

CULTIVATING WISDOM THROUGH A SERVICE-LEARNING EXPERIENCE

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## Dedication

*To Stephanie, my best friend, supporter and the delight of my heart.  
Thank you for joining me on this adventure, and for the color you add to my life.*

## Abstract

Recent research has indicated that the acquisition of knowledge alone is not sufficient to ensure the common good. As such, this study measured the effectiveness of a service-learning experience in cultivating various personal and interpersonal assets necessary for optimal human development; collectively defined as Wisdom. Wisdom was measured as a latent variable that is evidenced by cognitive, affective and reflective effect indicators (Ardelt, 2003). A quasi-experimental design was used to measure the difference in wisdom attributes for those involved in a service-learning program ( $n= 288$ ) as compared to a similar control group ( $n= 321$ ). Wisdom was measured before, after, and one-month following an intense service-learning tour. Structural Equation Modeling (SEM) was used to determine the comparative influence of Social Environment, Social Relationships, Openness to Experience, and Civic Attitude on Wisdom domains. Latent Growth Modeling (LGM) was used to determine the growth trajectories of wisdom over the course of five weeks, and to identify variables that influenced those trajectories. Finally, trip components were ranked by mean scores as to their perceived importance in facilitating growth in the three Wisdom domains.

Results indicate that service-learning participants reported significant gains in Wisdom domains as a result of the trip, with overall Wisdom scores remaining significant one month after the trip. Control group participants reported declines in all measures, with the exception of Civic Attitude. In addition, the proposed SEM fit the data well, providing deeper insight into predictors of the development of Wisdom in early adulthood. Implications for the fields of education and recreation are discussed within the context of this study and previous relevant research.

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## CHAPTER I

### INTRODUCTION

“If we are willing to concede education as the process of forming fundamental dispositions, intellectual and emotional, toward nature and fellow men, philosophy may even be defined as *the general theory of education* (Dewey, 1916, p. 331; emphasis in original).”

The scope of educational ideals has been narrowed significantly in the modern era. Since Plato’s portrayal of the good and just philosopher, or “lover of wisdom” (Lee, 1987), the aims of education have waned to a point where many institutions today are concerned only with cognition. The disregard of other important developmental assets has caused alarm amongst many top educators. Sternberg (2003) states that, “In U.S. society, cognitive skills have become practically equated with intellectual skills- the mental bases of intelligence. This equation is a mistake (p. 147).” Other researchers contend that an increase in global interdependence and the concurrent increase in egocentrism is a volatile combination that must be countered by placing a stronger emphasis on civic responsibility in education (Delve, Mintz, & Stewart, 1990; Putnam, 2003). If the future is plagued with conflict, the instability is not something that exists “out there somewhere,” but a current that flows from inside individuals. To ensure both individual and social well-being, it may be necessary to not only teach students to recall facts and to think critically, but to think *wisely* as well (Sternberg, 2003).

Wisdom is becoming an increasingly popular concept in various fields of study (Assmann, 1994; Baltes, Gluck, & Kunzmann, 2005). Though most disciplines have avoided proposing a model of a virtuous life (Sternberg, 1998), the recent call for a positive psychology is leading the way to a conceptualization of “optimal human

performance” (Baltes, Gluck, & Kunzmann, 2005). This search for the pinnacle of human development has brought about the re-discovery of the ancient concept of wisdom. The leading wisdom researchers come from the field of gerontology, perhaps intrigued by Erikson’s (1982) conceptualization of wisdom as the eighth and final stage of human development.

Wise persons have been found to possess rich knowledge and experience in matters of the human condition, self-knowledge, openness for new experiences, the ability to learn from mistakes, and good intentions in action (Baltes, Gluck, & Kunzmann, 2005). Wisdom is thought to arise from intense learning and practice within a social-cultural environment which encourages its pursuit. It emerges as a result of a variety of experiences that interact and collaborate. Wisdom involves the orchestration of many factors (cognitive, personal, social, and spiritual) and is developed through “the guidance of mentors and the mastery of critical life experiences (Baltes, Gluck, & Kunzmann, 2005, p. 332).”

As a multi-dimensional construct, wisdom represents a measure of human development based on the balance of several intrapersonal subsystems (Sternberg, 1998). Though it has been traditionally seen as an exclusive virtue of the elderly, recent research has challenged these assumptions. The “seeds” of wisdom are evident even in early adolescence and “wisdom performance” has been shown to increase sharply between the ages of 15 and 25 (Pasupathi, Staudinger & Baltes, 2001; Richardson & Pasupathi, 2005). Few studies have been done to determine the impact of “interventions” in facilitating wisdom performance. However, research suggests that an appropriate intervention would include experience and opportunities for reflection. Specifically, these experiences

would occur within a variety of positive and supportive social contexts and would include the opportunity for group collaboration (Staundinger & Baltes, 1996), as well as moral challenges that incite some degree of profundity (Webster, 2003). In addition, there must be ample opportunity for personal and group reflection, which transforms knowledge into wisdom and transforms the individual in the process (Ardelt, 2003).

Concrete experience, collaboration, challenges, and opportunities for reflection are essential elements in experiential education, having been espoused for decades. The philosophy of John Dewey is central to the theory of experiential education. Dewey (1998) emphasized that education is not just a preparation for future vocation, but rather a continual process by which one learns from life experiences. This type of education develops each person to their fullest capacity so s/he can evaluate new situations and respond accordingly. Instead of “filling” each student with accumulated facts, Dewey envisioned a method of education that developed a person’s ability to perceive, to make connections, and to successfully adapt when faced with new challenges.

The key to this kind of development is reflection upon experience. By reflecting on life experiences, one can make connections to other information and experiences, which then leads to the perception of meaning (Dewey, 1934). In order for experience to lead to meaning, it must occur within a specific context (setting or milieu) and it must generate tension through challenges (physical, mental, emotional). This tension motivates the participant to adapt to the situation, which generally results in growth through a transformation of knowledge, beliefs or values. This growth then becomes a continuous process as new knowledge is applied to new contexts, leading to increased meaning and fulfillment. Wisdom and experiential learning share several core elements.

This study will provide insight into the potential for facilitating the development of wisdom through an experiential learning program for young adults.

### Statement of the Problem

“[Wisdom’s] survival implication is as an antidote to knowledge that pursues selfish, short-term, and limited goals that often turn out to have disastrous consequences for the very persons they were intended to benefit- not to mention other people or the nonhuman environment (Csikszentmihalyi & Rathunde, 1990, p. 48).”

Psychologists suggest that educators must no longer avoid making value judgments about the means and ends of a “good life” (Schwartz, 2000; Seligman & Csikszentmihalyi, 2000). By focusing on the techniques of progress, our society has neglected to reflect on the *goals* of that progress (Baltes, Gluck, & Kunzmann, 2005; Marcel, 1954; Pacione, 1999; Schumacher, 1977). This neglect is being realized in various ways, including a loss of a sense of direction (Dyke, 2006; Schwartz, 2000), an increase in violent crimes, family breakdown, psychosomatic complaints (Csikszentmihalyi, 1999), as well as the modern environmental crisis (Gottlieb, 2001; Mayer & Frantz, 2004; Schultz et al., 2004). That these deficits have occurred simultaneously with vast increases in IQ scores (Flynn, 1998), testifies to the impotence of knowledge alone in dealing with modern dilemmas.

Much of the lack of empirical attention paid to a cultivation of the “good life” can be attributed to a lack of efficient psychological measurements for intangible variables. Early successes in behaviorist and positivist research at the beginning of the 20<sup>th</sup> century may have led to a devaluation of more “vague” and “fuzzy” psychological concepts (Holliday & Chandler, 1986). Wisdom may have been further devalued because of its association with old age; a less productive time of life that is not highly esteemed in

modern societies (Holliday & Chandler, 1986; Marcel, 1954). Furthermore, wisdom's multi-dimensional nature has rendered it difficult to capture empirically. Modern psychometrics, coupled with new analytic techniques such as latent variable modeling, are proving valuable for the investigation of this complex construct. In this way, researchers have been able to reach beyond the scope of "Scientism" (Habermas, 1970) to explore the interactive and dynamic process of latent constructs such as wisdom (Ardelt, 2004, Baltes, 2004).

While previous research has contributed much to our understanding of certain phenomenon, many psychologists and philosophers are calling for a longer-term, more complex measurement of human development (Baltes, Gluck, & Kunzmann, 2005). Knowledge, it seems, is not enough to ensure the "common good." With the development of instruments and methods for the measurement of wisdom comes the opportunity to begin research into the facilitation of growth in wisdom. A few efforts have been made to improve wisdom performance. Baltes and Smith (1996) were successful at increasing scores for wisdom-related knowledge using imagery and social collaboration. This study, however, included only adults and there was no longitudinal analysis to determine if the results had any long-term impact. Additionally, questions were raised as to the validity of their method of measurement as a true indicator of wisdom. Further research needs to be done to determine if wisdom can be facilitated in other populations using a variety of measures with robust psychometric properties.

Previous research has reported that wisdom increases most sharply between the ages of 15 and 25 (Baltes, Gluck, & Kunzmann, 2005). This identifies the period of adolescence as a key stage for facilitating the growth of wisdom. Richardson and

Pasupathi (2005) have identified possible antecedents to wisdom that are evident in adolescents. So far, however, there have been no efforts to facilitate the growth of these antecedents through interventions or intentional programming. Sternberg (2003) has implemented a curriculum designed to improve wisdom performance in adolescents, but the results of this study have not yet been determined. Further research into the facilitation of adolescent wisdom should be the focus of future research.

Pilot studies conducted for this research have revealed promising findings. Ardel's (2003) Three-Dimensional Wisdom Scale (3D-WS) was used to measure gains in affection, reflection, and cognition of students involved in a week-long service-learning tour. These students (ages 14-19) showed significant gains in affection and cognition after the service-learning experience. This was the first time the 3D-WS had been used with a population of this age, and further research must be done to establish the reliability of the instrument with adolescents. Furthermore, there was no follow-up measurement, no control group, and no efforts were made to determine which aspects of the service-learning process contribute to the growth in wisdom domains. This study addresses many of the weaknesses of the pilot study and seeks to identify the key components of the trip and determine how they contribute to each wisdom domain.

#### Purpose of the Study

The purpose of this study is to determine the impact of an experiential education program that incorporates service-learning on scores in wisdom domains. This study measured the impact of a nine-day service-learning trip on wisdom in early adulthood, and determined which aspects of the trip influenced growth in each wisdom domain. Trip participants were given Ardel's (2003) 3D-WS before and after the experience, then

again one month after completion of the program to determine the stability of outcomes. Gains in wisdom domains were assessed in terms of mean scores. Post-trip questionnaires included a list of trip elements, which the participants rated in terms of importance for their learning in various domains.

### Theoretical Models and Hypotheses

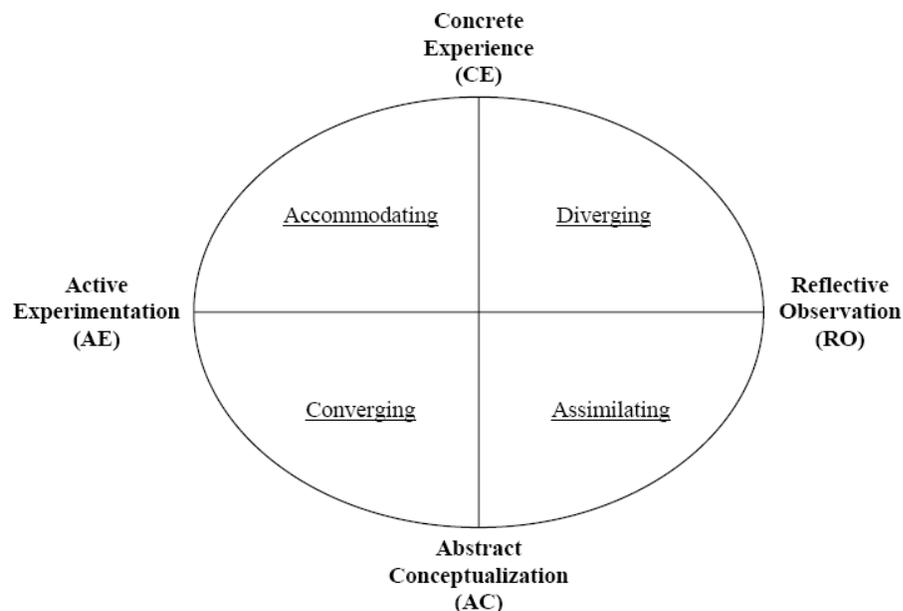
#### *Experiential Learning*

Many models of experiential learning have been proposed, the best-known being that promoted by Kolb (1984). Kolb's experiential learning model (Figure 1.1) is based on a four-stage theory developed by Lewin and Dewey (Dyke, 2006). Kolb's model is often criticized as being too simplistic, but this simplicity has enabled it to serve as the basis for many other learning models. Experiential learning theory (ELT) defines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience (Kolb, 1984, p. 41)." Service-learning is a type of experiential learning through which participants address human and community needs together, with structured opportunities for reflection and discussion. The experiences are intentionally designed to create opportunities for community service and engagement.

Kolb (1984) viewed concrete experience as the first step in the learning process. Concrete experience is defined very loosely and can include any variety of activities or situations that a person encounters in life. In the second stage of Kolb's model the individual reflects on their experience, comparing it with previous knowledge and beliefs. Having reflected on the experience, the individual then "abstractly" applies his/her new insights to other aspects of his/her life. This abstraction is then tested by applying the

new insights to future experiences (experimentation). This model was chosen because it has been established through a vast body of research (Kolb, Boyatzis, & Mainemelis, 2000) and because it is sufficiently parsimonious to be applied to the program involved in this study.

Further development of Kolb's model included the addition of learning styles to each quadrant. Those in the Divergent quadrant have dominant learning abilities associated with Concrete Experience and Reflective Observation. These people tend to be imaginative and emotional, and display excellent abilities in brainstorming and viewing situations from various points of view. Those in the Assimilating quadrant enjoy abstract ideas and are often more concerned about the logical soundness of a theory than they are about its practical value. Those who are of the Converging learning style enjoy finding practical uses for ideas. As such, they tend to enjoy technical tasks with solvable problems, rather than "thorny" social issues. Finally, Accommodating learners prefer to



*Figure 1.1.* Kolb's Experiential Learning Model with Learning Styles.

learn from hands-on experience, to explore new challenges, and to test out different approaches in the field (Kolb, 2000).

Due to the influence of radical educators, such as Paulo Freire, Kolb added another layer to his learning model to emphasize that ELT promotes the development of a culture as well as that of individuals. As illustrated in Figure 1.2, Kolb distinguished values from facts, and relevance from meaning, placing them in the location where he supposed each concept played the most important role.

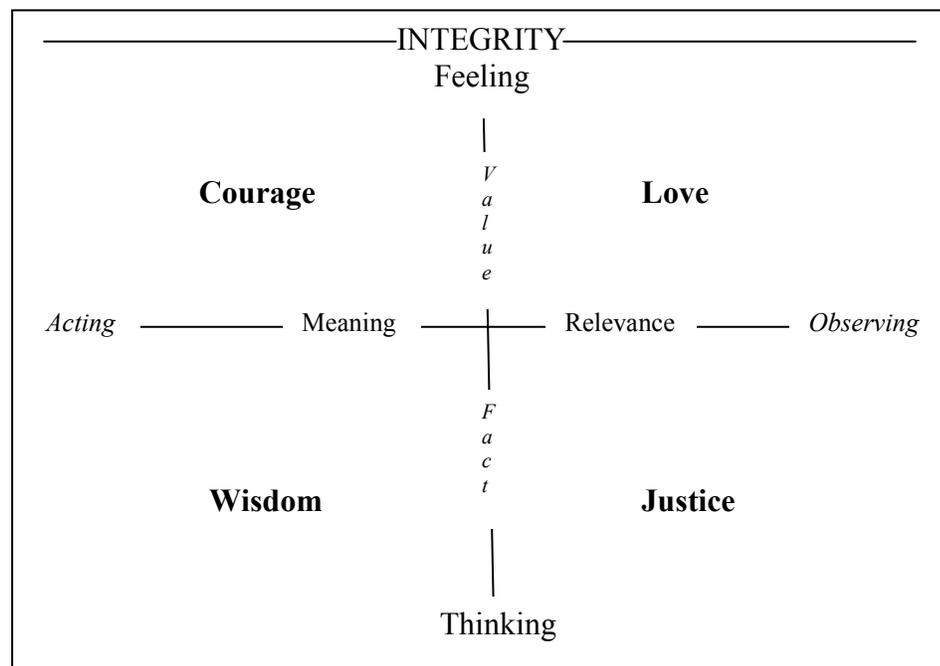


Figure 1.2. The Virtues in Kolb's Learning Model (Stewart, 1990)

Values, for instance, predetermine the concrete experiences in which one engages, while facts help one to abstract and apply the ideas we gain from those experiences. Furthermore, in the relevance stage one organizes the observations of their experience and then attempts to apply that meaning purposefully through experimentation. Finally, Kolb adds a virtue to be associated with each quadrant of the model. Love enables the

learner to go beyond their self-centered observations and empathize with others. Justice helps one to negotiate a set of accumulated facts in order to make fair and inclusive judgments. Wisdom goes beyond the accumulation of facts to assist in making meaningful decisions about one's behavior. Lastly, courage provides the motivation to find meaning in one's actions and to persist in the application of acquired knowledge (Stewart, 1990).

The Experiential Learning Model represents a mode of learning that is available to everyone, regardless of age and access to educational resources. As illustrated above, it is an effective model for all types of learners and supposedly improves the experience of both the learner and the culture within which the learner is engaged. Though ELT is not teacher-dependent, it assumes that there are intentional opportunities for concrete experiences and reflection (Kolb, 1984). Wisdom also develops as a result of experience and reflection. Based on the Experiential Learning Model, the following null-hypothesis was tested:

*1a.* Those participating in a service-learning trip will demonstrate no higher gains in wisdom domains than the control group.

In addition, to testing the above hypothesis, this study sought to explore the relationship of important elements in experiential learning. As such, the following research question was addressed:

*1b.* Which components of the service-learning experience are perceived as most valuable for growth in each wisdom domain?

### *Three Dimensional Model of Wisdom*

Ardelt's (2003) conceptualization of wisdom is based on the pioneering implicit study performed by Clayton and Birren (1980). That study produced a list of characteristics associated with wise people, and categorized these traits into three categories: Cognition, Affection, and Reflection. Items measuring the cognitive dimension assess one's willingness and ability to understand phenomena on a deep level, knowledge of the ambiguity of human nature, knowledge about the limits of knowledge, and an awareness of life's uncertainty. While this dimension measures one's beliefs about the world, which may be affected by perspective-taking, this dimension does not measure perspective-taking directly. The affective dimension measures one's demeanor and sympathetic compassion towards others. This domain is "other-oriented" and wise ratings should demonstrate a lack of self-centeredness. The final dimension, reflection, measures the degree to which one tries to overcome their subjectivity, their willingness to look at situations from various points of view, and their acceptance of responsibility for their life circumstances (Ardelt, 2003).

All three domains are considered to be necessary but not sufficient indicators of wisdom. Measured in this way, wisdom is viewed as a personality characteristic, and not as a type of performance that would vary from one context to another (Ardelt, 2003). An effective integration of the three dimensions would indicate the presence of wisdom within the individual. For example, a person who scored high in the cognitive dimension could be intelligent, but they would not be wise if they lacked compassion. Conversely, a compassionate person may be very sympathetic toward another person, but may not be very effective at interacting with them or helping them without background knowledge

and perspective. According to Ardelt (2003), the reflective domain is the “hub” of wisdom, as it simultaneously increases one’s willingness to understand life on a deep level and their compassion for others. However, reflection is supposedly associated with age (Assmann, 1994) and a pilot test supported this assumption (Bailey & Russell, 2008). Therefore, it may be unlikely that scores would increase in the reflective domain over such a short period of time.

Based on the above model the following null-hypotheses were formed:

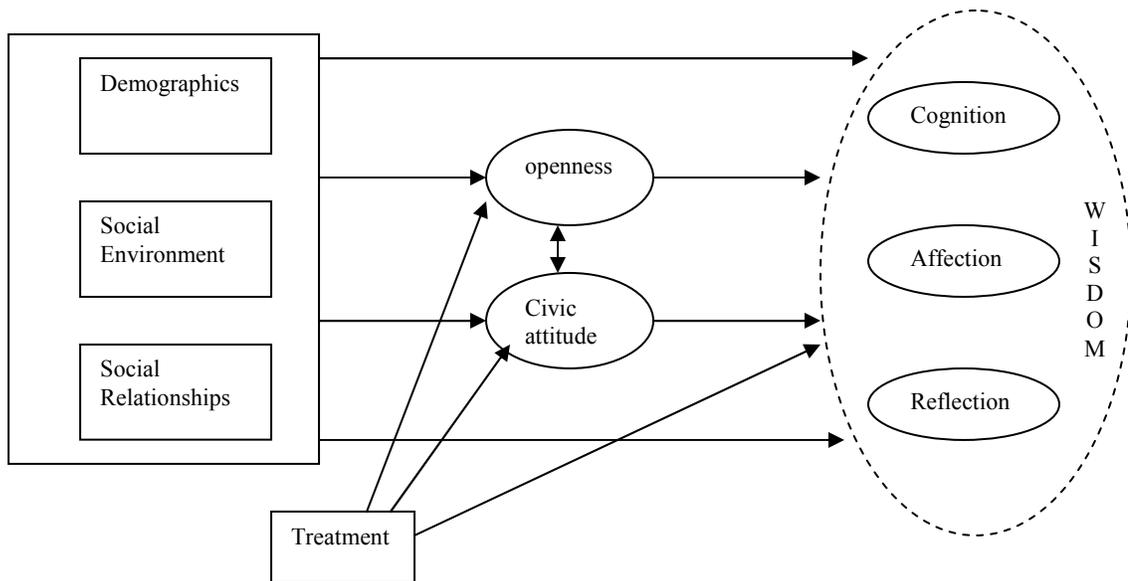
- 2a. There will be no difference in pre- and post-trip wisdom domain scores for service-learning participants.
- 2b. There will be no difference in pre- and follow-up wisdom domain scores for service-learning participants.

#### *Proposed Structural Equation Model*

Previous studies have identified several important antecedents to wisdom. Staudinger & Pasupathi (2003) found that intelligence (particularly crystallized intelligence; i.e. verbal and math performance) and openness to experience were the best predictors of wisdom-related performance in adolescents. In addition, Ardelt’s (2000) longitudinal study of elderly adults identified one’s social environment in early adulthood as the only significant predictor of wisdom as measured 40 years later. Previous research has suggested that experience in a variety of social contexts is conducive to wisdom (Baltes, Gluck, & Kunzmann, 2005). Accordingly, a preliminary research study (Bailey & Russell, 2008) revealed a significant positive correlation between the amount of social engagement and wisdom scores. The authors suggested that this may be related to the concept of Social Capital as conceptualized by Coleman (1990), and that a high level of

engagement with a variety of social groups could broaden one's perspective and increase one's openness to experience. Finally, as wisdom is a virtue for the "common good" (Baltes, Gluck, & Kunzmann, 2005) and service learning increases awareness and concern for the "social good" (Rhoads, 1998), it is conceivable that one's civic attitude could play a key role in wisdom development. Thus, the proposed model included measures of civic-efficacy, civic responsibility, and democratic attitude.

This study tested the hypothesized and theoretically-grounded structural equation model as illustrated in Figure 1.3. Social environment, and social relationships are exogenous variables that are hypothesized to influence one's openness to experience and their civic attitudes as well as directly affecting overall wisdom. Openness to experience and civic attitudes affect all three domains of wisdom, being stimulated by the treatment of the service learning experience. Since the service-learning trip is based on Kolb's (1984) Experiential Learning Model, the treatment can be viewed as a series of cycles that involve experience and reflection. These components have a direct effect on wisdom scores as well as an indirect effect which is associated with openness and civic attitudes.



*Figure 1.3. SEM Path of Wisdom Development through Service-Learning*

Based on the above model, the following hypotheses were developed:

*3a.* Social environment and social relationships will have a significant direct effect on wisdom scores.

*3b.* Openness to experience and civic attitude will have a stronger direct effect on wisdom scores than will social environment and social relationships.

In addition, the following null hypotheses will be tested:

*3c.* Service-learning participants will demonstrate no higher gains in civic attitude and openness than the control group.

*3d.* There will be no difference in pre and post-trip scores for civic attitudes and openness-to-experience for service-learning participants.

#### Significance of the Study

This study contributes to the existing literature that emphasizes the need for a more comprehensive measure of human development (Baltes, Gluck, & Kunzman, 2005;

Sternberg, 1990; Sternberg 2005). Current measures of progress are too narrow to ensure a future directed toward the “common good” (Sternberg, 2003). As such, it is vital that future research contributes to more complex conceptualizations of human development. In addition, it helps to verify the measurement of wisdom through a self-report measure that can be easily administered in other settings.

This study represents the first known attempt to facilitate the growth of wisdom domains through experiential learning. Previous studies on service-learning have reported gains in conceptually-related outcomes. Much research has been done to determine the nature of wise persons (Clayton & Birren, 1980; Holliday & Chandler, 1986), and to develop measurements that accurately assess wisdom (Ardelt, 2003; Baltes & Smith, 1990; Sternberg, 1998; Webster, 2003). Additionally, many researchers have identified experience and reflection as two central vehicles for the cultivation of wisdom (Ardelt, 2004; Assmann, 1994; Webster, 2003). To date, there are no published studies that have tested the methods of experiential learning as a facilitator of growth in wisdom.

The proposed research also has practical implications for the field of experiential education. Theorists have contended that the methods of experiential education are useful for developing more than encyclopedic knowledge (Dewey, 1916; Freire, 1993; Kolb, 1984). Unfortunately the process of experiential learning has proved difficult to verify. This study will provide information that connects the components in a service-learning environment to their associated outcomes. In this way, future programming can be assessed and modified to provide experiences that are more effective for long-term growth.

### Definition of Terms

1. *Affection*: The presence of positive feelings (i.e. sympathy and compassion) and the absence of negative emotions and behavior towards others (Ardelt, 2003).
2. *Cognition*: A person's ability and desire to understand life, its significance and deeper meaning, particularly with regard to intra- and interpersonal matters (Ardelt, 2003).
3. *Reflection*: The consideration of life events from a variety of perspectives with the intent of gaining insight into the true nature of things. Reflection develops self-awareness and simultaneously increases a person's cognition and affection (Ardelt, 2003).
4. *Wisdom*: A combination of personal characteristics and dispositions that is considered optimal for individual and social well-being. These are developed through a combination of experience and reflection, and are evidenced by the presence of affective, cognitive, and reflective indicators (Ardelt, 2003).
5. *Service-Learning*: A form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development (Jacoby, 1996, p. 5).

### Limitations of the Study

There are several limitations that should be addressed at the onset of this study. First, the program participants were a self-selected group that cannot be considered as representative of the entire student population. Thus, the results of this study cannot be indiscriminately generalized beyond the scope of late adolescents/ young adults

attending a Midwestern college or university. The sample was relatively homogenous in regards to race and socio-economic status. In addition, these students could be considered highly motivated and pro-socially oriented, since they were paying to participate in a service-learning trip over Spring Break.

While this study included a follow-up measurement that provides some longitudinal support, a 1-month follow-up assessment may not be sufficiently long-term to accurately assess one's growth toward wisdom. As a complex measure of human development, it may be more appropriate to measure these participants over the course of several years. This is especially true given that reflection is considered the "hub" of wisdom for this research. A follow-up scheduled several months or years after the experience may provide a better assessment of the true impact of the experience, as the participants would have more time to process the trip. Unfortunately, such methods are beyond the scope of this study.

While this study did include a control group, the participants were not randomized and the control group was non-equivalent. Indeed, the control group differed from the treatment group on most measures of interest before the treatment was in effect. A variety of analyses were conducted using a variety of sampling methods, showing little variation in outcomes. In addition, the SEM structure was consistent for both the treatment and control groups, indicating that, while the *mean* scores for outcome variables differed, the structure of relationships between the variables in the study was consistent across groups. Finally, the effect sizes for the treatment group remain significant even when accounting for the disparity in pre-trip measures. Future researchers may prefer to use a purposive sample that equates more closely with the

service-oriented disposition of service-learning participants (i.e. social work students).

Finally, wisdom is still relatively young as a psychological construct. The construct is still being defined, and any claim regarding the increase of wisdom will necessarily depend upon the developments of future research. In addition, the use of self-report measures for wisdom is not universally accepted (Baltes, 2004). As with any self-report measure, one must assume a certain level of self-awareness and honesty in responses.

#### Outline for Dissertation Proposal

This proposal presents relevant information regarding the cultivation of wisdom through experiential learning. Chapter I provides a brief background of the variables, as well as the rationale for and significance of this study. Chapter II provides a review of associated literature that pertains to experiential learning and wisdom. Chapter III outlines the proposed research design and methodology. The results of quantitative statistical analyses are presented in Chapter IV and a discussion of these results is presented in Chapter V.

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter provides a summary of the literature that is relevant to the independent and dependant variables of this study. The first section details the literature that applies to the independent variable, experiential learning. After a general discussion of experiential learning, the literature that pertains specifically to service-learning is reported. The next section consists of the literature relevant to the dependant variable, wisdom. This section presents the main approaches used by wisdom researchers and reports the findings that support the rationale for this study. The final section makes the connection between experiential learning and wisdom, as well as providing a summary of the issues most pertinent to this study.

#### Experiential Learning

Experiential educators consider life (or life experiences) to be the basis for any knowledge (Jarvis, Halford & Griffin, 1998). While this statement is not revolutionary, its implications for learning certainly can be. Educational theorists such as John Dewey and Paulo Freire emphasized that experience-based education is vital to inspire critical thinking, to maintain individual freedom, and to insure that learning becomes a life-long process (Dyke, 2006). Experiential educators utilize concrete experience and reflection to help an individual transform his/her knowledge system, and to indirectly transform society. After a brief discussion of the difference between passive and experiential forms of education, this section will detail previous research regarding service-learning and adventure trips to demonstrate how wisdom can be best cultivated through experiential education.

Traditional styles of passive education have been equated with ineffective and authoritarian styles of teaching, also referred to as “banking knowledge” and “rote learning” (Dyke, 2006; Moacir, 1994). This method of education views the learner as a passive, empty vessel that is filled by a knowledge expert. The learner is not encouraged to think critically, but is encouraged to memorize given information. Students are not actively involved in the learning process, and instead of acquiring the skills that will enable them to continue learning throughout their lifetime, they are taught to be dependant on the knowledge of authorities (Jarvis, Halford & Griffin, 1998). These students often leave with an inflexible set of rules and “descriptive knowledge” (Kekes, 1995) that may help them to get a job, but won’t always help them to negotiate difficult life problems that require a *wise* interpretation of that knowledge. Thus, passive education can improve knowledge (cognition) of a particular subject matter, but it may not cultivate multi-dimensional, *wise* individuals.

Conversely, experiential learning places the emphasis on the student, downplaying the role of the authority. Students are encouraged to take an active role in their own learning, thereby increasing their motivation to learn (Jarvis, Halford & Griffin, 1998). The teacher is viewed as a facilitator who guides the student through the process of learning. Thus, the emphasis is placed on the *process* of learning as well as the content. This student can then continue the process of learning throughout his/her lifetime by applying this process to new experiences. In addition to relaying specific knowledge (cognition), experiential education also teaches the practice of reflection (Dyke, 2006), increases affection through personal contact (Rhoads, 1998), and provides students with the skills necessary to re-discover ancient concepts and socialize them to

their cultural context (Moacir, 1994). This re-discovery and modern application of ancient truths is a central theme in the concept of wisdom (Ardelt, 2004).

Since reflection plays such an important role in experiential learning, a clearer definition seems appropriate. The term “reflection” is often used very loosely in a variety of contexts. From a strictly scientific perspective, reflection may be as simple as recording observed data and using that data to hypothesize about a future experiment. Takahashi (2002) called this reflection on sensory material “reflective thinking” in order to distinguish it from the deeper type of reflection which leads to self-awareness and wisdom. While “reflective thinking” promotes knowledge of how empirical objects interact, “reflective understanding” promotes personal meaning through dwelling on the cultural, historical, and personal significance of experience. Other theorists attempted to define this deep reflection with terms such as “emancipatory learning” (Mezirow, 1990), “secondary reflection” (Marcel, 1954), and “second-loop learning” (Jarvis, Halford & Griffin, 1998). Deep reflection requires one to stand apart from their ego (Marcel, 1954) in order to view things from a different perspective. This separation from the ego then reveals fallacies in one’s belief system and allow them to return to the concrete situation with a renewed understanding. Wisdom develops as a result of this continual effort of detached concern (Csikszentmihalyi & Rathunde , 1990)) and of establishing connections and making meanings where none are readily apparent (Helson & Srivastava, 2002).

### Service-Learning

Service Learning has been defined as “a form of experiential education in which students engage in activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and

development (Jacoby, 1996, p. 5).” It has also been referred to as “citizenship education,” a term that emphasizes a concern for the social good (Delve, Mintz, & Stewart, 1990). As such, it is concerned with the personal development of the individual participants as well as the communities in which they serve. The inclusion of service-learning in schools has increased drastically in the past two decades. A 1999 survey found that 83 percent of high schools reported opportunities for community service activities, as compared to a mere 27 percent in 1984 (Spring, Dietz, & Grimm, 2006). More than one-third (36%) of youth polled had participated in community service as part of a school activity or requirement. Reported outcomes for service-learning participants include increased efficacy and civic engagement (Spring, Dietz, & Grimm, 2006), improved academic performance and behavior (Frederickson, 2000; Lundy, 2007; Scales, et. al, 2006) and increases in empathy, cognition, self-concept, and social development (Berger & Milem, 2002; Lundy, 2007; Waldstein & Reiher, 2001). This section will detail underlying theories of service-learning and present previous research relevant to the current study.

### *The Service-Learning Model*

As a form of experiential learning, service-learning models fit well into the scope of Experiential Learning Theory (ELT). Figure 2.1 illustrates one attempt to converge the elements of service-learning with Kolb’s (1984) ELT model. The service-learning model consists of five phases that participants proceed through due to involvement in community service. These phases include: exploration, clarification, realization, activation, and internalization. The learner’s progress through these stages is mediated by their type of involvement (i.e. direct or indirect), their length of time involved, the

needs and outcomes of the participants, and the balance of challenge and support offered by the experience.

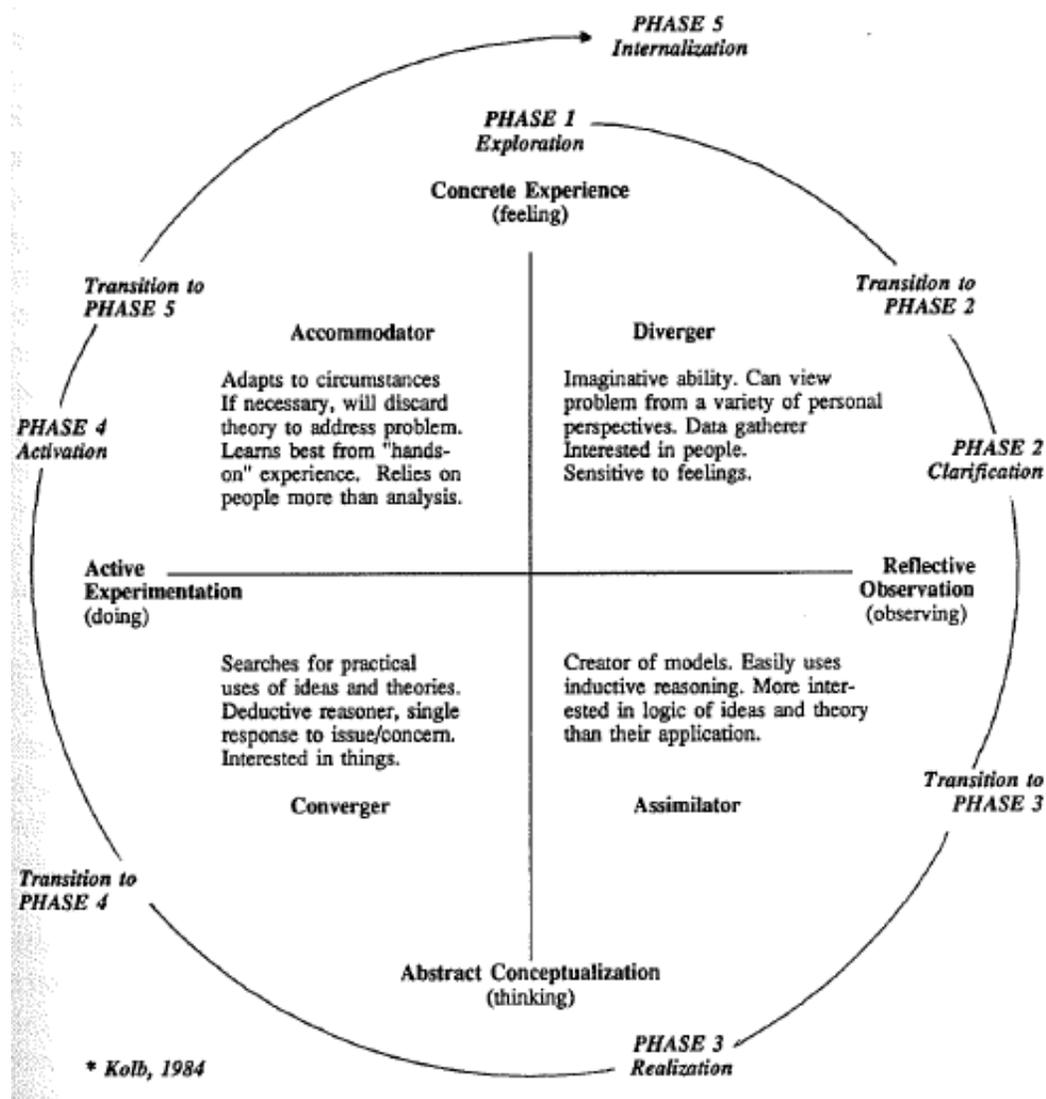


Figure 2.1. Service-Learning Model with Kolb's Experiential Learning Model (Delve, Mintz, & Stewart, 1990, p.37).

One factor that service-learning contributes to the model is the emphasis of values. In fact Delve, Mintz, and Stewart (1990) assert that "...involvement in community service is symbiotic with values development (p. 8)." Their theory is based

on a combination of Perry's (1970) Cognitive Development Model, Kohlberg's (1975) Moral Development Model, and Gilligan's (1982) Model of the Development of Women's Moral Judgment. As the learner progresses through the five phases of the service-learning model, they also progress through the stages of development as expressed by Perry, Kohlberg, and Gilligan. Thus, according to Perry's model, the participant would begin with a simple dualistic mindset that views things as either "black or white." As they progress through the service-learning model, the participants begin to see "multiplicity" in issues, understanding that there may be more than one right answer. Finally, the learner grows into the understanding that knowledge must be viewed within its own context, a mature stage referred to as "relativism." Similarly, the learner proceeds through Kohlberg's stages of moral development beginning with a moral stance of avoiding punishment and ending with a respect for the dignity of all individuals. Gilligan's model emphasizes the difference in moral development between genders, and the need to consider different intervention methods for each. In addition, Gilligan legitimizes the concept of caring, a concept that is central to service and to wisdom.

The Service-Learning Model illustrates how one's thought processes can grow from simple, concrete functioning toward a more complex and integrated style through the methods of service-learning. Though the principles in this model support the framework for this study, Kolb's (1984) model was deemed more appropriate for this research. The service-learning model represents a longitudinal measure of development that goes beyond the scope of the current study. As such, it is perhaps best applied to programs that are offered through schools and engage the learner at small increments over the course of a semester. The program utilized in this study incorporates elements

of the service-learning model along with elements in adventure or expeditionary learning models to provide an intense, but short-term experience. However, an understanding of the role of service-learning in values development is imperative when measuring a value-laden concept such as wisdom.

### *Service-Learning Literature*

Research on service-learning is vast and plentiful. Earlier studies were plagued with inadequate methodology, most of which reported outcomes anecdotally. A recent thrust of literature has focused on legitimizing the field using established measurements as well as experimental and quasi-experimental designs. The following studies provide a sample of the recent quantitative, longitudinal, and qualitative studies and their reported participant outcomes.

Schmidt, Shumow, and Kackar (2007) analyzed data collected from the National Household Education Survey to determine the effects of service-learning on academic adjustment, behavior problems, civic efficacy, and civic knowledge. This study was designed to confirm the findings of previous research with the use of a large, nationally representative data set. The sample consisted of 4,306 high school respondents who attended public and private schools. They assigned the respondents to groups according to the number of hours spent in service activities, whether their service was voluntary or required, and the type of service they were involved in (i.e. direct contact, indirect, and service to environment or animals).

Findings suggest that participation in *any* type of service was associated with significant increases in grades and civic knowledge, and a significant decrease in behavior problems. There was no difference in outcomes according to hours of service.

Additionally, the outcomes were consistent for those who volunteered to participate and those who engaged in mandatory service. Those who had direct contact with the individuals being served tended to have higher grades, while those involved in indirect service to organizations reported more civic efficacy and civic knowledge (Schmidt, Shumow, & Kackar, 2007). These findings provide strong support for the personal and civic outcomes attributed to service-learning. The results also imply that different activities may lead to different outcomes. While this study provides a good general idea of the outcomes associated with service-learning, its scope is too broad to understand the true nature of a service-learning experience. In addition, this type of survey research cannot establish causality or duration of outcomes due to the lack of a control group and longitudinal measures.

Astin, Sax, and Avalos (1999) set out to further legitimize the outcomes of service-learning experiences with the use of longitudinal, multi-institutional data. The researchers utilized information from surveys completed in 1985 by 279, 985 college freshmen at 546 colleges and universities. The Student Information Form (SIF) survey included info on personal and demographic characteristics, high school experiences, expectations about college, values, goals, self-concepts, and career aspirations. A follow-up survey was completed by the same students in 1989, to measure their perceptions of the college experience and to serve as a post-test for the information gathered on the original survey. Finally, a nine-year follow-up survey was completed by a sample of 12,376 students who had completed the previous two surveys.

Significant behavioral outcomes associated with service included: attending graduate school, earning higher degrees, donating money to one's alma mater, socializing

with others of different race, and participating in community work after college. In the realm of values, undergraduate service is associated with helping others in difficulty, participating in community action programs, participating in environmental cleanup programs, promoting racial understanding, and developing a meaningful philosophy of life (Astin, Sax, & Avalos, 1999). These findings validate the long-term impact of service-learning in both the cognitive and affective domains. Furthermore, the effects remained significant even when controlling for service after college, indicating that service in the late adolescent/ early adult years can be a powerful source of long-term development.

While the two previous studies provide evidence of a relationship between service and positive development, the lack of a control group presents problems for identifying causality. Batchelder and Root (1994) conducted a quasi-experimental study of 96 students enrolled in small, mid-western liberal arts colleges. Forty-eight of these students were enrolled in courses that incorporated service-learning into the curriculum. The other 48 students were enrolled in courses with similar content that did not include service-learning activities. Measurements included pre and post responses to social situations, journal analysis, and an evaluation of the service-learning experience.

Those students involved in service activities demonstrated a greater resolve to act in the face of uncertainty and a greater awareness of the multiple dimensions and variability involved in dealing with social problems, than their counterparts in the control group (Batchelder & Root, 1994). These findings are extremely significant due to their relevance to the topic wisdom. A tolerance for ambiguity and an awareness of the “thorniness” of life situations are important characteristics of people nominated as wise

(Batles, Gluck, & Kunzmann, 2005). The fact that those who participated in service-learning grew in this respect supports the idea that wisdom is gained from experience with real-life situations, and not from knowledge acquisition alone. In addition, those involved in the service-learning component demonstrated significant increases in Prosocial Decision-Making, Prosocial Reasoning, Self-Reflective Empathetic Reasoning, and Internalized Reasoning. Empathy and prosocial values have been associated with wisdom in previous research, and an increase in these measures could be associated with a growth in wisdom domains (Batles, Gluck, & Kunzmann, 2005; Bailey & Russell, 2008).

A similar study was conducted by Lundy (2007), who assessed the exam scores and empathy ratings of 192 college students enrolled in a developmental psychology course. Students either completed a service-learning project, an interview project, or a research paper as their major class assignment. Analysis revealed that, while there were no significant differences for the first exam scores, those involved in the service-learning project scored significantly higher than those in the other two groups on exams two, three and four. In addition, those students in the service-learning group showed a significantly greater change in empathy scores than students in the other two groups. In fact, empathy scores for the interview and research paper groups decreased over the course of the semester. Once again, evidence suggests that service-learning makes a significant contribution to cognitive and affective development, two core domains of wisdom.

### *The Learning Process*

While all of the above studies provide support for the positive impacts of service-learning, they contribute little to the understanding of the learning process. In order to

replicate the positive results reported by these studies, one must identify the key elements involved in the process and determine how they interact. Since service-learning can be performed in a variety of ways, it may be necessary to evaluate these elements within the unique context of each program. A few notable studies have attempted to unravel the service-learning process, and this section will present some of the key findings from that research.

Rhoads (1998) conducted a phenomenological study in an attempt to dig deeper into the participants' experiences during service-learning activities. His contention was that "fostering a deep commitment to caring is the postmodern developmental dilemma all of education faces, including higher education. If we are to promote democratic citizenship in these challenging times, then we must foster in our citizens a commitment to caring (Rhoads, 1998, p. 6)." Over the course of six years, Rhoads utilized naturalistic inquiry to collect data in the form of surveys, interviews, observations and journal analysis. Data were collected from participants in a variety of programs, including one-week intensive trips and long-term activities that were woven into school curriculum.

The findings were categorized into three interactive themes: Self- Exploration, Understanding Others, and The Social Good (Rhoads, 1998). Self-Exploration included elements of identity clarification, going "outside of oneself" to connect with others, and self-interrogation. Service-learning, then, can help students to critically examine themselves, and to understand their place in the scheme of things. The second theme, Understanding Others, included topics such as: placing faces with the statistics (about homeless people, etc.), overcoming stereotypes and generalizations, and being sensitized to cultural diversity. The final theme, Social Good, consists of increased awareness of

social responsibilities, of the complexity of social problems (i.e. inequality), and of the inefficiency of piecemeal service programs. These themes arose from being personally involved in service to others and from the opportunity to reflect on the service through journaling and discussions. Self-awareness, compassion and a concern for the common good are all characteristics associated with wise persons (Baltes, Gluck, & Kunzmann, 2005). Thus, the service-learning process may be instrumental in the development of wisdom.

Another study conducted by Lakin and Mahoney (2006) included 60 urban sixth-grade students who participated in a mandatory service-learning project. Forty of the students (two classes) served as a treatment group, while another 20 students (one class) served as a control group. This study attempted to measure the outcomes associated with the service-learning experience as well as assessing two factors that were assumed to influence the process. Outcome measures included prosocial attitudes and self-efficacy. It was hypothesized that these outcomes would be mediated by empowerment and a sense of community in the learning process. Empowerment was defined as “gaining mastery over one’s life” and a sense of community included “a sense of belonging and influence in a group.” Empowerment was fostered by allowing youth to be the primary decision-makers, with adults serving as facilitators who asked guiding questions and provided assistance when needed. Democratic decision-making processes, leadership discussions, and student-led subcommittees were used to promote a sense of community.

Results indicated that the program was successful in providing an empowering environment that fostered a sense of community (Lakin & Mahoney, 2006). Qualitative data included comments regarding the increase in students’ beliefs that they can make a

difference, and support for the idea that group decision making increases self-efficacy and connectedness to one another. In addition, the process experience explained 33% of the variance in the students' intent to be involved in future community action, and 29% of the variance in post-test scores on self-efficacy. This study provides a first-look at the influential processes involved in community service. Programs that involve opportunities for youth leadership and decision-making may be more effective at promoting self-efficacy and group cohesiveness. Additional research needs to be done to further explain the processes involved in service-learning activities. Also, since the program in Lakin and Mahoney's (2006) study was a mandatory, semester long project, further research involving various program models and participants would help validate these findings.

#### *Adventure Education*

The variety of experiential program models is somewhat problematic when trying to understand the underlying process. The program being researched in the current study includes many of the service-learning elements described in the above studies (Lakin & Mahoney, 2006; Rhoads, 1998), but the program design is more akin to that of adventure education models, such as Outward Bound. The Walsh and Golins (1976) model (Figure 2.2) illustrates some of these similarities. In this model the learner is placed into a unique physical and social environment and given a set of problem-solving tasks to overcome. These tasks place the learner in a state of dissonance that must be overcome with some measure of adaptation. This idea of "adaptive dissonance" comes from earlier educational theorists such as Dewey, Lewin, and Piaget, and also provides the foundation for Kolb's (1984) Experiential Learning Theory. With the successful negotiation of this dissonance, the learner acquires a sense of mastery that influences their future

experiences through increases in self-esteem, self-awareness, and self-efficacy, among other things.

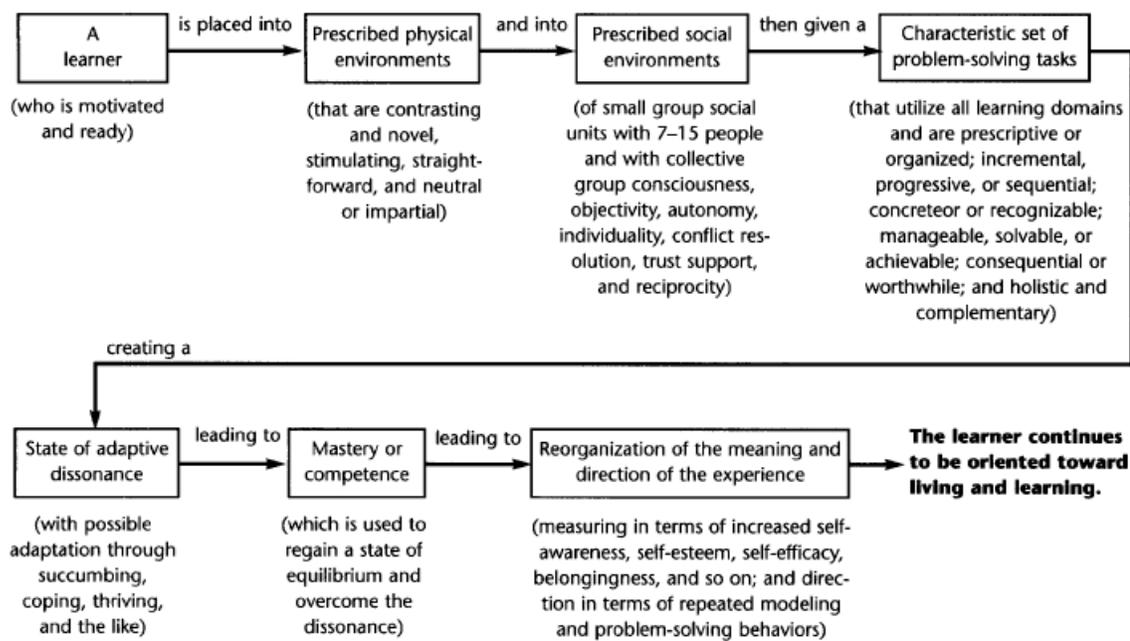


Figure 2.2. Model of the Outward Bound Process (McKenzie, 2003, p.9).

Certain elements of the Walsh and Golins (1976) model are clearly comparable to elements described in the service-learning literature. The problem-solving tasks, for example, resemble the challenges as described by Delve, Stewart and Mintz (1990). Mastery was one of the key process factors identified by Lakin and Mahoney (2006), though they referred to it as “empowerment.” Also, the social environment includes elements such as group autonomy (i.e. ownership and decision-making), conflict resolution, and reciprocity, all of which have been identified as important factors in service-learning environments (Lakin & Mahoney, 2006, Rhoads, 1998). One factor that is not present in the service-learning literature is the novel physical environment. While

this may not play a central role in school-based service programs, it could certainly influence the process of an intense service-learning trip. Long hours on a bus and nights spent on the floors of school gymnasiums, for example, could certainly influence the group dynamics and overall outcomes of a service-learning experience.

Adventure programs suffer from the same lack of process-knowledge as do service-learning programs (Hattie, et. al, 1996). The Walsh & Golins model served as the foundation for Outward Bound trips for almost 30 years before it was empirically tested (Sibthorp, 2003). Recent research has focused on defining this model. A study conducted by McKenzie (2003) is especially relevant to the current proposal.

McKenzie (2003) collected data from 92 students who were involved in an Outward Bound experience. This study was designed to test the well-known Walsh & Golins Model (1976) and to identify key elements in the learning process. Through a series of questionnaires, interviews and observations, McKenzie (2003) found 29 course components that influenced program outcomes. These components were then ranked as to their importance regarding the major categorical outcomes associated with Outward Bound experiences. The elements considered most important for the outcome of Self-concept included: “achieving individual success,” “being physically challenged,” “taking responsibility for yourself.” The components that most influenced Motivation included: “achieving individual success,” “learning new skills,” “instructor’s personalities,” “instructors as role models,” and “being challenged physically.” Finally, the components that most affected Interpersonal skills were: “problem solving as a group,” “achieving group success,” “having leadership responsibilities,” “relationships with other group members,” and “instructor’s personalities.”

These findings indicate that different components of the trip have a different influence on each program outcome. This not only has implications for the modification of the Outward Bound model, but it helps make a connection between each of the program components and the reported outcomes. Much more research is needed to further decipher the process of similar program models. While the service-learning process is not identical to the Outward Bound process, they do share many program components, and it is conceivable that they could overlap considerably.

### Wisdom

Much research has been done to demystify the concept of wisdom. Early research focused on implicit theories of wisdom in an effort to understand its common meaning (Clayton & Birren, 1980; Holliday & Chandler, 1986). These exploratory studies provided the basis for an increasingly large body of literature, including a collaborative volume that consisted of 12 chapters in which wisdom was defined 12 different ways (Sternberg, 1990). Having a solid body of foundational research, explicit theorists then began to explore the potential of measuring wisdom and wisdom-related performance. Baltes and Smith (1990) developed a complex qualitative method of measuring “wisdom-related knowledge,” while others constructed self-report wisdom scales, designed to measure personal characteristics that represent the wisdom as a latent variable (Ardelt, 2003; Brown, 2004; Webster, 2003). Since there is no universally accepted definition of wisdom, there is also no universal measurement. Research design is highly debated among wisdom researchers (Ardelt, 2004; Baltes, 2004). This section will describe the three main categories of wisdom research, reporting the major foundational studies for each.

### *Implicit Research*

Implicit research has helped to define the concept of wisdom through analysis of historical texts and through qualitative methods that establish commonly held views about the characteristics which *wise* people have (Assmann, 1994; Clayton, 1980; Sternberg, 1985; Holliday & Chandler, 1990). This foundational knowledge is imperative for any understanding of the concept. These studies have determined that the conceptualization of wisdom is affected by social, environmental and political context, and by a person's values and beliefs (Baltes, Gluck, & Kunzmann, 2005).

The first implicit research study on wisdom was conducted by Clayton and Birren (1980). The participants in the study included 83 adults who were divided into three categories: 31 were considered "young," 23 were "middle-aged," and 29 were "old." Utilizing a list of 12 wisdom descriptors that were generated from earlier research, Clayton and Birren had these participants rate the similarity of all possible word pairs. The descriptors included "experienced," "intuitive," "introspective," "pragmatic," "understanding," "gentle," "empathetic," "intelligent," "peaceful," "knowledgeable," "sense of humor," and "observant." Multidimensional scaling analysis was conducted to determine the similarities between the pairs. The analysis yielded 3 distinct dimensions, which were labeled "cognitive" (i.e. knowledgeable, experienced, intelligent), "affective" (i.e. understanding, empathetic, peaceful), and "reflective" (i.e. introspective and intuitive).

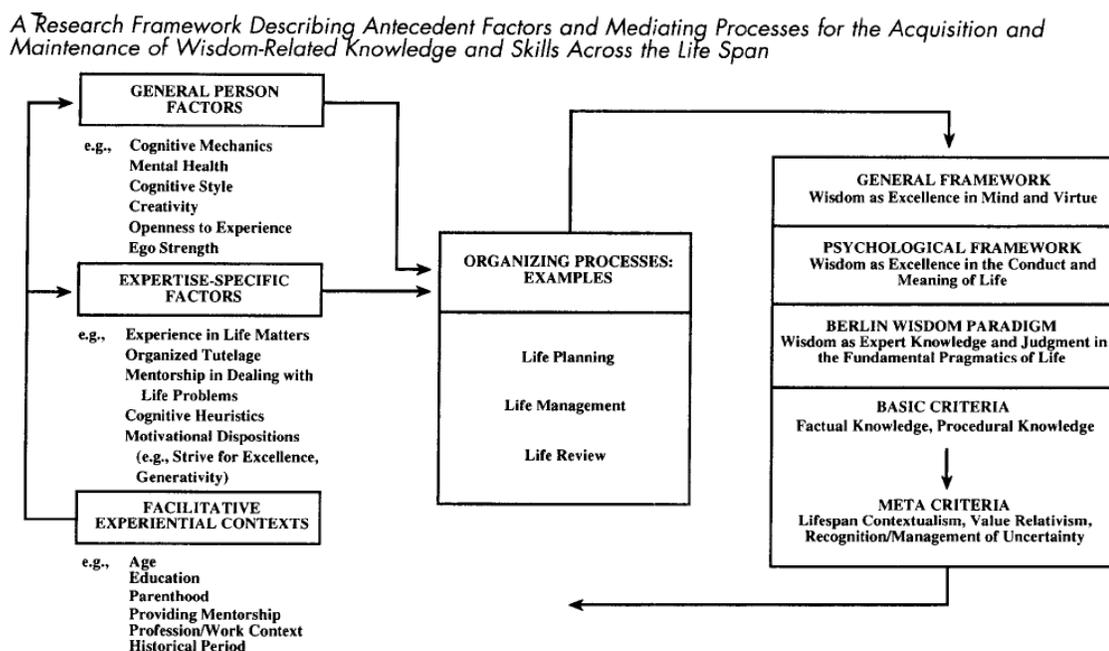
A similar study was conducted by Holliday and Chandler (1986) in 2 parts. In the first study 150 adults from three different age categories (50 young, 50 middle-aged, 50 old) were asked to describe six different types of people: wise, shrewd, perceptive,

intelligent, spiritual, and foolish. Qualitative analysis revealed 79 distinct descriptors which were referred to as “wisdom attributes.” A list of these 79 attributes was then given to another 150 adults in the same age categories who were asked to rate each of the attributes using a Likert scale from 1 (almost never true of wise people) to 7 (almost always true of wise people). Factor analysis of the descriptors identified 5 underlying dimensions of wisdom. These wisdom dimensions included: “exceptional understanding,” “judgment and communication skills,” “general competencies,” “interpersonal skills,” and “social unobtrusiveness.” Ardelt (2003) contends that closer examination reveals the presence of cognitive, affective, and reflective elements within the five factors proposed by Holliday and Chandler (1986). Thus, there does seem to be relative agreement on the elements of wisdom, though those elements are categorized differently by researchers.

#### *Wisdom-Related Performance (WRP)*

Researchers from the Max Planck Institute in Berlin developed their own unique approach to measuring wisdom. Rather than relying on folk-concepts of wisdom, Smith and Baltes (1990) developed their theory based on their own expertise in human development. They define wisdom as “expert knowledge involving good judgment and advice about important but uncertain matters of life (p.95).” Thus, wisdom is evidenced by the existence of five essential criteria: rich factual knowledge, rich procedural knowledge, life span contextualism, relativism, and uncertainty. To assess wisdom-related performance, they present scenarios to participants that represent morally difficult situations or life planning problems. For instance, subjects may be presented with the story of Joyce, a 60-year old widow who is debating whether or not to give up her

business and move closer to her son, in order to help care for his two small children. Participants are then asked to think out loud as they contemplate the dilemma. Two trained judges rate the responses based on the five established wisdom criteria. Those responses that include more of the criteria are considered wiser. Figure 2.3 illustrates the framework of wisdom as developed by the researchers at the Max Planck institute.



*Figure 2.3.* Baltes Theoretical Framework of Wisdom (Baltes, 2003)

In one study utilizing the above methods, Staudinger and Baltes (1998) measured the wisdom-performance of 36 psychologists, with 54 other highly-educated professionals serving as a control group. The premise of this study was to determine if certain types of life experience may facilitate the development of wisdom-performance. The participants, ranging in age from 25 to 82 years, responded to two morally challenging scenarios and completed a battery of personality and intelligence measures.

Analysis indicated that practice as a clinical psychologist accounted for the largest amount of unique variance (26%) in wisdom scores. Personality measures were stronger predictors of wisdom performance than were intelligence variables. Professional specialization and personality scores shared 9% of the variance. The strongest personality predictors were Openness to Experience and a middle range location on the Introversion-Extroversion dimension. These findings highlight professional specialization and personality measures as important variables in the cultivation of wisdom. Furthermore, the authors contend that the reason psychologists scored higher on wisdom performance was because they were routinely exposed to difficult and “thorny” life problems. Others (Ardelt, 2004; Webster, 2003) speculate that clinical psychologists merely score higher on measurements developed by other psychologists.

In another study conducted by Staudinger and Baltes (1996), 244 participants completed wisdom tasks to investigate the impact of collaboration on wisdom-performance. The participants consisted of 122 middle-aged participants (61 women and 61 men) together with a person of their choice with whom they felt comfortable discussing life problems. The first interview session was conducted using the same methods as previous research (described above). During the second session, the dyads were assigned to one of five experimental conditions. Three of these conditions involved only one participant in each dyad while the other two conditions allowed for collaboration.

The “external dialogue plus individual appraisal,” and the “internal dialogue” conditions resulted in significantly higher performance levels than the other three conditions. The first condition included dialogue along with additional time for personal

reflection before responding. The latter condition involved one participant in an “imaginary” dialogue with a person they considered to be wise. These results suggest that real or “virtual” collaboration can improve wisdom-related performance. Group collaboration is a central component in programs that utilize experiential learning, and reflective imagery, a form of “virtual” collaboration, is often encouraged through metaphors and guided reflection.

Another study which utilized the methods proposed by the Max Planck Institute was conducted to observe the differences in wisdom performance as evidenced in different age groups (Staudinger & Pasupathi, 2001). For this study, 14 heterogeneous adolescents (ages 14 to 20) were compared to a sample of 58 young adults (ages 21 to 37). Again, participants responded out loud to difficult, ill-defined life dilemmas and were rated by two independent judges along the five wisdom criteria. The results indicate that age is positively related to wisdom-performance in adolescents. This relationship changes, however, beginning at age 23. For adults 23 years and over, there is no significant relationship between age and wisdom-performance. Further analyses indicated that all respondents scored higher on factual knowledge than procedural knowledge, with this being especially true of adolescents (Staudinger & Pasupathi, 2001). Finally, adolescents scored higher on tolerance of uncertainty and lower on value relativism, with adults showing the opposite trend.

These results indicate that, though age may be a strong predictor of wisdom in adolescents, the effects of the age variable lose their potency in the mid-twenties. In addition, wisdom may be constructed differently according to age. For example, while the adults showed consistent scores across wisdom tasks, the adolescent scores were

higher when the tasks were more relevant to their age context. These findings reveal another level of complexity within the wisdom-construct that will require further research to unravel.

Though much research has been conducted by the researchers associated with the Max Planck Institute, there are questions as to the methods used and whether they are an appropriate assessment of wisdom. First, their definition of wisdom places it very close to the construct of Crystallized Intelligence (Catell, 1977). This may indicate that these researchers are measuring cognition alone to the neglect of other important wisdom domains (i.e. reflection and affection). In addition, Ardelt (2004) points to the findings of the Staudinger and Baltes (1998) study reported above to suggest that personality plays a more significant role than intelligence in the construct of wisdom. In fact, it is likely that one's personality would serve as a confound for professional specialization, since a general disposition toward service to others may lead one into the profession of clinical psychology. Furthermore, since the scenarios are generic, and there is no associated affection for the respondent, the responses given cannot be considered a measure of how the individual would truly respond or act if confronted with the scenario in real life (Ardelt, 2004; Webster, 2003). Finally, the procedures used by the Max Planck researchers are inefficient when trying to measure larger sample sizes. For these reasons, a number of researchers have begun the development of self-report wisdom questionnaires.

### *Wisdom Instruments*

In order to measure wisdom with the use of questionnaires, the wisdom construct is considered to be a latent variable that is evidenced by the effects of sub-domains.

Ardelt (2000) conducted the first longitudinal study of the wisdom construct, utilizing latent factor techniques to determine wisdom in old age. The original data were collected 40 years earlier by trained coders in extensive interviews. Of the 248 women who participated in the original 1968 study, 82 were able and willing to participate in Ardel's follow-up assessment. Wisdom in old age was operationalized as a latent variable with cognitive, affective and reflective effect indicators, based on Clayton's (1986) original implicit study.

Though internal reliability levels were relatively low (some even below .5), the study reported some illustrative findings. First, the respondent's wisdom in old age was positively affected by their social environment in early adulthood, while all other variables were unrelated to wisdom in later years. This highlights the age of early adulthood as a vital time for the cultivation of wisdom, regardless of objective circumstances or personality characteristics during childhood. Only wisdom and financial situation had a positive significant effect on subjective well-being in old age when all other variables were held constant. In addition, wisdom had a positive influence on physical health and on the quality of women's family relationships. Thus, the cultivation of wisdom, beginning in early adulthood, can lead to existential well-being in old age: a picture akin to the eighth stage of human development portrayed by Erikson (1982).

Finally, Webster (2003) developed a completely independent Self-Assessed Wisdom Scale (SAWS), based on a five-factor conceptualization of wisdom that is linked to Erikson's theory of generativity and the concept of ego integrity. The SAWS consists of 30 items on a 6-point Likert scale that measures experience, emotions, reminiscence,

openness, and humor. Webster conducted 3 initial studies to establish the validity and reliability of the SAWS. Total scale reliability was assessed with a sample of 179 Canadian men and women. The instrument was found to be reliable ( $\alpha = .78$ ) but the domains of openness and humor overlapped, resulting in low factor loadings for those domains.

In the final study 39 men and 46 women completed three instruments to measure wisdom (SAWS), generativity (Loyola Generativity Scale), and ego-integrity (Taft and Nehrke, 1990). Generativity and ego-integrity are two constructs that were previously associated with wisdom as conceived by Erikson (1982). The SAWS was found to be positively correlated to both generativity and ego-integrity, supporting its value as a measurement of Erikson's eighth stage of development. Concerns about Webster's scale include a lack of expert analysis in development of the scale items, a lack of support for the inclusion of humor as an aspect of wisdom, and Webster's heavy reliance on the relatively weak correlations of the SAWS to generativity and ego-integrity as evidence of construct validity.

### Wisdom and Experiential Learning

The construct of wisdom shares many elements that are fostered through experiential education. Both emphasize the need for first-hand experience. While a list of facts can be memorized using a variety of methods, the development of wisdom requires a broad range of life experience. This necessity of experience is the main reason that wisdom is typically associated with the elderly (Assmann, 1994). Furthermore, some authors contend that wisdom comes, not from a vast array of general experience, but specifically from those difficult life experiences that allow for some degree of moral

profundity (Webster, 2003). These difficult experiences require the individual to confront the complexities of life and wrestle with the underlying issues, thereby developing mastery by overcoming this uncomfortable dissonance (Ardelt, 2003; Kolb, 1984; Walsh and Golins, 1976). Service-learning programs are particularly effective at generating this dissonance, as they encourage participants to “go beyond themselves,” to view life from different perspectives, and to consider how their actions affect the “social good” (Delve, Mintz & Stewart, 1990; Lakin & Mahoney, 2006; Rhoads, 1998),

Experience is a necessary, but not sufficient element in the development of wisdom. Another vital component of wisdom development, and of experiential learning, is reflection. “Reflective thinking simultaneously fosters a deeper understanding of life and human nature and the development of sympathy and compassion for others (Ardelt, 2003, p. 300).” In other words, an individual’s will to act (volition) is directed by his/her knowledge (cognition) and “feelings” about others (affection) through the mediation of reflection. A lack of reflection not only inhibits one from understanding life on a deeper level, but it can reduce one’s ability to control urges (James, 1896; Pascual-Leone, 1990) that lead to impulsive behavior. Furthermore, the practice of reflective methods can generate habits that may enable one to make wiser choices in future situations (Baltes & Staudinger, 2000).

The key to any model of experiential learning is reflection. Reflecting on the experience is what enables an individual to truly learn, to transform himself and to transform society (Dewey, 1916; Dyke, 2006; Moacir, 1994; Jarvis, Halford & Griffin, 1998). Reflection allows the learner to interpret their new knowledge based upon their own beliefs and life context. They must then decide if their current system of knowledge

and beliefs can accommodate this new knowledge. If it cannot, and the knowledge is compelling enough, the individual may have to “transform” their system of beliefs to include this knowledge (Mezirow, 1990; Piaget, 1997).

While the research does not contend that there is a magical formula that can foster wisdom in any situation, it is conceivable that the elements of experiential learning theory (Kolb, 1984) could contribute to wisdom performance. The service-learning experience being utilized in this study, the Pay It Forward Tour (PIFT), includes elements associated with each stage of the Experiential Learning Model. The stage of “concrete experience” will be evidenced by the activities (games, service, cultural tours...) and social and environmental encounters involved in trip. “Reflective observation” is performed via debriefing after specific activities, through group discussions, journaling and periods of solitude. “Abstract conceptualization” is commonly facilitated through intentional small and large group discussions that to help the participants connect their reflections to experiences in their daily lives. For example, a participant who just participated in a day program at a battered women’s shelter would have time to reflect on that experience alone and in small groups. Then the trip directors would lead a discussion designed to intentionally highlight the underlying social issues (i.e. gender, power, inequality, etc.). By identifying the general issues, the participants can then make connections to other life experiences that are affected by the same issues. The final stage of “active experimentation” occurs on the trip as the participants apply their new-found self-knowledge to future concrete experiences, and later as the participants apply this knowledge to their daily lives upon returning home.

## CHAPTER III

### METHOD

This chapter outlines the proposed steps involved in measuring the impact of a service-learning experience on wisdom domains. The first section details the research design followed by a discussion of the participants involved in the study, including a description of the sample and methods of selection. The next section includes a discussion of the survey instruments, including pre-established instruments and one developed with the aid of the programmers. The chapter concludes with a discussion of the data analysis methods that were used to answer the hypotheses and research questions as detailed in Chapter I.

#### Research Design

This study was based on a quasi-experimental, repeated measures design that included two measurement points for the control group, and three points for the experimental group. Both groups were given a pre-test survey and a follow-up survey one month after the conclusion of the service-learning trip. The experimental group was given an additional survey immediately after the trip experience so that an immediate assessment of program impact could be discerned.

The experimental group consisted of the entire population of college students participating in a nine-day Spring Break service tour. These students completed a survey before, immediately after and one month after the service-learning experience. The control group consisted of a similar group of college students who were not participating in the service tour. These students were comprised of a convenience sample of students enrolled in classes at the University of Minnesota. Pre-test measurements ensured the

integrity of the study by accounting for any differences in the experimental and control groups before the experience. The control group provides an important measure of comparison in this study that helps to determine causality in wisdom development. The lack of a control group has been a consistent weakness in previous service-learning research (Lakin & Mahoney, 2006). Previous studies have used control groups to measure service-learning outcomes (Batchelder & Root, 1994; Lakin & Mahoney, 2006; Lundy, 2007) and wisdom-related performance (Baltes et. al, 1998), but none have measured the influence of service-learning on wisdom domains.

The quantitative data utilized in this study were collected using paper and web-based surveys. Table 3.1 illustrates the data collection time-table. The control group was given paper-based surveys in their respective classrooms during the week prior to the service-learning trip. They were informed of the voluntary nature of the study and signed consent forms to indicate their willingness to participate (Appendix A). The consent forms served as a method of identification for each survey, and were removed from the survey packet after providing each survey with a code. Coding the surveys provided for participant confidentiality while permitting the researcher to pair the pre and post survey instruments. The follow-up surveys were given to the control group five weeks after the initial instrument was completed. Since these surveys were filled out during normal class periods, time-management was be greatly simplified. Each survey included the date completed to ensure consistency in data collection. All data were entered manually into Microsoft Excel for easy transferability into statistical programs (i.e. SPSS, Amos).

The experimental group was given paper-based surveys during their pre-trip meetings, one week prior to the experience. The participants included students from

local colleges and universities in the Twin Cities region. The STLF leaders held pre-trip meetings at each college and university one week prior to the tour. The participants were informed of the voluntary nature of the study and signed consent forms indicating their agreement to participate (Appendix A). The surveys were included in the list of paperwork that each participant must complete before stepping on the bus. While the surveys were voluntary, their inclusion on the list of paperwork provided a way to systematically collect surveys from each participant. This also provided a way to account for those few students who could not attend the mandatory pre-trip meeting, and to follow up with them before the experience. Using the same methods as practiced for the control group, the consent forms were removed from the instrument packet once the surveys had been coded for pair-wise comparisons.

The post-experience surveys were completed on the bus as the participants returned from their final destination. Given that the participants were returning from Washington, D.C., they had ample downtime to complete the forms at their leisure. The instrument packets were distributed and collected by the STLF leaders for each bus and sealed in an envelope for confidentiality. Pre-trip training for the STLF leaders ensured that they were informed about the importance of participant confidentiality, and agreed to handle the data using the specified procedures. These surveys also included a cover page with personal information that was removed once the instruments had been coded for identification.

The one-month follow-up survey for the experimental group was internet-based. This was reasoned as the most efficient way to collect the final instruments since there was no formal post-trip meeting. Previous evaluations performed with the Pay It

Forward program achieved a very high response rate (95%) for college-age participants using web-based surveys. Since all of the participants are college students, it was safe to assume that they have access to the internet and that they are competent with computers. The participants received an email three weeks after the trip to remind them of the study and to request their participation in the online survey. Another email was sent to the participants one week later with a link to the web-based survey instrument and a unique password which ensured that all participants responded only once. This password also aided in tracking the responses, so that follow-up emails could be directed only to those participants who had not yet responded. Tracking and emailing began the first week the survey was available and continued until two weeks after the initial survey posting. The online surveys were tracked by date, so that any discrepancy of measurement could be accounted for.

Table 3.1.

*Time-Table for Data Collection*

	<b>January 2008</b>	<b>February 2008</b>	<b>March 2008</b>	<b>April 2008</b>	<b>May 2008</b>
Tx Group & STLF Staff	Begin training STLF staff	Co-Design SL component Questionnaire	5 <sup>th</sup> -12 <sup>th</sup> Pre-trip meetings: 1 <sup>st</sup> Instrument collected	12 <sup>th</sup> Pre-survey emails	Enter and analyze data
Tx Group			13 <sup>th</sup> -22 <sup>nd</sup> Pay It Forward Tour: 2 <sup>nd</sup> instrument collected	17 <sup>th</sup> -30 <sup>th</sup> Collect online follow-up surveys	
Control Group			5 <sup>th</sup> - 12 <sup>th</sup> Baseline Instrument	17 <sup>th</sup> – 24 <sup>th</sup> Collect follow-up surveys	

## Participants

The participants in this study included 615 college-aged students, who were currently attending a college or university in the Midwestern United States. Of these 615 students, 288 received a service-learning “treatment” while the other 327 served as a control group. The experimental group consisted of all the participants involved in the Pay-It-Forward service learning tour in March, 2008. The control group consisted of a similar group of students currently enrolled in classes at the University of Minnesota, Twin Cities.

The STLF does not collect demographic information for its programs, but the following additional descriptors may provide some insight into the nature of the PIFT clientele. Nearly all of these participants (99.6%) have had formal classes in leadership at the college level. Over half (53%) have been involved in a “significant” service-learning experience in the past, either in school or on their own. Seventy percent report having traveled outside of the United States at least once, while 22% have been out of North America four or more times. Almost all (99%) of these students have a leadership role in at least one club or extra-curricular activity. Finally, 87% of the PIFT participants are considering a career in the non-profit field.

### *Organization of Focus*

The Pay It Forward Tour (PIFT) is the signature program of a non-profit organization called Students Today Leaders Forever (STLF). The company was founded by four college freshmen in 2003 and based on the principles set forth in the novel *Pay It Forward* written by Catherine Ryan Hyde. Although STLF is associated with the University of Minnesota, the company receives no University funding and they currently

don't offer any college credits to their participants. STLF offers five day experiences for high school students and nine day trips for college students during which students proceed from a Minnesota locale to another location (i.e. Chicago, Washington D.C.) while engaging in different service-learning and cultural immersion experiences each day. These trips are funded primarily by participant fees.

The participants are not involved in the planning or trip logistics. At the beginning of a program, the participants will meet at a local school or church gymnasium for a brief series of introductions and games. After these activities, the participants board a coach bus (many tours include several buses) and proceed to their first destination. The bus is a central part of the program, and it is possible that the long hours on the bus, which provide a wealth of opportunity for intense interaction, could contribute to the program outcomes. When they reach their first destination, the participants engage in a service or cultural activity and then proceed to their temporary home. Sleeping quarters may include the floors of school gyms, church auditoriums, or the basements of local community members' houses. Service activities could place students in Goodwill store warehouses or out repairing trails at a state park.

While the activities vary from year to year and from bus to bus, the structure of the experience is largely the same. Certain environmental (i.e. indoor camping, long bus rides) and programming components (i.e. group development, debriefing) are relatively consistent. The STLF has developed a program manual which includes leadership expectations and programmatic standards. The leaders are selected in October and are assigned to a core group (4 members) who then work together to design a trip for a group of 40 peers. This bus core is also responsible for recruiting enough college students to

fill their bus. The leaders participate in several retreats and leadership meetings designed to prepare them to facilitate a successful PIFT experience. Their leader's manual includes a list of standard games and reflective activities that are facilitated on all PIFT events. These include ice-breakers, bus activities, accountability partners, structured reflective activities, and a final ceremony to be conducted at their "celebration city" (i.e. the final destination city).

At the beginning of the trip, the buses all leave from one central location and travel on their own route to the celebration city. Each bus participates in unique service activities in different cities. At the end of the trip, all the buses reconvene in the destination city (usually Washington, D.C.) to share stories, view pictures, and reflect on the impact they have made during their tour of service. While the service activities are unique, the games and reflective activities are consistent across buses. One example of a popular reflective activity is called the "yarn activity". During this activity, the participants sit in a circle and pass a ball of yarn around randomly with each participant holding onto a portion of the string. Before they can pass the ball of yarn forward, the participant must first share a personal struggle with the group. The struggles shared range from surface issues (i.e. no sleep) to very vulnerable issues (i.e. childhood abuse), the choice of which is completely up to the participant. At the completion of the activity, each participant is holding a piece of the yarn which has been woven from person to person. The activity emphasizes the fact that, despite obvious differences, they are all connected by common life struggles. Similar activities are conducted throughout the week, encouraging the building of relationships and reflection on the daily experiences.

## Instruments

In this study, Ardel's (2003) 3-Dimensional Wisdom Scale (3DWS) was used to measure cognition, affection, and reflection. The 3DWS is a 39-item questionnaire utilizing a Likert scale format (1= Strongly Agree, 5=Strongly Disagree). The cognitive dimension consists of 14 items (i.e. 'People are either good or bad'; 'I am hesitant about making important decisions after thinking about them'), the reflective dimension consists of 12 items (i.e. 'When I'm upset at someone, I usually try to put myself in their shoes for a while'; 'I always try to look at all sides of a problem'), and the affective dimension consists of 13 items (i.e. 'I can be comfortable with all kinds of people'; 'If I see people in need, I try to help them one way or another'). Wisdom is considered to be a latent variable that is evidenced by the effect indicators of the 3 sub-domains. The three subscales are dispersed throughout the questionnaire and several items are reverse-scored. Cronbach's alpha values for the cognitive, reflective and affective domains of the 3DWS are .78, .75, and .74 respectively and they have an overall range of .71 to .85 (Ardelt, 2003).

To assess theorized relationships, other personal and demographic information was collected on the pre-trip questionnaire. Age and gender were accounted for, as they have been shown to affect wisdom scores in adolescents (Baltes, Gluck, & Kunzmann, 2005; Bailey & Russell, 2008). School enrollment was assessed to account for any variation in scores across schools. Social environment was measured with four items which describe the education of parents, intellectual interests of parents, and educational aspirations of the participant. Social relationships were measured using six items

designed to indicate the number of formal and informal relationships in which the participant is involved.

In addition to scores on the 3D-WS (Ardelt, 2004), analyses were conducted to measure change in civic attitudes and openness to experience. Civic attitudes were measured using the 5-item Civic Attitude Scale (Mabry, 1998). Reliability for this scale was reported at .80. A subscale of the NEO-PI (Costa & McCrea, 1985) consisting of 12 items was used to measure the participant's openness to experience. The openness to experience subscale, one of the well-known "big five" personality traits, has demonstrated an internal consistency ranging from .86 to .95, with a stability ranging from .51 to .83 over six years of longitudinal measurements. A copy of the pre and post-trip questionnaire packets can be referenced in Appendix B.

#### *Service-Learning Components*

To assess the importance of main elements in the service learning process, a questionnaire was developed with the help of the trip leaders. Using focus group interview methods (Gray, 2004), a contingent of 18 trip leaders were asked to generate a list of trip elements that they deem important for participant growth. The insight of the trip leaders proved invaluable to the survey development, as they had all been participants on previous PIF tours and gave feedback from multiple perspectives. Having participated in the PIFT the previous year, these students were training to lead their first tour over the coming spring break. While focus groups can be difficult to coordinate (Gray, 2004), these trip leaders were heavily invested in the program design and were highly motivated to evaluate trip outcomes. The focus group sessions occurred during the regularly scheduled pre-trip meetings for PIF leaders. Though focus groups are

typically associated with qualitative research, the members of the focus group in this study were not being measured, but were developing an instrument to measure the program impact on participants. For this reason, these methods are more akin to action research than mixed-methods (Creswell, 2003).

The first half of the session involved brainstorming and component identification. Trip leaders were given time to free-write and discuss trip components in small groups of four or five people. The group then came back together to identify and list as many important components of the program that they could recall. The second stage of the session consisted of converging the similar concepts and reducing the list to a manageable size. Since the post-trip instrument packet already contained close to 60 items, the goal was to reduce the component list to 15 items or less. Initial convergence was done with entire group of trip leaders. The leaders were then given 10 “votes” (i.e. sticky dots) to place next to any of the items they choose. If they thought one item was the only important one, they could place all ten votes on that item. Those items with the most votes were kept and added to the post-trip survey.

The final instrument design resembled the questionnaire developed by McKenzie (2003) to test the Outward Bound model. The elements were rated by the trip participants (1-5 Likert scale) as to their importance in the development of each wisdom domain. A complete list of the items was laid out in a matrix-type format on the survey. For the “affection” dimension, participants were asked to rate each item as to its importance for generating their compassion and concern for others. Reflective and cognitive domains were rated in the same way, with the definitions of each being consistent with those assessed by the 3D-WS instrument (Ardelt, 2003). Items were then

ranked by mean scores for each domain. A sample of this questionnaire can be seen in Appendix C.

## Data Analysis

### *Validity and Reliability*

The 3D-WS has been established as a reliable and valid test instrument (Ardelt, 2003). However, the instrument developer has asked to be informed of the factor loadings in order to further confirm the reliability with a young-adult population. Thus, a confirmatory factor analysis (CFA) was conducted using AMOS 16. In accordance with Kline's (2005) suggestion, multiple fit indices were examined to test the overall fit of the three-factor wisdom model as well as the fit of the hypothesized structural equation model (SEM). Specifically, this study examined the Chi-Square statistic ( $X^2$ ), root mean square of approximation (RMSEA), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), and the Expected Cross-Validation Index (ECVI). Further description of CFA methods are detailed in the SEM analysis.

### *Outcome Measurements*

To assess the difference in outcome scores between the control and experimental groups, a repeated-measures Multiple Analysis of Variance (MANOVA) was conducted on each dimension of the 3D-WS and on the Civic Attitudes and Openness to Experience scales. A repeated measures MANOVA with treatment as the between subjects effect, was conducted to determine if there is a difference in baseline scores between the experimental and control groups and to compare the group differences at 1 month from the conclusion of the experience. This analysis provided the necessary information to determine group differences before the treatment, and differences in group trajectories

due to the treatment. Given an effect size of .25, an  $\alpha < .05$ , and sample size of 600, the power for this analysis exceeded .90 (Faul, Erdfelder, Lang, & Buchner, 2007). These results address hypotheses 1a, 3c, and 3d.

### *Service-Learning Components*

This analysis identified those components of the service-learning experience which were most salient for increases in each wisdom domain. This was determined by ranking the components under each wisdom dimension (cognitive, affective, reflective) according to mean ratings. Those components with higher mean ratings were identified as significant vehicles for the attainment of wisdom via each indicator domain. This information addresses research question 1b. In addition, it provides the basis for a program model, as well as creating a framework for future service-learning research.

### *Latent Growth Analysis*

LGA, also referred to as latent growth modeling (LGM) and latent curve analysis (LCA), is related to other multi-dimensional analyses, such as hierarchical linear modeling (HLM). In essence, it is a method of SEM that estimates the trajectory of growth in a multi-dimensional construct over time. LGA is unique in its ability to describe individual behavior in terms of initial status and developmental trajectories (Hancock, Kuo & Lawrence, 2001). By using a combination of correlations over time, changes in variance, and shifts in mean values, LGA can determine the variability across individuals, as well as providing the means to test the contribution of other variables and constructs in the regards to initial status and trajectories.

Figure 3.1 illustrates the latent growth model for the second-order *Wisdom* construct. Latent factors are represented as ovals, errors and residuals as circles, and

observed variables, as squares. Because growth coefficients are unknown qualities that vary across individuals, they are viewed as latent variables (Muthen & Curran, 1997). Conceptually, the growth curve is similar to a regression equation. The first measurement point becomes the reference (intercept) for the second and third measurements. Accordingly, the parameters for the “Intercept” factor are constrained, meaning they are not free to be estimated. This is important as a reference point, but it is also essential in order for the model to be identified. The constraints applied to the slope parameters are designed to show the growth trajectory based on the intercept scores. These constraints begin with zero, and increase incrementally as more time points are added. Since the proposed study contains only 3 time points, the parameters were labeled 0,1, and 4. This labeling implies that a linear, positive change is expected.

The next important feature in the model is that the intercept and slope factors are specified to covary (through their residuals). This implies that the individual’s initial status on wisdom will have an effect on the rate of growth in wisdom. A positive covariance indicates that higher initial wisdom scores are associated with higher increases in wisdom over time. A negative covariance indicates that higher initial scores are associated with lower increases over time (Kline, 2005). Thus, LGA allows one to account for individual trajectories, including potential interaction effects due to initial status. Though MANCOVA can produce similar information if the baseline score is included as a covariate, the initial status factor provides a more relevant covariate. Muthen and Curran (1997) assert that, “The baseline variable may in fact be seen as a fallible indicator of this factor (p. 380).” Previous studies on wisdom have used the MANCOVA method described above (Staudinger & Pasupathi, 2003).

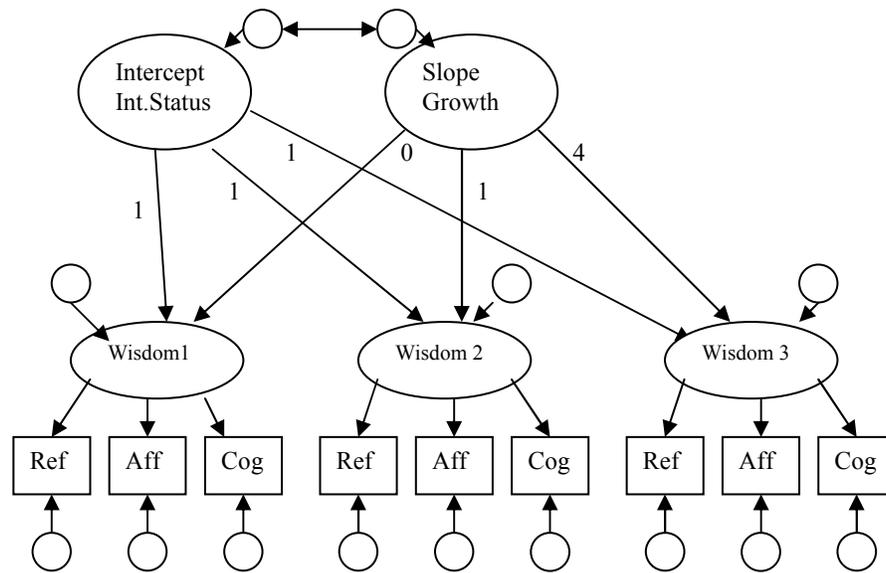


Figure 3.1. LGA for Wisdom with 3 Dimensions

The mean associated with the intercept factor represents the average initial wisdom score for the entire group (Kline, 2005). The residual term associated with the intercept factor represents the variation of individual scores around the mean initial status. Likewise, the mean for the slope factor indicates the average rate of increase for the entire group, while the slope's error term indicates individual variation around the mean rate of growth. Finally, the error terms for the wisdom scores are allowed to covary across time. This is an important feature that differentiates LGA from other forms of multivariate analysis. It is likely that error variances for individual scores will be related. ANOVA assumes that these errors are equal across time and completely unrelated. These assumptions are often violated for repeated measures data (Kline, 2005). A test of the multi-dimensional model was conducted first to identify any areas of misfit before adding predictors.

Based on the results of the SEM analysis, appropriate predictors were added to the LGA in order to determine their influence on wisdom trajectories. Figure 3.2 illustrates the LGA for the second-order wisdom construct with two time-invariant predictors and one time-variant predictor. For clarity, errors and covariances are not shown. The time-invariant predictors are the exogenous variables in the SEM model, which are measured only once and not expected to change as a result of the treatment. Since it is likely that openness will change over the course of the treatment, it will be included as a time-variant predictor, which has a direct influence on wisdom scores over time. This gives deeper insight into the development of wisdom as influenced by each predictor. This analysis will provide the necessary information to address hypotheses 2a and 2b.

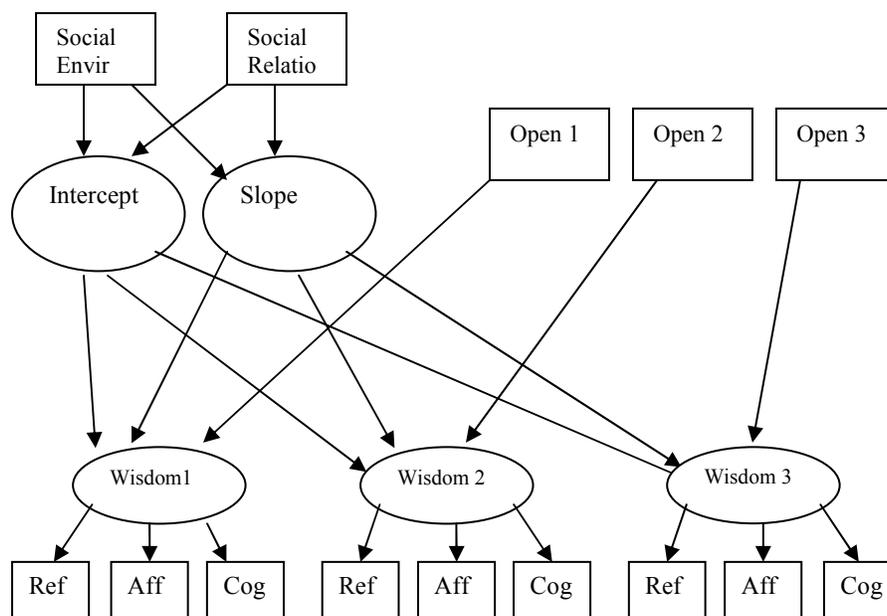


Figure 3.2. LGA for Wisdom with 3 Predictors

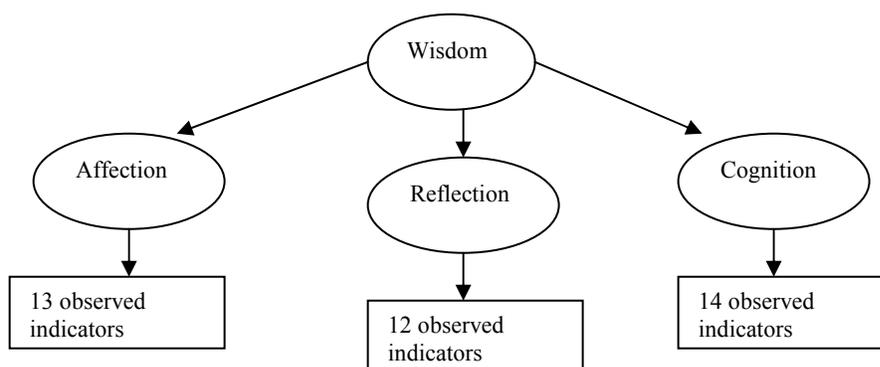
### *Structural Equation Model*

The proposed SEM model was tested with the use of AMOS 16. In essence, the SEM (Figure 1.3) was an exploratory analysis in which a regression was conducted for all predictors on all mediators and dependent variables. The proposed model is a mixed-method SEM that includes a measurement of the wisdom construct as well as a theorized path to wisdom. This type of assessment is also referred to as a Structural Regression (SR) model (Kline, 2005). Models that include measurement and path components are susceptible to interpretational confounding if both components are measured simultaneously (Anderson & Gerbing, 1988). As such, the analysis involves a two-step process: 1) Assessment of the wisdom construct through Confirmatory Factor Analysis (CFA) and 2) Assessment of the latent path model. The following sections will address the processes and considerations necessary in addressing both types of SEM analysis.

### *Construct Validity (CFA)*

Before attempting to assess the overall fit of the path model, it was first necessary to establish the validity of the proposed construct (Figure 3.3). While the wisdom construct measured by the 3D-WS (Ardelt, 2003) has been reported as valid in other studies, the instrument may require certain adaptations to prove its applicability to a variety of populations. The appeal of this conceptualization of wisdom is in large part due to its parsimony as compared to other complex models (Ardelt, 2003). While parsimony can aid in the application of a construct to various contexts (Kline, 2005), it is likely that the relationships between the observed variables and the factors could vary considerably with different populations. This is especially true when dealing with latent factors, which require a certain level of intercorrelation among variables without

complete multicollinearity (Kerlinger & Lee, 2000). The process of assessing validity through CFA involves: model specification, model identification, assessment of fit, model modification, and model selection.



*Figure 3.3.* Three Dimensional Wisdom Construct (Ardelt, 2003)

Assessment of fit is the crux of SEM analysis and is often the most ambiguous step. This is due to inconsistencies in practice and reporting, as well as inconsistencies in the basic language used by SEM analysts (McDonald & Ho, 2002). Given findings of an inadequate model fit, which is likely in social science research, the analyst should investigate the adequacy of the parameter estimates and of the model as a whole (Byrne, 2001). While global measures of fit are important in understanding overall model fit, they tell the analyst little about the individual parameters. Parameters can be assessed using the factor loadings (coefficients) associated with each variable. These loadings should make conceptual sense, in regards to their size and sign (i.e. positive or negative). Inappropriate estimates indicate an insufficient model. Inappropriate and/or non-significant parameters can be deleted from the model for the sake of parsimony, assuming that their removal makes conceptual sense (Byrne, 2001).

When assessing the goodness of fit for the model as a whole, the researcher may be faced with a seemingly contradictory set of fitness indices. In CFA, model testing is seen as a hypothesis test. The null hypothesis is that the specified model is the appropriate model for the population. Unlike standard hypothesis tests, the analyst does not want to reject the null hypothesis. Even if a model is found to be statistically significant, however, that does not mean that it is of practical import. The debate over the practice of significance testing in psychology has led to the development of various indices to help the researcher determine the real value of the proposed model (Byrne, 2001). Since each of the fit indices has its own strengths and weaknesses, the model's fitness was assessed using multiple indices (Hu & Bentler, 1999).

The  $X^2$ , RMSEA, CFI, TLI, and ECVI statistics were used to determine the significance of the model (Kline, 2005). The  $X^2$  represents a test of the null hypothesis, or the extent to which all the residuals in the model are zero (Byrne, 2001). The number reported as the  $X^2$  statistic (shown as CMIN in Amos) is the amount of discrepancy in the entire model. For this reason, a lower CMIN value is better. Unlike a typical significance test, the researcher does not want to reject the null hypothesis, so a high p-value ( $>.05$ ) for the  $X^2$  statistic is desirable. The CFI measures the proposed model against a hypothetical "independence" model, in which all of the variables are considered independent. Values for this index range from zero to 1.00, with a value of  $>.95$  indicating a good fit (Byrne, 2001; Hu & Bentler, 1999).

The RMSEA measures the proposed model against a contrived population covariance matrix. This index also ranges from zero to 1.00, but a lower value ( $<.08$ ) is desirable (Byrne, 2001). Finally, the ECVI tests the likelihood that the model would

cross-validate with similar sized samples from the same population. While there are no universal cutoff values for this index, it is recommended that the ECVI for the proposed model be lower than comparative models (i.e. independence & saturated models). By addressing all of the above indices, the model will be assessed with a level of rigor that will minimize the likelihood of Type I or Type II error (Hu & Bentler, 1999).

To identify specific areas of misfit in the data, the analyst should consult the standardized residuals and the modification indices (Byrne, 2001). If the researcher decides to respecify the model, they will then be operating in a post hoc, exploratory mode (Byrne, 2001). Though this is not uncommon in SEM applications (Anderson & Gerbing, 1988), the researcher should be wary of arbitrary modifications that may have serious effects on the construct. The most important criteria for determining whether or not to respecify the model is whether or not it makes conceptual sense to free up the parameter. Even if the change could be backed up theoretically, the analyst should strive to adhere to the “parsimony principle” (Kline, 2005). This principle states that the simplest model for describing the data is preferred over complex models that may have a marginally better fit.

### *Path Analysis*

Once an appropriate measurement model was identified, the researchers proceeded with the path analysis. If CFA and path analysis were performed in a single step, it would be extremely difficult to identify the source of model misfit. Once the construct was established as valid, any misfit in the full model could be attributed solely to the regression paths between the latent variables. The path analysis was largely exploratory, and every variable was allowed to associate with all other variables and

factors. While there was substantial theoretical backing to support the inclusion of all of the variables in the model, there was little to no basis for specifying the relationships between these variables a priori.

The process of model fit assessment and respecification was similar to that described in CFA. First, the individual parameters were analyzed for significance. Any non-significant parameters were removed sequentially, beginning with the least significant relationships. The model was reassessed after each deletion to take account of how the modification had affected the entire model (Kline, 2005). In this manner, the exploratory model was reduced to a level of parsimony that may be appropriate for cross-validation in future research. All modifications were carefully considered in the effort to maintain conceptual meaningfulness.

The initial analysis was conducted using only the pre-trip scores from the experimental group. All non-significant parameters were deleted from the model and a series of modification indices were assessed to determine which structure has the best fit (Byrne, 2001; Kline, 2005). Multi-group CFA was then conducted with treatment as the grouping variable to be sure that the proposed model was appropriate for both the treatment and control groups. Given that the model showed a strong fit for both groups, the path can be considered valid. This analysis provides the necessary information to test the proposed SEM model across both groups. These results provide information regarding the structure of wisdom development and address hypotheses 3a and 3b.

## CHAPTER IV

### RESULTS

This section reports the results of quantitative analyses designed to examine the effects of a service-learning program on the *Wisdom* of trip participants. After a brief description of the questionnaire and sampling method, the response rate and reliability measures are presented. This is followed by a presentation of the analytical results for each stated hypothesis. This study included cross-sectional and longitudinal analyses to determine the relationships of predictive and mediating variables, their comparative influence on the *Wisdom* construct, and the effects of a service-learning trip on the mediating variables and overall *Wisdom* of trip participants. *Wisdom* was the dependent variable, indicated by its three sub-domains (Affection, Cognition & Reflection). Openness to Experience and Civic Attitude served as mediators, which were expected to vary over time and to influence *Wisdom* scores. Social Environment and Social Relationships were the independent predictor variables. Other variables which were accounted for include: age, gender, grade-point average, and average amount of time spent in personal reflection.

#### Summary of the Instrument

The pre-test questionnaires (see Appendix B) were distributed to the treatment group one week before the trip and collected at the time of trip departure. A total of 288 students participated in the Pay It Forward Tour. From this sampling frame, a total of 235 completed the pre-trip instrument completely, resulting in a response rate of 82%. The post-test measurement was given to the treatment group immediately after the trip experience. These questionnaires included the additional section (Appendix C)

designed to measure the impact each trip component had on each *Wisdom* domain.

Participants were given the questionnaires during the long bus-ride home after the final ceremony in Washington D.C. Of the 288 participants, 227 (79%) questionnaires could be matched for comparison of pre and post-trip measurements.

The follow-up measure for the treatment group was administered during the fifth week after the conclusion of the trip using an online survey tool. The participants received an email one week prior to the release of the survey tool to convey the importance of their participation. A link was then emailed to the participants six times over a two-week period to encourage them to complete the questionnaire. A total of 191 participants responded to the online survey, resulting in a 66% response rate.

Unfortunately, a number of these respondents did not complete one of the first two questionnaires completely. As a result there were only 121 (42%) participants for which growth trajectories could be calculated using all three time points.

The control group consisted of a non-equivalent convenience sample of students currently enrolled in Recreation, Sports Management, and Physical Activity Program classes at the University of Minnesota. Control group participants either completed the questionnaire during scheduled classes or they completed them at home and returned them to the course instructor. A total of 307 questionnaires were collected from control group participants. The final questionnaire was distributed during the fifth week after the conclusion of the service-learning trip. The control group completed a questionnaire that was identical to the pre-trip measurement. Of the original 307 surveys collected, 209 (68%) could be matched for comparison of pre-trip and follow-up measurements. This

moderate response rate was due to sporadic class attendance at the end of the semester and the voluntary nature of the study.

### *Supplemental Items*

To determine which aspects of the experience were most salient for growth in each *Wisdom* domain, a supplemental survey was added to the post-trip questionnaire for the treatment group. This section was developed using an expertise-based approach (Russ-Eft & Preskill, 2001). A group of 18 STLF leaders, all of whom had been participants on previous PIF tours, listed and prioritized the elements of the tour that they deemed most valuable for growth. After narrowing these elements down to a list of 15 items, these items were then clustered into conceptually appropriate factors. These items and their factors can be seen in Table 4.1. Each factor was represented by at least two items, and the score for each factor was determined by the average of the indicators for that factor.

Table 4.1

*Items and Factors Included on the Supplemental Post-Test Questionnaire.*

<b>Item</b>	<b>Factor</b>
Diversity of Trip Participants	<b>Relationships</b>
Informal Conversations with Participants	
Conversations with Community Members	
Opportunity to take charge of projects	<b>Service</b>
Working with others toward a common goal	
Helping others in need	
Being away from my daily routine	<b>Travel</b>
Seeing new places	
Personal quiet times	<b>Reflection</b>
Group discussions	
Structured reflection activities	
The direction of the STLF leaders	

Personal discussions with STLFL leaders	<b>Leaders</b>
The example set by the STLFL leaders	
Other: (Please Specify)	

### Response Bias

In order to determine if the treatment group participants who responded for all three time points represented a unique group within the population, an independent samples t-test was performed on demographics and variables of interest as measured by the pre-test questionnaire. The only significant difference was for gender ( $p = .005$ ), indicating that more females were measured for all time points than males. While gender is related to other variables in the study, there is no reason to believe that a difference in this variable alone would introduce undue bias regarding the longitudinal results.

### Selection Bias

Since the treatment and control groups were not randomized and were non-equivalent, an independent t-test was conducted on these groups using the pre-test measurement (see Table 4.2). The groups did differ significantly on most measures. In order to determine if these differences introduced bias into the quasi-experimental design, the analyses designed to compare these two groups were conducted systematically on a sample of cases. First, a MANOVA was conducted on *Wisdom*, Openness, and Civic Attitude using all cases from the treatment and control groups. Next, a random sample of the control group was selected from all of the existing cases using SPSS. A separate MANOVA was conducted using this sample as the control group. Finally, a purposive sample of the control group cases was selected so that the control and treatment groups did not differ significantly on *Wisdom* scores for the first measurement. A final

MANOVA was conducted using the purposive sample as the control group. The results were comparable regardless of the sampling method used. These findings indicate that, though the comparison groups were different on most measures, these differences have little effect on longitudinal measures for the dependent variables (see Table 4.3). All subsequent analyses were conducted using the entire control group.

Table 4.2

*Independent t-test on Initial Status of Treatment and Control Groups.*

	Mean Difference	Sig. (2-tailed)
Affective	-0.296	<0.001
Cognitive	-0.251	<0.001
Reflective	-0.208	<0.001
Civic Attitude	-0.339	<0.001
Openness	-0.308	<0.001
Social Environment	0.028	0.628
Social Relationships	-0.207	0.001
Gender	-0.219	<0.001
Age	0.982	0.002

Table 4.3

*F-Statistic Values for Outcome Variables Using Various Sampling Methods.*

	Affective	Cognitive	Reflective	Openness	Civic Attitude
All Participants	1.53	1.52	4.06*	7.88**	1.96
Random Control	1.86	1.77	4.62*	4.50*	1.73
Purposive Control	4.44*	3.64	5.38*	11.49**	0.30

### Construct Validity and Reliability

Given a cutoff value of 0.70 (Howell, 2002), Cronbach's alpha was acceptable for all five of the psychometric measurement scales (Table 4.4). Kline (2005) suggests that constructs utilized in SEM should not have a skew in excess of  $\pm 3$  nor a kurtosis

exceeding  $\pm 10$ . Skewness and kurtosis levels for the five dependent variables were within acceptable limits.

Table 4.4

*Cronbach's Alpha, Skewness & Kurtosis Levels for Dependent Variables.*

	Cronbach's Alpha	Skewness	Kurtosis
Civic Attitude	0.88	-1.54	3.980
Openness	0.79	-0.223	0.555
Affective	0.75	0.011	0.381
Cognitive	0.80	-0.163	0.292
Reflective	0.77	-0.185	0.819
<i>Wisdom</i>	*	-0.085	0.817

\*Latent Construct (Measured via Confirmatory Factor Analysis)

In order to measure the validity of the latent *Wisdom* construct, a CFA was conducted using the mean scores for the Cognitive, Affective, and Reflective domains as observed indicators. In order to conduct a CFA on a construct with only three indicators, the researcher must apply constraints in order for the model to be identified (Kline, 2005). Ardelt (2003) suggests that the Cognitive and Affective domains can be constrained so that they load equally on the *Wisdom* construct, because there is no conceptual argument for these domains to differ from one another. The Reflective parameter should be freely estimated because it is reasoned that this domain is the “hub” of *Wisdom*. For this reason, the Reflective domain is expected to have a higher factor loading on the *Wisdom* construct. In coherence with Ardelt’s (2003) model, the CFA was conducted with the Affective and Cognitive loadings constrained to be equal and the Reflective loading freely estimated. The model showed a strong fit for the data (Table 4.5), indicating that the structure of the *Wisdom* construct is valid for this sample.

Table 4.5

*Fit Indices for the CFA of the Wisdom Construct.*

	CMIN	<i>p</i>	TLI	CFI	RMSEA
<i>Wisdom CFA</i>	6.968	0.031	0.987	0.996	0.045

To determine whether or not the Reflective domain indeed factored higher on the *Wisdom* construct in this sample, the three indicator domains were respecified to covary without the addition of the latent *Wisdom* factor. This model is mathematically equivalent to the previous model with the exception that the domains are related through their error variances, and their covariances are all allowed to be freely estimated (Byrne, 2001). Using this technique, one can determine which domain has the highest factor loading by examining the Critical Ratio (C.R.) associated with each covariance. As shown in Table 4.6, it is evident that the two highest C.R. values are associated with the Affective domain, indicating that, in this sample, the Affective domain was the “hub” of the *Wisdom* construct.

Table 4.6

*Inter-domain Covariance Within the Wisdom Construct*

Covariance			C.R.
Cognitive	<-->	Affective	12.019
Cognitive	<-->	Reflective	11.651
Affective	<-->	Reflective	13.290

## MANOVA and t-Test Analyses

Hypotheses 1a and 3c were assessed through the use of two separate MANOVAs and Hypothesis 3d was assessed using a paired-samples t-test. To assess the difference in *Wisdom* gains between the control and treatment groups, a repeated-measures MANOVA was conducted. The pre and follow-up measurements for the three *Wisdom* sub-domains were defined as the dependent variables and group status as the between subjects variable. Due to the fact that the control and treatment groups differed significantly on all measures before the trip, it was difficult to discern from the omnibus *F*-statistic whether the significance was due to the difference in the groups' initial status or to the change in scores over time. For this reason, the MANOVAs were conducted on "difference" scores to assess the difference in growth for each sub-domain.

### *Hypothesis 1a.*

This hypothesis stated that those participating in a service-learning trip will demonstrate no higher gains in *Wisdom* domains than the control group. To determine if the treatment group demonstrated significantly higher gains in *Wisdom* domains over the course of five weeks, a new variable was created for each of the three sub-domains. This variable was created by subtracting the score on the initial survey from that of the follow-up measurement. A MANOVA was then conducted on the new variable for each sub-domain with group status as the between subjects variable. The results revealed that the two groups showed significantly different growth patterns in the Affective and Reflective domains. The *Mean* difference for the control group was negative on all three sub-domains, indicating that students who did not participate in the program declined in *Wisdom* over the course of five weeks. The *Mean* difference scores on the Affective and

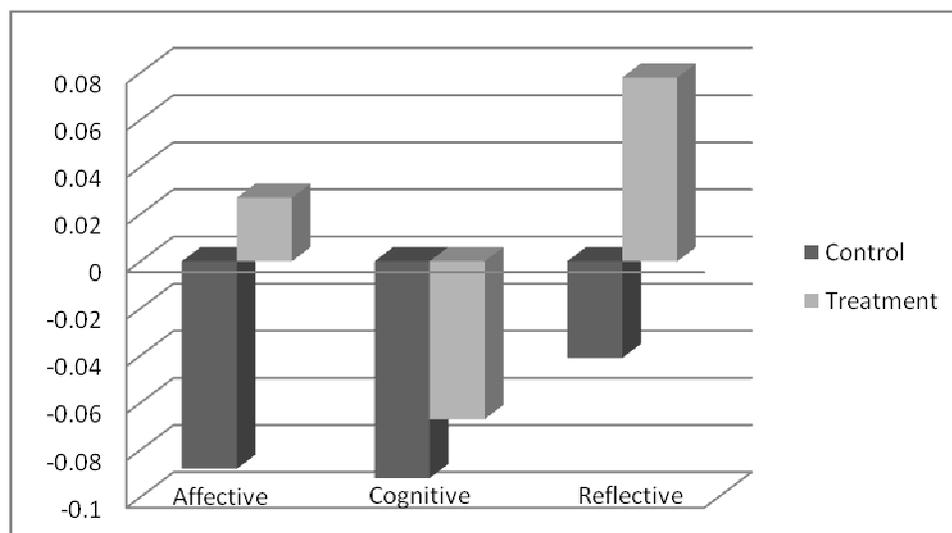
Reflective domains for the treatment group increased, while their scores on the Cognitive domain decreased over the course of five weeks. This null hypothesis can be rejected.

The results for this analysis can be seen in Table 4.7 and are illustrated in Figure 4.1.

Table 4.7

*MANOVA for Difference Scores of Wisdom Sub-Domains.*

	(N) Control	(N) Treatment	Mean Diff Control	Mean Diff Treatment	F	Sig. 2-tailed
Affective	192	121	-.088	.022	6.270	<b>.013</b>
Cognitive	192	121	-.092	-.067	.260	.610
Reflective	192	121	-.041	.078	7.591	<b>.006</b>



*Figure 4.1* Mean Difference scores for Control and Treatment Groups on *Wisdom* Sub-domains.

### *Hypothesis 3c*

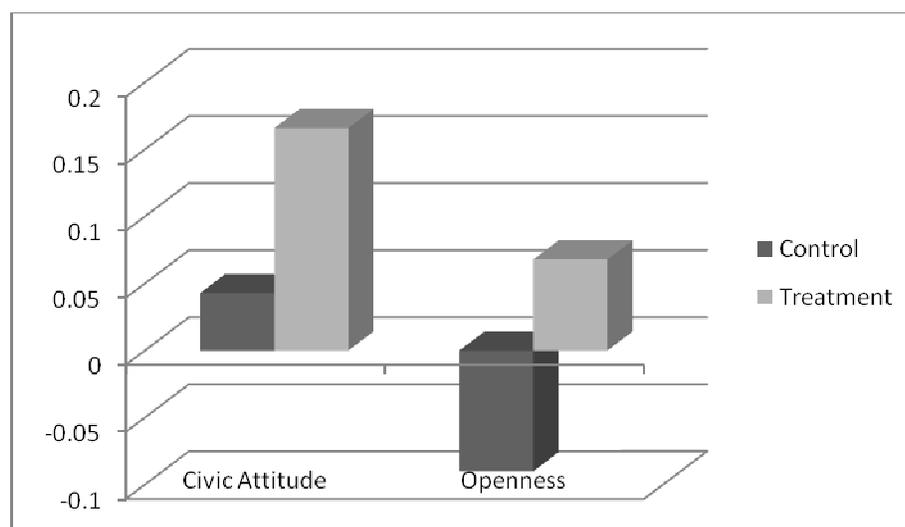
This hypothesis stated that service-learning participants would demonstrate no higher gains in civic attitude and openness than the control group. To test this hypothesis, a new variable was created for civic attitudes and openness by subtracting the

score on the pre-test measurement from that of the follow-up measurement. A MANOVA was then conducted on this new variable to determine if the treatment and control groups showed significantly different gains on these variables. There was no significant difference for the two groups on measures of civic attitude, as both groups demonstrated positive gains. However, there was a significant difference for the openness variable. The treatment group demonstrated a *Mean* increase in scores for openness, while the control group showed a decline in openness scores. Therefore, the null hypothesis was rejected (see Table 4.8 and Figure 4.2).

Table 4.8

*MANOVA for Difference Scores of Civic Attitude and Openness.*

	(N) Control	(N) Treatment	Mean Diff Control	Mean Diff Treatment	F	Sig. 2-tailed
Civic Attitude	192	121	.043	.166	2.080	.150
Openness	192	121	-.090	.068	10.518	<b>.001</b>



*Figure 4.2.* Mean Difference Scores for Control and Treatment Groups on Civic Attitude and Openness.

### *Hypothesis 3d*

This hypothesis stated that there would be no difference in pre and post-trip scores for civic attitude and openness-to-experience for service-learning participants. To test this hypothesis a paired samples t-test was conducted on the pre and post-trip treatment group scores for civic attitude and openness. Given that the control group was not administered a post-trip measurement, no comparisons were made across groups. As shown in Table 4.9, the treatment group demonstrated significant gains in civic attitude and openness to experience over the course of the service-learning experience. Even when adjusting for the multiple dependent variables using the Bonferroni method ( $p < .025$ ), the p-values are well below significance levels. As such, hypothesis 3d was rejected.

Table 4.9

*Paired t-Test for Pre and Post-Test Civic Attitude and Openness Scores.*

	<i>t</i>	df	Sig. (2-tailed)
CivAtt1 - CivAtt2	-4.59	179	<.001
Openness1 - Openness2	-4.33	179	<.001

### Service-Learning Component Ranking

#### *Research Question 1b*

To determine which elements of the service-learning program were most salient for growth in each *Wisdom* domain, the *mean* scores for each factor were ranked under the three sub-domains. Though these items were clustered under each factor based on their conceptual relevance, reliability measures indicate that these items were perceived as similar by the participants as well (see Table 4.10). Cronbach's alpha for each factor

measured across all three *Wisdom* sub-domains was above the recommended level of .70 (Howell, 2002).

Table 4.10

*Reliability Measures for Trip Component Factors.*

<b>Factor</b>	<b># Items</b>	<b>Cronbach's alpha</b>
Relationships	9	0.83
Service	9	0.85
Travel	6	0.83
Reflection	9	0.88
Leaders	9	0.96

The relationships formed on the trip were perceived as the most important aspect for growth in the Reflective domain (see Table 4.11). The most important component for growth in the Affective and Cognitive domains was the “service activities” (see Tables 4.12 & 4.13). Both of these domains increased significantly during the trip, then returned to pre-trip levels at the final measurement. All three domains were most influenced by the service activities and the relationships formed on the trip. The reflective activities were ranked third in every domain, with the “travel” and “leader” factors ranking 4<sup>th</sup> and 5<sup>th</sup> across all domains.

Table 4.11

*Component Ranking for the Reflective Domain.*

	N	Minimum	Maximum	Mean	Std. Deviation
Relationships	188.00	2.00	5.00	4.34	0.61
Service	187.00	2.00	5.00	4.24	0.69
Reflection	188.00	1.00	5.00	4.19	0.89
Travel	188.00	1.00	5.00	4.16	0.86
Leaders	188.00	1.00	5.00	4.03	0.99

Table 4.12

*Component Ranking for the Affective Domain.*

	N	Minimum	Maximum	Mean	Std. Deviation
Service	188.00	2.00	5.00	4.35	0.55
Relationships	187.00	2.00	5.00	4.29	0.60
Reflection	187.00	1.00	5.00	4.13	0.92
Leaders	187.00	1.00	5.00	3.99	1.03
Travel	187.00	1.00	5.00	3.70	1.05

Table 4.13

*Component Ranking for the Cognitive Domain.*

	N	Minimum	Maximum	Mean	Std. Deviation
Service	187.00	1.00	5.00	4.15	0.70
Relationships	188.00	2.00	5.00	4.14	0.68
Reflection	188.00	1.00	5.00	4.07	0.92
Travel	187.00	1.00	5.00	3.96	0.89
Leaders	188.00	1.00	5.00	3.87	1.07

In addition to analyzing the trip component factors for each *Wisdom* domain, an examination of the means for each individual component across all domains helps to clarify the role each component plays in the cultivation of *Wisdom*. A total score for each trip component was attained by adding the means for each sub-domain (see Table 4.14). The six highest of these component rankings represent a mixture of service and relational elements. Lower ratings were given to the structured program components, the travelling elements, and leadership.

Table 4.14

*Ranking of Total Scores for Trip Components.*

<b>Trip Components</b>	<b>Total Score</b>
Helping Others in Need	13.63
Working Toward a Common Goal	13.14
Conversations with Community Members	12.93
Group Discussions	12.75
Informal Conversations with Participants	12.74
Diversity of Trip Participants	12.63
The Example Set by the Leaders	12.34
Seeing New Places	12.26
Structured Reflective Activities	12.05
Direction of the Trip Leaders	11.69
Informal Discussions with Leaders	11.64
Service Projects	11.46
Being Away from Normal Routines	11.36
Quiet Time Alone	11.33
Ice Breakers and Games	10.02

### Structural Equation Model

#### *Hypothesis 3a*

To determine if social environment and social relationships had a significant direct effect on *Wisdom* scores a structural equation model was constructed using Amos 16. This model is illustrated in Figure 4.3. The mean scores for Social Environment (3 items) and Social Relationships (6 items) were included as predictors of the three the Cognitive, Affective, and Reflective *Wisdom* domains. Mean scores for the Civic Attitude and Openness scales were included in the model as additional predictors. This analysis is similar to a single-step regression model, which controls for the effects of all predictors in the model. A comparison of the factor loadings for each predictor can be seen in Table 4.15. Social Relationships had a significant direct effect on all three

*Wisdom* domains, but Social Environment had no direct effect on any domain.

Hypothesis 3a is partially supported by these results.

Table 4.15

*Standardized Direct Effects of Predictors on Wisdom Domains.*

	Affective	Cognitive	Reflective
Social Environment	0.008	0.027	0.029
Social Relationships	0.122**	0.132***	0.125***
Openness	0.271**	0.551***	0.289***
Civic Attitude	0.305***	0.067*	0.250***

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

### *Hypothesis 3b*

This hypothesis stated that openness to experience and civic attitude would have a stronger direct effect on *Wisdom* scores than would social environment and social relationships. This hypothesis was tested using the information from the SEM described above. As seen in Table 4.15, Openness to Experience had stronger direct effects on all three *Wisdom* domains than did Social Environment and Social Relationships. Civic attitude had stronger direct effects on *Wisdom* domains than did Social Environment, as well as stronger direct effects on two of the three domains (Affective and Reflective) than did Social Relationships. These results support Hypothesis 3b.

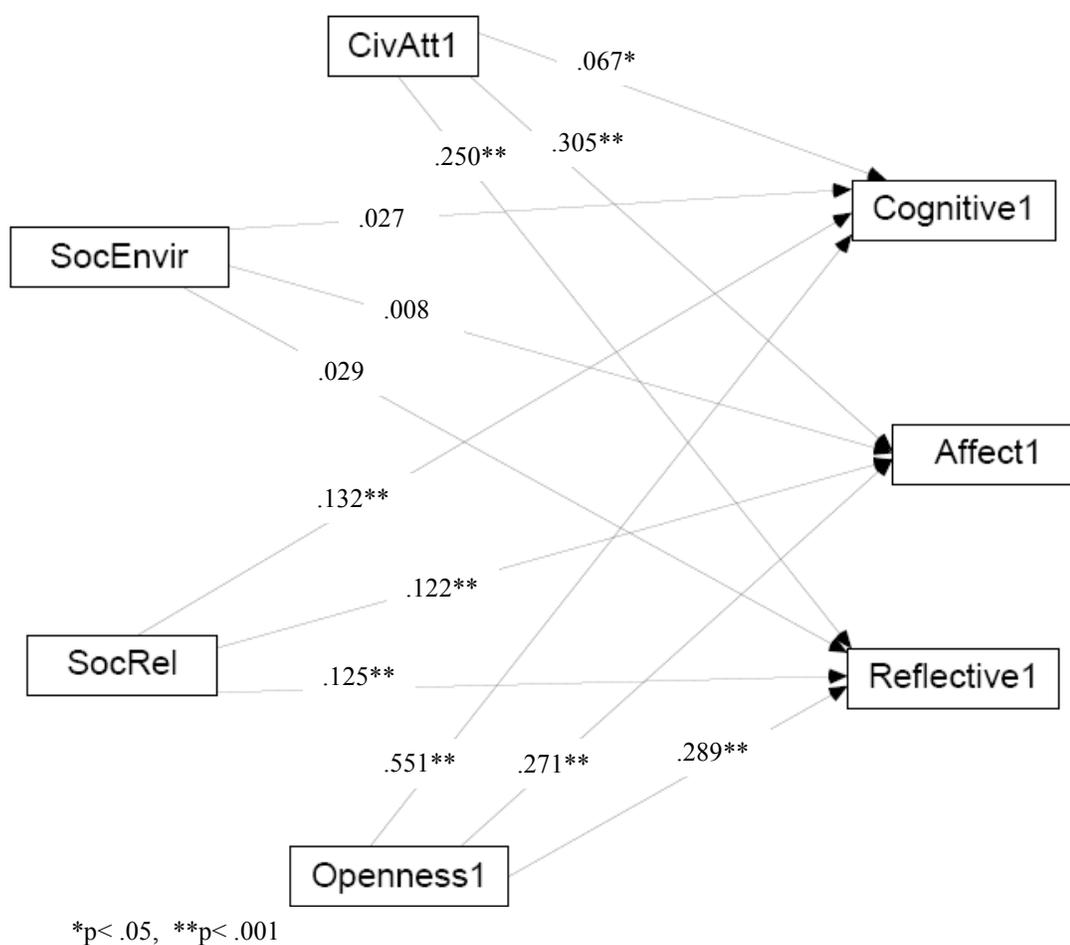


Figure 4.3. Standardized Regression Weights for Predictors on *Wisdom* Domains.

In order to test the full SEM proposed for this study, additional predictors were introduced into the model. The new predictors included age, gender and GPA. Social Environment, Social Relationships, age, and gender were specified as exogenous predictors which affected all other variables in the model. Openness, Civic Attitude and GPA acted as mediators, being influenced by the aforementioned predictors and also influencing the three *Wisdom* domains. The analysis proceeded in an exploratory manner, by first allowing all predictors to influence all mediators and dependent

variables. After each consecutive analysis, a single non-significant parameter was deleted from the model (Byrne, 2001). This process continued until every non-significant parameter was deleted from the model.

After dropping all non-significant parameters, the proposed model demonstrated a strong fit. However, as suggested by Kline (2005) a good model fit does not indicate that the best model has been found. First, a confirmatory factor analysis (CFA) should be performed in order to determine that the proposed model fits the data for multiple samples. To do this, a multiple-group CFA was conducted using Amos 16 using the data for treatment and control groups. First, the model was tested using only the data from the control group. The control group data fit the proposed model well. Next, the model was tested using the data from the treatment group, while constraining certain parameters. All covariances, factor loadings and error variances for the treatment group model were constrained to be equal to those of the control group. In this way, the highly restricted model could be verified by a set of data from an independent population (Byrne, 2001). The restricted model showed a strong fit when applied to the treatment group data (see Table 4.16), validating the Confirmatory Factor Analysis.

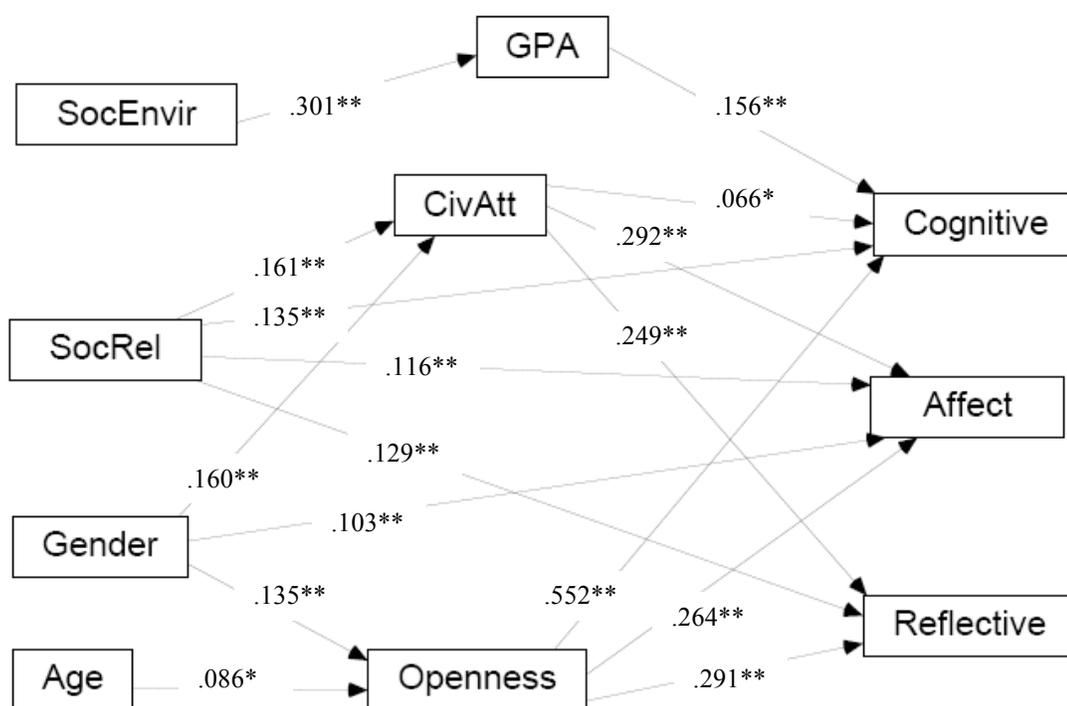
Table 4.16

*Fit Indices for the Multi-group Confirmatory Factor Analysis.*

Fit Indices	CMIN (X <sup>2</sup> )	DF	P	TLI	CFI	RMSEA	ECVI
Proposed Model	126.88	76	.000	0.937	0.957	0.033	0.388
Saturated Model							0.439

The details of each fit index are described in Chapter three, but a brief review will aid with interpretation. The X<sup>2</sup> statistic should not be significant, but this statistic is influenced by sample size, making it an unreliable index in studies involving more than





\* $p \leq .05$ , \*\* $p \leq .001$

Figure 4.4. Full Final Model.

Table 4.18 displays the amount of variance explained for each variable in the model. As exogenous variables, age, social environment and social relationships were not predicted. Social environment accounted for a significant, albeit small, amount of the variance in GPA. Age and gender combined account for only three percent of the variance in openness, while gender and social relationships account for a similar amount of the variance in civic attitude. All of the predictors in the model account for about one quarter of the variance in the Affective and Reflective domains and about two-fifths of the variance in the Cognitive domain.

Table 4.18

*Percent of Variance Explained in Each Item.*

Item	%
Social Environment	*
Age	*
Social Relationships	*
GPA	9
Openness	3
Civic Attitude	5
Affect	26
Reflective	22
Cognitive	42

Not shown in Figure 4.4 are the relationships between the predictor variables. As with a multiple regression analysis, these predictors often share a considerable amount of variance with one another. This shared variance affects the power of each predictor to explain the difference in the dependent variable. All non-significant relationships were dropped in the process of establishing the best fit for the final model. Table 4.19 displays all of the significant relationships between the predictor variables. Social relationships were negatively related to age indicating that older students tended to be less socially active. Those students from a positive social environment were involved in more social groups. The two mediator variables, civic attitude and openness, demonstrated a strong positive relationship, and both were also positively related to GPA. Finally, the three dimensions of the *Wisdom* construct were highly related.

Table 4.19

*Correlations of SEM Variables.*

			Estimate
Social Relationships	<-->	Age	-0.123*
Social Relationships	<-->	Social Environment	0.134**
Civic Attitude	<-->	Openness	0.322**
Openness	<-->	GPA	0.244**
Civic Attitude	<-->	GPA	0.266**
Affective	<-->	Cognitive	0.407**
Cognitive	<-->	Reflective	0.379**
Affective	<-->	Reflective	0.520**

### Latent Growth Analysis

#### *Hypothesis 2a & 2b*

To assess the differences in pre- and post-trip *Wisdom* scores, and in pre- and follow-up *Wisdom* scores for service-learning participants a mean structure analysis was conducted using the treatment group data to compare *Wisdom* scores over three time points (see Figure 4.5). Given that *Wisdom* is considered a latent variable that cannot be directly observed, the *mean* of this variable is estimated with the use of the three indicator domains (Affective, Reflective, and Cognitive). The mean for the latent *Wisdom* variable for the pre-test (wise) was constrained to zero in order to provide a baseline from which to compare the post and follow-up measures. The means for the *Wisdom* variable on the post-test (wise2) and the follow-up test (wise3) were allowed to be freely estimated. The results for this analysis are presented in Table 4.20.

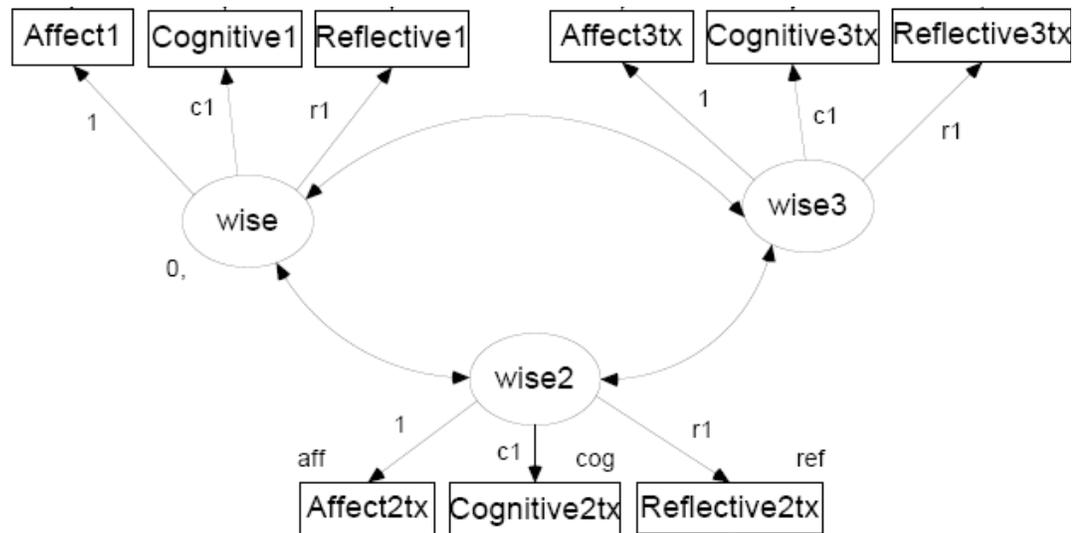


Figure 4.5. Mean Structure Analysis for Pre, Post, and Follow up *Wisdom* Scores.

The results indicate that the mean *Wisdom* score on the post-test was significantly different from that of the pre-test. The parameter of interest is the Critical Ratio (C.R.), which must be greater than  $\pm 1.96$  to be considered significant at an alpha level of  $p < .05$  (Byrne, 2001). Since the C.R. is greater than 1.96 and positive, the mean *Wisdom* score for the post-test instrument (wise2) is significantly higher than that of the pre-test. While the C.R. value is smaller for the follow-up measurement (wise3), the results indicate that the increase in overall *Wisdom* scores remained significant one-month after the experience. Hypotheses 2a and 2b can be rejected.

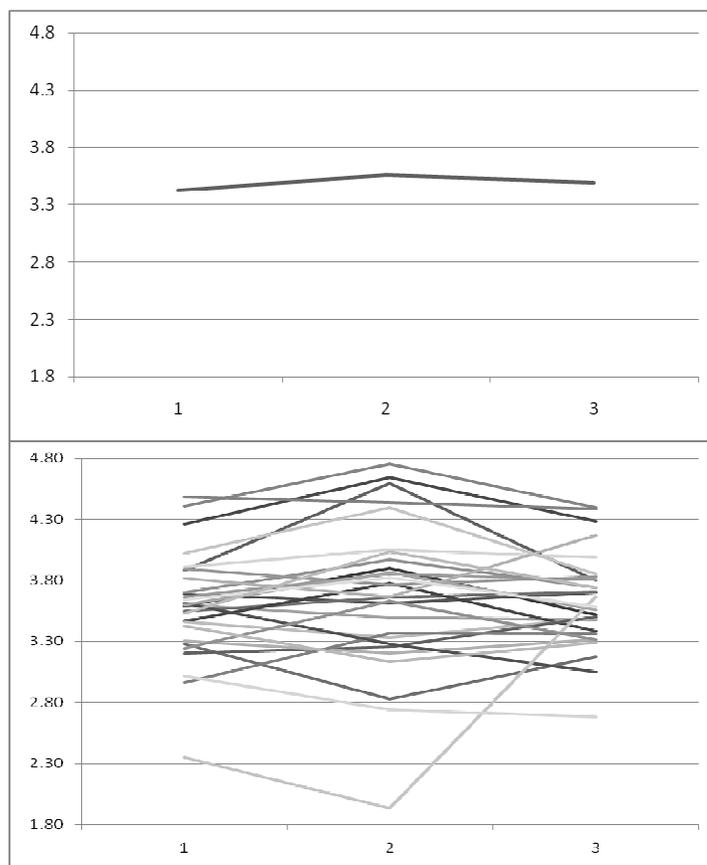
Table 4.20

*Chi-Square test for the Difference in Pre and Post and Follow-up Wisdom Scores.*

	Estimate	C.R.	<i>p</i>
wise2	0.14	6.28	<.001
wise3	0.072	2.996	0.003

A unique facet of Latent Growth Analysis is the ability to measure individual status and individual growth trajectories over multiple time points. While an ANOVA allows the researcher to determine the trajectory of the group mean, LGA enables the analyst to investigate individual differences in trajectories, and even test the predictive value of independent variables on individual entry status and growth trajectories. Figure 4.6 shows a comparison of the group mean trajectory and the individual trajectories of the first 30 study participants. It is evident from this illustration that much valuable information would be missed if the mean group trajectory was the only parameter of interest. In order to determine the influence of predictor variables on initial status (Intercept) and individual trajectories (Slope), all predictors were entered into the model in a single step.

To assess the impact of each predictor on the original status (intercept) and the growth trajectories (slope) of individual participants, the following predictors were added to the Latent Growth Curve model in one step: Social Relationships, Social Environment, Age, Gender, Grade Point Average (GPA), and weekly time spent in personal reflection (PerRef). In order to understand the contribution of each predictor to each *Wisdom* sub-domain, a separate LGA was conducted on each sub-domain as well as on the second-order latent *Wisdom* construct. These results can be seen in Table 4.21.



*Figure 4.6.* Comparison of Group Mean Trajectory with Individual Trajectories.

A significant relationship between the predictor and the intercept variable is equivalent to a cross-sectional regression analysis, since the intercept is a measure of the initial status on the pre-trip questionnaire (Bollen & Curran, 2006). The strongest predictor of overall *Wisdom* was Gender, being bolstered by a high female score on the Affective domain. It is noteworthy that Gender was not a good predictor of the Reflective domain. Social Relationships were also a strong predictor of overall *Wisdom*, being significantly related to the Affective and Reflective domains. Self-report measures

of GPA were significantly related to all three *Wisdom* domains, being a very strong predictor of the Cognitive domain.

Table 4.21

*Predictors of Latent Intercepts and Growth Trajectories of Wisdom Domains.*

		Affective	Cognitive	Reflective	<i>Wisdom</i>
Soc Rel	<i>Intercept</i>	2.913**	1.696	3.459***	3.321***
	<i>Slope</i>	-0.601	0.626	-0.859	-0.787
Soc Envir	<i>Intercept</i>	0.262	0.531	0.054	0.187
	<i>Slope</i>	-0.132	-0.086	-0.084	0.119
Age	<i>Intercept</i>	-1.499	0.862	0.269	-0.607
	<i>Slope</i>	0.651	0.136	-1.676	0.158
Gender	<i>Intercept</i>	3.962***	2.466*	1.681	3.554***
	<i>Slope</i>	-1.346	-0.932	-1.448	-2.598**
GPA	<i>Intercept</i>	2.357*	5.487***	2.149*	3.278***
	<i>Slope</i>	-0.160	-2.343*	1.447	0.276
Per Ref	<i>Intercept</i>	1.576	1.238	1.069	1.598
	<i>Slope</i>	2.440*	2.410*	1.538	2.258*

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

A significant relationship to the Slope variable indicates that the predictor had an effect on the latent growth trajectory of *Wisdom*. While females showed a higher initial status on *Wisdom* domains, males demonstrated a higher rate of growth over the five week period. The amount of time spent in personal reflection (PerRef) was marginally related to initial *Wisdom* scores, but did emerge as a significant predictor of the overall growth trajectory. GPA, while initially a strong predictor of all three *Wisdom* domains, only had a significant effect on growth in the Cognitive domain. Those with high GPA scores reported lower growth rates for cognition over the five week measurement period.

The final analysis for this study used a multivariate LGA including time-invariant and time-variant predictors of *Wisdom*. The six predictors that were included in the

original LGA were considered time-invariant because they were measured only once and were not expected to change as a result of the service-learning program. The mediating variables (Openness and Civic Attitude), however, were measured at all three time points with the assumption that they might show marked change. For this reason, Openness and Civic Attitude were included in the model as time-variant predictors, each with its own latent curve trajectory. The LGA for *Wisdom*, the LGA for Openness, and the LGA for Civic Attitude were all regressed onto the six time-invariant predictors. In addition, the three latent growth curve models were allowed to covary, providing some indication of how each growth trajectory affected other trajectories. The results for this analysis can be seen in Table 4.22.

Table 4.22

*Time Invariant Predictors of LGA for Wisdom, Civic Attitude, and Openness.*

		Wisdom	Civic Attitude	Openness
Soc Rel	<i>Intercept</i>	3.123**	1.648	-1.106
	<i>Slope</i>	-0.295	0.215	-0.275
Soc Envir	<i>Intercept</i>	0.269	-1.501	-0.215
	<i>Slope</i>	0.098	2.819**	0.918
Age	<i>Intercept</i>	-0.105	-0.425	0.377
	<i>Slope</i>	-0.343	0.790	0.861
Gender	<i>Intercept</i>	3.275***	3.167**	1.842
	<i>Slope</i>	-2.380*	-1.712	-2.148*
GPA	<i>Intercept</i>	3.907***	3.119**	3.203***
	<i>Slope</i>	-0.773	-2.802*	-0.597
Per Ref	<i>Intercept</i>	1.472	1.021	2.087*
	<i>Slope</i>	2.628**	0.046	2.452**
% Variance	<i>Intercept</i>	20.5	14.6	8.7
	<i>Slope</i>	63.4	19.1	19

\*  $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

Age was neither a significant predictor of initial status nor of the growth trajectory for any of the dependent variables. All variables were affected by Gender, with females demonstrating a higher initial status and males showing a stronger growth trajectory over the five week period. GPA was a significant predictor of initial status for *Wisdom*, Openness and Civic Attitude. Those with a lower initial GPA demonstrated a stronger positive growth trajectory for Civic Attitude. Those with a higher score for Social Environment also demonstrated a more positive growth trajectory for Civic Attitude.

The percentage of variance explained for each variable is also included in Table 4.22. These numbers represent the amount of variance accounted for by all six predictor variables. The variance for the slope of *Wisdom* is of particular interest. Though gender and personal reflection were the only significant predictors of this variable, 63% of the variance in the growth trajectory of *Wisdom* was explained by the predictors in the model.

Table 4.23 summarizes the relationships between initial status (intercept) and growth trajectories (slope) for *Wisdom*, Openness and Civic Attitude. These results present no surprises for the three variables, since their positive relationship was already demonstrated in the SEM analysis. In general, a high initial status for each variable is associated with a lower growth rate in all three variables.

Table 4.23

*Covariance of Time-Variant Predictors and the Wisdom Construct.*

		<i>Wisdom</i>		Openness		Civic Attitude	
		Intercept	Slope	Intercept	Slope	Intercept	Slope
<i>Wisdom</i>	Intercept		.597	6.05***	-0.562	6.176***	-2.296*
	Slope			-2.279*	5.258***	-3.765***	4.602***
Openness	Intercept				-1.143	3.976***	-2.278*
	Slope					-2.554**	4.544***
Civic Attitude	Intercept						-4.341***

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

## CHAPTER V

### CONCLUSIONS

This chapter reviews the findings of the current study and the implications of the hypotheses and research question. The conclusions proceed from a discussion of cross-sectional results (SEM) to a discussion of the results from longitudinal analyses (MANOVA, LGA). Course component rankings are included in the longitudinal discussion. Comparisons to existing research findings are made within each respective section, along with the implications of said results. This chapter concludes with recommendations for future research that may further the study of *Wisdom*, experiential education, and the field of human development.

#### Cross-Sectional Conclusions

The results were obtained with the use of SEM using only the first measurement for treatment and control groups. The final model was achieved through a systematic reduction of all non-significant parameters using only the treatment group data. The model was then validated through a CFA using the control group data. All SEM results include the data from all participants in the study ( $n= 607$ ). It is difficult to determine causation when utilizing cross-sectional data, and care must be taken not to extrapolate findings beyond the scope of this study. Taking this precaution into account, these results proceed by first examining the contribution of the exogenous predictors in the model (Social Environment, Social Relationships, Demographics) and then discussing the effects of the endogenous predictors (Civic Attitude and Openness).

### *Social Environment and GPA*

The SEM analyses provided many illustrative results in regards to predictors and mediators of the *Wisdom* construct, the foremost of which is the disproportionate contributions made by social environment and social relationships. Ardelt (2000) reported that one's social environment in early adulthood was the only significant predictor of *Wisdom* in later adulthood. In this study, however, social environment played no direct role in the *Wisdom* of young adults.

It should be noted that, while conceptually similar, the measures used in this study were not identical to those used by Ardelt. The main reason for this difference is the age of the sample. Ardelt's study was conducted retrospectively and used measures of familial Socio-Economic Status (SES) in childhood (i.e. education and occupation of parents), as well as the education and occupation of the participants in early adulthood. The current study also included measures of parents' education. However, given that the participants in the current study were still in school, their future environment was measured only by their educational intent. While these measures tend to emphasize the "intellectual" environment, this domain is strongly related to other domains, including SES (Schneewind, 1995), which impact the quality of a child's overall environment (i.e. school, neighborhood, activities, etc.).

As shown in Figure 4.3, one's social environment does not account for a significant amount of unique variance in any of the three *Wisdom* domains. In fact, GPA was the only item in the model uniquely predicted by one's social environment. Much research has been done to determine the predictors of student GPA, and SES is a consistent predictor in all of these studies (Robbins, Lauver, Le, Davis, Langley &

Carlstrom, 2004). Such results seem to support the concepts of “cultural capital” and “human capital” in regards to educational achievement (Gordon, Bridglall, & Meroe, 2005). Essentially, those who come from a family that “speaks the language” of higher education and whose normal social networks include intelligent, well-educated individuals, tend to excel in the culture of higher education. This educational achievement gap seems to be a self-perpetuating cycle, and has been found to exist in early childhood education and to grow exponentially as students age (Scales, Roehlkepartain, Neal, Kelsmeier, & Benson, 2006).

Also noteworthy is the fact that social environment was the *only* unique predictor of GPA, accounting for 9% of the variance. While nine percent is not a large portion of variance, it is remarkable that nearly one-tenth of the variance in GPA can be accounted for by a non-malleable predictor. Social relationships did not have a significant effect on GPA, but it should be noted that the measure of relationships in this study only included quantitative measures (i.e. number of close friends and hours spent in clubs). These items may not capture the quality of these relationships or the values of those closest to the participant. It is conceivable, for instance, that the GPA of those in one’s social network could predict one’s own GPA.

GPA, in turn, emerged only as a unique predictor of the Cognitive domain of *Wisdom*. This finding validates the concerns of those who assert that traditional education over-emphasizes cognition while neglecting other important developmental assets (Gardner, 1983; Goleman, 1995; Sternberg, 2003). GPA is often treated as a stand-alone measure of academic performance and has been shown to be a good predictor of future success in higher education (Robbins et al. 2004). Though GPA is not a direct

measure of intelligence, it is highly correlated with IQ, SAT and ACT scores, all of which are common indicators of cognitive competence (Coyle & Pillow, 2008). Several studies have linked other assets to academic achievement, including measures of emotional intelligence (Parker, et. al, 2002; Pritchard, 2003), and personality traits (Ridgell, 2004; Laidra, Pullman, & Allik, 2006), but cognitive measures commonly account for the largest measure of variance in GPA (Robbins, et. al, 2004).

The Cognitive domain of *Wisdom*, while conceptually related to intelligence, represents a broader measure of cognition. According to Ardel (2003), the Cognitive domain includes “knowledge of the positive and negative aspects of human nature, of the inherent limits of knowledge and of life’s unpredictability and uncertainties” (p. 278). This domain includes knowledge, but also the love of knowledge and a willingness to exert considerable effort toward understanding phenomena on a deeper level. Other measures of *Wisdom* which are very closely associated with intelligence have found stronger empirical support for intelligence as a predictor (Baltes & Smith, 1990; Staudinger & Pasupathi, 2003). Staudinger and Pasupathi (2003) defined *Wisdom* as “expert knowledge in the fundamental pragmatics of life” and found that intelligence predicted 10% of the variance in *Wisdom* performance. In the current study, GPA predicted only 2.4% of the variance in the Cognitive domain. GPA was moderately related to Openness ( $r=.244$ ) and Civic Attitude ( $r= .266$ ), both of which made significant contributions to all three *Wisdom* domains. GPA, then, would appear to be the least comprehensive of the three measurements.

This study found no unique association between GPA and the Affective and Reflective *Wisdom* domains. In an effort to understand why this association was missing,

a bivariate correlation was conducted between GPA and the three *Wisdom* domains. Results indicate that GPA is related to the Affective and Reflective domains, but the relationship disappears when controlling for the effects of the Cognitive domain. Thus, the need for incorporating broad, multi-dimensional constructs in social science research should be emphasized. Studies that define *Wisdom* primarily as a cognitive function may be overlooking important related domains. Likewise, those concerned mainly with affective competencies (i.e. emotional intelligence) may not recognize the inherent association of affect and cognition. Therefore, a long-term view of human development could require the balance and integration of multiple domains.

The predictive power of GPA and other measures of cognitive performance in regards to success in adulthood are dubious at best. The classic meta-analysis conducted by Bretz (1989) reported that GPA had no significant effect on success in adulthood; a result that still lacks a substantial rebuttal. Goleman (1995) found that IQ accounted for approximately 4-10% of career success, and non-cognitive indicators often outperform intelligence in regards to leadership ability (Maulding, 2002) and life satisfaction (Livingstone & Day, 2005). If the goal of education is the improvement of experience (Dewey, 1938) and long-term well-being for individuals and the community, then it seems prudent to incorporate educational objectives and methods that ensure the cultivation of all relevant assets.

### *Social Relationships*

The current status of one's formal and informal social relationships had a significant influence on all three *Wisdom* domains and on one's civic attitude with all significant predictors in the model. This supports previous research (Bailey & Russell,

2008a; 2008b) that was conducted using similar measures. The items used to assess one's social relationships addressed the level of involvement in voluntary social clubs, attendance at religious ceremonies, number of close friends, and average amount of time spent hanging out with friends at home and in public places. These were measured by asking participants to indicate their level of involvement in each activity during the last 12 months.

It is logical that those involved in more social clubs would score higher on measures of civic attitude. A high level of civic attitude suggests the belief that adults should give back to their community and that one can make a difference in the world. Previous research has found that early involvement in voluntary organizations is a good predictor of continued service in adulthood (Astin, et. al, 1999), and service-oriented activities can increase self-efficacy (Lundy, 2007) and intentions toward future civic engagement (McGehee, 2002). The results of this study contribute to the evidence reported by previous research.

Social relationships accounted for approximately 2% of the variance in each *Wisdom* domain. While this is not a striking amount of predictive power, the balanced contribution across all domains is noteworthy. All other predictors in the model “favor” one or two of the *Wisdom* domains. Given that the new psycho-philosophy emphasizes the need for a balanced development of multiple personal domains (Sternberg, 1998), social engagement may be a valuable piece to the puzzle of holistic growth.

These findings could be interpreted within Ardel's (2003) framework of *Wisdom*, which identifies Reflection as the primary domain. Through continual engagement with others, one would necessarily need to negotiate different views and values in an effort to

work toward a common goal. In negotiating these worldviews, an individual would need to delay judgment of others and attempt to understand situations from their perspective (reflection). Doing this successfully would then provide insight into the lives of others, generating empathy (affection), and perhaps motivating the individual to investigate their own beliefs in order to reconcile conflicting information (cognition). This illustration also supports the dialectical process promoted by experiential educators (Kolb, 1984; Friere, 1993) who assert the need for interactive methods of learning.

An increase in diverse social encounters, however, does not guarantee positive outcomes. Putnam (2007), for instance, found that residents of diverse neighborhoods tend to “hunker down”, resulting in lower levels of trust, altruism and cooperation. It is possible that a wise disposition could be a mediator that gleans positive results from difficult circumstances. It is also possible that wise individuals purposefully select their social environments, choosing to be involved in a variety of social contexts. It is difficult to determine which construct (*Wisdom* or Social Relationships) precedes the other when using covariance-based analyses, but the proposed model does show a strong fit for the data.

### *Demographics*

Females scored higher on measures of openness, affection and civic attitude, accounting for approximately 2% of the variance in each variable. Those who score highly on the Openness to Experience subscale of the NEO-PI are described as imaginative, curious, creative, and liberal (Costa & McCrae, 1985). Results from previous studies regarding gender differences on the NEO-PI are mixed (Lippa, 2005). Additionally, few studies have reported significant gender differences specifically for the

Openness sub-scale. With little empirical support for this finding, any justification falls into the category of speculation. It is not conceptually difficult, however, to imagine that females would be more inclined toward aesthetics and imagination.

Mabry (1998) reported a higher score for females upon the initial testing of the Civic Attitude Scale. A previous study (Bailey & Russell, 2008) also reported a strong association between females, pro-social values, and the Affective domain. Given that civic attitude represents the belief that adults should give back to the community, this construct would likely overlap considerably with pro-social values. This relationship is anecdotally supported by the nature of the Pay It Forward Tour clientele, two-thirds of whom are typically female. The association of females to affective domains also garners support from Gilligan's (1982) feminist theory of moral development, which asserts that women think in terms of caring and relationships as opposed to males, who favor rules and justice.

Age was a weak, but significant predictor of openness to experience. The openness subscale has been shown to increase until about age 30, at which time it tends to stabilize (Staudinger & Pasupathi, 2003). Also, of interest was a significant negative relationship between age and social relationships ( $r = -.123$ ). Due to the nature of the sample, the age range was only eight years ( $M = 21$ ), which does not allow for a detailed analysis of the contribution attributable to age. However, previous research indicates that wisdom-related knowledge increases sharply between the ages of 15 and 35 (Baltes, Gluck & Kunzmann, 2005). While this study utilizes a different measure of *Wisdom*, it is surprising that an eight-year age difference within this vital period of development would

have no direct effect on *Wisdom* domains. This is perhaps another point of contention regarding the conceptualization of the *Wisdom* construct (Ardelt, 2004; Baltes, 2004).

### *Civic Attitude*

Civic attitude was measured with the use of a five-item scale developed by Mabry (1998). This is the only construct in the model not directly mentioned as a predictor of *Wisdom* in previous research. It was included based upon its theoretical relevance to the findings reported by Kunzmann and Baltes (2003). In a study of wisdom and leadership, they reported that wise leaders prefer a cooperative and democratic management style. Based upon these findings, it seemed reasonable that wise individuals may also value cooperative efforts to solve community problems. Additionally, civic engagement and *Wisdom* both supposedly operate for the common good (Rhoads, 1998; Baltes, Gluck & Kunzmann, 2005).

Civic attitude demonstrated a relatively strong relationship to openness in this sample ( $r = .322$ ). Even with this shared variance, all three *Wisdom* domains were affected by one's civic attitude. Though the parameter was significant, civic attitude accounted for a very small portion of the variance in the Cognitive domain (.4%). This is likely due to the effects of other predictors in the model which, when combined, account for over 40% of the variance in the Cognitive domain. Nearly 9% of the variance in the Affective domain was accounted for by civic attitude. As previously discussed, this is likely due to their mutual pro-social content. Those who value helping others would likely demonstrate compassion (affection) through the medium of service (Bailey & Russell, 2008a).

Finally, civic attitude accounted for over 6% of the variance in the Reflective domain. Reflective individuals are more likely to take responsibility for their actions and their life circumstances (Ardelt, 2003). The Civic Attitude Scale measures one's "attitude toward the responsibility to help others and solve societal problems" (Bringle, Philips, & Hudson, 2004, p. 197). The common factor here would appear to be responsibility. Thus, those who acknowledge their role in the scheme of things and accept the task of working to improve circumstances for themselves and others, would likely score higher in both domains. These constructs may also be related to Locus of Control and Self-Efficacy (Bandura, 1977), since they all hinge on the individual's belief that they can make a difference in the world. Future research could help determine their true association.

#### *Openness to Experience*

Openness to new experiences, as measured by a 12-item subscale of the NEO-PI, was the strongest predictor of overall *Wisdom* in the current study. Over 30% of the variance in the Cognitive domain was accounted for by openness to experience. Previous research has identified openness as an antecedent to wisdom-related performance in adolescence (Staudinger & Pasupathi, 2003). However, in this previous study, personality accounted for only 5% of the variance, while crystallized intelligence accounted for 9%. The methods utilized by Staudinger and Pasupathi (2003) emphasize cognition, which is evident in their definition of wisdom as "expert knowledge". In the current study, variance in the Affective (7%) and Reflective (8.5%) domains was also attributable to openness.

The association of openness with measures of cognition is not new in the research. Previous studies have linked openness with general knowledge and intelligence (Furnham, Swami, Arteché, & Chamorro-Premuzic, 2008; Gignac, 2005). Other research has linked openness to self-efficacy in regards to creative and intellectual pursuits (Hartman & Betz, 2007). This relationship is likely due to a natural curiosity exhibited by these individuals, which motivates them to go beyond established norms and discover new ideas. This seems logical, given those who are open to experiencing new things would have a broader reserve of experience to draw upon when faced with complex dilemmas.

Openness, however, has also been found to hinder emotional regulation and increase the likelihood of job burnout (Ghorpade, Lackritz, & Singh, 2007). In addition, those who score high in openness may be predisposed to risky behaviors such as alcohol and drug abuse (Flory, Lynam, & Milich, 2002). These activities would appear to be opposed to any conceptualization of *Wisdom*. Emotional burnout, for instance, is akin to the “helpless helper” syndrome described by Ardel (2003). This refers to those who give unheedingly until they are no longer able to care for others or for themselves. A linear increase in openness, then, would not likely lead to an equivalent increase in *Wisdom*. Therefore, it is suggested that openness must be balanced with other assets to ensure holistic development.

The strong association of openness to the three *Wisdom* domains demands serious reflection. Other researchers (Webster, 2003) have included openness as a core *Wisdom* domain. This line of reasoning is not unwarranted, as life experience is central to most definitions of *Wisdom* (Birren & Fisher, 1990). Individuals who seek new and exciting

things are likely to amass quite a collection of experiences to draw upon. Experience, though, may be a “necessary but not sufficient” factor in the development of *Wisdom*. Webster (2003) contends that these experiences must be challenging and morally profound. Even so, a wise interpretation of these events is not guaranteed. An individual with low self-efficacy, for example, may attribute suffering to bad luck and become resigned to the fact that life is against him/her. Future research will be needed to determine which aspects of openness are central to *Wisdom*. As measured by the NEO-PI, openness is assessed with 40 items and includes six sub-domains: Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values. Given that this study used an abbreviated version of the Openness scale (12 items) these sub-domains could not be accurately measured. It is likely that certain items in the Openness scale overlap considerably with items in the 3DWS (Ardelt, 2003).

### Longitudinal Conclusions

Previous studies have reported significant increases in *Wisdom* domains for participants of the Pay It Forward Tour (Bailey & Russell, 2008a; 2008b). These studies included only two assessments, immediately before and after the service-learning experience. There were no follow-up measures, nor was there a control group for either of the previous studies. The primary focus of the current study was to determine the long-term effects of the PIFT when compared with the growth trajectories of comparable non-participants. In addition, this study investigated the effects of predictors on the growth trajectories of the PIFT participants over the course of five weeks. Presented first is a discussion of the difference in growth patterns for the treatment and control groups.

This is followed by a discussion of participant growth trajectories and the variables identified as salient for positive growth in *Wisdom*, Openness, and Civic Attitude.

#### *Treatment and Control Group Comparison*

As measured by the 3DWS, *Wisdom* is defined as the integration of affective, cognitive, and reflective personal traits (Ardelt, 2003). There is much debate about constancy and change in personality research. Freudian theorists argue that personality becomes set in early childhood (Fenichel, 1945), while others attest to its malleability even in the latest stages of life (Field & Millsap, 1991). The prevailing opinion, based on a variety of empirical studies, is that personality traits are relatively flexible until advanced adulthood (about age 50), at which time they tend to stabilize (Caspi & Roberts, 1999). The participants in this study are well below this presumed age of stabilization, lending support to the potential for change.

In addition, researchers have identified several mechanisms that may induce personality change, including: Environmental Contingencies (i.e. social punishments or reinforcements), Reflection on one's own actions, Modeling by respected peers or leaders, and Feedback from others (Caspi & Roberts, 1999). Reflection, modeling, and feedback are inherent components of the Pay It Forward Tour which are intentionally facilitated on a regular basis throughout the experience. Environmental contingencies include new social roles and new social environments that would require adaptation. A service-oriented experience incorporating a diverse group of students would seem to meet these criteria. Given the age of this sample and the nature of the PIFT experience, it is logical to presume that a significant change in personal attributes could occur.

*Growth Toward Wisdom.* The two groups demonstrated different growth trajectories for two of the three *Wisdom* domains. Scores for affection and reflection increased for the treatment group but decreased for the control group. Both groups reported decreases in cognition over the course of five weeks. There was no difference in results for control group participants based on their primary Spring Break activity (i.e., work, travel, rest). No control group members indicated service activities as their primary activity over the break. It should be noted that all three domains increased significantly from pre-test to post-test measurement for the treatment group. The decline in cognition for the treatment group, then, would appear to be the result of circumstances encountered after the PIFT.

It is unclear what would have caused such a decrease in cognition for all students during this time period. One explanation is that the first test was conducted immediately before Spring Break, while the follow-up measure was administered immediately before final exams. Given that the Cognitive domain assesses one's willingness to expend significant effort to understand phenomena on a deep level, this could be indicative of a decline in intellectual enthusiasm. Theorists have criticized traditional methods of education which utilize extrinsic forms of motivation (i.e. grades on a test) to coax students into rote memorization (Atherton, 2005). Such methods often invoke feelings of drudgery, the effects of which could be a decline in cognitive functioning.

The control group also exhibited substantial declines in affection and reflection. These findings are consistent with the results of the SEM analysis reported previously. Researchers have asserted for decades that traditional forms of education neglect the development of domains other than cognition (Gardner, 1989; Goleman, 1995). The

SEM analysis verifies the lack of influence GPA on other domains, demonstrating that those with higher GPAs do not necessarily display more compassion or reflectivity. These longitudinal findings indicate that the circumstances a typical student encounters during the college semester may inhibit the growth of *Wisdom*.

The actual cause of these declines cannot be ascertained from the variables assessed in this study, but these results do merit further investigation. Lundy (2007) reported similar results for students enrolled in an introductory Psychology course. Students assigned to a service-learning project demonstrated higher test scores, and greater empathy than students who were assigned an interview or a report project. Those not in the service-learning group exhibited decreases in empathy scores. The service projects for Lundy's study required weekly engagements with community organizations (2 hours each) for the duration of the semester. The interview assignment was essentially a qualitative research assignment requiring three, one-hour interviews to be conducted on individuals across the lifespan. The interview and service projects both required personal interaction and reflective analysis. Lundy offered no clear explanation for the divergent group trajectories, but it would appear that empathy could have been moderated by the duration and intent of the personal contact. It is possible, for instance, that the nature of a service-oriented assignment could affect the attitude with which the student approaches the task. Conducting an assignment in the "spirit of service" could influence the students' perspectives. This servant perspective would not likely be invoked through interview or archive-based research.

Additional insight can be gleaned from the post-trip instrument completed by the trip participants. The supplemental survey designed with the input of STLFL leaders asked

participants to rate each trip component as to its importance for development in affection, cognition, and reflection. The “service activities” and “relationships” were rated highest across all three domains. Services activities included helping others, working toward a common goal, and taking charge of work projects. Relationships included informal conversations with diverse participants and community members. This combination of serving others and interacting with diverse groups may be a recipe for stimulating progress toward *Wisdom*.

The average college student would likely interact with a variety of individuals in and out of the classroom. This interaction, though, would be more akin to “bonding” social capital, which implies a strengthening of the bonds within one’s chosen social circles (Putnam, 2003). Even if these students are assigned to work groups with individuals they particularly dislike, they only have to endure the interaction for a short period of time. The Pay It Forward Tour places individuals in a social environment where intense interactions are the norm. As expressed by one participant, “For the most part, you cannot say anything you want while on the trip because you have to live with these people for 8 days and you want to make sure that you do not step on any toes.” In these situations, there is little choice but to address relational issues. This negotiation of diverse values and opinions, more akin to “bridging” social capital (Putnam, 2003), may represent one of the key differences in the types of social engagement encountered by PIFT participants and the average college student.

As previously mentioned, significant increases were reported for all domains by PIFT participants immediately after the trip. While the Affective and Cognitive domains scores dropped down to previous levels within a month of the experience, gains in the

Reflective domain remained constant. Participants rated relationships as the strongest contributor to growth in reflection. These relationships often continue well beyond the bounds of the trip experience. One participant noted, “I meet up with people from my bus all of the time and definitely have made friends who are going to stay with me for a long time”. Similar comments were expressed by many PIFT participants when asked about tangible outcomes of the trip one month after the experience. These relationships, which are founded upon the common bond of service, would represent another key difference in the social milieu of trip participants as opposed to that of the typical college student. This assertion is consistent with the results of the SEM analysis, which identified formal social relationships as a key indicator of all three *Wisdom* domains. A change in quality and quantity of social engagement could explain a portion of the variance in retained outcomes.

*Civic Attitude and Openness.* Both groups reported increases in Civic Attitude over the course of five weeks. However, the gains reported by trip participants were three times as strong as those reported by the control group. Increased civic values are a central goal expressed by most service-learning programs (Mabry, 1998), and are a key component of the STLF mission. Participants commonly mentioned civic outcomes as the most important thing they learned from the trip experience. A few examples of these perceived learning outcomes include: “Helping others can make a huge difference,” “Learning how rewarding it is to help other people,” and “The importance of giving back.” These responses give support to the quantitative findings, which indicate that PIFT participants experienced positive changes in civic attitudes, values, and efficacy that endured for at least one month after the trip.

Participants were not specifically asked which trip components contributed most to their growth in civic attitudes or openness, but the feedback from open-ended questions on the final instrument provides some insight. Those who mentioned civic-related outcomes as the most important thing learned seemed to attribute this learning to a heightened awareness and sense of efficacy in serving others. One comment exemplifies this idea exceptionally well: “I have done many volunteering activities throughout my life, but it wasn’t until we as an entire group pulled out 19 tons of garbage out of the creek in Washington D.C. that I realized how my individual actions helped contribute to the cause. It was sort of a revelation, and now it is easy to see how I can and will change the world through my actions.” Similar comments echoed this response, describing a new awareness of how small actions can make a huge difference and expressing a commitment to serve in the future.

Openness scores also increased for PIFT participants while decreasing for the control group. This finding is of particular interest because of the high correlation ( $r = .552$ ) between openness and cognition. While cognitive scores decreased for both groups, the group trends for openness were divergent. This indicates that, though openness predicts 30% of the variance in the Cognitive domain, the two constructs are unique enough to show opposing trends. It would appear that something within the PIFT experience, or perhaps a lifestyle change after the experience, spurs growth in the unique portion of openness without contributing to growth in cognition. It is difficult to determine what that unique portion may represent from the data collected for this study, but the open-ended responses gathered on the final instrument shed some light on the subject.

In addition to intellectual curiosity, those who are open to new experiences also tend to be more trusting, more adventuresome, and more mindful (Flory, Lynam, & Milich, 2002). An increase in these characteristics might be demonstrative of an increase in openness without an increase in cognition. Several responses were given that represent characteristics of openness as the most important thing learned on the trip. Some of these responses included: “How to be more open and outgoing with others,” “to be okay with being in new, uncomfortable situations,” and “to listen and pay attention”. When describing how they learned these things, participants stated for example: “the silly games as well as the expressive reflection activities aided in teaching me about being ‘comfortable with being uncomfortable’,” and “I met some amazing people on the trip and to not open up myself to them and offer my friendship risking pride and embarrassment I would be unable to experience these wonderful friendships forever.”. One final quote clearly expresses this growth in openness: “The spontaneous events on the tour taught me that small obstacles or unplanned events aren’t always bad. I normally planned my life out in lists, and now I trust others more and understand that a missed turn on the interstate is not a tragedy but instead an opportunity for an adventure and running into a great, small town grocery store.”

An increase in trust, adventurousness, and mindfulness would not necessarily affect the Cognitive domain. The mechanism of learning is not easy to identify, as respondents attributed their increases to a variety of experiences. It is clear, though, that these increases were attributed to experiences, encounters, or social norms which are a part of any typical PIFT. Whether openness was learned from games, reflection activities, conversations on the bus, or logistical obstacles, the opportunity for growth

was provided by the novel experiences in a novel social environment. These opportunities may not be provided in the course of a normal school semester, but are central to experiential programs (Walsh & Golins, 1976; Lakin & Mahoney, 2006)

In sum, the treatment group demonstrated marked improvement for three of the five outcome measures, while the control group decreased in all but one measure. Though it is difficult to attribute these outcomes solely to the influence of the PIFT, this study provides strong evidence for the positive influence of the service-learning program. Participants reported lasting, significant increases in Reflection, Openness, and Civic attitudes after the trip experience. Future research could help determine the reason that Cognitive and Affective domains did not remain significant for the treatment group, and why a control group of comparable college students would report declines in *Wisdom* and Openness.

#### Latent Growth Analysis (LGA).

Having measured the PIFT participants on three occasions, it was possible to conduct a LGA to determine which predictors were most influential in growth trajectories for *Wisdom*, Civic Attitudes, and Openness over the course of five weeks. The relationship of the predictors to the “Intercept” variable is equivalent to a cross-sectional analysis, which has already been discussed using the SEM analysis. This section addresses the influence of each predictor on the “Slope” variable and the relationship of the Intercept and Slope for each dependent variable.

Upon inspection of Table 4.21, one can observe that, in general, those who began with a higher score for each independent variable also demonstrated lower growth trajectories for each outcome variable. Social relationships, for example, were positively

related with the intercept for the Affective domain. This indicates that those who began the program with higher levels of social interaction also reported higher levels of affection. However, social relationships were negatively related to the slope for the Affective domain, indicating that those who began with higher levels of social interaction demonstrated lower levels of growth in affection. This phenomenon may be referred to as a “regression to the mean”; a leveling of the playing field that is not uncommon in educational interventions, and is often the expressed intent of such programs. This is the case for most predictors in Table 4.21, as illustrated by a positive relationship to the Intercept and a negative relationship to the Slope of each dependent variable (or *visa versa*).

Of particular interest is the result of Personal Reflection habits. This predictor was measured with a single item which asked the participant how often they take intentional time for personal reflection on a weekly basis. Those with the highest scores take time out daily to journal, meditate, or participate in some other type of quiet reflection. This predictor was included in the model as an indicator of one’s tendency toward life review, a characteristic identified as central to wisdom-related performance (Baltes & Smith, 1990).

Those who spent more time in Personal Reflection on a regular basis reported higher initial scores in all *Wisdom* domains, though this relationship only achieved marginal significance. Those with higher levels of personal reflection also demonstrated stronger growth in *Wisdom* over the course of five weeks. There seems to be something unique about those who set aside daily reflection time that generates *Wisdom* in daily life *and* enables them to maintain the outcomes of significant experiences for a longer time.

In addition, Personal Reflection was positively related to the initial status *and* growth rate of participants for Openness to Experience. Gender and Personal Reflection time were the only significant predictors of Wisdom and Openness, and accounted for a substantial amount of variance in the slope for each variable (63.4%, and 19% respectively).

This could have powerful implications in a world where time is becoming a scarce commodity (DeGraaf, 2003). Educators and programmers should seriously consider how to encourage the simple activity of daily reflection. The importance of reflection upon experience has been heralded by experiential educators (Dewey, 1938; Friere, 1993; Kolb, 1984), but reflection is often described as a very abstract mental technique and illustrated by all manner of complicated models. It may be more beneficial to encourage the simple habit of reflecting daily, by any means, in order to cultivate a thoughtful awareness of oneself and their experience.

Demographic effects could be important in regards to future program design. There was no effect for age on any of the dependent variables in the current study. The PIFT was equally effective for 18 year old participants as it was for 26 year olds. Males demonstrated a higher level of growth in all outcomes, having started with lower scores than females. It is unclear why males would report stronger levels of growth over the course of five weeks, but future research could explore the difference in outcomes due to gender. Finally, those from a less supportive social environment demonstrated stronger growth in civic attitudes, perhaps an indicator of higher levels of efficacy as a result of seeing the difference a small group of students can make.

## Conclusions and Implications

This study presents substantial evidence for the positive effects of a service-learning tour designed as an alternative Spring Break experience for college students. The trip participants reported increases in overall *Wisdom* scores and in measures of Openness and Civic Attitude immediately after the experience. These increases remained significant one month after the program. A comparable group of college students who did not participate in such an experience demonstrated decreases in all variables with the exception of Civic Attitude.

These findings have important implications for the fields of education and recreation. Experiential methods of education are often referred to as “supplemental” education (Cremin, 1990), implying that they are of secondary importance to formal methods. As such, out-of-school programming may be supported “secondarily” in regards to policy and funding decisions. In light of the psychological reform (i.e. positive psychology and prevention science) perhaps it is time to reconsider the aims of education as well. Positive psychology requires a conceptualization of ideal human functioning to serve as a guide for optimal human development (Seligman & Csikszentmihalyi, 2000). No author has conceptualized ideal functioning as intelligence alone. It is unfortunate, then, that public education is still driven mainly by cognitive-based assessments. Concerns over cognitive achievement gaps should be echoed by equal concerns over a lack of compassion and reflectivity among modern youth and emerging adults.

The techniques of experiential programs such as the PIFT should be valued and implemented into the educational mainstream. Many colleges are beginning to include a community-service requirement for all degree programs. This is a step in the right

direction. However, community-service is often mandated on top of all other requirements, increasing the likelihood that it will be completed begrudgingly. Industrialized cultures advance at increasingly rapid rates, and there is no question that students must be brought up to speed on the latest discoveries. The purpose of this study is by no means to undermine the value of formal education. However, in light of the results of this research and of the many other studies described, it seems appropriate to include experiential education as a viable option, or even a substitute, for certain traditional courses.

Despite mounting evidence of the efficacy of experiential programs, educational policy-makers remain reluctant to mainstream these techniques. Much of the problem may be attributed to a fragmented message and a lack of practical assessments. The experiential programmer's voice may be diffused by inefficient use of language. The effects of experiential programs have been documented extensively, but the outcomes are often reported as a loosely connected set of assets that may or may not add up to positive long-term development. Self-esteem and optimism are two examples of positive assets that are currently being critically investigated (Twenge, 2007; Puri & Robinson, 2007). Researchers assert that, though these are desirable traits, a linear increase in these traits alone could lead to negative outcomes such as narcissism and inappropriate risk-taking. The current emphasis placed upon evidence-based practice may exacerbate the problem by encouraging programs to report findings while neglecting to determine how these findings contribute to a long-term vision of human development.

Broader, multi-dimensional outcome measures may help to address some of these concerns. *Wisdom*, for example, incorporates a broad set of assets that provide an

intrapersonal system of “checks and balances”. An increase in cognition should be balanced by increases in other assets, such as affection and reflection. The sub-domains of *Wisdom* are broad constructs as well, under which a variety of positive assets may be aligned. As such, *Wisdom* could provide a balanced structural framework through which many other assets can be organized. In this way, the fragmented list of outcomes associated with experiential education can be integrated into a framework of positive human development, and these outcomes can be substantively compared to other methods of education.

This united voice could provide the motivation to reconceptualize the aims of education. Then the means of education could be informed by a clear picture of the desired end; an end measured by individual and social well-being, not merely by cognitive-based tests. In the words of Peter F. Drucker, “There is nothing so useless as doing efficiently that which should not be done at all.” Efficient methods of education do little good without a vision of their purpose. Future research should be done to determine how published outcomes fit within this framework of human development.

Another barrier to this reconceptualization is the problem of assessing positive, long-term human development. This study provides some insight into one possible method of measuring growth in critical domains. Other methods of evaluating *Wisdom* involve highly controlled, lab-based experiments that are of limited value to the greater public (Baltes & Staudinger, 1996; Staudinger & Pasupathi, 2003). The results of this study verify the use of self-report measures by confirming the findings of those highly-controlled studies. Intelligence and openness to experience, for instance, emerged as important predictors of *Wisdom* in adolescents, substantiating the results reported by

Staudinger and Pasupathi (2003). Future research could be done to determine the validity of repeated self-report measures, and investigate the use of other minimally-intrusive methods of assessing growth toward *Wisdom*.

This study also utilizes a new technique for the analysis of the *Wisdom* construct. Previous research has utilized linear regression, analysis of variance, and structural equation modeling to determine differences in *Wisdom* traits and performance (Baltes & Staudinger, 1996; Ardelt, 2000; Webster, 2003). These analyses are mean-based, utilizing group averages to determine growth trajectories. In addition, they do not account for dynamic growth within multi-dimensional constructs (Kline, 2005). Using the technique of Latent Growth Analysis allows for the observation of factor-shifting within the *Wisdom* construct over time and enables the analysis of predictors on individual growth trajectories. It was this technique that revealed the importance of personal reflection time for the growth of *Wisdom* and for the retaining of educational outcomes. This type of analysis will become increasingly important as the use of multi-dimensional constructs proliferates in the social sciences. Future research could be done to determine other predictors of growth in *Wisdom* and to gain a better understanding of the dynamics within the *Wisdom* construct. For example, one could investigate if reflection is truly the exclusive hub of *Wisdom* (Ardelt, 2003), or if other domains can be primary in various contexts.

Future research is needed to verify the comparative influence of one's social environment and social relationships on *Wisdom*. While the association of social capital and *Wisdom* has been established, the measures used have only assessed quantities of social engagement (Bailey & Russell, 2008a; 2008b). It still remains to be determined

which *types* of engagement are most salient for each domain, and whether the *quality* of that engagement is a factor. As the measures of social environment in this study mainly dealt with intellectual support, future research could determine if there are other factors in one's family environment that influence *Wisdom* domains. These other factors might include quality of family communication, daily routine (work & leisure habits), family structure (i.e. broken families, siblings), and the social habits of one's parents.

There is much work to be done regarding the conceptualization and measurement of *Wisdom*, and the promise of experiential education in fostering its development. This study provides strong evidence for the cultivation of *Wisdom* with the use of a service-learning experience. These results, though, are far from being the final word. New techniques will surely arise that prove more appropriate, and the definition of *Wisdom* will not likely go unchanged. It is vital that the search go on. The measurement of intangible constructs is no easy task, but neglecting to incorporate them into the "model" is much more hazardous. A future of meaning and fulfillment can only come through the continual search for and discovery of the truth behind the experience. "As to the causation of the feeling of meaninglessness, one may say...that people have enough to live by but nothing to live for; they have the means but no meaning (Frankl, 2006, p.140)." To provoke this search is perhaps an educator's greatest task.

*"No matter how ridiculous, the attempt to bridge between science and religion, between human greed and nature's need, between what is and what ought to be, has to go on if we are to make sense of what is happening in such a way that humanity is to survive."*

(Csikszentmihalyi & Rathunde, 1990, p.43)

## APPENDIX A. PARTICIPANT CONSENT FORM

By filling out this survey you are accepting the invitation to be involved in a research study on the Pay It Forward Tour conducted by Keith C. Russell, Ph.D., and Andrew Bailey, M.S., at the University of Minnesota. Please read this form and direct any questions to the STLF leaders or call or email the investigators before completing the survey.

Background Information: The purpose of this study is to evaluate the psycho-social benefits associated with participation in the Pay It Forward Tour (PIFT).

Procedures: If you agree to be involved in this study, we would ask that you fill out this questionnaire before and after the PIFT. These surveys will require approximately 20 minutes to complete.

Risks and Benefits of being in the study: This study includes personal questions that may make some participants feel uncomfortable. Participation in this study is entirely voluntary and you are free to neglect certain questions or terminate the study at any time.

Examples of a personal question include:

1. *When I look back on what has happened to me, I can't help feeling resentful.*
2. *I often have not comforted another when he or she needed it.*

There are no direct benefits to participation in this study.

Confidentiality: The records of this study will be kept private and any reports that may be published will not include information that would make it possible to identify a participant. Research records will be stored securely and only researchers will have access to them. Participants will be identified by a random number identification and the names of subjects will not be attached to the identification number.

Voluntary Nature of the Study: Participation in this study is voluntary. Refusal to participate will not affect your current relationship with the University of Minnesota or the STLF. You may neglect certain questions or withdraw participation at any time.

Contacts and Questions: The researchers conducting this study are: Dr. Keith C. Russell and Andrew Bailey. If you have any questions you are encouraged to contact them at the University of Minnesota, (612-626-4280). [krussell@umn.edu](mailto:krussell@umn.edu), or [baile270@umn.edu](mailto:baile270@umn.edu).

Statement of Consent:

I have read the above information and I consent to participate in this study.

Name (Please Print clearly): \_\_\_\_\_ Date: \_\_\_\_\_

## APPENDIX B. PRE-TRIP QUESTIONNAIRE

**Please Circle the appropriate answer below.**

1. What is the highest level of education that your father obtained?  
A) High School B) Some College C) B.S./B.A D) Master's E) PhD or other
2. What level of education did your mother obtain?  
A) High School B) Some College C) B.S./B.A D) Master's E) PhD or other
3. In general, how many intellectual interests would you say your parents have?  
A) Few B) Some C) Many D) Very Many
4. What level of education do you plan on obtaining?  
A) Some college B) B.S./ B.A. C) Master's D) PhD or other terminal degree
5. How many non-mandatory clubs/ groups/ organizations are you involved in?  
A) None B) 1-2 C) 3-4 D) 5-6 E) more than 6
6. How many people in your life would you consider to be *very important* to you?  
A) 0-1 B) 2-4 C) 5-8 D) 9-12 E) More than 12
7. How many times in the past 12 months have you?

	Never	Once	2-4 Times	5-9 Times	10-15 Times	>15 Times
▪ <b>Volunteered?</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
▪ <b>Attended religious services?</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
▪ <b>Had friends over to your home?</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
▪ <b>Hung out with friends in a public place?</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>

**To what extent do you agree or disagree with the following statements:**

- |                   |       |         |          |                      |
|-------------------|-------|---------|----------|----------------------|
| 1                 | 2     | 3       | 4        | 5                    |
| Strongly<br>Agree | Agree | Neutral | Disagree | Strongly<br>Disagree |
2. \_\_\_\_\_ People, regardless of whether they've been successful or not, ought to help others.
  3. \_\_\_\_\_ Individuals have a responsibility to help solve our social problems.
  4. \_\_\_\_\_ I feel that I can make a difference in the world.
  5. \_\_\_\_\_ It is important to help others even if you don't get paid for it.
  6. \_\_\_\_\_ In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.
  7. \_\_\_\_\_ I am annoyed by unhappy people who just feel sorry for themselves.
  8. \_\_\_\_\_ Life is basically the same most of the time.
  9. \_\_\_\_\_ People make too much of the feelings and sensitivity of animals.
  10. \_\_\_\_\_ You can classify almost all people as either honest or crooked.
  11. \_\_\_\_\_ I would feel much better if my present circumstances changed.
  12. \_\_\_\_\_ There is only one right way to do anything.
  13. \_\_\_\_\_ There are some people I know I would never like.
  14. \_\_\_\_\_ It is better not to know too much about things that cannot be changed.
  15. \_\_\_\_\_ Things often go wrong for me by no fault of my own.
  16. \_\_\_\_\_ Ignorance is bliss.
  17. \_\_\_\_\_ I can be comfortable with all kinds of people.
  18. \_\_\_\_\_ A person either knows the answer to a question or he/she doesn't.
  19. \_\_\_\_\_ It's not really my problem if others are in trouble and need help.
  20. \_\_\_\_\_ People are either good or bad.
  21. \_\_\_\_\_ I try to look at everybody's side of a disagreement before I make a decision.
  22. \_\_\_\_\_ If I see people in need, I try to help them one way or another.
  23. \_\_\_\_\_ When I'm upset at someone, I usually try to "put myself in his or her shoes" for a while.
  24. \_\_\_\_\_ There are certain people whom I dislike so much that I am inwardly pleased when they are caught and punished for something they have done.
  25. \_\_\_\_\_ I always try to look at all sides of a problem.
  26. \_\_\_\_\_ Sometimes I feel a real compassion for everyone.
  27. \_\_\_\_\_ I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
  28. \_\_\_\_\_ When I look back on what has happened to me, I can't help feeling resentful.
  29. \_\_\_\_\_ I often have not comforted another when he or she needed it.
  30. \_\_\_\_\_ A problem has little attraction for me if I don't think it has a solution.

1 Strongly Agree	2 Agree	3 Neutral	4 Disagree	5 Strongly Disagree
------------------------	------------	--------------	---------------	---------------------------

31. \_\_\_\_\_ I either get very angry or depressed if things go wrong.
32. \_\_\_\_\_ Sometimes I don't feel very sorry for other people when they are having problems.
33. \_\_\_\_\_ I often do not understand people's behavior.
34. \_\_\_\_\_ Sometimes I get so charged up emotionally that I am unable to consider many ways of dealing with my problems.
35. \_\_\_\_\_ Sometimes when people are talking to me, I find myself wishing that they would leave.
36. \_\_\_\_\_ I prefer just to let things happen rather than try to understand why they turned out that way.
37. \_\_\_\_\_ When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.
38. \_\_\_\_\_ I don't like to get involved in listening to another person's troubles.
39. \_\_\_\_\_ I am hesitant about making important decisions after thinking about them.
40. \_\_\_\_\_ Before criticizing somebody, I try to imagine how I would feel if I were in their place.
41. \_\_\_\_\_ I'm easily irritated by people who argue with me.
42. \_\_\_\_\_ When I look back on what's happened to me, I feel cheated.
43. \_\_\_\_\_ Simply knowing the answer rather than understanding the reasons for the answer to a problem is fine with me.
44. \_\_\_\_\_ I sometimes find it difficult to see things from another person's point of view.
45. \_\_\_\_\_ I don't like to waste my time daydreaming.
46. \_\_\_\_\_ Once I find the right way to do something, I stick to it.
47. \_\_\_\_\_ I am intrigued by the patterns I find in art and nature.
48. \_\_\_\_\_ I believe letting students hear controversial speakers can only confuse and mislead them.
49. \_\_\_\_\_ Poetry has little or no effect on me.
50. \_\_\_\_\_ I often try new and foreign foods.
51. \_\_\_\_\_ I seldom notice the moods or feelings that different environments produce.
52. \_\_\_\_\_ I believe that we should look to our religious authorities for decisions on moral issues.
53. \_\_\_\_\_ Sometimes when I am reading poetry or looking at a work of art, I feel a

Chill or wave of excitement.

54. \_\_\_\_\_ I have little interest on the nature of the universe or the human condition.
55. \_\_\_\_\_ I have a lot of intellectual curiosity.
56. \_\_\_\_\_ I often enjoy playing with theories or abstract ideas.
- 
1. Gender. Circle one:            M            F
2. Age: \_\_\_\_\_
3. Which college are you currently attending? \_\_\_\_\_
4. Year in school. Please indicate Undergraduate or Graduate:  
\_\_\_\_\_
5. How many Leadership-related courses have you taken? If you are currently enrolled, please count that as one course. Circle one:  
                  0                    1-2                    3-5                    6+
6. Have you had a significant service-related experience, (not STLF)? Circle one:  
                  YES    NO
- a. If YES, please indicate the trip or program: \_\_\_\_\_
7. How many times have you traveled outside of North America? Circle one:  
                  0                    1-3                    4-7                    8+
8. How many non-STLF extra-curricular activities do you participate in on campus?  
                  0                    1-3                    4-7                    8+
9. Of these activities, how many do you have leadership roles in? Circle one:  
                  0                    1-3                    4-7                    8+
10. Are you an international student? Circle one:                    YES                    NO
11. Do you plan on pursuing advanced degrees? Circle one:  
          No Way            I'll think about it            Probably            Of course
12. Do you plan on working in a field related to education? Circle one:  
          No Way            I'll think about it            Probably            Of course

13. Do you plan on working in a field related to nonprofits? Circle one:

No Way      I'll think about it      Probably      Of course

14. Would you like to learn more about AmeriCorps programs? Circle one:

YES    NO

## APPENDIX C. POST-TRIP SURVEY SUPPLEMENT

The STLF program is made up of many different elements. Please rate each of the elements below as to their importance in helping you grow in the following areas:

1. **Compassion:** Care and concern for others.
2. **Deep Understanding:** A willingness to confront difficult issues and wrestle with them in order to achieve a deeper understanding.
3. **Introspection & Perspective-taking:** Self-awareness and the ability to view things from various perspectives.

(Circle one for each column) 1= Not at all important 5= Extremely Important

ELEMENTS	1) Compassion & Empathy	2) Deep Understanding of life	3) Introspection & perspective-taking
Diversity of Trip Participants	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Informal Conversations with Participants	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Conversations with Community Members	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Ice-breakers and Games	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Opportunity to take charge of projects	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Working with others for a common goal	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Helping others in need	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Being away from my daily routine	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Seeing new places	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Personal quiet times	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Group discussions	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Structured reflection activities	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
The direction of the STLF leaders	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Personal discussions with STLF leaders	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

The example set by the STLFL leaders	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Other: (Please Specify)	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

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