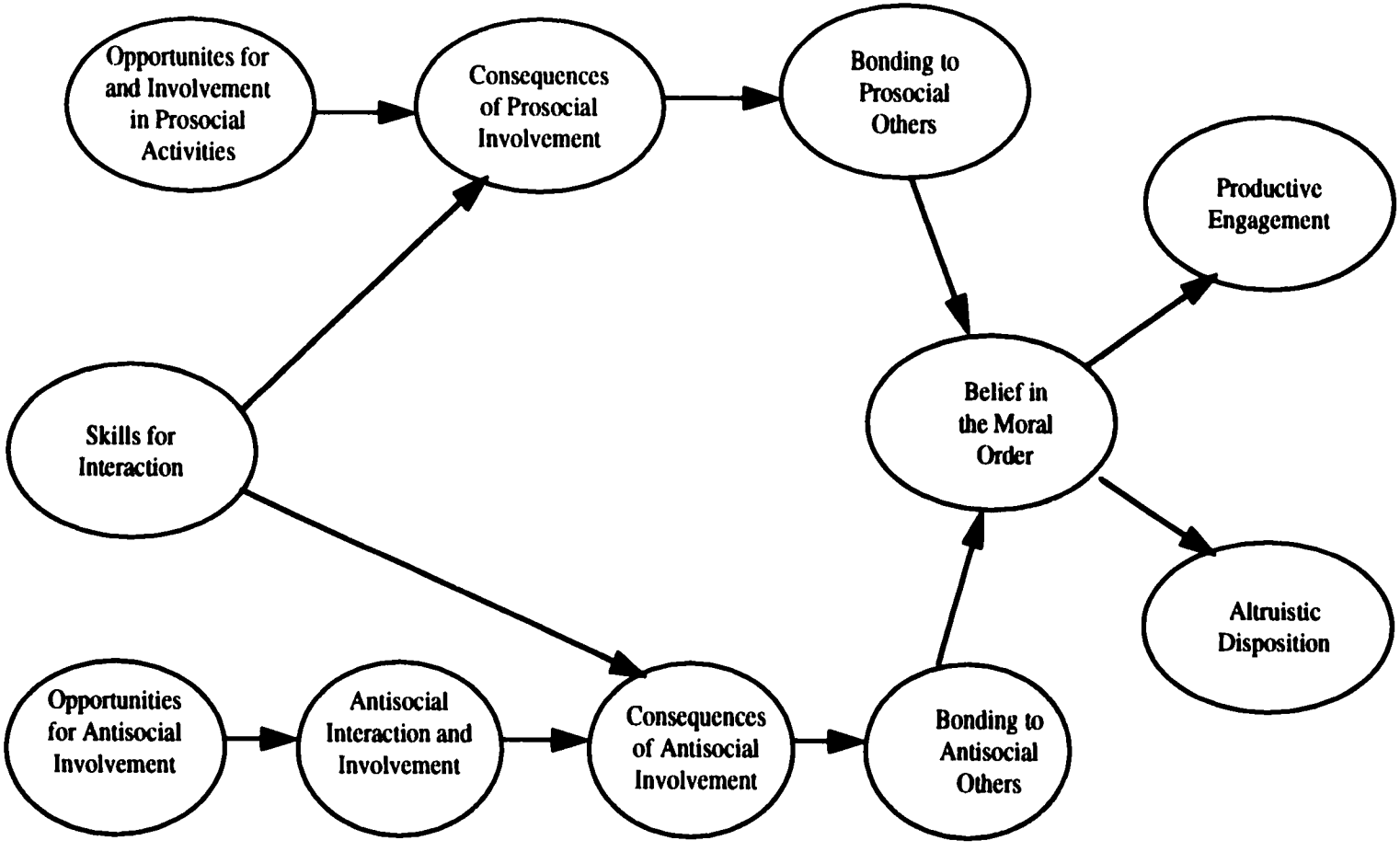


Figure 2. SDM Structural Model Using First Order Factors

90% of the students providing data for at least 7 of the 9 waves. In the 12th grade survey, 94% (n=757) of the original sample provided data and in the survey administered at age 21, 95% (n=765) provided data. The average age at the time of the 12th grade survey was 18.31 (SD=.51) and at age 21 was 21.31 (SD=.51). Analyses conducted for other studies using this data set indicate that youth from the original sample who were not interviewed at age 18 did not differ significantly from the original sample with respect to gender, ethnicity, SES or intervention condition (Hawkins, et al., 1997). However, a cross-tabulation analysis showed that youth retained in the age 18 sample were significantly less likely to have been eligible for a free lunch program at the time of the original survey than expected ($p < .01$).

MEASURES

Social Development Model Constructs and Their Indicators

With very few exceptions, which will be discussed later, the SSDP data set includes multiple items measuring each of the SSDP constructs at each wave it was administered. The Social Development Model has been tested using SSDP data for other studies (for example, see Catalano, et al., 1996). To the extent possible, items that were used to create indicators for SDM constructs in prior analyses were included in the creation of indicators for this analysis. However, many of the questionnaire items from one administration of the survey to the next were modified, added or deleted, making completely consistent indicators across time periods impossible to construct. This is in line with theory, since the means of measuring each SDM construct *should* vary as youth progress through each developmental stage. However, it meant that this study could not use indicators that were identical to SDM indicators created for other waves of SSDP

data. In fact, until this analysis, the 12th grade data for the Seattle Social Development Project had not been used to create measures of SDM constructs, making it necessary to create new SDM indicators that had not previously been tested. Roughly 50% of the items used for these new 12th grade constructs were equivalent to the items used in a prior analysis where SDM constructs were created with the 10th grade data.

For the sake of clarity, it should be noted that in this discussion, "Item" refers to either individual questions on the original survey or the recoded versions of these questions. "Indicators" are the measures that were used in the structural equation models. Each indicator was developed using multiple items. "Constructs" are the latent variables that the indicators were intended to measure. Each SDM predictor (with one exception that will be described later) and each PYD outcome were represented by one construct in the model. A summary of the items used to create the indicators for each SDM construct is described briefly below and descriptive statistics for each indicator are presented later in this chapter in Table 20. The exact items included in the survey questionnaires and their valid response ranges are included in Appendix A.

Because many of the items on the survey used different scales for responses, all items were *z*-scored before taking their mean to derive a final indicator. Before doing so, all items were recoded so that higher values represented a greater degree of the construct in question. Items within each domain (e.g., individual, school, family) were randomly assigned to each indicator and combined by taking their mean. In an effort to be consistent with prior studies of the SDM (cf. Catalano, et. al, 1999; Catalano, et al., 1996; Lonczak, et al., in review), as well as to create indicators that represented multiple domains (Bollen and Lennox, 1991), the goal in this study was to create three indicators for each latent SDM construct. This was possible for all SDM constructs except Skills for Interaction, which had two indicators due to a limited number of items in the data set.

Items were inspected for skewness and kurtosis using Kline's suggested thresholds of three for skewness and 10-20 for Kurtosis values (Kline, 1998). Those items not meeting these thresholds were transformed using a logarithmic function.

The same process was used to create the PYD outcomes. This resulted in three indicators for the Productive Engagement construct and two for Altruistic Disposition. Both of the PYD constructs will be described more fully later in this chapter.

The items used to create each SDM construct are as follows:

Opportunities for Prosocial Involvement and Prosocial Interaction/Involvement. Unlike earlier waves of the SSDP data set, the 12th grade version only had two items for the Prosocial Opportunities construct. These were the youth's perception of the number of chances for students in their school to get involved in sports, clubs, etc...and whether their parents asked them before making family decisions that affected them. The items that were available for the Prosocial Interaction and Involvement construct included whether the youth took part in class discussions and activities, how often the youth attended religious services, had friendly chats with their teachers, talked to their parents about what they were going to do for the day, talked to their parents about what they had actually done for the day, talked to their parents about how well they were doing in school, had friendly talks with their parents in general and how often they saw each of their best friends. Since involvement with each friend could be viewed as either a pro- or anti-social interaction, depending upon the extent to which the friend provided a pro- or anti-social influence, the prosociality (as well as the anti-sociality) of each of these friends was quantified using a valence method described below. All 13 items making up the three indicators for this construct were scored on four-point scales.

Although the SDM theory stipulates separate constructs for Opportunities for Prosocial Involvement and Prosocial Interaction and Involvement, the data set did not

provide enough items to adequately measure Prosocial Opportunities. Further, because these constructs were both measured at the same time and the items measuring them were so similar, there was a fair degree of correlation between the items. The correlations between items on the Prosocial Involvement and Interaction construct were between .03 and .66. The correlation between the two items on the Prosocial Opportunities construct was .21 and the range of r's between those two items and the items on the Prosocial Interaction and Involvement construct were between .01 and .43. The Cronbach reliability alpha for all items on both constructs was .74, with the removal of either Prosocial Opportunities item causing an overall decrease in Cronbach's alpha. Therefore, these two constructs were combined, which is a limitation of this study.

Opportunities for Anti-social Involvement. Twenty-two items were used to construct the three indicators for this construct. These items included the number of adults the youth knew and/or lived with who had a variety of problem behaviors (been drunk, had a drinking problem, used marijuana, crack, cocaine or other drugs, was addicted to drugs, sold or dealt drugs, or was convicted of a crime), whether youths had had a chance to try pot or other drugs, whether the youth could get marijuana or other drugs if they wanted some, the percentage of students in their grade who drank alcohol or smoked marijuana, whether the youth had ever been asked to join a gang, how many kids the youth knew who used marijuana, cocaine, other drugs and/or belonged to a gang, and the number of siblings the youth had who used alcohol, belonged to a gang, smoked cigarettes, used marijuana, cocaine or other drugs, was suspended or expelled from school or done anything that could have gotten them in trouble with the police. Items were scored in a variety of ways which included four-point scales, five-point scales, yes/no and open-ended integers. The valid response ranges for all items are included in Appendix A.

Anti-social Interaction or Involvement. This construct's indicators were comprised of eight items asking whether the youth had run away from home, how often the youth went out at night when their parents told them they could not go, how often the youth had serious arguments with either parent and how often the youth saw each of his or her best friends. Again, the frequency of contact with each friend was weighted by a valence score of the friend's anti-sociality based upon the method described later in this chapter. Items were scored in a variety of ways which included four-point scales, five-point scales, yes/no and open-ended integers.

Skills for Interaction and Involvement. The two indicators making up this construct included five items that measured the youths' grades and what the youth would do if one of their friends asked them to skip school, if one of their friends offered them a beer at a party, or if some teenager they did not know deliberately bumped into them. The situational items were scored on a four-point scale. One of the grade items allowed the entry of a specific grade point average and the other grade item was a five-point scale (Mostly A's, Mostly B's...Mostly E's or F's).

Consequences (Rewards) for Prosocial Involvement and Interaction. The three indicators created for this construct included 20 items asking if there were people in the youth's neighborhood who were proud of the youth when he or she did well, whether the youth's parents noticed when the youth was doing a good job, how often the youth's parents told them they were proud of them for something they had done, whether the youth's parents praised the youth and were proud of them when they did well in school, whether the youth's teacher praised or complimented them when they worked hard, whether the youth thought what he or she had learned in school would be worthless in getting a good job (reverse coded), whether the youth's parents were proud of them when they did well in their job, whether the youth's supervisor praised them when they

worked hard and whether the youth's three best friends thought well of the youth when they did well in school or did something well. It also included the extent to which youth believed that other students in their class and people at work wanted them to do their best work. All items for this construct were measured on four-point scales.

Consequences (Costs and Rewards) for Anti-social Involvement and Interaction. This construct was comprised of three indicators that included 31 items asking what youths believed the chances were they would be punished by their parents if they beat up somebody, took something worth $50, skipped school, drank alcohol or smoked marijuana. Additional items included what the youth believed the chances were they would be seen as cool if they beat up somebody, took something worth $50 or carried a hand gun. Youth were also asked whether they liked drinking alcohol or smoking pot, whether they thought that drinking alcohol or smoking marijuana were ways to make friends, talk about one's feelings, make people happier with themselves, or make people worry less, whether they thought that it hurt people to drink varying amounts of alcohol and to what extent they believed that alcohol got in the way of school work or getting along with friends. All items were measured using either a four-point or five-point scale.

Bonding to Prosocial Others and Activities. The indicators tapping into this construct were created from 29 items that included whether the youth liked school, their teachers, or their class, whether the youth looked forward to going to school, whether they thought nobody at school cared about them (reverse coded), whether they did extra work on their own in class, whether they kept working on assignments until they were finished, whether doing well in school was important and to what extent the youth shared their thoughts and feelings, wanted to be like and would stick by each of their three best friends (scored for their prosociality as described below).

This construct also included items asking youths whether they would miss their neighborhood (also scaled by a prosociality valence score), whether they would like to get out of their neighborhood and whether they were satisfied with their neighborhood. All of these item were measured using four-point scales.

Bonding to Anti-social Others and Activities. Three indicators were constructed from 12 items asking to what extent youths shared their thoughts and feelings, wanted to be like and would stick by each of their three best friends (scored for their anti-sociality as described below). This construct also included items asking youths whether they would miss their neighborhood (also given an anti-sociality score), whether they would like to get out of their neighborhood and whether they were satisfied with their neighborhood. All of these item were measured using four-point scales.

Belief in the Moral Order. Three indicators were constructed from 16 items including whether youths would let a friend copy their exam, whether making a good impression was more important that telling the truth to their friends or parents, whether it was important to be honest with their parents, whether it was okay to take something without asking if they thought they could get away with it, whether they thought it was necessary to do some things that are not right to get ahead, whether they would be willing to break some rules if they wanted to be popular with their friends, whether they thought it was okay to cheat sometimes at school and how wrong they thought it was for someone their age to skip school without an excuse or to lie, disobey or talk back to adults. Several anti-social alcohol and drug beliefs were also included in this construct such as items asking youths whether they thought it was okay for someone their age to drink or to smoke cigarettes or marijuana.

Valencing for "Goodness" and "Badness". As mentioned above, the items regarding the youth's three best friends and neighborhood were qualified using a scalar

to weight each response along a spectrum of both pro and anti-sociality. This was based upon a method used in the most recent test of SDM on the SSDP data set which employed a valencing mechanism to measure indicators that could be pro- or anti-social depending upon characteristics of the person or neighborhood with whom a youth was bonded or spent time (Lonczak, et al., in review). For example, if a youth's best friend was given a high score for prosociality, then the youth's indicator for prosocial involvement would be higher than if this friend had a lower prosociality score. Likewise, the anti-sociality of a friend would have a bearing on the extent to which the youth bonded with anti-social peers. The valencing was performed by calculating both a pro- and an anti-social "score" for each of the youth's three best friends and the youth's neighborhood. Each of these valence scores was multiplied with items that reflected the amount of bonding and interaction the youth had with each of these other entities. For example, if the "goodness" of a youth's 2nd best friend was rated as a two, and the youth's response to the question "How often do you see your second best friend" was a value of three (on a scale of one to four), then a variable measuring the youths' positive interaction with friend number two would be six (2 x 3).

The prosociality of each of the youth's three best friends was determined by whether most people who knew the friend thought he/she was a good influence on others. The anti-sociality of each of the youth's three best friends was determined by whether the friend did things that got them into trouble with teachers or other adults, the number of times in the past month the friend got drunk, whether the friend had used marijuana or other illegal drugs in the past year, whether the friend had done anything in the past year that could have gotten him/her in trouble with the police and whether the friend had ever asked the youth to do things that could get them into trouble with their parents, the school or the police.

The "goodness" of each youth's neighborhood was determined by the extent to which the youth felt safe in the neighborhood. The "badness" of a neighborhood was determined by the extent to which the youth reported that the following descriptives applied to his or her neighborhood: Crime or drug selling, fights, shootings or knifings, gangs, and rowdy or undesirable neighbors.

Positive Youth Development Outcome Constructs

Clearly, the number of potential variables using all seven major categories of PYD outcomes described in Chapter One would be enormous. Therefore, this analysis focused primarily upon the area of productive engagement and secondly in the area of social competence, specifically altruistic disposition. These areas were chosen because (1) they have a broad base of theoretical and empirical support, and (2) they were the most thoroughly measured PYD outcome areas measured in this data set. Although it would have been desirable to include outcomes in the Moral/Ethical area, all of the items included in this data set fell under the dimension of "belief in the moral order" which is a Social Development Model construct. As such, these items were reflected in the analysis as a predictor of later PYD behaviors. "Social skills" was also identified as a dimension in the PYD outcome category of social competence, however, it too is embedded in the Social Development Model and was thus included as a predictor rather than an outcome for this analysis.

Within the two major outcome areas, constructs were developed to capture the following specific dimensions of PYD: Productive Engagement: cumulative educational status, vocational status/involvement, school status, volunteer status, and involvement in community or school groups. Social Competence: altruistic disposition. As with the

SDM predictors, all items were recoded so that higher values represented a greater degree of the construct in question.

Productive Engagement. The construct for Productive Engagement was developed by using seven items measured at age 21 to create three indicators: Total Groups, Productive Hours and Years of Schooling. Total Groups represents the total number of groups each youth belonged to, both inside and outside of school. Productive Hours is a measure of the number of hours spent in school, work, volunteering or group activities. This indicator was developed in two steps, first by adding up the total number of hours the youth reported spending in community groups, school groups and volunteering. This total was then combined with the number of hours the youth spent actually in school or working. This latter number of hours was calculated based upon what the youth reported for job or school status. For example, if the youth reported working part-time, he or she was given a 20 hour per week "credit" on the school/work hours variable. Because group and volunteer hours were measured on a monthly basis and the school/work hours were calculated by a weekly estimate, the total group hours were divided by 4.5 to construct a weekly value for time spent in groups before combining it with the school and work hours to create the final Productive Hours indicator.

The third indicator, Years of Schooling, was simply a recoded version of a question asking youth the highest level of schooling they had achieved. The recoding was performed in order to make high school graduation ordinally higher than obtaining a GED.

In calculating the indicators above, there were several issues that arose with the measure of productive hours. The first was an examination of the validity of the totals

being calculated. For example, if a youth reported being a full-time student, having a full-time job and volunteering five hours per week, was it fair to assign a "score" of 85 on the productive hours indicator? After attempting several preliminary analyses of how best to capture this information, it appeared that allowing a wide ranging productive hours measure rather than creating some arbitrary cut-off at, say, 40 hours was the best measure of productively engaged youth. This resulted in a variable that correlated most consistently with the other productive engagement indicators and allowed for the fact that many youth do in fact have a combined school and work load greater than 40 hours per week. Nonetheless, there were cases where the total group hours did not seem humanly possible. Therefore, any case that reported 200 or more hours per week spent in group/volunteering activities was recoded to 200.

Another issue was how to handle youth who reported being full-time homemakers for their job status (n=15). Originally, the hope was to give this status a 40 hour per week "credit" on the productive hours indicator. However, there were a couple of problems with this approach. The primary issue was that the only youth who provided a homemaker status were those who had answered "Yes" to an earlier survey question that asked if they had been employed in the past year. In other words, if a youth had not been employed in the past year, there was no way of identifying him or her as a homemaker. The second issue was that in an analyses where youth with a homemaker status were given a 40 hour credit on the productive hours indicator, the productive hours indicator was not as statistically reliable as it has been without this credit included. This is not to say that homemaking is not a productive activity, rather, it appears to be measuring a different type of productivity, which is beyond the scope of this analysis. Because of these issues, no "credit" was given on the Productive Hours indicator for full-time homemaking.

Finally, a fourth indicator measuring a feeling of accomplishment or reward around participation in job activities, school, volunteering or community groups was created and later discarded. Although it correlated well with the other productive engagement variables, it did not seem to have a high enough degree of face validity to warrant its inclusion in the final analysis due to the fact that it was more of a cognitive than a behavioral variable.

Altruistic Disposition. The construct for Altruistic Disposition consisted of two items, each being used to create an indicator. The items evaluated the extent to which the youth liked to see others happy and whether helping others made the youth feel good. Both items were measured on four-point scales.

Before proceeding to a presentation of the final indicators used for the SEM analysis, it is worth looking at the "raw" measures of PYD for this sample in order to gain some insight into how well these youth were doing at age 21. This serves the purposes of first providing some face validity to the sample, i.e., was this a fairly "normal" group of youth even though the sample came from an over-representation of high-crime neighborhoods, and second to ensure that there was some variation in these items so that there would be the possibility of correlating them to the SDM predictors. Tables 3 through 9 provide descriptive information regarding the employment and school status of the youths in this sample at age 21. As can be seen, over 88% of the youth had been employed at some point in the past year. This is in line with national employment statistics in 1992 that showed over 56% of high school seniors reporting that they had a paid job at the time of the survey and almost 80% of high school seniors reporting that they had worked for pay in the past three months (Chadwick & Heaton, 1996). Although data for youths age 21 were not available, we would expect the percentage to be

somewhat higher than for high school seniors and indeed, in this data set, it was. This employment figure held true both for youths who had as well as those who had not taken any courses over the past year. Of the 11.5% (n=88) who had not been employed, roughly half had taken one or more school courses and just over a third were enrolled in school at the time of the survey.

Table 3. Youth Employed in Past 12 Months (Age 21).

Value	*Frequency*	*Percent*	*Cumulative Percent*
No (0)	88	11.5	11.5
Yes (1)	677	88.5	100.0
	765	100.0	

Table 4. Youth's Employment Status in the Past Month (Age 21).

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
1 full-time job	342	44.7	50.5	50.5
1 part-time job	162	21.2	23.9	74.4
2+ different jobs	58	7.6	8.6	83.0
Full-time student	21	2.7	3.1	86.1
Unemployed, looking	46	6.0	6.8	92.9
Unemployed, not look	16	2.1	2.4	95.3
Full-time homemaker	15	2.0	2.2	97.5
No paid employment	17	2.2	2.5	100.0
Not employed in past year	88	11.5		
Total	765	100.0	100.0	

Table 5. School Status of Youth Not Employed in the Past Year (Age 21).

Past year: take any courses at school?

Value	*Frequency*	*Percent*	*Cumulative Percent*
No (0)	46	52.3	52.3
Yes (1)	42	47.7	100.0
Total	88	100.0	

Currently enrolled in school?

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
No (0)	12	13.6	28.6	28.6
Yes (1)	30	34.1	71.4	100.0
Logical Skip	46	52.3		
Total	88	100.0	100.0	

In the overall sample, just over half of the youth reported taking any courses in the past year. The 1996 Current Population Survey reported a college enrollment rate of 24.1% for youths aged 18-24 in 1993 (National Center for Education Statistics, 1996). Given the fact that most education statistics are reported for age ranges rather than for a single year (e.g., age 21), it is difficult to say for sure how close to "normal" this sample of youth was. However, one would expect a higher enrollment rate for a group of youth who were all roughly 21-years-old than for a group spanning in age from 18 through 24. That was the case here so there is nothing to suggest that this group was abnormal.

For those youth in this sample who did not take any courses, 88% had been employed in the past 12 months, over 84% reported working at at least a part-time job at the time of the survey and 2.7% reported being full-time homemakers at the time of the survey. Of those youth who took at least one course in the past year, 89% had been employed in the past 12 months, roughly 82% reported working at least part-time at the

time of the survey and 1.6% reported being full-time homemakers at the time of the survey.

The high number of youth engaged in some combination of school and work is further reflected in Table 11 which shows that a third of the sample had a school plus work load that added up to over 40 hours per week. Clearly, this is a group in transition between school and work, which is typical at age 21. Because a person's time is a zero sum equation, i.e., time spent in school is less time available for work and vice versa, it makes sense to think of productive engagement as a single construct with many dimensions. This is further supported in studies such as that by Bernstein (1993) which showed a negative correlation between employment and college enrollment in a sample of 18 to 24 year-olds. In addition to time spent in school or at work, this construct also included time spent in non-work groups as well as volunteering. Tables 12 through 14 provide a breakdown of how many hours youths spent in groups and volunteering as well as the combination of hours spent in all types of productive engagement. The data in these three tables have been aggregated for clarity of presentation; however, the unaggregated values were used in all analyses.

Table 6. Youth's Status as a Student in the Past Year (Age 21).

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
Full-time student	276	36.1	71.7	71.7
Half-time student	53	6.9	13.8	85.5
<half-time	11	1.4	2.9	88.3
Just 1 or 2 courses	45	5.9	11.7	100.0
No school past year	380	49.7		
Total	765	100.0	100.0	

Table 7. Employment Status of Youth Who Did Not Take any School Courses in the Past Year (Age 21).

Employed in past 12 months?

Value Label	*Frequency*	*Percent*	*Cumulative Percent*
No	46	12.1	12.1
Yes	334	87.9	100.0
Total	380	100.0	

Employment status last month?

Value Label	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
1 full-time job	207	54.5	62.0	62.0
1 part-time job	48	12.6	14.4	76.3
2+ different jobs	27	7.1	8.1	84.4
Unemployed, looking	25	6.6	7.5	91.9
Unemployed, not looking	9	2.4	2.7	94.6
Full-time homemaker	9	2.4	2.7	97.3
No paid employment	9	2.4	2.7	100.0
Not employed past year	46	12.1		
Total	380	100.0	100.0	

Table 8. Employment Status of Youth Who Took at Least One School Course in the Past Year (Age 21).

Employed in past 12 months?

Value Label	*Frequency*	*Percent*	*Cumulative Percent*
No	42	10.9	10.9
Yes	343	89.1	100.0
Total	385	100.0	

Employment status last month?

Value Label	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
1 full-time job	135	35.1	39.4	39.4
1 part-time job	114	29.6	33.2	72.6
2+ different jobs	31	8.1	9.0	81.6
Full-time student	21	5.5	6.1	87.8
Unemployed, looking	21	5.5	6.1	93.9
Unemployed, not looking	7	1.8	2.0	95.9
Full-time homemaker	6	1.6	1.7	97.7
No paid employment	8	2.1	2.3	100.0
Not employed past year	42	10.9		
Total	385	100.0	100.0	

Table 9. School Plus Work Hours Based upon Employment and Student Status (Age 21).

Value	*Frequency*	*Percent*	*Cumulative Percent*
.00	98	12.8	12.8
10.00	6	.8	13.6
15.00	3	.4	14.0
20.00	60	7.8	21.8
30.00	7	.9	22.7
35.00	1	.1	22.9
40.00	334	43.7	66.5
50.00	32	4.2	70.7
55.00	7	.9	71.6
60.00	114	14.9	86.5
80.00	103	13.5	100.0
	765	100.0	

Mean=41.797 Median=40.000 Std dev=22.924

Table 10. Hours per Month Spent in Non-Work Groups (Age 21).

Value	*Frequency*	*Percent*	*Cumulative Percent*
0	388	50.7	50.7
1-10	164	21.4	72.2
11-20	96	12.6	84.7
21-30	41	5.4	90.1
31-40	28	3.7	93.7
41-50	9	1.1	94.9
51-100	27	3.5	98.4
> 100	12	1.4	100.0
Total	765	100.0	

Mean=12.363 Median=.000 Std dev=27.675

Table 11. Hours per Month Spent Volunteering in the Past Year (Age 21).

Hours	*# of Youth*	*Percent*	*Cumulative Percent*
0	463	60.5	60.5
1-10	181	23.6	84.2
11-20	58	7.6	91.8
21-30	18	2.3	94.1
31-40	14	1.8	95.9
41-50	9	1.2	97.1
51-70	2	.2	97.4
71-90	10	1.3	98.7
91-200	10	1.2	100.0

Mean=7.123 Median=.000 Std dev=18.275

Table 12. Total Number of Hours Spent at School, Work, Volunteering and in Community Groups per Week (Age 21).

Value	*Frequency*	*Percent*	*Cumulative Percent*
0	58	7.6	7.6
1-10	34	4.4	12.0
11-20	38	4.8	17.0
21-30	21	2.5	19.7
31-40	167	21.8	41.6
41-50	158	20.4	62.2
51-60	95	12.3	74.6
61-70	72	9.1	84.1
71-80	44	5.6	89.8
81-90	66	8.5	98.4
91-100	8	.9	99.5
101-125	4	.4	100.0
Total	765	100.0	
Mean=46.005	Median=43.333		Std dev=24.024

In addition to examining the *quantity* of time spent in productive engagement, this analysis included a measure of the breadth of extracurricular activities. This was done in order to gain some insight into the "whole" youth and provide a measure of "well-roundedness". This indicator was made up of the total number of groups, both community and school in which the youth participated in the past year. Tables 13 and 14 show the frequencies for number of non-work groups and number of school activities and clubs. Table 15 shows the total number of groups in which youths participated.

Table 13. Number of Non-Work Groups in Past Year (Age 21).

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
0	385	50.3	50.4	50.4
1	123	16.1	16.1	66.5
2	127	16.6	16.6	83.1
3	73	9.5	9.6	92.7
4	28	3.7	3.7	96.3
5	21	2.7	2.7	99.1
6	4	.5	.5	99.6
10	1	.1	.1	99.7
13	1	.1	.1	99.9
15	1	.1	.1	100.0
don't know	1	.1		
Total	765	100.0	100.0	

Mean=1.145 Median=.000 Std dev=1.577

Table 14. Number of School Clubs and Activities in Past Year (Age 21).

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
0	216	28.2	56.5	56.5
1	80	10.5	20.9	77.5
2	35	4.6	9.2	86.6
3	28	3.7	7.3	94.0
4	13	1.7	3.4	97.4
5	4	.5	1.0	98.4
6	4	.5	1.0	99.5
7	1	.1	.3	99.7
8	1	.1	.3	100.0
not applicable	1	.1		
refused	2	.3		
not in school	380	49.7		
Total	765	100.0	100.0	

Mean=.903 Median=.000 Std dev=1.380

Table 15. Total Number of Groups in Past Year.

Value	*Frequency*	*Percent*	*Cumulative Percent*
.00	341	44.6	44.6
1.00	116	15.2	59.7
2.00	116	15.2	74.9
3.00	73	9.5	84.4
4.00	50	6.5	91.0
5.00	22	2.9	93.9
6.00	23	3.0	96.9
7.00	9	1.2	98.0
8.00	6	.8	98.8
9.00	5	.7	99.5
10.00	1	.1	99.6
11.00	1	.1	99.7
13.00	1	.1	99.9
15.00	1	.1	100.0
Total	765	100.0	

Mean=1.595 Median=1.000 Std dev=2.083

Table 16 shows the frequencies for the third indicator of Productive Engagement, the last year of school completed. Tables 17 and 18 show the responses on the two Altruistic Disposition indicators. Finally, Table 19 shows the correlation coefficients for all of the PYD indicators that were used in the SEM analysis. Within each PYD construct, all indicators were significantly correlated (r's between .26 and .48). The Cronbach's alpha for the altruistic disposition indicators was .62 and for the productive engagement indicators was .63.

Table 16. Last Year of School Completed (Age 21).

Value	*Frequency*	*Percent*	*Cumulative Percent*
>8th grade	6	.8	.8
Some high school	95	12.4	13.2
High school grad.	129	16.9	30.1
GED certificate	42	5.5	35.6
Some tech/voc school	41	5.4	40.9
Tech/voc graduate	33	4.3	45.2
Some college	361	47.2	92.4
2-year college grad	52	6.8	99.2
4-year college grad	6	.8	100.0
Total	765	100.0	

Mean=5.426 Median= 7.000 Std dev= 2.113

Table 17. Altruistic Disposition: "I like to see other people happy."

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
not true	3	.4	.4	.4
sometimes true	78	10.2	10.2	10.6
often true	683	89.3	89.4	100.0
Missing	1	.1		
Total	765	100.0	100.0	

Mean= 2.890 Median=3.000 Std dev=.325

Table 18. Altruistic Disposition: "Helping others makes me feel good."

Value	*Frequency*	*Percent*	*Valid Percent*	*Cumulative Percent*
not true	5	.7	.7	.7
sometimes true	134	17.5	17.5	18.2
often true	625	81.7	81.8	100.0
Missing	1	.1		
Total	765	100.0	100.0	

Mean= 2.812 Median=3.000 Std dev=.408

Table 19. Correlation of PYD Outcome Indicators.

	Like to see others happy	*Helping feels good*	*Total groups*	*Productive hours*	*Years of Schooling*
Like to see others happy	1.0000	.4462**	.0733*	.1475**	.1391**
Helping feels good	.4462**	1.0000	.0903*	.1324**	.1146**
Total groups	.0733*	.0903*	1.0000	.3452**	.2668**
Productive hours	.1475**	.1324**	.3452**	1.0000	.4807**
Years of Schooling	.1391**	.1146**	.2668**	.4807**	1.0000

2-tailed Significance * $p < .05$; ** $p < .01$

EXAMINATION OF ALL INDICATORS

Since all indicators were to be included in a structural equation modeling (SEM) analysis, their variances were examined to determine if they met Kline's suggested guideline that the ratio between the largest and smallest variance be less than ten (Kline, 1998). Because *z*-scores had been created for every item before combining them into indicators, the resulting indicators had relatively similar variances. Although this had the effect of bringing the variances of the indicators within the 1:10 ratio, the limitation to performing such a transformation is that the final results must be interpreted in the same metric, i.e., standardized item scores. Because SEM is the analysis method that was to be used, the results focused more upon path loadings and model fit than upon the values of the indicators themselves. Therefore the limitation of using standardized scores was outweighed by the benefit of making the data used in the SEM meet the necessary conditions for valid estimation.

After the indicators were created, they were examined for skew and kurtosis and all met the relevant thresholds. Descriptive statistics for all indicators are shown in Table 20. Any case not having a value for every indicator to be used in the SEM was deleted. Of the 731 cases that had respondents for both the 12th grade and at Age 21, 712 (94%) were retained for the SEM.

The next chapter will provide the results of the confirmatory factor analysis used to evaluate the measurement model and to determine the bivariate correlation between each of the PYD outcomes and each of the SDM constructs. It will also describe the results of the structural analyses used to evaluate the predictive value of SDM upon the two PYD outcome constructs.

Table 20. Descriptive Statistics for All Final Indicators.

	# of Items	*Mean*	*Std Dev*	*Range*	*Kurtosis*	*Skew*	*Valid N*
Skills for Interaction							
Indicator #1	2	-.02	.80	3.44	-.84	-.11	757
Indicator #2	3	-.04	.75	3.52	-.13	-.52	757
Positive Opps and Involvement							
Indicator #1	4	-.01	.61	3.35	-.15	-.16	755
Indicator #2	4	-.01	.63	3.43	.20	-.53	757
Indicator #3	5	-.02	.60	3.52	.19	-.46	756
Anti-social Opps							
Indicator #1	7	.01	.60	3.17	-.23	-.26	757
Indicator #2	7	.00	.57	3.02	-.27	.47	757
Indicator #3	8	.01	.58	3.54	1.12	.98	757
Anti-social Involvmnt							
Indicator #1	3	.00	.69	3.85	1.66	1.23	757
Indicator #2	3	.00	.67	3.27	-.19	.58	757
Indicator #3	2	.00	.74	3.47	-.29	.14	757
Prosocial Rewards							
Indicator #1	8	-.01	.62	3.37	-.17	-.15	754
Indicator #2	6	-.01	.67	4.24	.34	-.48	746
Indicator #3	6	.00	.62	3.17	-.35	-.17	757

Table 20. Descriptive Statistics for All Final Indicators (continued).

Anti-social Rewards							
Indicator #1	11	-.01	.50	2.94	-.29	.16	757
Indicator #2	10	.00	.55	2.86	-.45	-.10	757
Indicator #3	10	-.01	.51	2.68	-.48	-.01	757
Prosocial Bonding							
Indicator #1	10	-.01	.60	3.39	.41	-.49	746
Indicator #2	9	.00	.57	3.80	.42	-.26	756
Indicator #3	9	-.01	.58	3.63	.35	-.29	755
Anti-social Bonding							
Indicator #1	4	.00	.79	5.00	1.12	1.00	757
Indicator #2	4	.01	.79	4.68	.45	.79	756
Indicator #3	4	.03	.84	5.84	2.12	1.09	752
Belief in the Moral Order							
Indicator #1	6	.00	.64	3.26	-.37	-.17	757
Indicator #2	5	.00	.63	3.28	-.39	-.09	757
Indicator #3	5	.00	.64	3.29	-.25	-.19	757
Productive Engagement							
PROD HRS	4	.00	1.00	5.18	-.18	-.14	765
TOT GRPS	2	.00	1.00	7.20	4.74	1.84	765
YRS SCHOOL	1	.00	1.00	3.99	-1.02	-.62	765
Altruistic Disposition							
HELPING GOOD	1	.00	1.00	4.90	2.38	-1.88	764
OTHERS HAPPY	1	.00	1.00	6.15	7.28	-2.84	764

CHAPTER 3: RESULTS

ANALYSIS METHOD

The analysis that was employed involved the testing of a specified causal model containing both indirect and direct paths, making the most obvious choices for the appropriate method of analysis traditional path analysis using multiple regression equations and structural equation modeling (SEM). Because structural equation models offer the advantage of representing error in the model, it was the statistical method used in this study. An additional benefit of using SEM is that several prior analyses of the SDM have been performed using this technique, thus facilitating comparison of the results obtained here with other relevant analyses. The SEM analysis was conducted using the EQS software package, developed by Bentler (1993). For all SEM analyses, the Maximum Likelihood Estimation procedure was used.

As is standard in conducting structural equation modeling analyses, this study was performed by first testing a measurement model and then when achieving a satisfactory fit, which indicates that the indictors were measured reliably enough to allow confidence in their ability to measure the constructs they were intended to measure, the analysis proceeded to the structural model. In this case, for both the measurement and structural models, two variations were tested. The first used only first order factors as specified in the Social Development Model. However, prior studies of SDM that also used cross sectional data for the SDM predictors (Catalano et al., 1996; Lonczak et al., in review) found better fit for their structural models when adding second order factors for pro- and anti-social socialization. This was done to allow for the fact that the items for these constructs were measured simultaneously and thus highly correlated. This made it difficult to empirically disentangle

the effects of all three socialization constructs (opportunities, involvement and rewards) upon bonding. Because of the better fit obtained in these prior studies, the same strategy was employed for this analysis. However, because different outcome measures were being examined with the goal of evaluating the predictive power of SDM constructs upon them, it was still deemed worthwhile to include an analysis of the original first order model as well.

TESTING THE MEASUREMENT MODELS

First Order Measurement Model

The initial model to be tested was comprised of the first order constructs put forth in the SDM, as well as the PYD outcomes described above. In this model, three pairs of error variances were allowed to covary between items related to the same peers on pro- and anti-social interaction and bonding indicators, i.e., the error term for the indicator that included the anti-social interaction item for best friend number one was free to covary with the anti-social bonding indicator that used the item for best friend number one. The same thing was done for best friends number two and three. This was done because the same valence scores were used to create relevant indicators for both the bonding and interaction constructs. Clearly, this would have the effect of correlating the related indicators. Indeed, running the measurement model without allowing these error terms to covary yielded a poorer fit and an indication from the Lagrange Multiplier Test that there was significant correlation between the indicators in question. The factor variance was set to one for every factor to scale the factors and all path loadings and errors were estimated. All factor covariances were allowed to correlate freely.

To evaluate model fit, two goodness of fit measures are reported here, the robust Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation

(RMSEA). The robust CFI was used because even though the univariate normality requirements for using SEM were met for each indicator, i.e., kurtosis below 10-20 and skewness below three, the multivariate measure of normality as indicated by Mardia's coefficient was statistically significant. This means that the indicators, when taken as a group, did not meet the multivariate normality assumption necessary for using Maximum Likelihood estimation procedures. This could simply have been due to the fact that large sample sizes can make even very small deviations from the multiple normality assumption statistically significant. However, as a matter of prudence, robust comparative fit indices as well as robust standard errors and the Satorra-Bentler scaled χ^2 (Satorra & Bentler, 1994) were used to interpret the results.

In addition to reporting the robust CFI, the RMSEA, which is one of the most widely reported fit indices, was examined. It provides an estimation of the discrepancy between the covariance matrices for the population and for the model. The standard convention for the CFI is that a model is satisfactory if its CFI is above .9 (Kline, 1998). Browne and Cudeck (1993) provide the following guidelines for interpreting the RMSEA: less than .05 indicates close fit, between .05 and .08 indicates a fair fit and anything over .1 is a poor fit. MacCallum, Browne and Sugawara (1996) extend this a bit further to suggest that values between .08 and .1 indicate a mediocre fit.

The resulting fit of the first order measurement model was satisfactory with a robust CFI of .958, $\chi^2(373)= 897$, and an RMSEA of .048.

Second Order Measurement Model

The same error variances that were freed to covary between specific anti-social interaction and bonding indicators in the first order CFA were allowed to covary here. For

those first order factors sharing a common dimension on the second order socialization factors, namely the Opportunities, Involvement and Reward constructs, the highest loading factor from the first order model was set to one as a reference indicator to scale the second order factor. The disturbance terms on these factors were allowed to vary and all other factors were set to one as in the first order model. (Note, that a 'disturbance term' represents that part of a factor's variance that is not explained by the model.) In the prior studies referenced earlier, the fit of the second order *structural* model was better than for the structural model employing only first order factors despite the fact that the second order factor *measurement* model exhibited a slightly weaker fit. In fact, the same results were found in this study, with the second order CFA yielding a robust CFI of .94, $\chi^2(375)= 1134$ and an RMSEA of .055.

Table 21 shows factor intercorrelations for all latent factors and Table 22 shows the factor loadings and *z* statistics for all indicators, which were all statistically significant at the .05 level. The standardized factor loadings for all indicators on their relevant latent constructs were fairly high with the exception of the Total Groups indicators on the Productive Engagement construct (.43). All of the other indicators had factor loadings of greater than .6.

As can be seen in Table 21, the Productive Engagement outcome construct was significantly correlated with all of the SDM constructs. It was most highly correlated with Skills for Interaction, which includes a measure of GPA. Because the Productive

Table 21. Factor Intercorrelations for Final First-Order and Second-Order Factor Models.

	2	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
First Order Factors												
1. Prosocial Opps	-.20***	-.39***	.50***	.74***	-.41***	.57***	-.37***	.45***	.33***	.24***	—	—
2. Anti-social Opps		.67***	-.56***	-.13**	.53***	.30***	.61***	-.42***	-.37***	-.08	—	
3. Anti-social Invlvmnt			-.65***	-.29***	.58***	-.44***	.58***	-.58***	-.24***	-.05	—	
4. Skills for Interaction				.40***	-.68***	.50***	-.57***	.71***	.50***	.24***	.48***	-.83***
5. Prosocial Rewards					-.39***	.72***	-.26***	.43***	.14**	.20***	—	—
6. Anti-social Rewards						-.47***	.50***	-.77***	-.22***	-.21***	—	—
7. Prosocial Bonding							-.50***	.51***	.19***	.26***	.76***	-.53***
8. Anti-social Bonding								-.50***	-.35***	-.21***	-.33***	.71***
9. Belief in Moral Ordr									.14**	.22***	.49***	-.82***
10. Productive Engmnt										.26***	.22***	-.34***
11. Altruistic Disp											.24***	-.18**
Second Order Factors												
12. Prosocial Socialization												-.46***
13. Anti-social Socialization												

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

Table 22. CFA Factor Loadings and *z*-Statistics for First and Second Order Measurement Models.

		1st Order Model		2nd Order Model	
Construct		**Standardized Factor Loading**	***z*-Statistic**	**Standardized Factor Loading**	***z*-Statistic**
Prosocial Opportunities & Involvement	V1	.744	(23.79)	.744	(18.15)
	V2	.749	(20.98)	.761	(18.46)
	V3	.771	(22.38)	.772	(r)
Anti-social Opportunities	V4	.877	(31.42)	.872	(29.00)
	V5	.907	(31.15)	.915	(r)
	V6	.845	(23.20)	.841	(29.60)
Anti-social Interaction & Involvement	V7	.702	(18.64)	.702	(18.02)
	V8	.806	(26.70)	.811	(r)
	V9	.655	(19.76)	.638	(17.06)
Skills for Interaction	V10	.709	(21.46)	.705	(21.32)
	V11	.721	(19.51)	.725	(19.71)
Prosocial Rewards	V12	.896	(30.22)	.901	(r)
	V13	.723	(21.58)	.719	(20.77)
	V14	.870	(29.64)	.868	(27.78)
Anti-social Rewards	V15	.860	(32.11)	.860	(33.56)
	V16	.917	(35.11)	.919	(r)
	V17	.906	(34.74)	.904	(35.72)
Prosocial Bonding	V18	.805	(23.42)	.805	(23.30)
	V19	.798	(23.07)	.803	(23.18)
	V20	.806	(24.13)	.809	(24.22)
Anti-social Bonding	V21	.870	(25.78)	.868	(25.53)
	V22	.861	(26.91)	.857	(26.92)
	V23	.825	(23.53)	.823	(23.44)
Belief in the Moral Order	V24	.838	(29.93)	.837	(29.83)
	V25	.901	(33.75)	.900	(33.50)
	V26	.899	(30.90)	.901	(30.91)
Productive Engagement	V27	.432	(10.93)	.444	(10.98)
	V28	.663	(15.54)	.675	(15.74)
	V29	.727	(18.54)	.710	(17.76)
Altruistic Disposition	V30	.653	(8.31)	.625	(7.74)
	V31	.628	(8.78)	.656	(8.48)

r denotes that the indicator was used as the reference indicator for that factor

Engagement construct included a measure of amount of schooling completed, it is possible to surmise that youth with higher grade point averages in 12th grade were more likely to remain in school longer. Youths who have higher skill levels also are more likely to be employed (Johnson & Troppe, 1992; Rivera-Batiz, 1992).

The Altruistic Disposition construct was significantly correlated at at least the .01 level with all SDM constructs except Anti-social Opportunities and Anti-social Involvement. The two outcome indicators themselves were correlated with an $r = .26$ which was significant at $p<.001$. Given the satisfactory results of both CFA models, the analysis proceeded to the structural equation models.

TESTING THE STRUCTURAL MODEL

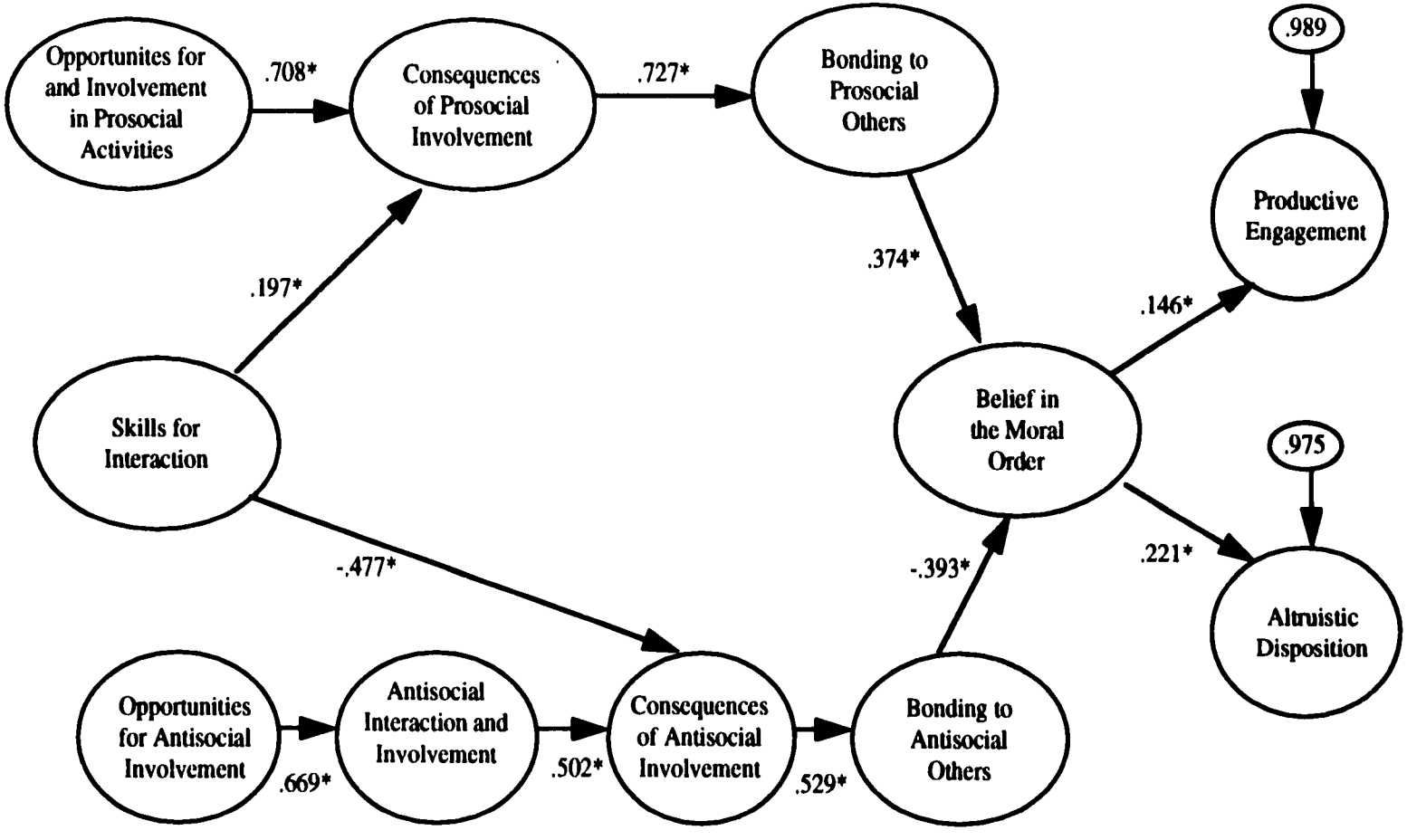
Like the measurement model tests, two variations of the structural model were tested, one using only first order factors and the other including second order factors for both pro- and anti-social socialization. The structural model was to test the specific causal ordering of the constructs theorized by the SDM.

STRUCTURAL MODEL USING ONLY FIRST ORDER FACTORS

The first structural model test proceeded directly from the first order CFA model and tests the version of the SDM that was shown in Figure 2. The same six pairs of error terms were allowed to covary. For each latent construct, the loading for the indicator that loaded highest upon the factor in the CFA was set to one to define the measurement scale for that factor. For each independent latent factor, the factor variance was freed and for each dependent latent factor, the disturbance term was freed.

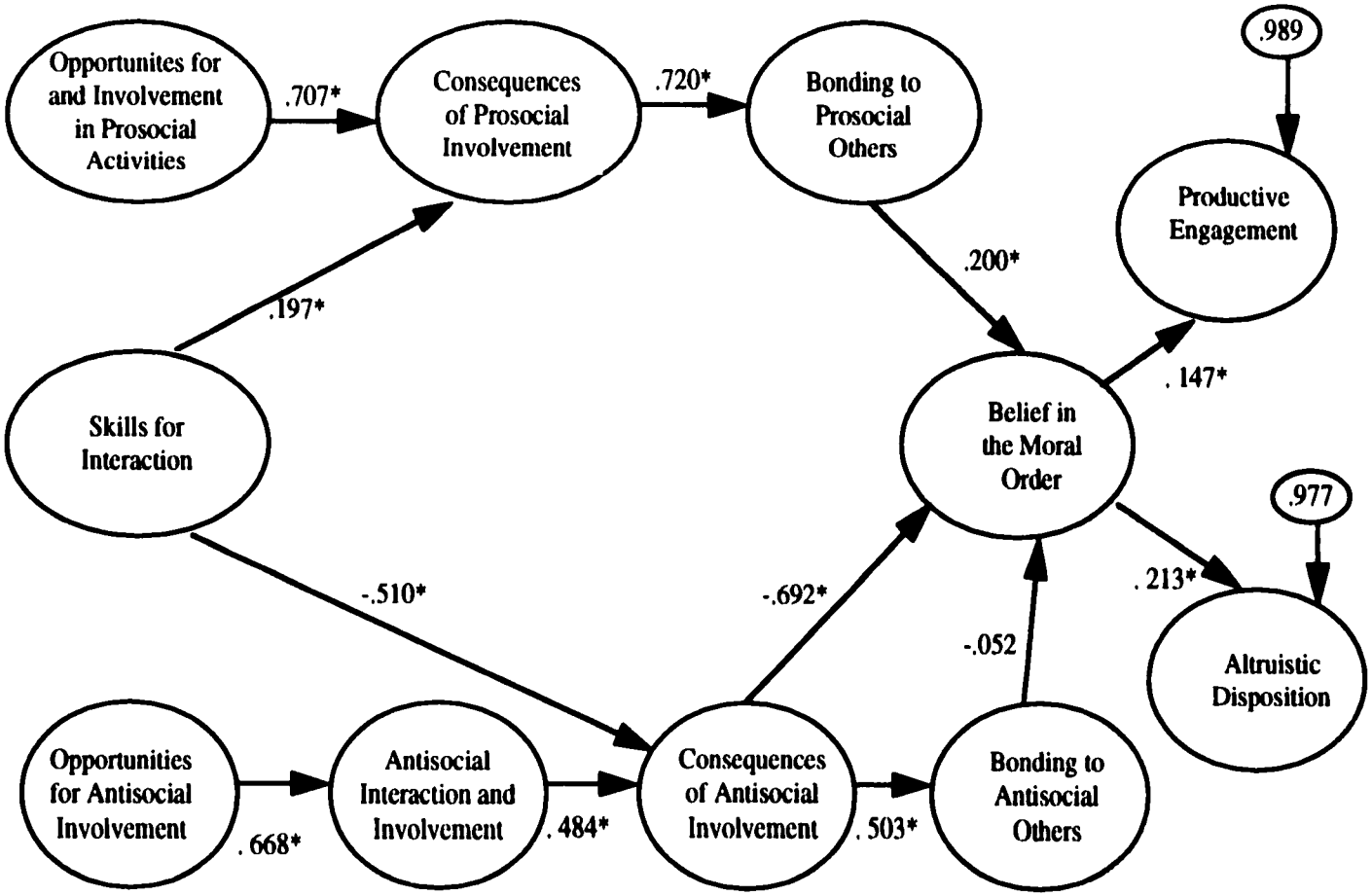
The fit for this model was mediocre, with a robust CFI of only .87, $\chi^2(417)=1996$ and an RMSEA of .077. The total variance explained for the Productive Engagement outcome was 2.19% and for the Altruistic Disposition outcome was 4.94%. Again, the fit results were consistent with prior tests of the SDM using SSDP data, i.e., CFI between .87 and .88 and RMSEA of .07 (Catalano et al., 1996; Lonczak et al., in review). Figure 3 shows the standardized path loadings for this analysis and includes the disturbance terms for the PYD outcomes. The disturbance terms were used to calculate the total variance explained for each PYD outcome (1 - disturbance^2 = total explained variance). All were significant at the .05 level. Although all paths were significant, it is worth noting that despite a bivariate correlation of -.77 between Anti-social Rewards and Belief in the Moral Order, when this path was mediated by Bonding to Anti-social others, the subsequent path between Bonding and Beliefs reduced to -.39. This observation was bolstered by the results of the LM test, which indicated that the structural model could be improved by adding a path directly from Anti-social Rewards to Beliefs.

A second test of the first order factor model with this extra path was performed for the purpose of exploration since this additional path was not originally hypothesized. Although the fit was better, with a robust CFI of .896, $\chi^2(416)= 1861$ and an RMSEA of .07, it still was not adequate and the total explained variance of the two outcome indicators was only 2.19% for Productive Engagement and 4.55% for Altruistic Disposition. Figure 4 shows the path loadings for this analysis. All path loadings, except for the one between Anti-social Bonding and Beliefs, were significant at the .05 level. The difference in fit between this model and the previously tested structural model without the additional path, was statistically significant ($\Delta\chi^2(1)=135$, $p<.01$).



* $p < .05$

Figure 3. Results of First Order Structural Model Test: Standardized Path Coefficients.



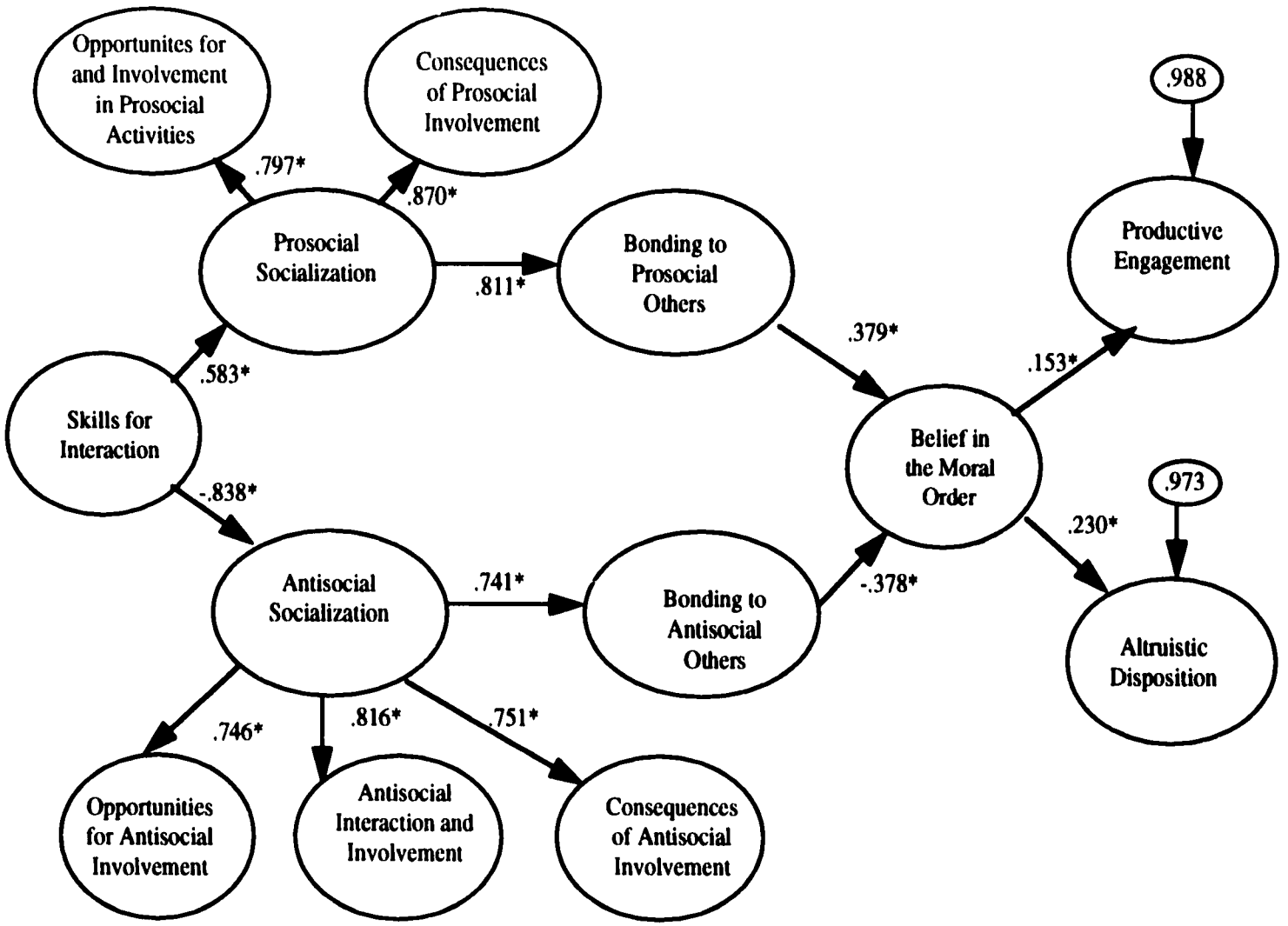
* $p < .05$

Figure 4. Results of First Order Structural Model with Path Added from Anti-social Consequences/Rewards to Belief in Moral Order: Standardized Path Coefficients.

Structural Model Using First and Second Order Factors

The next structural model tested was a planned outgrowth of the second order CFA. Again, the same error terms were allowed to covary, and for each latent construct, the loading for the indicator that loaded highest upon the factor in the CFA was set to one to define the measurement scale for that factor. For each independent latent factor, the factor variance was freed and for each dependent latent factor, the disturbance term was freed. As alluded to above, the fit for the second order structural model was better than the first order structural model, with a robust CFI of .91 $\chi^2(415)=1536$ and an RMSEA of .065. Again, however, there was a weaker link between Anti-social Bonding and Belief in the Moral Order than would have been expected given the bivariate correlation coefficients between Anti-social Socialization and Belief (r=-.82) and between Anti-social Socialization and Anti-social Bonding (r=.71). The LM test once more indicated the benefit of adding a path between negative rewards and beliefs.

Examination of the full effects showed that very little of the Anti-social Socialization construct was "getting through" to Belief in the Moral Order, raising some question as to the adequacy of the Anti-social Bonding construct (as operationalized in this analysis) in mediating the relationship between the socialization variables and Belief in the Moral Order. Once again an exploratory analysis was performed by adding the suggested path between Anti-social Rewards and Belief in the Moral Order. This yielded a robust CFI of .93, $\chi^2(414)= 1263$ and an RMSEA of .057. Path loadings for the second order factor structural models are depicted in Figures 5 and 6. Compared to the structural model shown in Figure 5, which included second order factors and no exploratory paths, the model shown in Figure 6 fit significantly better ($\Delta\chi^2(1)=273$, $p<.01$).



* $p < .05$

Figure 5. Results of Second Order Factor Model Analysis: Standardized Path Coefficients

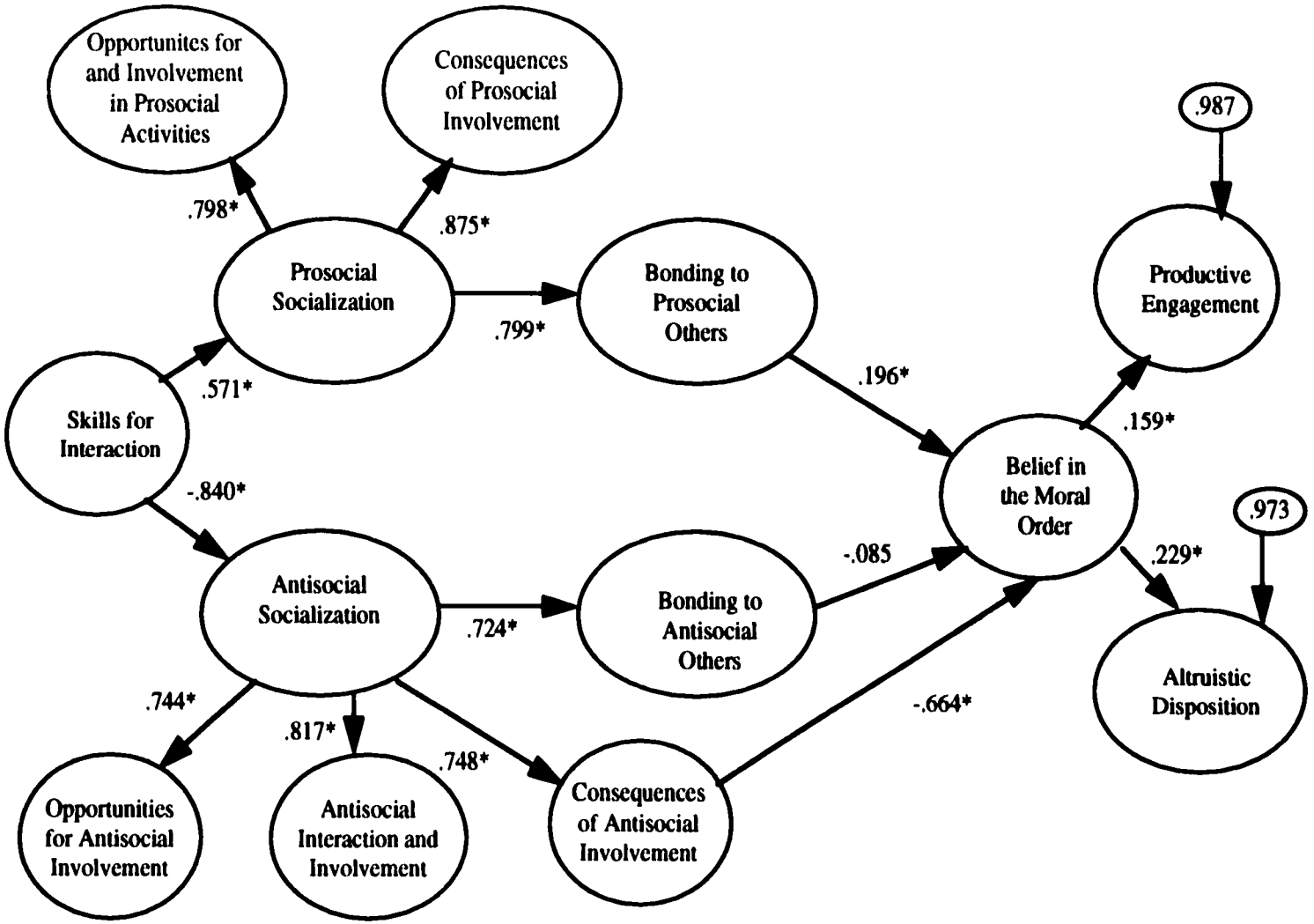
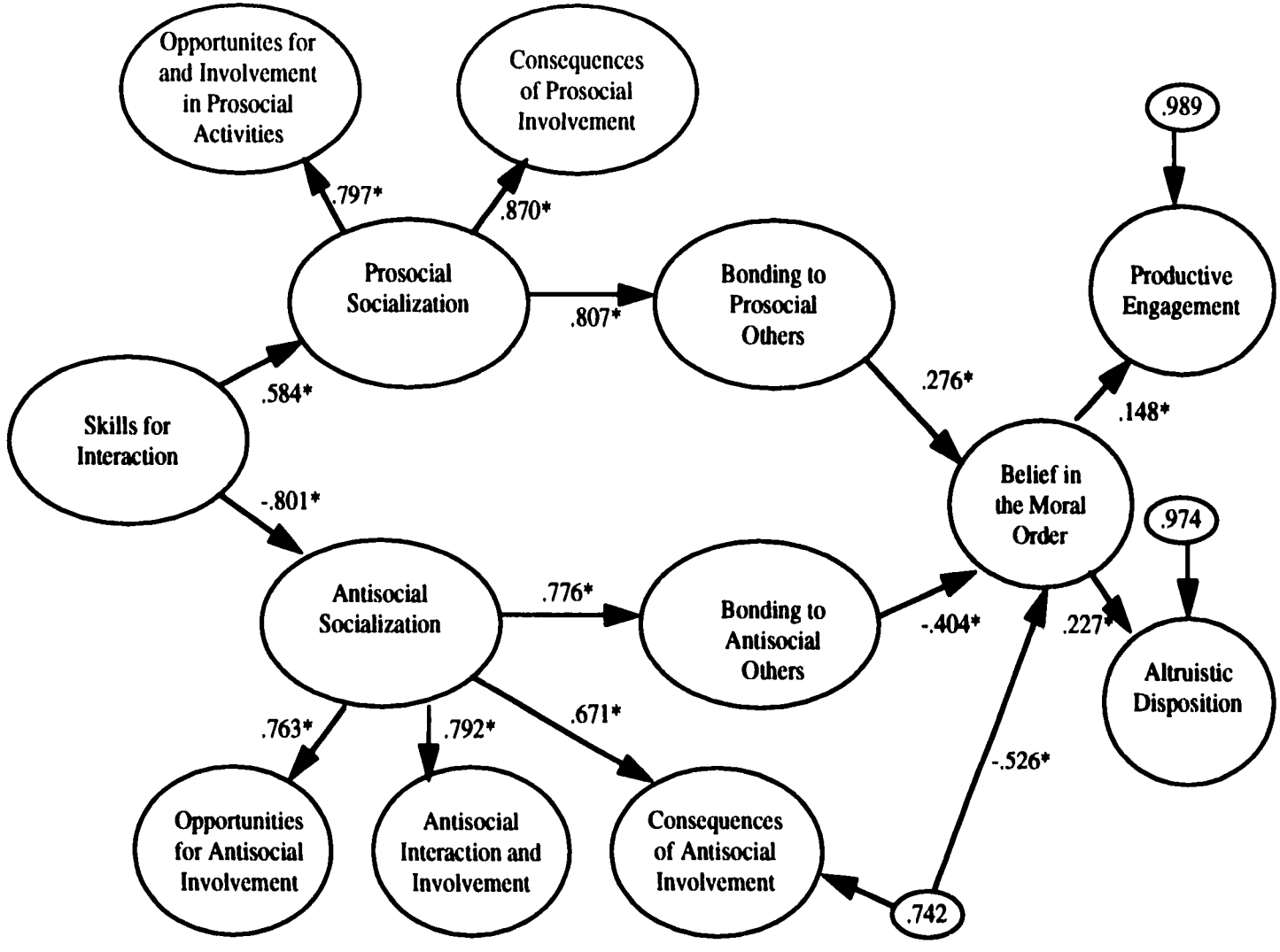


Figure 6. Results of Second Order Factor Model Analysis with Path from Anti-social Consequences to Beliefs: Standardized Path Coefficients

* $p < .05$

Four more structural analyses were run using the second order factors. All were purely for exploratory purposes. The first sought to better understand the relationship between Anti-social Rewards and Beliefs by examining the relationship of the disturbance term for Anti-social Rewards with the Belief construct. The difference in this test from the test modeling a path between the Anti-social Rewards construct proper and the Belief construct is that the disturbance term represents that part of Anti-social Rewards that does not share a common variance with the other Anti-social Socialization constructs. The question being explored was whether that unexplained part of Anti-social Rewards also predicted Belief in the Moral Order. The results of the analysis suggest that it does, albeit not as strongly as the part of Anti-social Rewards operating through Anti-social Socialization. The standardized path loading between the disturbance of Anti-social Rewards and Belief in the Moral Order was -.526. The Robust CFI for this model was .923, $\chi^2(414)= 1362$ and the RMSEA was .06. Path loadings for this model are depicted in Figure 7. Compared to the structural model using second order factors and no exploratory paths (Figure 5), this model's fit was significantly better ($\Delta\chi^2(1)=174$, $p<.01$).

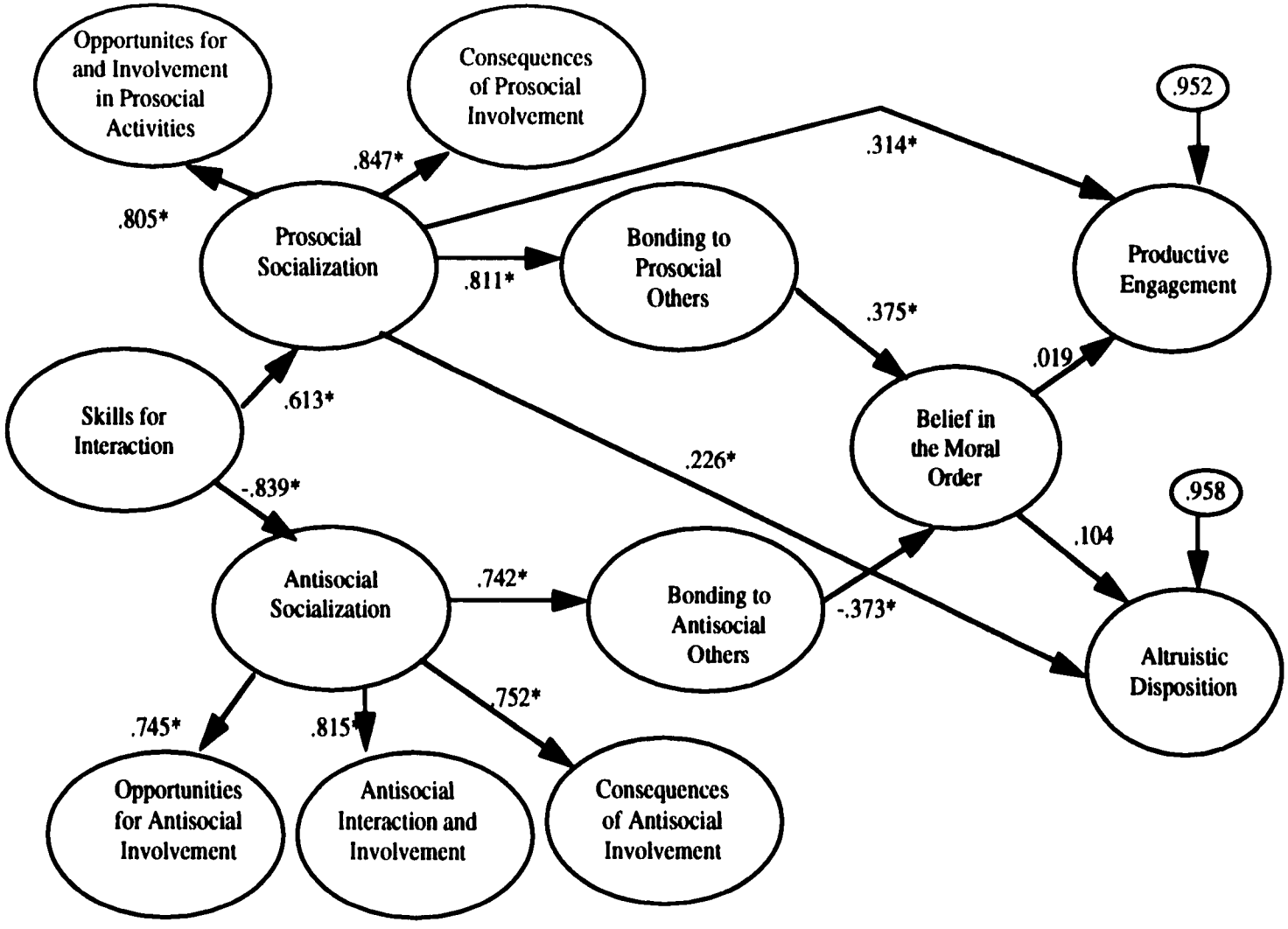
The next structural analysis sought to understand something of the relationship between the Prosocialization construct and the Productive Engagement outcome constructs. All of the tests described thus far yielded only a negligible amount of total variance explained for Productive Engagement and Altruistic Disposition as can be seen from the very high disturbance terms for these constructs. These tests also showed high path loadings for the SDM predictors up through the Bonding variables with the model becoming "clogged" at the Belief construct. Therefore, an exploratory test was run adding paths directly from the Prosocial Socialization construct to each of the PYD



* $p < .05$ Figure 7. Results of Second Order Factor Model Analysis with Path from Disturbance of Anti-social Consequences to Beliefs: Standardized Path Coefficients.

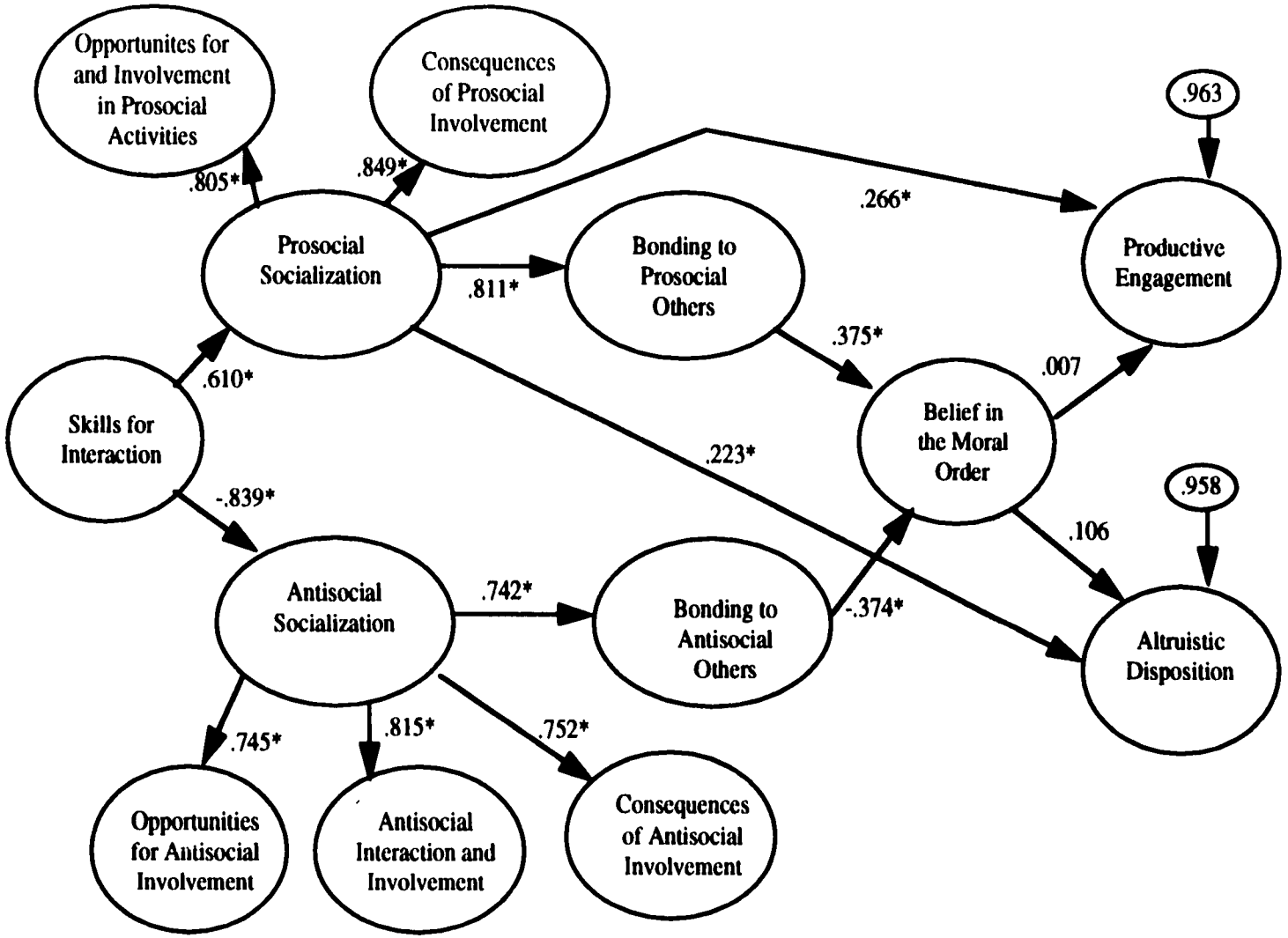
outcomes. It yielded a Robust CFI of .912, $\chi^2(413)=1504$ and an RMSEA of .065 and is shown in Figure 8. Compared to the structural model using second order factors and no exploratory paths (Figure 5), the improvement in fit for this model was significantly better ($\Delta\chi^2(2)=32$, $p<.01$). Although a greater amount of total variance was explained, for Productive Engagement it was still only 8.2% and for Altruistic Disposition was 9.4%.

The next structural model was a variation on the previous model. Instead of adding or modifying a causal path, however, in this model one of the indicators for the Productive Engagement construct was removed. Specifically, since the earlier measurement models had shown the Total Groups indicator to have the weakest factor loading on the Productive Engagement latent variable (usually around .4), a test of the model was performed without this indicator. The specific structural model selected for this test was the previous test shown in Figure 8 where direct paths were included from Prosocial Socialization to each of the PYD outcomes. This model was chosen because it explained more of the Productive Engagement construct's variance than any of the previous models. Because this model variation was not nested with any of the other models tested, it was not possible to use a statistical test to determine whether it fit better or worse than the other models. However, with a resulting CFI of .912, $\chi^2(384)=1453$, and RMSEA of .067, it appears that removing the Total Groups indicator did not yield a better fitting model than any of the other models tested. Further, the total explained variance for Productive Engagement was 7.3%, which was less than the total variance explained in the version of this model shown in Figure 8 that included the Total Groups indicator. Like the model shown in Figure 8, all of the paths in this model, shown in Figure 9, except those between Belief in the Moral Order and the PYD outcomes, were statistically significant at $p < .05$.



* $p < .05$

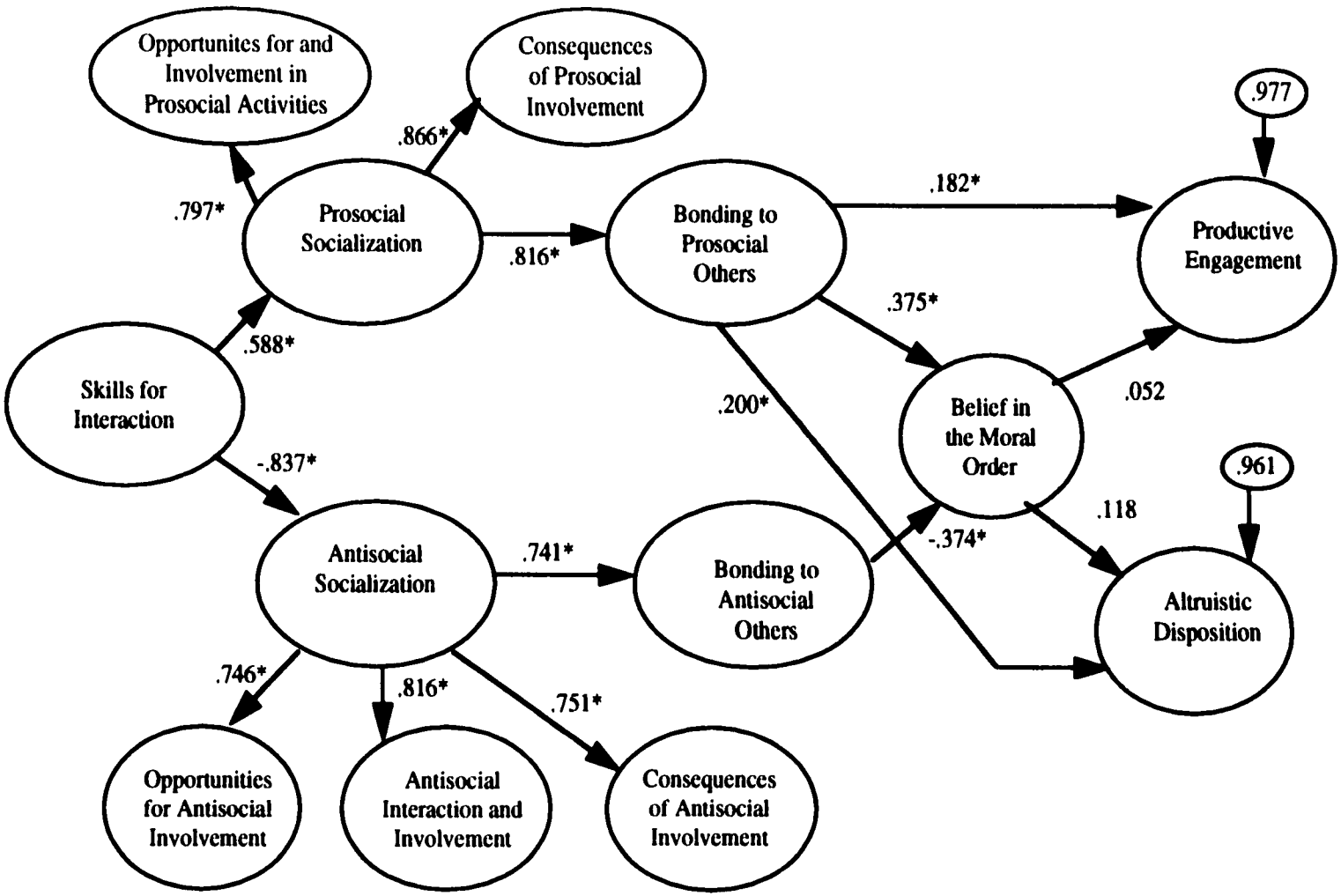
Figure 8. Results of Second Order Factor Model Analysis with Paths from Prosocial Socialization to PYD Outcomes: Standardized Path Coefficients.



* $p < .05$

Figure 9. Results of Second Order Factor Model Analysis with Paths from Prosocial Socialization to PYD Outcomes, Total Groups Indicator Removed: Standardized Path Coefficients.

For the final structural model, the Total Groups indicator was put back in. This time, instead of testing paths directly from Prosocial Socialization to the PYD outcome constructs, paths were added between the Prosocial Bonding construct and the PYD outcomes. This was done in order to determine if the relationship between bonding and the outcomes would be stronger than that between Prosocial Socialization and the outcomes. The overall fit indices were almost identical to the model depicted in Figure 8, with a Robust CFI of .911, $\chi^2(413)= 1520$, and RMSEA of .065. Like the model shown in Figure 8, this model represented a statistically significant improvement in fit over the "no-frills" second order factor model shown in Figure 5 ($\Delta\chi^2(2)=16$, $p<.01$). However, the path loadings between Prosocial Bonding and the PYD Outcomes (.182 to Productive Engagement and .200 to Altruistic Disposition) were lower than the path loadings between Prosocial Socialization and the PYD Outcomes. This final model is shown in Figure 10 and concluded the SEM analysis. Discussion of these findings is presented in the next chapter.



* p < .05 Figure 10. Results of Second Order Factor Model Analysis with Paths from Prosocial Bonding to PYD Outcomes: Standardized Path Coefficients.

CHAPTER 4: DISCUSSION

The purpose of this study was to provide some empirical support to what has heretofore been primarily a philosophical, practitioner-based approach. Specifically, this study sought to develop a measure of Positive Youth Development that could be assessed in early adulthood. Further, it sought to confirm that a theoretical model postulated to predict both positive and negative outcomes, could indeed be used to predict positive youth development outcomes.

To address the first research question, regarding how to measure PYD, the literature review and analysis described in Chapter One was conducted. It identified several common major dimensions of Positive Youth Development and a number of sub-dimensions for these larger categories. This analysis was necessary to gain an idea of where youth should be by the age of 21 and beyond. The result, of course, was a focus upon an amalgamated construct of Productive Engagement that combined measures of education, employment, volunteering and community involvement. A secondary focus upon Altruistic Disposition was included based upon the importance of social competence variables and what was available in this data set.

There were a couple of limitations in this study concerning how adequately these outcome constructs were measured. The first was that the youth were only 21. This forced the creation of a blended construct intended to capture how much productive time young adults were engaged in as well as a cumulative measure of how far the youth had progressed in school. Had the young adults been older, say close to 30 years old, more cumulative and "pure" "status" measures such as occupational level, total schooling,

and economic self-sufficiency could have been addressed. Dividing the Productive Engagement construct might also have provided a measurement model that was stronger for each of the PYD outcomes, assuming of course, that there existed adequate items to measure each of these dimensions. One of the weaknesses of the measurement model used in this study was the relatively low factor loading of the Total Groups indicator upon the Productive Engagement construct. Although it was decided to go for broad rather than deep coverage on the PYD outcomes, one could make a credible argument that the number of groups a youth belongs to may not be as important as whether a youth is deeply involved in a few community or volunteering activities. One might also want to explore dimensions of these "purer" constructs such as whether subjects were employed in the primary or secondary labor markets and whether there were any correlations between primary or secondary labor market employment and status in the social structure. Such analyses would be important in terms of examining justice and equity through a PYD lens.

The second limitation was that the items used to measure Productive Engagement also could have been more precise. For example, it would have been useful to obtain a measure of exactly how many hours each respondent was working each month and how many credit hours they were pursuing each month to get a more accurate picture of educational and vocational involvement than one based upon employment or school "status" in the past month and year.

The second research question regarding the relationship between SDM constructs and PYD outcomes was addressed by examining the factor intercorrelations presented earlier in Table 21. In almost all cases, the two PYD outcome constructs correlated in the expected direction with all of the SDM predictors. The only exception

was that there was no significant correlation between Altruistic Disposition and Anti-social Opportunities or Involvement. In other words, a youth could still want to see others be happy and like helping people despite being in environments where anti-social opportunities were available and being involved with others who engaged in anti-social activities. One explanation for this finding could be that even if a youth spends time with anti-social peers, he or she might still subscribe to conventional norms around the desirability of caring about others. Developing attachments and beliefs around the legitimacy of engaging in deviant behavior may operate separately from the development around norms pertaining to social goodwill and altruism. Some indirect support of this notion can be seen in Gillmore et al. (1992) which showed that youth in their sample, whether they themselves were deviant or not, felt greater attachment to conventional peers than to deviant peers.

The lack of an inverse relationship between Anti-social Involvement and Altruistic Disposition could also have been due to the way in which anti-social socialization items were measured. For the most part, they involved drugs, crime and alcohol. There were no items that measured whether the anti-social entities with whom the youth was involved were mean, unhelpful or sadistic.

In no case was the magnitude of the bivariate correlation particularly high between any of the SDM predictors and the PYD outcomes or between the PYD outcomes themselves. In fact, the strongest bivariate correlation was between Productive Engagement and Skills for Interaction. Presumably this was because Skills for Interaction included two GPA related items and the Productive Engagement construct included years of schooling and school status. It is reasonable to expect that youth who had higher GPA's at age 18 would have greater school involvement at age 21. As

mentioned earlier, another explanation for this might be the relationship between skills and employment. Ideally, if the SDM were to predict PYD outcomes, there would be a fairly high bivariate relationship between all of the constructs along the prosocial path and their indirect effects would be substantial as well, showing that the subsequent constructs were mediating the relationship between the SDM construct and the PYD outcomes. This, however, was not the case.

One explanation could be that the prosocial constructs did not adequately measure what they were supposed to. Clearly, a case could be made for the Prosocial Opportunities construct that did not have enough data items to allow it to be assessed separately from the Prosocial Interaction construct. Earlier waves of the SSDP survey asked youth about the opportunities available to them to learn a new skill, participate on sports teams, and get involved in theater, dance or music. Perhaps the inclusion of similar questions plus ones geared toward young adults such as opportunities for internships, volunteering, or community activism would have strengthened the predictive power of the prosocial constructs. Similarly, the prosocial interaction construct could have included measures of how many interactions youths were having with social agents who: completed many years of schooling, were spending the majority of their time either employed and/or as a student, expressed altruistic feelings towards others, etc. Because one of the theories upon which the SDM is based is differential association theory, it would be ideal to test data that include measures of interactions with social agents committed to PYD outcomes in order to help youths develop definitions of success that favor going to school, working, volunteering, wanting to see others happy and wanting to help others. Likewise, it would be valuable to measure rewards for interactions with such social agents.

The final research question was addressed by performing a number of structural equation analyses. A number of these analyses provided "satisfactory" fit indices; however, in no case was more than 9.4% of the total variance of either of the PYD outcomes explained. There are a number of study limitations which could have caused such minimal results.

The first is the measurement of the Belief in the Moral Order construct. In all of the analyses, the model seemed to "run out of steam" when it hit this construct. In other words, the standardized path loadings were significant and high between the Opportunities and Interaction constructs, between the Interaction and Reward constructs and between the Rewards and Bonding constructs. This is what is hypothesized by the SDM. However, moving to the next step of the model, i.e., from Bonding to Belief in the Moral Order, the path loadings suddenly decreased dramatically. This could be because: (1) Belief in the Moral Order truly does not mediate the relationship between the other predictors and the PYD outcomes at age 21, (2) because it was not measured accurately, or (3) some combination of both these reasons. There is some evidence provided by other studies of SDM using the SSDP data set that yielded similar results. For example, in Lonczak et al. (in review), the path between Belief in the Moral Order and Alcohol Misuse at age 16 was only -.14 for the first order model and -.18 for the second order model. In Catalano et al. (1996), where the outcome construct was substance abuse at age 17-18, similar path loadings were found, -.11 for the first order model and -.14 for the second order model. On the other hand, when looking at a group of much younger youth (Average age=7.4 years), Catalano, et al. (1999) found a statistically significant standardized path loading of -.50 between Beliefs and Problem Behavior. It could be that the salience of the path between Beliefs and various behavioral outcomes differs at different developmental stages. Moreover, this construct might not be as necessary on the

prosocial path as it is on the anti-social path since prosocial behaviors could simply be a natural outgrowth of prosocialization processes. At a minimum, the prior studies plus this study suggest further review of this construct and possible refinement of the items used to measure it.

For example, in all of the prior SSDP studies, measuring Belief in the Moral Order was limited to the items available in the SSDP data set. These items focused upon resisting or believing that it was all right to engage in bad behaviors. None of the items measured conformance or belief in positive behaviors such as the importance of doing well in school, whether honesty was the best policy, whether youths believed it was desirable to be non-violent, obey the law, etc... Perhaps measures along these lines would strengthen this construct by adding a dimension of believing *in* the moral order as opposed to believing in the acceptability of engaging in anti-social activities.

Another limitation of this study could be in the manner that valence scores were determined. There were very few items that measured the "goodness" of peers or the neighborhood, resulting in prosocial valence scores for peers and neighborhoods that were each based solely upon one item. For the peers, it was whether most people who knew the friend thought he/she was a good influence on others. Note that this was the *youth's* perception of whether most people thought the peer was a good influence on others. There is no way to determine how accurately the youth's perception matches what others actually thought about the peer. The neighborhood prosocial valence score was based upon whether the youth felt safe in his or her neighborhood. Although this measure probably is a good marker for a number of neighborhood characteristics that could be related to the "goodness" of a neighborhood, a richer construct comprised of multiple indicators would probably have been more reliable and valid.

In predicting PYD outcomes specifically, one could make the argument that it would have been better to have prosociality measures around whether the best friends were in school, working, volunteering, thought it was important to help others, and liked to see others happy. For the neighborhood valence score, measures such as job opportunities or the extent to which young adults in the neighborhood attended college, volunteered and participated in community activities could have been included. Although the data set was very rich, in hindsight, it could have been even richer.

Finally, a major limitation in this analysis's ability to explain much of the variance in the PYD outcomes was that although the SDM provides multiple pathways for developing anti-social behavior, these additional pathways are not specified for positive outcomes. Specifically, the SDM theorizes three direct paths into problem behaviors outcomes, from Belief in the Moral Order, Attachment to Anti-social Others and Rewards for Anti-social Interaction. Most of the total variance explained in the Catalano et al. (1996) and Lonczak et al. (in review) studies came from the path between Rewards for Anti-social Interaction and the problem behaviors they were examining. The model used in this dissertation did not include parallel paths for the PYD outcomes (since none are posited in the general SDM) and none were indicated in the LM tests. Again, this latter observation may have been due to how the prosocial constructs were measured. In other words, if the constructs had been measured better, the LM test may have indicated additional paths to the PYD outcomes that would have explained more of the total variance in these constructs.

IMPLICATIONS FOR FUTURE RESEARCH

Clearly, the limitations described in this chapter suggest further research of this model using richer and more refined measures. The fact that the PYD outcomes did

correlate in the expected direction with almost all of the SDM indicators is a promising sign that warrants conducting similar analyses with more precise data items and older subjects. This is a burgeoning research area guaranteed to suffer many false leads before reliable robust models of positive youth development are identified and used to design interventions. It is worth the effort, however, since all of us, especially our youth, deserve to be viewed as "whole" human beings comprised of strengths, potential and worth.

IMPLICATIONS FOR POLICY AND PRACTICE

The results of this study are not significant enough to base any policy or practice decisions. They do, however, lean toward providing youths with the entities represented by the underlying prosocial constructs of the SDM, specifically the opportunities to be with prosocial agents and the rewards for doing so. There is certainly nothing here to suggest that making such opportunities and rewards available would cause any harm. Stronger evidence exists for the relationship between Skills and the Productive Engagement outcome. Although the subsequent constructs in the model did not fully mediate the relationship between Skills for Interaction and Productive Engagement, the strong bivariate relationship suggests that promoting interventions that build social and academic skills may have benefits from a PYD perspective. Such interventions are well represented in many current PYD programs that employ strategies such as cooperative learning, proactive classroom management, reading instruction and tutoring to promote academic progress. They are also in line with PYD programs designed to increase social competency by teaching decision-making, assertiveness and general communications skills.

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APPENDIX A: ITEMS USED TO CREATE INDICATORS FOR LATENT CONSTRUCTS

Table 23. Items for SDM Indicators

ITEM	INDICATOR	RESPONSE VALUES	n
**** Perceived Opportunities for Prosocial Interaction/Involvement and Actual Interaction/Involvement**			
How often do your parents talk to you about what you have actually done during the day?	PosOpp1	1-4	755
How often do you attend religious services?	PosOpp1	1-4	755
How often do you talk to your parents about how well you are doing in school?	PosOpp1	1-4	690
How often do you see your this person (your best friend)? MULTIPLIED BY PROSOCIAL VALENCE SCORE	PosOpp1	1-4	752
I take part in class discussions and activities.	PosOpp2	1-4	680
How often do your parents talk to you about what you're going to do for the day.	PosOpp2	1-4	755
How often do your parents find time to listen to you when you want to talk to them?	PosOpp2	1-4	754
How often do you see your this person (your second best friend)? MULTIPLIED BY PROSOCIAL VALENCE SCORE	PosOpp2	1-4	732
There are a lot of chances for students in my school to get involved in sports, clubs...	PosOpp3	1-4	681
Whether your parents ask you before family decisions affecting you are made.	PosOpp3	1-4	751
How often do you have a friendly chat with a teacher outside of class?	PosOpp3	1-4	681
How often do you have a friendly talk with your parents?	PosOpp3	1-4	755
How often do you see your this person (your third best friend)? MULTIPLIED BY PROSOCIAL VALENCE SCORE	PosOpp3	1-4	628
**** Opportunities for Anti-social Interaction/Involvement**			
About how many adults have you known personally who in the past year...have been drunk?	Opp1-	na	756
During the past year, have you had a chance to try	Opp1-	y1, n2	757

ITEM	INDICA-TOR	RES-PONSE VALUES	n
marijuana?			
If you wanted to get marijuana, could you get some?	Opp1-	1-4	757
What percentage of the students in your grade in your school have drunk any alcohol this year?	Opp1-	1-5	681
During the past year, what percentage of the students in your grade in your school have smoked marijuana at least once or twice a month?	Opp1-	1-5	680
Have you ever lived with an adult who was convicted of a crime other than traffic violations (while you were living with them)?	Opp1-	y=1, n=2	757
During the past year, how many of your brothers and sisters...smoked cigarettes?	Opp1-	na	754
About how many adults have you known personally who in the past year...have used marijuana, crack, cocaine, or other drugs?	Opp2-	na	756
During the past year, have you had a chance to try other drugs, such as cocaine, crack, etc.?	Opp2-	y1, n2	757
If you wanted to get some other drugs, do you know where you could get them (like cocaine, crack, etc.)?	Opp2-	1-4	757
What percentage of the students in your grade at your school drank alcohol at least once or twice a month?	Opp2-	1-5	680
Other than your three best friends or your own brothers and sisters, about how many kids do you know personally who in the past year have: used marijuana, cocaine, or other drugs	Opp2-	na	755
During the past year, how many of your brothers and sisters... used alcohol.	Opp2-	na	754
During the past year, how many of your brothers and sisters...been suspended [and/or expelled] from school?	Opp2-	na	731
About how many adults have you known personally who in the past year...have sold or dealt drugs?	Opp3-	na	756
Most people in my school think it's OK to use marijuana.	Opp3-		680
Have you ever lived with an adult who in your judgment was an alcoholic or a problem drinker (while you were living with them)?	Opp3-	y=1, n=2	757
What percentage of the students in your grade in your school have smoked marijuana this year?	Opp3-	1-5	680
Have you ever been asked to join a gang?	Opp3-	y=1, n=2	719
Other than your three best friends or your own brothers and sisters, about how many kids do you know personally who in the past year have: belonged to a street or youth gang	Opp3-	na	755
During the past year, how many of your brothers and sisters...used marijuana, cocaine, or other drugs?	Opp3-	na	753

ITEM	INDICATOR	RESPONSE VALUES	n
During the past year, how many of your brothers and sisters...done anything that could have gotten them in trouble with the police like stealing, selling drugs, vandalism, etc.?	Opp3-	na	755
** Anti-social Interaction/Involvement			
Have you ever run away from home and stayed away over night?	Inv1-	y=1, n=2	757
(If yes) How many times in the past year?	Inv1-	na	752
How often do you see your this person (your second best friend)? MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Inv1-	1-4	734
Have you ever gone out at night when your parents told you that you couldn't go?	Inv2-	y=1, n=2	757
(If yes) How many times in the past year?	Inv2-	na	752
How often do you see your this person (your third best friend)? MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Inv2-	1-4	628
Have you ever had a serious argument with either of your parents in which you yelled or screamed at them?	Inv3-	y=1, n=2	757
How often do you see your this person (your best friend)? MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Inv3-	1-4	754
** Skills for Interaction/ Involvement			
What would you do if one of your friends offered you a beer [a drink containing alcohol] at a party?	Sk1	1-4	756
Putting them altogether, what were your grades like this school year?	Sk1	1-5	663
If one of your friends asked you to skip school, what would you do?	Sk2	1-4	677
What was your grade point average for this year?	Sk2	na	583
What would you do if some teenager you don't know deliberately bumps into you and you almost lost your balance?	Sk2	1-4	755
** Consequences: Rewards and Costs for Prosocial Involvement/Interaction			
My parents praise me for my school achievements.	Rew1+	1-4	680
Other students in my class want me to do my best work.	Rew1+	1-4	681
People I work with want me to do my best work.	Rew1+	1-4	51
There are people in my neighborhood who are proud of me when I do well.	Rew1+	1-4	745

ITEM	INDICA-TOR	RES-PONSE VALUES	n
My supervisor notices when I am doing a good job and let me know about it.	Rew1+	1-4	52
My other teacher notices when I am doing a good job and lets me know about it.	Rew1+	1-4	681
(2nd best friend) This friend thinks well of me when I work hard at school.	Rew1+	1-4	735
(2nd best friend) This friend thinks highly of me when I do something well.	Rew1+	1-4	753
My parents are proud of me when I do well in school.	Rew2+	1-4	680
My parents are proud of me when I do well in my job.	Rew2+	1-4	52
(3rd best friend) This friend thinks highly of me when I do something well.	Rew2+	1-4	628
(3rd best friend) This friend thinks well of me when I work hard at school.	Rew2+	1-4	628
My parents notice when I am doing a good job and let me know about it.	Rew2+	1-4	752
What I have learned in school this year will be worthless in getting a good job.	Rew2+	1-4	681
How often do your parents tell you they're proud of you for something you've done?	Rew3+	1-4	754
My supervisor praises me when I work hard.	Rew3+	1-4	52
My teacher praises or compliments me when I work hard.	Rew3+	1-4	681
There are people in my neighborhood who encourage me to do my best.	Rew3+	1-4	747
(Best friend) This friend thinks highly of me when I do something well.	Rew3+	1-4	753
(Best friend) This friend thinks well of me when I work hard at school.	Rew3+	1-4	753
**** Perceived Consequences (Rewards/Punishments) for Anti-social Behaviors**			
What are the chances your parents would find out and punish you if you beat up or helped beat up somebody?	Rew1-	1-5	757
What are the chances that you would be picked up by the police if you took something worth $50?	Rew1-	1-5	756
What are the chances you would be seen as cool if you beat up or helped beat up somebody?	Rew1-	1-5	755
What are the chances you would be seen as cool if you took something worth $50?	Rew1-	1-5	755
It is easier to open up and talk about one's feelings after a few drinks of alcohol.	Rew1-	1-4	754
When you drink alcoholic beverages, do you enjoy the experience?	Rew1-	1-4	421

ITEM	INDICA-TOR	RES-PONSE VALUES	n
Drinking alcohol makes it hard to get along with friends.	Rew1-	1-4	755
Smoking marijuana makes people happier with themselves.	Rew1-	1-4	753
Do you think it hurts people if they smoke one or more packs of cigarettes per day?	Rew1-	1-4	757
Do you think it hurts people if they smoke marijuana regularly?	Rew1-	1-4	756
Do you think it hurts people if they take one or two drinks nearly everyday?	Rew1-	1-4	757
What are the chances your parents would find out and punish you if you took something worth $50?	Rew2-	1-5	756
If you skipped school, would you be caught and punished?	Rew2-	1-4	747
What are the chances you would be seen as cool if you carried a hand gun?	Rew2-	1-5	756
Drinking alcohol makes people happier with themselves.	Rew2-	1-4	756
If you drank some beer or wine without your parents' permission would you be caught and punished?	Rew2-	1-4	756
Do you think it hurts people if they have five or more drinks once or twice each weekend?	Rew2-	1-4	757
Smoking marijuana is a way to make friends with other people.	Rew2-	1-4	756
Smoking marijuana makes people worry less.	Rew2-	1-4	753
Smoking marijuana makes it hard to get along with friends.	Rew2-	1-4	756
Do you think it hurts people if they try marijuana once or twice?	Rew2-	1-4	757
If you smoke marijuana, would you be caught and punished?	Rew3-	1-4	757
What are the chances that you would be picked up by the police if you beat up or helped beat up somebody?	Rew3-	1-5	757
What are the chances you would get excitement and kicks if you took something worth $50?	Rew3-	1-5	757
Drinking beer, wine, or liquor is a way to make friends with other people.	Rew3-	1-4	757
Drinking alcohol makes people worry less.	Rew3-	1-4	756
Do you think it hurts people if they try one or two drinks of beer, wine, or liquor?	Rew3-	1-4	757
Drinking alcohol gets in the way of school work.	Rew3-	1-4	757
It is easier to open up and talk about one's feelings after smoking some marijuana.	Rew3-	1-4	749
When you smoke marijuana, do you enjoy the	Rew3-	1-4	336

ITEM	INDICA-TOR	RES-PONSE VALUES	n
experience?			
Do you think it hurts people if they smoke marijuana occasionally?	Rew3-	1-4	756
V. Bonding to Prosocial Others and Activities			
I like my teacher this year.	Bon1+	1-4	681
I like my supervisor at work.	Bon1+	1-4	52
I like my class this year.	Bon1+	1-4	681
I often feel like nobody at school cares about me.	Bon1+	1-4	680
Doing well in school is important to me.	Bon1+	1-4	680
Doing well at my job in important to me.	Bon1+	1-4	52
Do you share your thoughts and feelings with this person? (third best friend) MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon1+	1-4	628
Do you want to be the kind of person this person is? (third best friend) MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon1+	1-4	628
I would stick by this person (my third best friend) no matter what. MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon1+	1-4	628
I'd like to get out of my neighborhood. MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon1+	1-4	753
Do you share your thoughts and feelings with this person? (Best friend) MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon2+	1-4	754
Do you want to be the kind of person this person is? (Best friend) MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon2+	1-4	753
I would stick by this person (my best friend) no matter what. MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon2+	1-4	754
If I had to move, I would miss the neighborhood I now live in. MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon2+	1-4	753
Most mornings I look forward to going to school.	Bon2+	1-4	681
Most mornings I look forward to going to work.	Bon2+	1-4	52
When I have an assignment to do, I keep on working on it until it is finished.	Bon2+	1-4	681
When I have a job to do, I keep on working on it until it is finished.	Bon2+	1-4	52
If my parents were doing work around the house, I would volunteer to help even if I didn't have to.	Bon2+	1-4	749
Do you share your thoughts and feelings with this person? (my second best friend) MULTIPLIED BY	Bon3+	1-4	735

ITEM	INDICA-TOR	RES-PONSE VALUES	n
PROSOCIAL VALENCE SCORE			
Do you want to be the kind of person this person is? (my second best friend) MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon3+	1-4	735
I would stick by this person (my second best friend) no matter what. MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon3+	1-4	735
I am satisfied with my neighborhood. MULTIPLIED BY PROSOCIAL VALENCE SCORE	Bon3+	1-4	749
I like school.	Bon3+	1-4	680
I like my job.	Bon3+	1-4	52
I don't feel as if I really belong at school.	Bon3+	1-4	681
I do extra work on my own in class.	Bon3+	1-4	680
At my job I do extra work on my own.	Bon3+	1-4	52
** Bonding to Anti-social Others and Activities			
Do you share your thoughts and feelings with this person? (my third best friend) MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon1+	1-4	628
Do you want to be the kind of person this person is? (my third best friend) MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon1+	1-4	628
I would stick by this person (my third best friend) no matter what. MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon1+	1-4	628
I'd like to get out of my neighborhood. MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon1+	1-4	753
Do you share your thoughts and feelings with this person? (Best friend) MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon2+	1-4	754
Do you want to be the kind of person this person is? (Best friend) MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon2+	1-4	753
I would stick by this person (my best friend) no matter what. MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon2+	1-4	754
If I had to move, I would miss the neighborhood I now live in. MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon2+	1-4	753
Do you share your thoughts and feelings with this person? (my second best friend) MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon3+	1-4	735
Do you want to be the kind of person this person is? (my second best friend) MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon3+	1-4	735

ITEM	INDICA-TOR	RES-PONSE VALUES	n
I would stick by this person (my second best friend) no matter what. MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon3+	1-4	735
I am satisfied with my neighborhood. MULTIPLIED BY ANTI-SOCIAL VALENCE SCORE	Bon3+	1-4	749
** Belief In the Moral Order			
If a friend asked to copy your exam, would you let your friend copy it?	Bel1	1-4	681
It's important to be honest with your parents, even if they become upset or you get punished.	Bel1	1-4	757
Is it OK to take something without asking if you can get away with it?	Bel1	1-4	757
At school, sometimes it's OK to cheat.	Bel1	1-4	757
Do you think it is OK for someone your age to smoke cigarettes?	Bel1	1-4	757
Do you think it is OK for someone your age take one or two drinks nearly every day?	Bel1	1-4	757
Making a good impression is more important than telling the truth to your friends [even if you have to lie to your friends].	Bel2	1-4	756
To get ahead you have to do some things that are not right.	Bel2	1-4	756
skip school without an excuse?	Bel2	1-4	757
Do you think it is OK for someone your age to smoke marijuana?	Bel2	1-4	757
It is OK for someone my age to get drunk once in a while.	Bel2	1-4	757
Making a good impression is more important than telling the truth to parents [even if you have to lie to your parents].	Bel3	1-4	757
You have to be willing to break some rules if you want to be popular with your friends.	Bel3	1-4	757
lie, disobey, or talk back to adults such as parents, teachers, or others?	Bel3	1-4	756
Do you think it is OK for someone your age to drink beer, wine, or liquor?	Bel3	1-4	757
It is OK for someone my age to get drunk once or twice each weekend.	Bel3	1-4	757
How wrong is it for someone you age to ...			
** Defining neighborhood prosocial valence score			
I feel safe in my neighborhood.	Neigh+	1-4	753

ITEM	INDICA-TOR	RES-PONSE VALUES	n
** Defining neighborhood anti-social values score			
Tell me how much the following describe your neighborhood:			
Crime or drug selling	Neigh-	1-4	751
Fights	Neigh-	1-4	752
Shootings or knifings	Neigh-	1-4	751
Gangs	Neigh-	1-4	751
Rowdy or undesirable neighbors	Neigh-	1-4	758
** Defining Peer Anti-social values score			
(Best friend) Does this person do things that get them into trouble with the teacher [or other adults]?	BadPr	1-4	754
(Best friend) How many times in the past month has your best friend gotten drunk?	BadPr	1-4	719
(Best friend) In the past year has your best friend used marijuana [or other illegal drugs]?	BadPr	y=1, n=2	753
(Best friend) In the past year has your best friend done anything that could have gotten him in trouble with the police?	BadPr	y=1, n=2	752
(Best friend) Has your best friend ever asked you to do things that could get you in trouble with your parents, the school, or the police?	BadPr	y=1, n=2	754
(2nd best friend) Does this person do things that get them into trouble with the teacher [or other adults]?	BadPr	1-4	735
(2nd best friend) How many times in the past month has your second best friend gotten drunk?	BadPr	1-4	696
(2nd best friend) In the past year has your second best friend used marijuana [or other illegal drugs]?	BadPr	y=1, n=2	735
(2nd best friend) In the past year has your second best friend done anything that could have gotten him in trouble with the police?	BadPr	y=1, n=2	734
(2nd best friend) Has your second best friend ever asked you to do things that could get you in trouble with your parents, the school, or the police?	BadPr	y=1, n=2	735
(3rd best friend) Does this person do things that get them into trouble with the teacher [or other adults]?	BadPr	1-4	628
(3rd best friend) How many times in the past month has your third best friend gotten drunk?	BadPr	1-4	603
(3rd best friend) In the past year has your third best friend used marijuana [or other illegal drugs]?	BadPr	y=1, n=2	627
(3rd best friend) In the past year has your third best friend done anything that could have gotten him in trouble with the police?	BadPr	y=1, n=2	628

ITEM	INDICA-TOR	RES-PONSE VALUES	n
(3rd best friend) Has your third best friend ever asked you to do things that could get you in trouble with your parents, the school, or the police?	BadPr	y=1, n=2	628
[illegible]			
(Best friend) Most people who know this friend think he/she is a good influence on others.	GoodPr	1-4	752
(2nd best friend) Most people who know this friend think he/she is a good influence on others.	GoodPr	1-4	733
(3rd best friend) Most people who know this friend think he/she is a good influence on others.	GoodPr	1-4	628

Table 24. Items for Productive Engagement Indicators

ITEM	INDICATOR	RESPONSE VALUES	n
In how many clubs, organizations, and activities at school have you participated in the past 12 months? (Only asked if youth indicated he or she had attended school in the past 12 months.)	TOTGRPS	Integer	382
In the past year, how many groups outside of school and work such as community sport teams, church groups, or music or dance classes have you been involved in?	TOTGRPS	Integer	758
On average, how many hours per month did you typically spend in these groups in the past year?	PRODHRS	Integer	765
On average, how many hours per month did you volunteer in the past year?	PRODHRS	Integer	765
Which best describes your employment status during the last month. (Only asked if youth indicated he or she had been employed at all in the past 12 months.)	PRODHRS	1-8(FT, PT, 2Jobs, FT Student, Unemp looking, Unemp not looking, homemakre, no paid employ)	677
Which of the following best describes your status as a student during the past 12 months? (Only asked if youth indicated he or she had attended school in the past 12 months.)	PRODHRS	1-4 (full-time, half-time, < half time, 1or2 courses)	385
What is the last year of schooling that you completed?	YRSCH96R	1-9 (>8th gr, some HS, HS grad, GED, some tech/voc, Tech/Voc grad, some college, 2yr college grad, 4yr college grad)	765

Table 25. Items for Altruistic Disposition Indicators

ITEM	INDICATOR	RESPONSE VALUES	n
I like to see other people happy.	Alt Disp1	1-4	764
Helping others makes me feel good.	Alt Disp2	1-4	764

Curriculum vitae

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Education

Ph.C., June 1997, Social Welfare, University of Washington School of Social Work. Expected graduation date: June 2000.

M.S., Dec. 1987, Computer Information Systems, Boston University.

B.A., June 1984, Major: Business & Management, Minor: Computer Science, University of Maryland.

Certificate in Fiction Writing from University of Washington, June 1993.

Areas of Interest

Positive youth development, theory and research that supports taking an assets-based approach toward working with youth in our society as they make the transition to adulthood.

Integrating technology into human services, both as a tool for social work practice and as a means of providing management decision information.

Youth employment, specifically in the area of school-to-work transition.

Teaching Experience

Co-instructor SW 597B Social Work Practice and Electronic Technology, winter quarter, 1997. Elective course for M.S.W. students. Duties included working with the co-instructor to develop course content, conducting the course in a seminar format, creating assignments and evaluating student projects.

Teaching assistant SW 587-588 Fundamentals of Social Work Statistics I and II, autumn 1996 and winter 1997 quarters. Required course sequence for doctoral students in the Social Welfare program. Duties included working with the course instructor to identify learning objectives for students, selecting an appropriate course text for the introductory course, preparing and delivering lectures, leading all computer labs, creating lab assignments, conducting group study sessions and individual tutoring, and grading student homework and lab assignments.

Research Experience

Research assistant on the Seattle Social Development Project, Social Development Research Group: conducted statistical analysis. Jan. - Mar. 1998.

Research coordinator for the Positive Youth Development Project, Social Development Research Group: developed conceptual models, developed Access database for data collection, evaluated research methodology and wrote findings. Apr. 1997 - Jan. 1998.

Research internship at Seattle Interagency Schools: developed a survey to identify services being provided to incarcerated youth, conducted interviews. Nov. 1996 - Feb. 1997.

Research practicum on the impact of implementing outcome-oriented case planning: developed research questions, analyzed data and wrote findings. Mar - Dec. 1996.

Professional Experience

Aug. 1999 – present: The Casey Family Program. Senior Business Analyst. Leads functional requirements critical issue process for design team. Strategizes, coordinates and leads processes for achieving consensus among stakeholders on business requirements for Casey Information System. Analyzes information requirements, procedures, eternal references and needs of users for the purpose of refining and creating functional requirements for specific aspects of Casey social work practice. Presents materials to Casey stakeholders to facilitate decision making around key issues. Supports broader CIS communication and implementation efforts as necessary.

Mar. 1998 – Aug. 1999: The Casey Family Program. Casey Information System Product Manager. Steward for the Casey Information System (CIS), an array of coordinated

software tools intended to facilitate Casey's practice with youth and families. Assured that the software product met the needs of the company, from product conception, through product creation, implementation and usage. Provided liaison among technical staff, the intended users of the software, and company management. Provided leadership to cross-functional and cross-organizational stakeholder groups to assure the CIS continued to meet the needs of the organization. Managed an annual budget of over $2 million and was responsible for project staff which on average ranged between 12-18 members. Provided project management for related units of work, including work analysis, project planning, staffing, scheduling, and execution. Worked closely with project steering committee to assure optimal usage of resources, both personnel and budgetary. Responsible for maintaining public written documents on all aspects of the CIS, its usage, maintenance and enhancement over time. Oversaw the change control process for analyzing and implementing requests to modify the CIS.

Sept. 1995 - Mar. 1998 Doctoral student in the Social Welfare program at the University of Washington School of Social Work, where primary areas of study have been positive youth development, educational technology and youth employment. While attending school full time (Sept. 95 - Mar 98), was employed in the following positions: (1) Research Coordinator for a study commissioned by DHHS to examine preventive interventions promoting positive youth development. Developed conceptual models, evaluated research methodology and wrote findings. (2) Research Assistant on the Seattle Social Development Project. Designed and conducting statistical analysis. (3) Teaching Assistant for the statistics course sequence required of first year Ph.D. students. Tutored students on a wide range of data analysis methods and taught a computer lab on statistical analysis software (SPSS). (4) Co-instructor for a course on social work practice and electronic technology that was offered to graduate students in the School of Social Work.

Sept. 1990 - Sept. 1995: The Casey Family Program. Hired as a Programmer/Analyst and then promoted to Director of IS Technical Services in May, 1993. Led the technical services team to provide a reliable computing environment for our users and to envision ways in which the opportunities presented by new technology could best be exploited for our program's mission. Worked with a team comprised of members from across organizational departments to develop a request-for-proposal for the development of strategic software and then participated in the subsequent process of selecting a vendor. Produced extensive written and oral communication. Supervised four full-time staff members as well as a varying number of part-time, on-call and contract staff. Researched and evaluated new and extant technologies. Administered the Technical Services budget and schedule. Our team supported over 300 employees and our technical environment was comprised of several hundred desktop computers, over 20 VAXes, a frame relay network, local area networks, remote computing resources (e.g. laptop computers and

modems), and numerous software packages. Prior to being promoted, functioned in a wide variety of roles: (1) Developing software using C++, Data Access Language (DAL), SQL, DCL and RdB (2 years), and (2) Administering VAX and Macintosh computer systems and overseeing the installation of our organization's first wide area network and architecture of centrally managed data and email servers (1 year).

1985 - 1990: Logicon, Inc. (and its subsidiary, R&D Associates). • R&D Associates (1987-1990): Senior Software Engineer, lead staff member responsible for the technical operations required to conduct computerized military wargaming exercises involving hundreds of players. Wrote and modified software. Trained all new technical staff members and wrote documentation. • Logicon, Inc. (1985-1987): Computer Scientist for an independent verification & validation contract to review, evaluate and help plan a multi-million dollar software upgrade. Participated on a team responsible for a full spectrum of requirements analysis, software testing, quality assurance and configuration management. Task leader responsible for review of data base specifications and load-program designs to support the software under development.

1984 - 1985: The Mitre Corporation - Hired as a Technical Aide and later promoted to Associate Technical Staff. Developed prototype software in FORTRAN in VMS environment to monitor wargaming models. Gave presentations to potential clients of a weapons encyclopedia. Developed command procedures and relational data bases using dBaseII.

Publications & Presentations

Lonczak, H.; Huang, B., Catalano, R. F., Hawkins, D. J., Hill, K. G.; Abbott, R. D.; Ryan, J.A.M. (in review). The Social Predictors of Adolescent Alcohol Misuse: A Test of the Social Development Model.

Catalano, R.F., Berglund, L., Ryan, J. A. M., Hawkins, J. D & Lonczak, H. (1998). Positive Youth Development in the United States: Research Findings on Evaluations of Positive Youth Development Programs. Final Report to US Department of Health and Human Services.

Behavioral Informatics Tomorrow Conference (March 1999). Session Title: Improving and Continuing the Development of Your Children's Services Information System.

Honors & Awards

Boeing Fellowship for 1st year Ph.D. students in Social Welfare.

Phi Kappa Phi Honor Society

Professional Affiliations and Community Service

Computer Scientists for Professional Responsibility, member	Jan. 97 - Dec. 99
BCC Volunteer Tutor Program, volunteer	Jan. 94 - Jan. 96
Society for Information Managers, member	Jan. 94 - Oct. 95