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Generativity Development of College Students Who Mentor

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GENERATIVITY DEVELOPMENT OF COLLEGE STUDENTS WHO MENTOR

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GENERATIVITY DEVELOPMENT OF COLLEGE STUDENTS WHO MENTOR

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Research has shown that college students who mentor demonstrate higher levels of generativity than other college student leaders and general college students; yet, it is unclear whether college student mentors develop generativity over time as a result of their mentoring experience or enter a mentoring relationship because their generativity is already well-developed. This study compared the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college students who mentor. Three quantitative generativity measures were used to collect data from a sample a total of 135 college student mentors completed the same three generativity measures and their scores were compared across age cohorts. Cross-sectional MANCOVA analysis revealed a non-significant statistical relationship between years spent mentoring and generativity level for college student mentors after controlling for gender. During the second data collection, the generativity levels of 45 college student mentors were quantitatively measured at two time points, approximately one year apart. Repeated measures MANCOVA data analysis revealed a non-significant statistical change in generativity scores for college student mentors during a one-year time period after controlling for gender. The results from this analysis had limited interpretability due to an insufficient sample size and a lack of power to fully identify a main effect. The findings from the present study substantiate the idea that a college student may seek out a mentoring opportunity because he or she possess a significantly

higher level of generativity than other college students upon entering a mentoring relationship.

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CHAPTER 1

Introduction

Between 2010 and 2060 the United States will transfer $75 trillion from older generations to younger generations (Macke, Markley, & Binerer, 2011). The leadership landscapes of American industries are set to change as an estimated 10,000 Baby Boomers will reach retirement age each day until 2030 (Martinek, 2008). Furthermore, individuals 45 years of age or older held 55% of all management occupations in the 2017 United States workforce (U.S. Bureau of Labor Statistics, 2017). As these business and industry leaders reach retirement age, the United States will transfer over half of its management positions to younger generations. Such a massive transfer of wealth and leadership poses an increased risk of knowledge loss in the workforce as the number of people aged 65 or older will double between 2010 and 2030 (Cummings-White & Diala, 2013). Current industry leaders who desire future success for their businesses and companies need an effective strategy to ensure the new leaders will care for and protect their organizations for generations to come. In order to promote a successful transfer of wealth and leadership during the Baby Boomer exodus from the workforce and to ensure new leadership proceeds in a socially responsible manner, the development of generativity, defined as "primarily the concern in establishing and guiding the next generation" (Erikson, 1950, 1963, p. 267), will be critical.

Generativity is an important feature of personal life-cycle development (Ackerman, Zuroff, & Moskowitz, 2000; de St Aubin & McAdams, 1995; McAdams & de St. Aubin, 1992; Peterson & Stewart, 1993, 1996). Some scholars even claim that generativity is "the basis of existence and evolution of civilization" (Huta & Zuroff,

2007) because it allows future generations to shape and mold an ongoing society (Imada, 2004). Erik Erikson (1950, 1963) pioneered the theory of generativity as the seventh of eight stages in his psychosocial development model. Erikson argued that generativity peaks at midlife because adults are called upon during this life stage to care for and ensure the future success of younger generations. Erikson's work prompted significant generativity research on the midlife years (de St. Aubin, & McAdams, 1995; Mansfield & McAdams, 1996; McAdams & de St. Aubin, 1992; Peterson & Stewart, 1996). McAdams, de St. Aubin, and their various colleagues extensively studied generativity before the turn of the century (de St. Aubin & McAdams, 1995; McAdams & de St. Aubin, 1992; McAdams, Diamond, & de St. Aubin, 1997; McAdams, de St. Aubin, & Logan, 1993) and suggested that inner desires for generativity combine with cultural demands which elicits generative concern, generative action, and generative commitment in the adult years (McAdams & de St. Aubin, 1992).

A common avenue for developing generativity among adults is to bear and raise children (Erikson, 1963; Imada, 2004; McAdams & de St. Aubin, 1992; Peterson & Stewart, 1993, 1996; Snow, 2015), but other generative outlets exist, such as teaching (Kotre, 1984; McAdams & Logan, 2004), working (Peterson & Stewart, 1996), leadership (Huta & Zuroff, 2007; Komives, Owen, Longerbeam & Mainella, 2005), and mentoring (Azarow, Manley, Koopman, Platt-Ross, Butler, & Spiegel, 2003; Hastings, Griesen, Hoover, Creswell, & Dlugosh, 2015). Once individuals possess generative concern and display generative behavior, they experience increased well-being (Ackerman, Zuroff, & Moskowitz, 2000; Huta & Zuroff, 2007), life satisfaction (de St. Aubin & McAdams, 1995; Huta & Zuroff, 2007) and satisfaction in work (Peterson &

Stewart, 1996). In addition, generativity leads to social responsibility (Imada, 2004) and is the most significant predictor of social responsibility at work and in families (Rossi, 2001b). The vast majority of these generativity studies have focused on generativity in midlife and older adults. Although such comprehensive research has provided valuable insight about generativity in adults, the focus on middle-adulthood suggests an unstated assumption that younger adults either do not care about future generations or do not have the capacity for generativity until midlife (Leffel, Fritz, & Stephens, 2008).

Research Problem

Contrary to Erikson's (1950, 1963) seminal work on generativity, some studies suggest generativity is unrelated to age (Espin, Stewart, & Gomez, 1990; McAdams & de St. Aubin, 1992; McAdams, de St. Aubin, & Logan, 1993). Other research points out that young adults may be able to display generative concern as effectively as midlife adults (Ackerman, Zuroff, & Moskowitz, 2000; Peterson & Stewart, 1993). Researchers have suggested that the presence of a mentor (Espin, Stewart & Gomez, 1990) and the act of mentoring (Hastings et al., 2015) are both antecedents to generativity development for individuals before midlife. In addition to contributing to the growing field of research on generativity before the midlife years, the present study answers calls for more research on antecedents of generativity (McAdams, 2001) and generativity development over time for emerging adults (Frensch, Pratt, & Norris, 2007).

Hastings et al. (2015) specifically called for a longitudinal study of college students who mentor to test the notion that generative college students enter a mentoring role with a "seed of generativity" already planted (p. 663). A longitudinal study allowed the present researcher to examine whether college student mentors develop generativity

over time as a result of their mentoring experience or enter a mentoring relationship because their generativity is already well-developed. The current study directly answered Hastings et al.'s (2015) call for longitudinal generativity research and explored to what extent generativity developed over time for college student leaders who mentor with the Nebraska Human Resources Institute (NHRI) at the University of Nebraska-Lincoln (UNL).

Study Description

The independent variable in the cross-sectional study was age cohort, defined as the number of years in NHRI. The independent variable in the longitudinal study was time between data collections. The dependent variable was generativity level, operationally defined as scores on: (a) The Generativity Behavior Checklist (GBC; McAdams & de St. Aubin, 1992), a list of everyday actions within the three common behavioral manifestations of generativity: creating, maintaining, or offering; (b) The Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992), a 20-item self-report scale measuring generative concern that is significantly correlated with the GBC (Ackerman, Zuroff, & Moskowitz, 2000); and (c) a report of personal strivings that measures generative commitment (Emmons, 1986). The control variable in this study is gender which will be collected through participant self-report.

A repeated-measures multivariate analysis of covariance (MANCOVA) was selected for the current study to test one categorical independent variable (age cohort) and a quantitative dependent variable (generativity) while controlling for the effect of a covariate (gender). Repeated measures MANCOVA can compare differences in generativity between age cohorts as well as individual differences in generativity scores

across multiple time periods while accounting for the effect, if any, of a covariate (Mertler & Vannatta, 2002). Gender was an appropriate covariate to test in the present study because it has a documented association with generativity (Hastings et. al, 2015; McAdams & de St. Aubin, 1992; Sunderman, 2018) and therefore could have a confounding effect on generativity scores.

Purpose Statement

The purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors.

Research Question

To what extent do college students who mentor with NHRI experience generativity development over time after controlling for gender?

Significance of Study

The present study, which examined college student mentors' generativity development over time, is significant for various reasons. As the United States is poised to engage in a sizable transfer of wealth and leadership, understanding how generativity how develops over time, which experiences lead to high generativity, and the link between generativity and socially responsible leadership should influence how businesses and organizations successfully navigate succession planning. Researchers suggest the act of mentoring is one of the antecedents that leads to generativity development (Azarow, et. al, 2003; Hastings, et al., 2015) and leadership effectiveness in organizations (Priest & Donley, 2014; Ragins & Kram, 2007). The present study's focus on mentoring and generativity development should concern any current industry leaders who are interested

in understanding how to transfer wealth and leadership to a younger generation who will successfully establish and guide their organization into the future (Cummings-White & Diala, 2013; Zacher, Schmitt, & Gielnik, 2011). The present study may also reveal useful patterns and timelines for college student mentors' generativity development, specifically whether college students seek out a mentoring role because they possess high generativity or if the act of mentoring contributes significantly to generativity development over time. These patterns may help answer Son and Wilson's (2011) question about whether action or attitude comes first when engaging in volunteer work like mentoring and may inform Hastings and colleagues' (2015) notion that college student mentors have a "seed of generativity" planted when they seek out a mentoring role (p. 663).

Definition of Terms

Generativity - "Primarily the concern in establishing and guiding the next generation," (Erikson, 1950/1963, p. 267).

Generative Action - "Physical actions that promote the well-being of future generations," (de St. Aubin & McAdams, 1995).

Generative Commitment - "Taking responsibility for the next generation by making decisions and establishing goals for generative behavior," (McAdams & de St. Aubin, 1992).

Generative Concern - "A general personality tendency or interest in caring for younger and anticipated individuals," (de St. Aubin & McAdams, 1995).

Human Relations Capital - "The capacity to significantly influence the thoughts, feelings, and behaviors of others," (Dodge, 1986).

Junior Counselor - "K-12 students who were identified by their schools as having high leadership potential," (Hastings et al., 2015).

Multivariate Analysis of Covariance (MACNOVA) - A statistical method that investigates group differences among several dependent variables while also controlling for covariate(s) that may influence the dependent variables (Mertler & Vannatta, 2002).

Senior Counselor - College student mentors in the Nebraska Human Resource Institute selected on the basis of high human relations capital. The role of the counselor is to identify and develop leadership strengths in the junior counselor in order for the junior counselor to use those developed strengths to build positive relationships with others (NHRI, n.d.).

Social Responsibility - The ethical and moral obligations of the citizens of a society to each other and to society itself (Imada, 2004).

Delimitations

Delimitations are boundaries under the researcher's control that narrow the scope of the study (Baron, 2008). Due to the large number of potential participants who could identify as college student mentors, the population involved in the present study included only members of NHRI. The selection of this sample allowed the researcher the convenience and practicality of working with a readily-accessible group of college student mentors as opposed to sampling from a multi-institutional or national sample of college student mentors. As a strengths-based leadership mentoring program, NHRI may differ from other mentoring programs in its mission, mentoring approach, program outcomes, and organizational structure. NHRI student mentors applied for the program and were vetted through an interview process before being selected as a member which

may suggest they possess generative concern at the point of applying. These factors may result in the findings of the present study not generalizing to all college student mentors. Additionally, the decision to study college student mentors and not adult mentors may affect the study's generalizability to mentors outside of the college years.

Although there are many potentially confounding variables in the present study, the researcher included gender as a control variable because gender has a direct empirical relationship with generativity (McAdams & de St. Aubin, 1992). Hastings et. al (2015) and Sunderman (2018) found that gender demonstrated a significant between-subjects effect on generativity level for college student mentors. G.P.A. range and college major are two other potential confounding variables in the study. McAdams' (2001) found that generativity is positively related to level of education and it can be reasonably argued that students with a higher G.P.A. will pursue more advanced degrees. In addition, a few items on the LGS ask about passing along knowledge or doing the work of a teacher, creating the possibility that students with certain majors, such as education, may score these questions higher than students with other majors. However, neither G.P.A. range or college major demonstrated significant effects on generativity level for college student mentors (Sunderman, 2018), thus are not included in the present study. Although the decisions to include and exclude certain variables were grounded in research, the inclusion of gender and exclusion of other potentially confounding variables may affect the findings of the current study.

Limitations

Limitations are factors beyond the researcher's control that affect the design and generalizability of the results of the study (Baron, 2008). The present study used a

convenience sample, which decreased its generalizability to other college student mentors (Little, 2013). The sample of NHRI college student mentors was an intact group, meaning random assignment was not used. The lack of random assignment impacted the internal validity of the study due to a lack of initial equivalence. Without random assignment, the researcher cannot take pre-existing factors and other influences into account which affects the ability to draw conclusions about causality (Shadish, Cook, & Campbell, 2002). In any longitudinal design, exposure to specific events outside of the experimental variable can have a confounding effect on the result (Campbell & Stanley, 1963). The present researcher cannot guarantee ongoing equivalence in the study if participants' generativity levels change due to an outside force.

In addition to study design limitations, MANCOVA has a few relevant statistical limitations for the present study:

a. The interpretation of the effects of independent variables on any dependent variable may be ambiguous (Dattalo, 2013).
b. Although MANCOVA may adjust for lack of random assignment, it does not adjust for lack of random sampling from populations to which the researcher wants to generalize (Tabachnick & Fidel, 2013).
c. Moderately correlated dependent variables can diminish the power of MANCOVA (Dattalo, 2013).

CHAPTER 2

Literature Review

The purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors. This literature review will address relevant research on generativity, college student development, socially responsible leadership, and mentoring (see Figure 1). In addition, this literature review will explain how the present research study relates to past research and how it fills a gap in the literature.

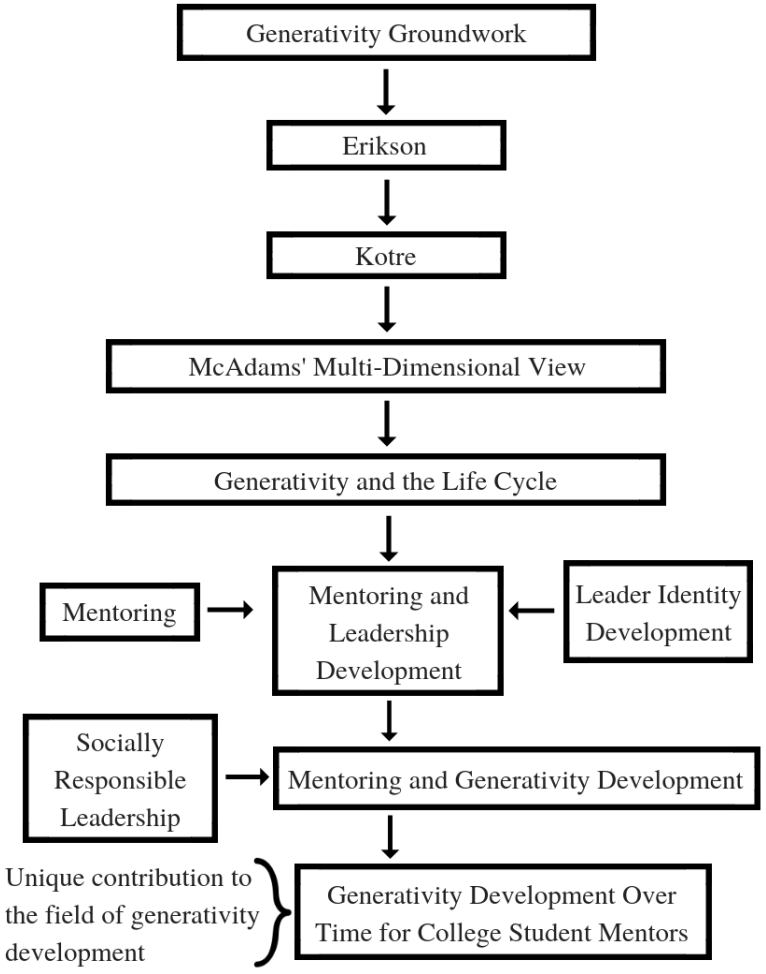

Figure 1. Literature review map.

Groundwork of Generativity in the Literature

Erikson (1950, 1963) introduced the concept of generativity as the seventh of eight stages in his psychosocial development model. He defines generativity as "primarily the concern in establishing and guiding the next generation" (1963, p. 267). In Erikson's psychosocial development model, each stage of life comes with a specific conflict one must resolve. The successful resolution of all eight conflicts allows an individual to attain the ultimate virtue of wisdom in old age, while an unsuccessful resolution of any conflict results in an inability to proceed through the psychosocial development model.

According to Erikson's (1950, 1963) psychosocial development model, the conflict that arises in middle-adulthood is generativity versus stagnation - in other words, finding a way to contribute to future generations or failing to do so. In the Eriksonian view, one would need to have gained a sense of identity as an adolescent and developed intimate bonds with others through marriage or close friendship in early adulthood before turning one's attention and energy to providing guidance to the next generation. Erikson explains that in youth one discovers what they "care to do" and who one "cares to be;" in young adulthood one discovers who they "care to be with;" and in middle-adulthood one discovers what they can "take care of." If an individual does not resolve the conflict of generativity versus stagnation in middle adulthood, Erikson suggests that the individual regresses to a state of self-indulgence and, pseudo-intimacy. On the other hand, the successful resolution of this life stage results in the development of care, empathy, and concern for others in old age.

For an adult to resolve their penultimate life conflict, Erikson (1963) argues that one needs to generate products or ideas that transcend one's own lifespan and/or parent children. He counters, however, that raising children in no way guarantees one is being generative. Furthermore, raising children is not the only path to generativity (McAdams, 1988). Some individuals, by choice or due to circumstances, do not apply their generative energy to their children. For this reason, "the concept of generativity is meant to include such more popular synonyms as *productivity* and *creativity*," (Erikson, 1963, p. 267).

Erikson cautions that these terms alone cannot replace generativity. Kotre (1984) suggests that *productivity* and *creativity*, although more common in the popular lexicon than generativity, do not span the full range of instinctual and psychosocial urges generativity encompasses. More specifically, *creativity* suggests something is made, while generativity suggests something is passed on. Although a generative act can include the creation or production of something, the relationship between creativity and care for future generations lies firmly within generativity (McAdams, 1988). As a virtue, generativity is a result of both our genetics and our ideas, our natural instincts and our conscious work (Kotre, 1984). Generativity is an ideal that allows one to guide, encourage, and care for the next generation.

Erikson (1963, p. 266) explains that the emphasis of his study is on childhood, otherwise his work on generativity would "of necessity be the central one" because generativity is the reason humans desire to teach and learn from one another. He argues that humans need to be needed and generativity is how midlife adults fulfill this psychosocial need. Although explained as a virtuous psycho-*social* construct, Erikson's

(1963) conceptualization of generativity is unidimensional and identified as a "trait" - it occurs entirely within the individual. Subsequently, researchers began to examine generativity in a broader social context.

Kotre (1984) argued that unlike Erikson's view of generativity as a virtue, generativity is an impulse that can become a virtue or a vice. He defines generativity as "a desire to invest one's substance in forms of life and work that will outlive the self." This desire for symbolic immortality allows one to live on through the products of their generativity - children, artwork, reputation, etc. An individual's desire for symbolic immortality can manifest itself in selfish or selfless ways, depending on the motivation for the generative act. Kotre suggests that by viewing generativity through the lens of outliving one's self, generativity is not limited to a single stage of development. To illustrate this point, he goes on to propose four types of generativity:

1) Biological - Having and nursing children. Kotre explains that most women have children in their twenties and thirties, although it is biologically possible that childbearing may occur earlier or later than these two decades. Kotre suggests this time-frame for biological fertility as an expression of generativity necessitates an understanding of other generative outlets.
2) Parental - Caring for and disciplining children. Kotre suggests that parental generativity takes the form of feeding, sheltering, clothing, loving, and disciplining offspring. This form of generativity establishes trust between parents and offspring. Although this form of generativity often occurs in and around midlife, Kotre explains that sometimes young parents experience biological generativity before they are emotionally mature enough to

engage in sufficient parental generativity. If this occurs, Kotre suggests that other forms of generative expression can achieve symbolic immortality.

3) Technical - Teaching skills to successors or apprentices. Individuals express technical generativity when the pass on skills to anyone less experienced than themselves. The generative act in technical generativity is either keeping the skill alive or extending the teacher's past experiences into the future through their apprentice.
4) Cultural - Creating, modifying, and maintaining a symbol system and passing it on to successors. Acts of cultural generativity transcend technical generativity. Cultural generativity passes meaning and place from a mentor to an apprentice. Kotre argues that of the four types of generativity, cultural is the most abstract and uncertain, yet it has the potential to pass on understanding of life and produce the greatest number of successors. Kotre (1984) explains that when expressing any of the four types of generativity, one's self-interest may take precedence (agency) or the object of the generativity may take precedence (communion). The terms *agency* and *communion* were originally proposed in this context by Bakan (1966): to "...characterize two fundamental modalities in the existence of living forms, agency for the existence of an organism as an individual, and communion for the participation of the individual in some larger organism of which the individual is a part." An agentic act of generativity is having children so that they can grow up to be like the parent or teaching children to perform the same way the teacher performs. Communal generativity includes having children in order to provide for them or teaching students so their skills can surpass the teacher.

Kotre's (1984) research suggests an interesting paradox - generative individuals seem to blend both altruism and narcissism. Generativity combines a desire for symbolic

immortality with selfless acts of caring for the next generation. Bakan's (1966) foundational writing on agency and communion suggests that tensions exist between humans' agentic and communal desires. He argues that evolution has caused human beings to simultaneously desire social dominance (agentic striving) and to hold onto social connections (communal striving). This dichotomy speaks to Kotre's paradoxical finding within generativity. One can achieve well-being when they find a balance between agency and communion (Bakan, 1966). Likewise, one can become generative when they find a balance between narcissism (agency) and altruism (communion) (Kotre, 1984). Kotre's four-dimensional generativity framework combined with the agentic and communal modes through which individuals can express generativity opens the door for more complex views and models of Eriksonian generativity.

McAdams' Multidimensional View of Generativity

Following Kotre's (1984) work, other researchers began to expand on Erikson's original generativity theory. McAdams (1988) explained that according to Erikson's life development model, young adults must completely establish their identity before entering middle adulthood and taking on the responsibility of guiding the next generation. McAdams argued that identity is too complex of an idea to confine to one life-stage. In McAdams' view, our identity is shaped by the stories we tell ourselves about what has happened in the past and what will happen in the future. He proposed the idea of a generativity script - a way for adults to explain what will happen next in their life-cycles - that focuses on their generative identity. McAdams (1988) also called the generativity script a "*future script* or *future-action script*" (p. 279). With the idea of a generativity script, McAdams argued that in order to construct their own generative identity, one must

have an idea about the generative behavior they are going to perform in the future. Only with the generativity script as a part of the picture does generativity development make sense in terms of the life-story.

In order to explore the life-story through an Eriksonian lens, Peterson and Stewart (1990) used content analysis of a nurse's diaries and novels spanning 14 years to establish subcategories in Erikson's (1950, 1963) life development model, including the generativity stage. Among these generativity subcategories, Peterson and Stewart identified caring, productivity, and a need to be needed. These subcategories supported McAdams's (1988) argument that Erikson's life-stages were too narrow. After years of theoretical arguments departing from and challenging Eriksonian ideas, McAdams and de St. Aubin (1992) set out test generativity as a multidimensional construct.

McAdams and de St. Aubin (1992) based their study on the argument that "generativity is not readily construed as a single, structured concept located 'within' the individual" (p. 1004). In order to study generativity as a multidimensional construct, McAdams and de St. Aubin (1992) proposed a theoretical framework with seven components of generativity (see Figure 2): First, one experiences an (a) *inner desire* for symbolic immortality (an agentic manifestation) and a need to be needed (a communal nurturance). Next, there are a variety of developmental and societal opportunities (Urien & Kilbourne, 2010) that create a (b) *cultural demand* for adults to form generative tendencies. Inner desire and cultural demand come together to produce (c) *concern* for the next generation in adulthood which is reinforced by (d) *belief* in the human species or in the goodness of the human enterprise (McAdams, Hart, & Maruna, 1998). The combination of the previous four features produces (e) *generative commitment* and (f)

generative action, such as creating or maintaining generative products and offering the products to the next generation as a gift. Although Figure 2 appears to culminate in generative action, action is not the end when it comes to generativity (McAdams, Hart, & Maruna, 1998). Ultimately, adults will give meaning to their generative acts through a (g) *narration* of generativity that is created as a life story and offered to others.

In their conceptual model (see Figure 2), McAdams and de St. Aubin (1992) describe narration as "the generativity script within the personal life story" (p. 1005). An adult's life story integrates "...one's perceived past, present, and anticipated future" (McAdams & de St. Aubin, 1992, p. 1006). Using the life story and generativity script synonymously seems to contradict McAdam's earlier (1988) conceptualization of a generativity script as an exclusively future-focused idea. McAdams and de St. Aubin (1992) clarify that the adult "seeks to live out a generativity script, specifying what he or she plans to do in the future to leave a legacy of the self for future generations" (p. 1006). The future component of the life story described by McAdams and de St. Aubin appears to manifest as the generativity script. Perhaps McAdams and de St. Aubin's generative narration description should include both reflection on past experiences and the generativity (future) script within one's personal life story.

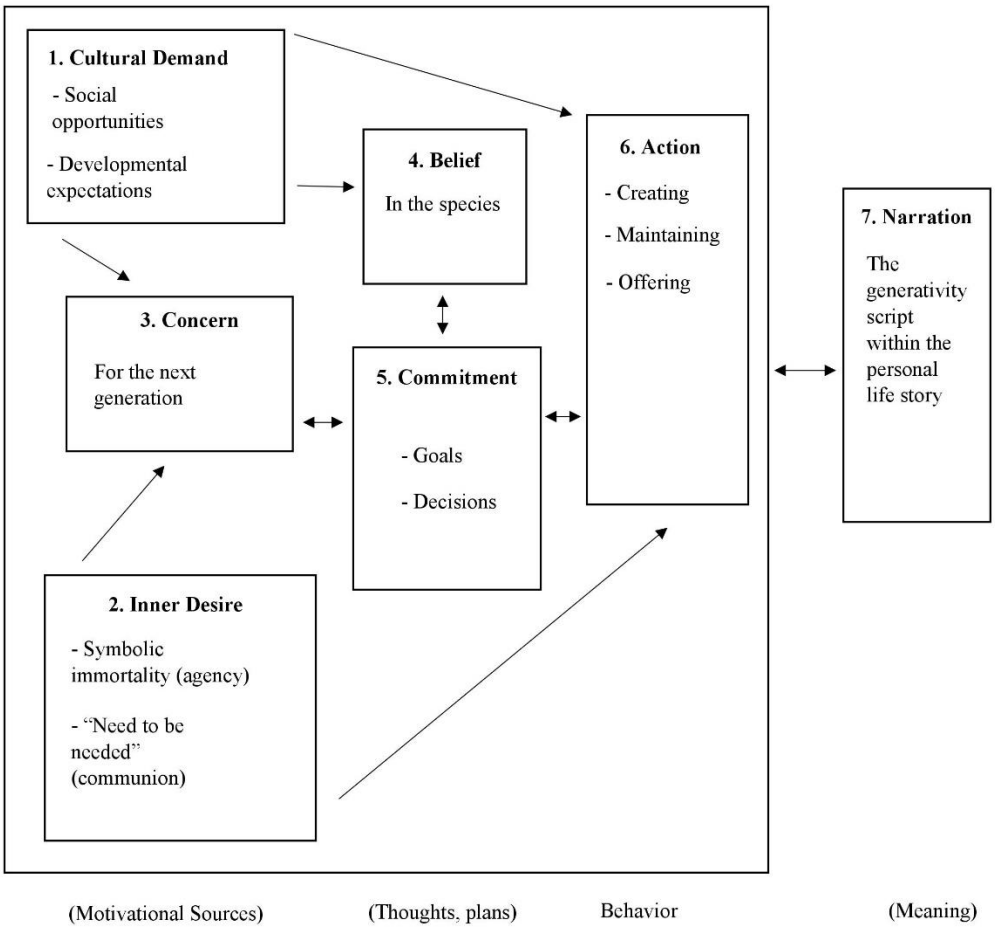

Figure 2: Seven component theoretical model of generativity (Adapted from McAdams & de St. Aubin, 1992).

McAdams and de St. Aubin (1992) explored this holistic view of generativity with a study examining three of the seven components in their model: (a) generative concern (i.e. a general personal tendency), (b) generative action (i.e. behaviors that have a generative nature), and (c) generative narration (i.e. reflection on past experiences and the anticipated generativity (future) script within one's life story). In order to conduct their study, McAdams and de St. Aubin developed the Loyola Generativity Scale - a self-report scale assessing generative concern - and administered it along with the Generative Behavior Checklist - a self-report survey measuring generative commitment - to 149

adults (56% female, ages 19-68) as well as 165 undergraduate students (65% female). They also asked participants to describe five autobiographical episodes and coded their responses for generative narration themes using content analysis. Data results indicated that generativity was positively associated with having had children. Their results also suggested that the combination of a) an inner desire to achieve symbolic immortality, b) a need to be needed, and c) society's cultural demands that adults care for the next generation, leads to generativity in adults. This study also found a significant amount of covariance among generative concern, action, and narration which suggested, unlike Erikson's unidimensional view, generativity is in fact a multidimensional construct.

This finding was significant because it provided evidence that generativity could be assessed with seven interrelated psychological features: demand, desire, concern, belief, commitment, action, and narration. McAdams and de St. Aubin (1992) also suggested that generative narration is important for adults' life stories because adults can form a generative identity through the narratives they tell about their lives. In particular, middle and older adults are guided by the role of generativity in their self-defining story (McAdams, de St. Aubin, & Logan, 1993). The autobiographical stories adults create provide their lives with a sense of meaning, yet some individuals' life stories have generativity as a recurring theme while others do not.

Mansfield and McAdams (1996) directly extended Bakan (1966), Kotre (1984), and McAdams and de St. Aubin's (1992) work by examining the extent to which more and less generative adults express agency and communion in their life stories. Data results indicated that the highly generative group (n = 40, 55% female, mean age = 43.1 years) scored higher on overall communion than the low generativity group (n = 30, 53%

female, mean age = 43.2 years) but agency scores did not differ between groups. The authors concluded that in terms of life story recollections, generativity appears to be primarily associated with communion over agency.

Ackerman, Zuroff, and Moskowitz (2000) examined agency and communion for men and women at midlife (n = 98) and young adults (n = 75) and found no evidence to suggest that high levels of both agency and communion were required for generativity. However, both agentic and communal traits predicted generativity in the young adult and midlife sample. Their results supported an additive model - that is, at most levels of agency, an increase in communion predicted higher generativity and at most levels of communion, an increase in agency predicted higher generativity. Ackerman et al. suggested that high levels of communion may be associated with individuals' caring about others and high levels of agency may be associated with individuals' belief that they have something to share with the younger generation.

Diehl, Owen, and Youngblade (2004) studied agency and communion attributes in 52 young adults (mean age = 28.68), 51 midlife adults (mean age = 48.06), and 55 older adults (mean age = 74.43). Participants completed a self-representation task that coders scored for agency and communion themes. Data results indicated that young and midlife adults reported significantly more agency attributes than older adults and older adults reported more communion attributes than young adults. These results support Ackerman, Zuroff and Moskowitz's (2000) findings and also suggest that both men and women tended to include more communion attributes as they grew older. The latter findings align with Erikson's (1950, 1963) idea that generative concerns increase as one progresses into middle-adulthood.

Generative individuals have both agentic and communal desires to establish and guide future generations (Ackerman, Zuroff, & Moskowitz, 2000; Frensch, Pratt, & Norris, 2007; Grossbaum & Bates, 2002; Mansfield & McAdams, 1996;). Through agency, generativity is a form of self-expression (Mansfield & McAdams, 1996) and results in the creation of a product or idea that will outlive oneself and be given to future generations (Frensch, Pratt, & Norris, 2007). Through communion, generativity encompasses a desire to care for others, even to the point of self-sacrificial behaviors on behalf of those whom the generative individual cares for (Mansfield & McAdams, 1998). Agency and communion are both associated with high levels of generativity (Ackerman, Zuroff, & Moskowitz, 2000; Grossbaum & Bates, 2002) and the life stories of generative adults tend to include strong needs for both agency and communion (de St. Aubin & McAdams, 1995; McAdams, Ruetzel, & Foley, 1986; Peterson & Stewart, 1993).

The collective result of the studies conducted in the few decades after Erikson's initial conceptualization of generativity was a more comprehensive understanding of generativity. The work of McAdams, de St. Aubin, and various others (Kotre, 1984; Mansfield & McAdams, 1996; Peterson & Stewart, 1990) provided a nuanced and explicitly stated theory of generativity, a complex construct that Erikson proposed as a binary construct. In Erikson's view, adults either experienced an inherent drive to exhibit care and concern for the next generation (generativity), or they regressed to a previous, more self-centered stage of psychosocial development (stagnation) (Erikson, 1950, 1963). The work of McAdams and de St. Aubin (1992) explored the underlying motivations of generativity and defined its process. In addition, McAdams and de St. Aubin (1992) produced multiple assessment instruments to measure generativity, including the Loyola

Generativity Scale and the Generative Behavior Checklist. Ultimately, McAdams and de St. Aubin provided a comprehensive framework and useful instruments that were widely used in future generativity studies.

Generativity and the Life Cycle

Peterson and Stewart (1990) were among the first to point out that the stages of Erikson's life-development model do not always occur linearly. Specifically, they argued that societal climate plays a role in generativity development which can cause generativity to develop outside of the midlife years. For example, the increased need for young women to join the workforce during World War II led to changes in identity formation later in life compared to women who transitioned from young to middle-adulthood during peacetime (Stewart & Healy, 1989). This idea contradicts Erikson's long-held and well-studied framework for generativity development exclusively in the mid-life years.

McAdams and de St. Aubin (1992) rejected Erikson's view that the pursuit of generativity is a process that consumes the whole adult life stage, but they agreed with Erikson that generativity fully emerges once an individual reaches adulthood. McAdams and de St. Aubin argued that generative adults experience two sources of motivation: their internal desire for symbolic immortality and society's expectations that adults will take responsibility for the next generation. Symbolic immortality explains humans' desire to use generativity as a means for others to remember us after our lifetime whereas society's expectations urge people to selflessly care for the next generation and not seek personal recognition. Either of these two variables can lead to generativity for different reasons (Kotre, 1984). Researchers have studied symbolic immortality and society's

expectations to understand whether these are dichotomous variables in terms of generativity development or if they work together to promote generativity in young adults.

Huta and Zuroff (2007) supported the idea of symbolic immortality as a significant motive of generativity when they examined generativity in 121 undergraduate students (93 females, 28 males, ages 18-32) and found that generativity was significantly linked to life satisfaction, positive affect, and self-esteem and that all three relationships were fully mediated by symbolic immortality. This result suggests that well-being is a byproduct of generative behavior because people believe that the difference they make for others will survive past their own lifetime. In the pursuit of symbolic immortality, one's self-interest takes precedence, so symbolic immortality is an agentic motive of generativity (Ackerman, Zuroff, & Moskowitz, 2000). On the other hand, society's expectations that adults care for future generations often manifests in parents feeling a responsibility to establish and guide their children in positive directions (Hart, McAdams, Hirsch, & Bauer, 2001). These expectations, however, do not mediate the relationship between generativity and well-being (Huta & Zuroff, 2007). In the context of parenting, society expects the child (the object of the generative act) to take precedence over the parent, so society's expectation for generative action is communal motive of generativity (Ackerman, Zuroff, & Moskowitz, 2000).

Peterson and Stewart (1993) examined the relations between agentic and communal motives and measures for generativity for 158 degree-holding adults in their late 20s (average 27.7 years) by coding participants responses to TAT sentence cues. Results indicated that people begin to struggle with generativity issues as young adults.

Later, Ackerman, Zuroff, and Moskowitz (2000) examined if the relationship between generativity and subjective well-being, agency, and communion is specific to midlife. They compared 98 adults (57 women and 55 men, ages 40-45) to 75 young adults (36 females and 39 males) and found that young adults and midlife adults reported statistically equivalent levels of generative concern. Other researchers have found that young adults have the capacity for generative concern at an age much younger than hypothesized by Erikson (Espin, Stewart, & Gomez, 1990; McAdams & de St. Aubin, 1992; Peterson & Stewart 1993). The combination of McAdams and de St. Aubin (1992), Peterson and Stewart (1993), Ackerman, Zuroff, and Moskowitz (2000) and Huta and Zuroff (2007), suggest a desire for symbolic immortality can spark generative concern whether an individual is a young adult or in midlife.

Although their results suggested generative concern may arise in young adulthood, McAdams and de St. Aubin (1992) agree with Erikson (1950, 1963) that generative action commonly emerges in middle-adulthood during the childbearing and rearing process. Their data results from 149 adults indicated that generativity was positively associated with having had children (McAdams & de St. Aubin 1992). Peterson and Stewart (1996) supported this finding by showing that generative women without children found satisfaction in work while generative women who did not work found satisfaction in parenting. Snow (2015) argued that the relationship between parenting and generativity takes a different form: that in order to have good children, one must first be generative. Regardless of the nature of the relationship between raising children and generativity, parenting is a popular example of generativity in the literature.

Peterson and Stewart (1996) assessed generativity motivation longitudinally in 18- and 48-year-old college-educated women (N = 100+) with Thematic Apperception Test (TAT) picture cues. Results indicated that a combination of agentic motives (symbolic immortality) and communal motives (a need to be needed), as measured by TAT, were significantly correlated with generativity for the same women at ages 18 and 48. Quite strikingly, these results do not align with Erikson's suggested midlife peak in generativity. When looked at in parallel with Peterson and Stewart (1993) and Ackerman, Zuroff, and Moskowitz's (2000) findings that young adults possess midlife concerns comparable with adults, Peterson and Stewart's (1996) findings illuminate an interesting paradox. Parenting is a popular example of generativity in the literature and Erikson's model hypothesizes that generative strivings become most noticeable in midlife; yet, most people have children in their young adult years. These conflicting ideas beg the question - is generativity widespread in younger adults? And if so, how are young people developing generativity?

Leader Identity Development

Komives, Owen, Longerbeam, and Mainella (2005) supported the idea that young adults have a capacity for generativity with a foundational study of leadership identity. Using grounded theory methodology, the researchers invited 13 undergraduate students (5 females, 8 males) who embodied the practices of the relational leadership model to participate in three interviews about their leadership identity, their experiences working with others, and how their view of leadership has changed over time. A grounded theory of leadership identity emerged from the interview results. Komives and colleagues (2005) used the grounded theory to develop the Leadership Identity Development (LID)

model. The LID model includes six stages, each of which must be fully explored before a student moves onto the next (see Figure 3). In each stage, students experience self-development and group influences which changes their view of their role with others and broadens their view of leadership. As the cycle repeats, previously held views cease to hold meaning and students transition into a new way of interacting with others (Komives et al., 2005).

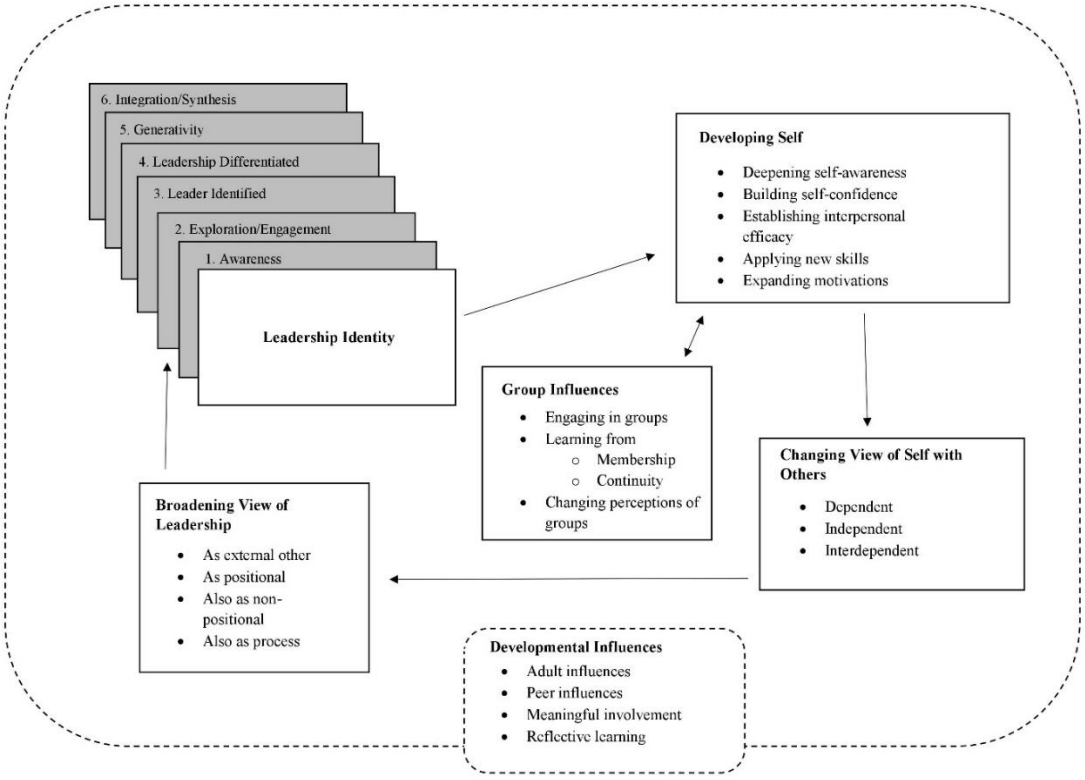

Figure 3: Leadership Identity Development Model (Adapted from Komives, Owen, Longerbeam, & Mainella, 2005).

In the earliest stage of the LID model (awareness), an individual recognizes that leadership is happening around them and takes initiative to explore possible avenues of involvement. Once a student decides to get involved with a group or organization, they experience a period of time spent learning about the group, engaging with other

members, and making friends (exploration/engagement). In the third stage (leader identified), students learn to identify and acknowledge the leader in a group by hierarchical status. In the next stage (leadership differentiated), individuals learn that leadership can come from anywhere in a group and seek to take leadership in positional and non-positional roles. Once this important paradigm-shift occurs, students realize that there are others coming after them in the organization which leads them to stage five of the model (generativity).

Students who reach the generativity stage of the LID model become actively committed to larger purposes and to the groups and individuals who sustained them (Komives et al., 2005). Students want to articulate a personal passion for what they do and begin to take responsibility for regenerating or sustaining their organizations. In a follow-up to their 2005 study that put forth the LID model, Komives, Longerbeam, Owen, and Mainella (2006) explain that students in the generativity stage of the LID model show an ability to look beyond themselves and express their care for the well-being of others. The authors' description of student care aligns well with McAdams and de St. Aubin's (1992) description of generative concern. Komives and colleagues (2006) go on to suggest students' level of care for the future of their organizations positively impacts the sustained success of their student groups, particularly as the students begin teaching and developing younger students who will eventually take on leadership roles in the group. Teaching and developing younger students who will fill leadership roles is an example of generative action. Komives and colleagues (2006) reflected that once students in their 2005 study developed generativity, they could articulate their self-proclaimed responsibility for developing others. The ability to express these convictions

is representative of a generative narration. These three connections between the LID model and McAdams and de St. Aubin's (1992) multi-dimensional framework of generativity development suggest students express generative concern, generative action, and generative commitment as they progress through the generativity stage of the LID model.

Despite the widespread use of the LID, some researchers (including its authors) suggest challenges can arise when applying and measuring the model in practice (Dugan, 2006; Komives, Longerbeam, Mainella, Osteen, & Owen, 2009; Owen, 2012). Dugan (2006) cites the LID model as one of many leadership models targeted at college students with a gap between the research and how the model is used in practice. Dugan includes the LID in a list of leadership development models that "contribute to a scarcity of empirical studies grounded in the theory that informs leadership practice" (p. 335). Despite this critique, Dugan's work and over 1,000 other published studies have cited Komives and colleagues (2005, 2006) LID model to inform their understanding of student leadership development, suggesting LID has some intuitive and practical usefulness.

Komives, Longerbeam, Mainella, Osteen, and Owen, (2009) point out that the LID model is best suited as a formative framework for educators to understand how college students view and experience leadership. The authors emphasize that the LID and other developmental theories are not meant to categorize students into boxes. Rather, researchers and practitioners should use the LID to understand student leadership development and develop programs and curriculum accordingly (Komives, et al., 2009). In other words, the stages of the LID model are not an end, but a means for understanding

and interpreting the results of some kind of learning outcome or assessment. However, assessing the LID can be difficult because students tend to self-report one stage higher than their behavior suggests (Owen, 2012). Owen is quick to point out that the LID model is one of many models of leadership and that no single conceptual frame can encompass all of the complexities of leadership development. Likewise, there are many models that attempt to explain generativity, suggesting there is more than likely no single conceptual frame that can encompasses all of the complexities of generativity development.

Socially Responsible Leadership

In the late 20th century, researchers at the UCLA Higher Education Research Institute received a grant from the Eisenhower Leadership Development program to develop a model of leadership development for undergraduate college students. These efforts resulted in the creation of the Social Change Model of Leadership Development. The Social Change Model provided a framework for leaders who hold traditional leadership roles and for those who do not have leadership experience but want to make a positive change (Astin et al., 1996). The Social Change Model includes seven critical values (commonly referred to as the 7 C's) of leadership development for social change: *collaboration, common purpose, controversy with civility, citizenship, consciousness of self, congruence, and commitment*. In the Social Change Model, the seven C's are broken up between three levels of focus, each with bi-directional arrows linking to and from each domain (see Figure 4). Theoretically, these reciprocal relationships suggest that development in one level of focus creates a positive feedback loop that enhances the leadership processes occurring at another level (Wagner, 2006). The Social Change

Model of Leadership is inherently tied to social responsibility, defined as "the ethical and moral obligations of the citizens of a society to each other and to society itself" (Imada, 2004, p. 84). Socially responsible leadership is intended to increase individuals' levels of self-knowledge and ability to collaborate with others (Komives, Dugan, Owen, Slack, & Wagner, 2011).

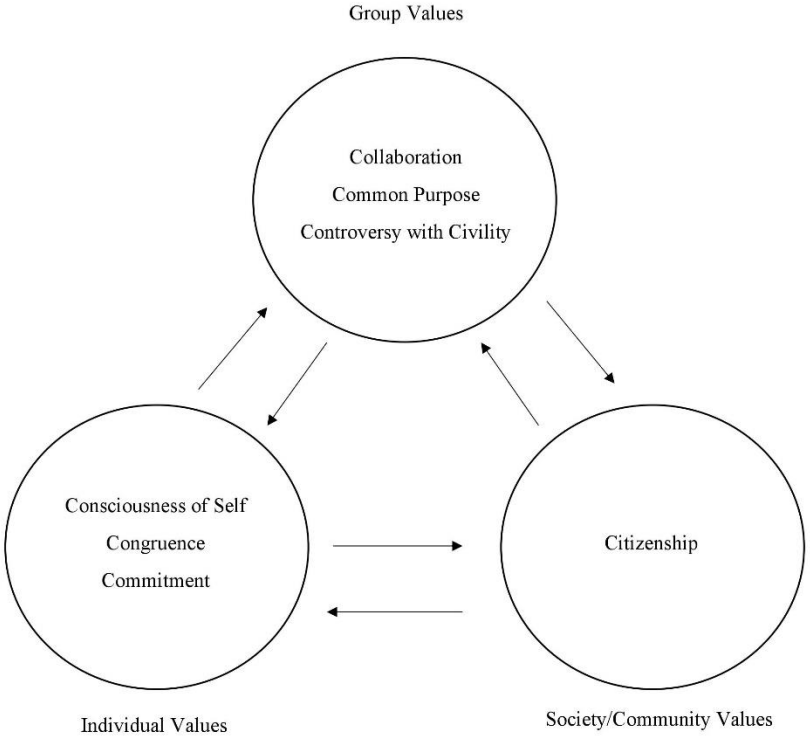

Figure 4. Social change model of leadership with the "7 C's" organized by level of focus (Adapted from Astin et al., 1996).

Rossi conducted two seminal studies linking generativity and social responsibility. In the first study, Rossi (2001a) used data from the Midlife Development in the United States (MIDUS) survey to study 2,652 participants on themes of religiosity and generativity. Results revealed seven significant developmental antecedents of generativity: (a) parents' generativity; (b) size of family; (c) parental affection; (d) the

family's focus on chores and restrictions on time spent in front of a television; (e) education level; (f) age; (g) agency and communion personality traits. In the second study, Rossi (2001b) examined antecedents to social responsibility among 3,032 participants in the MIDUS survey. Respondents completed social responsibility measures and a modified version of the LGS. Results indicated that parental modeling of social responsibility and socialization outside of the family were significantly and positively related to generativity. Rossi also found that generativity was the most significant predictor of social responsibility between the variables of age, sex, education, family, and community.

Colby, Sippola, and Phelps (2001) examined the relationship between social responsibility and people's life goals by interviewing 94 middle-aged participants (45.7% with bachelor's degrees or higher) about their life histories, paid and unpaid work, political engagement, and charitable contributions. Each interview was coded for socially responsible and personal reward themes. The results of their study indicated participants who used socially responsible themes in their life history had a significantly higher mean score on the Loyola Generativity Scale that participants who only used personal reward themes. Colby and colleagues (2001) used this result to suggest that "to a large extent the [LGS and indicators of socially responsible leadership] are measuring the same thing" (p. 479). However, it is more likely that these two indicators measure similar yet distinct lateral constructs. The connection between the LGS and socially responsible leadership themes reinforces Rossi's (2001b) finding that generativity is the most significant predictor of social responsibility. Furthermore, Imada (2004) argues that activities such as education and training of children encompass a generational dimension

of social responsibility. In a similar way that generativity involves establishing and guiding the next generation, expressions of social responsibility allow the next generation to form and reform society (Imada, 2004).

Campbell, Smith, Dugan, and Komives (2012) examined college student leadership development using data from the Multi-Institutional Study of Leadership (MSL), an ongoing national study of college student leadership development. Their final sample included 36,197 students (66% female, 8% multi-racial, 75% white) who had a significant mentor in their undergraduate experience. Data results indicated that having a mentor in college accounted for 8% of socially responsible leadership capacity. The authors suggested that mentorship for personal development was a more positive predictor of socially responsible leadership than mentoring for leadership empowerment. These results explain that the presence of a mentor is one pathway by which a student can progress from awareness to engagement in the LID model. However, these results only generalize to students who have been mentored.

Barnes (2014) examined socially responsible leadership capacity among college students in a strengths-based leadership mentoring program. Barnes points out that there is a substantial amount of research suggesting that being mentored increases college student leadership capacity, but suggests that little research has been done on how the act of mentoring influences students' socially responsible leadership capacity. Barnes compared scores on the Socially Responsible Leadership Scale (SRLS) between 119 college student mentors (75 female, 117 white), 29 college leaders (14 female, 23 white) who did not participate in formal mentoring, and a national sample of college students from the 2006 Multi-Institutional Study of Leadership (MSL) (n = 50,378). Data results

indicated that college student mentors demonstrated higher capacity to engage in socially responsible leadership than non-mentoring college student leaders and general college students from the MSL. Barnes suggests college student mentors have a greater capacity to be self-aware of their personal beliefs, values, attitudes, and emotions which motivates them to take action towards positive social change. Barnes' conclusions suggest the act of mentoring is a precursor for socially responsible leadership.

The combined results from the aforementioned studies examining socially responsible leadership have interesting inter-connections. Campbell et al. (2012) showed that college students became more socially responsible due to the presence of a mentor. Colby, Sippola, and Phelps (2001) suggested that individuals who express socially responsible themes in their life histories tend to possess higher generativity than those who do not express socially responsible themes. Barnes' (2014) study pulled together these two results and suggested that college student mentors are more likely to engage in socially responsible behavior than leaders who do not mentor. These results beg the question - does the act of mentoring lead to generativity development?

Mentoring

The word *mentor* has its roots in Homer's epic, the *Odyssey*. In the poem, Mentor is a family friend who advises and supports Odysseus in the absence of his father. Although the two lack blood ties, the relationship between Odysseus and Mentor embodies the concept of mentoring, defined as "a relationship between a younger adult and an older, more experienced adult [who] helps the younger individual learn to navigate the adult world" (Kram, 1985, p. 2). This is certainly not the only definition of mentoring and, in fact, contributes to a list of definitions lacking consensus (Jacobi,

1991). In an attempt to narrow the conceptual scope of mentoring, Levinson, Darrow, Klein, Levinson, and McKee (1978) suggest that words such as counselor, guru, teacher, advisor, or sponsor only capture narrow elements of mentoring. Despite a myriad of conflicting operational definitions, the mentoring relationship traditionally consists of a dyad mutually benefiting both individuals (Kram & Isabella, 1985). Mentors provide mentees with sponsorship, exposure, coaching, counseling, protection, friendship, and challenges (Kram, 1983) while mentors gain psychosocial support, respect from peers, and experience increased satisfaction from helping a young person (Kram & Isabella, 1985).

Serious research on mentoring began in the late 1970s and early 1980s (Bozeman & Feeny, 2007) and focused primarily on mentoring relationships in the workplace. Roche (1979) suggests that in the late 1970s, professionals and researchers had recently begun to recognize the important role mentors play in the development of corporate executives. Roche (1979) conducted a study examining the prevalence and nature of mentorship for 1,250 business executives. Data results indicated that the executives with a mentor earned more money at a younger age, were better educated, reported higher satisfaction with their career progress, and ended up mentoring more young people later in life than those who had not been mentored. The results of Roche's study pointed out the benefits of mentoring relationships in business, but the translation of the results to other contexts had yet to be addressed.

At a time when research on mentoring was still not widespread, Kram (1983) examined relationships between 15 pairs of older managers (mean age = 47 years) and younger managers (mean age = 31.3 years) in a large public utility of 15,000 employees.

Kram conducted interviews with both sets of managers and subsequent analysis of the interviews resulted in the emergence of themes and categories for mentoring relationships. These themes became the basis for Kram's conceptual model of the four phases in a mentoring relationship:

1) Initiation - A period of six months to a year in which the relationship begins to have importance for both members.
2) Cultivation - A period of two to five years in which the maximum level of career and psychosocial functions is reached.
3) Separation - A period of six months to two years after which a significant change in the structural role or emotional experience of the relationship occurs.
4) Redefinition - An indefinite period after separation in which time the relationship ends or results in peer-like friendship.

Although some researchers argue that this model is somewhat imprecise by modern standards of mentoring theory, Kram's (1983) study is still one of the most cited journal articles on the topic of mentoring (Bozeman & Feeney, 2007). Like the LID model (Komives et al., 2005), Kram's conceptual model of mentoring may make up for some nuanced criticism with its widespread, practical, and intuitive applications.

Kram followed up her 1983 research with a seminal study on mentoring relationships in the workplace. Kram and Isabella (1985) examined relationships between junior and senior colleagues and between peers who fulfill a mentoring function. Qualitative data results indicated that mentors provide career-related support as well as psychosocial support. In terms of career-related support, Kram suggested that "mentors provide young adults with career-enhancing functions, such as sponsorship, coaching,

facilitating exposure and visibility, and offering challenging work or protection, all of which help the younger person to establish a role in the organization… and prepare for advancement" (Kram and Isabella, 1985). In an important departure from the heavily career-focused outcomes of mentoring in the 1980s, Kram and Isabella (1985) identified role modeling, counseling, acceptance and confirmation, and friendship as specific psychosocial functions of a mentor. The idea that mentors provide psychosocial support for mentees opened the door for decades of research on mentoring outside of the confines of the career development.

Levinson et al. (1978) strongly supported mentoring relationships for psychosocial development. In their life-development theory, Levinson and colleagues examined the biographical interviews of 40 midlife adults and suggested mentoring is the most important relationship in one's psychosocial development process. Noe (1988) cited Levinson et al.'s (1978) theory and studied 139 proteges (74 female, mean age = 40 years) and 43 mentors (22 male, mean age = 48) in personal and career development programs for educators. Participants completed a mentoring functions scale that measured the extent to which mentees believed their mentors provided career and psychosocial support. Quantitative data results from Noe's study supported Kram's (1985) idea that mentors provide both a career-related function and a psychosocial support function.

Allen, Eby, Poteet, Lentz, and Lima (2004) conducted a meta-analysis of 43 studies of mentoring within organizational settings to examine outcomes associated with mentoring for mentees. Results indicated that psychosocial mentoring behaviors such as counseling, friendship, and role modeling were more highly related to satisfaction with

the mentor than career mentoring behaviors. This result supported Kram's (1985) finding that fulfilling the psychosocial functions of mentoring develops a two-way emotional bond in the mentoring relationship. Furthermore, Komives and colleagues' (2012) use the LID Model (Komives et al., 2005) to argue that when a mentor helps his or her mentee develop personally and psychosocially, the mentee moves from awareness to engagement with leadership. Considering the LID model's inclusion of a generativity stage, Komives and colleagues' (2012) argument suggests that mentoring for psychosocial development can lead to leadership development and, subsequently, generativity development.

Mentoring and Leadership Development

Until the late 1980s, mentoring and leadership development were only connected in terms of leadership development as an outcome of successful psychosocial mentoring (Campbell et al., 2012). Very few organizations or programs were mentoring with the primary purpose of leadership development. Even by the early 2000s, the benefits of mentoring for leadership development were widely unknown (Day, 2001). In fact, one meta-analysis found that between 1982 and 2001, only five percent of researched leadership development interventions for managers involved mentoring (Collins & Holton III, 2004). Since the turn of the 21st century, an increasing number of research studies have highlighted the benefits of mentoring for leadership development (Campbell et al., 2012; Hastings, Griesen, Hoover, Creswell, & Dlugosh, 2015; Hobson & Sharp, 2005; Priest & Donley, 2014).

Hobson and Sharp (2005) conducted a meta-analysis of literature on mentoring new principals and stressed that mentoring is effective for leadership development so

long as there is trust between mentor and mentee and significant commitment to the relationship by both parties. When significant trust is developed, Hobson and Sharp suggest both parties in a mentoring relationship for leadership development experience increased self-esteem. In addition to developing trust, mentoring for leadership development requires a significant investment of time by the mentor into the mentee's personal as well as leadership development (Cambell et al., 2012). Solansky (2010) also suggests that the more time a mentor spends communicating with mentees, the more likely the mentee will openly discuss leadership issues.

Priest and Donley (2014) conducted a study of college alumni-student mentoring pairs and found that successful mentors recommended investing more time in the mentoring relationship and spending that time building a trusting relationship with the students. Qualitative data results from the study indicated that college student mentees developed leadership beliefs and practices as a result of their mentoring experience. As a college student begins to develop leadership beliefs and engages in leadership practices, the stages of the LID model (Komives et al., 2005) perhaps suggest that they may enter into a generativity phase where they take responsibility for developing those who become leaders after them and for sustaining their organizations.

Mentoring and Generativity Development

Many studies have shown that mentoring can foster leadership development (Campbell et al., 2012; Hobson & Sharp, 2005; Priest & Donley, 2014) and that leadership development can spark generative concerns (Barnes, 2014; Komives, et al., 2005;). Fagan and Walter (1982) wrote about the generational aspect of mentoring after studying informal mentoring relationships among public school teachers. They examined

mentoring experiences for 107 teachers (79% female, mean age = 33.8 years) and a control group of police officers and nurses using the Kentucky Mentoring Survey (KMS) which required multiple choice and short answer responses. Short answer responses to the KMS were coded, multiple choice responses were tallied, and data results indicated that teachers "picked up" various positive traits from their mentors, including dedication, self-discipline and hard work, tactfulness, patience, honesty, persistence, and neatness (p. 116). The authors also correlated having a mentor with the tendency to mentor later in life, suggesting being mentored influences a willingness to invest in future generations later in life vis-a-vis mentoring.

Fagan and Walter's (1982) study suggests a cyclical component of mentoring. That is, if an individual is mentored, they become more likely to mentor a young person who is then more likely to mentor, etc. The LID model (Komives et al., 2005) supports a similar idea as well. Students who enter the generativity stage of the LID model express a desire to support, mentor, and invest time in future leaders of their organizations. When departing leaders engage in such behavior, the future leaders gain leadership skills that they can re-invest in younger leaders. The LID model suggests these patterns of college student leadership development and generativity occur at ages much younger than Erikson (1950, 1963) initially proposed. Various studies have explored this phenomenon by exploring predictors of generativity in young people.

Two of these studies showed that the presence of a mentor is an antecedent of generativity (Peterson & Stewart, 1996) and psychosocial development (Espin, Stewart, & Gomez, 1990) for individuals ages 18 and younger. Peterson and Stewart (1996) found that the presence of a positive role model allows generative ideals to pass from

mentor to mentee. Perhaps Fagan and Walter's (1982) study would have found that mentees "pick up" generativity had they tested generativity alongside honesty, patience, neatness, etc. Peterson and Stewart as well as Fagan and Walter were working with adult samples, but Hastings, Griesen, Hoover, Creswell, and Dlugosh (2015) showed that the act of mentoring also demonstrates a strong association with generativity for young adults mentoring K-12 students.

Hastings and colleagues (2015) used an explanatory sequential mixed-methods design to examine the impact of mentoring on generativity levels among 80 college student leaders who mentor 1st-12th grade students in a formal leadership-mentoring program at a public Midwestern University. MANCOVA data results indicated that college students who mentor demonstrated significantly higher generativity than general college students and significantly higher generative concern and generative commitment than college student leaders who do not mentor. Phenomenological results from the subsequent qualitative phase indicated that mentors perhaps already have a "seed of generativity" (p. 663) planted and that they negotiate the balance between friendship and mentorship during the mentoring process. As a result of the mentoring relationship, generativity becomes integrated into what the mentors do and who they are. The mixed-methods results from Hastings et al.'s study present a strong argument for adding the act of mentoring to the list of developmental experiences that are linked to generativity in adulthood.

Following Hastings and colleagues (2015) study, Sunderman (2018) examined the influence of year in college on generativity level for 91 college student mentors (59.3% female). Despite Erikson's (1950, 1963) life development model suggesting increases in

generativity through mid-life, and Espin's (1990) finding that generativity can sharply peak during the college years (18-22 years of age), Sunderman found no significant difference in generativity levels between age cohorts for college student mentors. Sunderman suggests this result does not contradict Hastings et al.'s (2015) finding that college student mentors demonstrate higher generativity than their non-mentoring peers, but perhaps that an interest in mentoring impacts generativity levels more than the act of mentoring itself. Sunderman calls for future research to longitudinally explore the influence of age cohort on generativity to elucidate Espin's (1990) discovery of a generativity peak between 18-22 years of age. Sunderman's call echoes Hastings and colleagues' (2015) call for longitudinal research examining individual generativity growth over time for college students who mentor. The present study answers both research calls.

Summary

This chapter has provided an overview of the relevant literature on generativity, college student leadership development, socially responsible leadership, and mentoring. The review of generativity literature pointed out that generativity is a multidimensional construct (McAdams & de St. Aubin, 1992) that was traditionally described as a midlife phenomenon. More recently, research has shown that generativity can also occur in young adults (Ackerman, Zuroff, & Moskowitz, 2000; Peterson & Stewart, 1993). Research on student leadership development supported the idea that generativity is not exclusively a midlife concern (Komives et al., 2005). As students become more engaged with leadership, they perform generative actions to promote the success of younger students who will eventually take over their leadership roles (Komives et al., 2006).

These generative actions have also been linked to social responsibility (Imada, 2004). Research has shown that generativity is the most significant predictor of social responsibility (Rossi, 2001b). Other studies have shown that mentoring can foster leadership development (Campbell et al., 2012; Hobson & Sharp, 2005; Priest & Donley, 2014) and that leadership development can spark generative concerns (Barnes, 2014; Komives, et al., 2005;). This literature review also pointed out that the presence of a mentor (Espin, Stewart & Gomez, 1990) and the act of mentoring (Hastings et al., 2015) are both antecedents to generativity development for individuals before midlife. Finally, this chapter identified a gap in the literature related to examining generativity development over time for college student mentors that the present study will address.

Hypothesis (Generativity Development Over Time for College Student Mentors)

As previously stated, the purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors. Given the LID model's inclusion of generativity as the fifth of six stages of college student leader identity (Komives et al., 2005) and Hastings et al.'s (2015) finding that college student mentors are significantly more generative than their peers, it is hypothesized that generativity will increase over time for college student mentors after controlling for gender.

CHAPTER 3

Methods

The purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors. Chapter 3 describes the approach, rationale, population, sampling procedure, instrumentation, study design, data collection, data analysis, and threats to validity in the present study.

Approach and Rationale

Previous research has suggested that young adults have the capacity for generativity and that some college students develop generativity during their collegiate experience (Komives, Owen, Longerbeam, & Mainella, 2005). Furthermore, Hastings, Griesen, Hoover, Creswell, and Dlugosh (2015) showed that the act of mentoring demonstrates a strong association with generativity for young adults mentoring K-12 students. Hastings et al. (2015) and Sunderman (2018) called for longitudinal generativity research to explore individual generativity growth over time for college students who mentor. The present study responded to that research call by asking the following question: *to what extent do college student mentors experience generativity development over time after controlling for gender?* This study took a quantitative approach using survey research to test established theories with the intent of generalizing the results beyond the sample.

The present study assumed a postpositivist worldview in which the researcher "begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions and conducts additional tests" (Creswell, 2014, p. 7). The

postpositivist worldview is sometimes called *the scientific method* and rejects the view that one can be absolutely positive about his or her knowledge, especially when studying human behavior (Phillips & Burbules, 2000). This worldview requires the researcher to collect information using instruments and measures completed by the participants (Creswell, 2014). Positivism is associated primarily with quantitative research (Morrow, 2005). Quantitative research tests objective theories by examining relationships among variables that can be measured with instruments (Creswell, 2014). The rationale for using quantitative research with a postpositivist approach is that the present research study seeks to quantitatively test levels of generativity among college student mentors using instruments grounded in theory. The results from the present study will contribute to the body of theory on generativity and inform future research on generativity development in young adults.

This study used survey data to quantitatively describe changes in generativity levels over time for college student mentors. Survey research provides a numerical description of trends, attitudes, or opinions in a sample that is representative of a population (Creswell, 2014). Unlike a census, which measures every member of a population, the sample data obtained from a survey is meant to be generalized to a population (Fowler, 2008). Survey research is designed to collect large amounts of data in a timely manner at a fairly low cost (Kelley, Clark, Brown, & Sitzia, 2003). As long as a sample is representative of its population, surveying a sample allows the researcher to uncover trends in a population quickly using statistical analysis. Survey data is appropriate for use in cross-sectional or longitudinal studies (Creswell, 2014) which fits with the current study's longitudinal design.

Population and Sample

The population in the present study was sophomore through senior students attending the University of Nebraska-Lincoln and volunteering as mentors in the Nebraska Human Resources Institute (NHRI). The sample consisted of NHRI students who voluntarily participated in the research study. NHRI is a leadership development mentoring organization that pairs college student leaders at the University of Nebraska-Lincoln with 1st-12th grade student leaders in Lincoln, Nebraska. NHRI identifies college students with high "human-relations capital," an ability to influence the thoughts, feelings, and desires of others. Once a college student is selected to be a NHRI mentor (Senior Counselor), he or she is paired with a mentee (Junior Counselors) who is a K-12 student in Lincoln, NE. Junior Counselors in NHRI are also identified based on high human relations capital, typically through a teacher recommendation, peer selection process, or an interview.

College students who receive a recommendation for NHRI from a peer, faculty member, or staff member because of their positive influence on others have the opportunity to sign up for a NHRI selection interview. The NHRI interview assesses 13 relational strengths: mission, rapport drive, listening, empathy, individual perception, investment, activation, position, diversity, acceptance, gestalt, focus, and work ethic. The interview lasts 60 minutes and includes 5 questions that assess each relational strength. Roughly 60 college students are selected to become Senior Counselors each year. In 2018, NHRI consisted of approximately 180 Senior Counselors and 180 Junior Counselors.

NHRI was founded in 1949 by Dr. William Hall and Dr. Donald Clifton at the University of Nebraska-Lincoln. The original mission of NHRI was to give college student leaders an opportunity to intentionally invest their human relations capital in the life of a younger student. NHRI's basic assumptions and mission are:

Basic Assumptions

- The greatest resource is the human resource
- Establishing positive relationships is the best way to develop this human resource
- Positive human relationships are maximized when one individual with considerable human relations capital invests in another individual
- Investment in human relationships nourishes positive leadership development

Mission

- To Discover individuals with exceptional capacity to positively influence the thoughts, feelings, and behavior of others
- To Explore the dimensions of human leadership and ways in which this potential can be maximized
- To Develop leadership potential through one-to-one investment relationships
- To Direct developed leadership toward reinvestment in others
- To Document positive leadership development and to communicate this information

Counselors and junior counselors are typically paired with each other for a 3-year "investment relationship" and meet for at least one hour, once a week. During these weekly one-on-one meetings, Senior Counselors and Junior Counselors initially build trust with one another. The role of the Senior Counselor in NHRI is to take an inventory of the Junior Counselor's leadership strengths and challenge the Junior Counselor with "stimulus situations." Stimulus situations are opportunities for the Junior Counselor to utilize his or her leadership strengths to positively influence others. When the investment on the part of the Senior Counselor in the life of his or her Junior Counselor causes the Junior Counselor to use his or her leadership strengths to be a difference maker for

others, “reinvestment” occurs. Reinvestment is the ultimate goal of the NHRI investment relationship model and results in a “ripple effect” of leadership and difference making.

In addition to the weekly one-on-one meeting with their Junior Counselor, NHRI Senior Counselors attend a weekly one-hour “project meeting” with other Senior Counselors. NHRI is divided into 12 projects and a Senior Counselors is allocated to a project based on the age of his or her Junior Counselor or the school his or her Junior Counselor attends. During project meetings, Senior Counselors report their weekly one-on-one meeting and receive feedback and guidance from other members of their project. Each project has a student staff advisor, a Senior Counselor in his or her senior year of college whose primary responsibility is to ensure the success of each Senior Counselor’s investment relationship in his or her project. Each project hosts or participates in 2 retreats per semester for both Senior and Junior Counselors to attend. Project retreats consist of activities, discussions, and lessons on a certain leadership concept.

Senior Counselors have the opportunity to take a college course on leadership development and interpersonal skills taught by the NHRI director during one semester of their NHRI experience. This course invites Senior Counselors to explore leadership concepts such as active listening, strengths, empathy, and goal-setting, which they apply in their investment relationships with their Junior Counselors. Senior Counselors in this course also complete an investment relationship project - a detailed account of their investment relationship including weekly journals after one-on-one meetings and a final reflection on one semester spent mentoring their Junior Counselor.

Sampling Procedure. Participants in the study were not randomly assigned but were selected from an intact group readily accessible by the researcher. All senior

counselors in NHRI had an opportunity to participate in this research. All participants in the study were 19 years of age or older and completed an informed consent form prior to completing survey measures. Participants were made fully aware that their responses will be kept confidential through anonymous reporting. Approval from the Institutional Review Board was obtained prior to collecting data from participants (see Appendix B).

Instrumentation

The Loyola Generativity Scale (LGS) is a 20 question instrument that measures five subscales of generativity: passing knowledge and skills to the next generation (items 1, 3, 12, and 19), caring for and taking responsibility for others (items 2, 9, 11, and 16), being creative and productive (items 7 and 17), taking actions that will leave a legacy (items 4, 6, 8, 10, 13, and 14), and contributing to improving one's community (items 5, 15, 18, and 20) (McAdams & de St. Aubin, 1992). Participants respond using a 4-part likert-scale ranging from "never applies to you" to "applies to you very often" (McAdams & de St. Aubin, 1992, p. 1007). The 20 items in the LGS have high internal consistency (Chronbach's alpha = 0.84 for college students, Chronbach's alpha = 0.03 for adults) and test-retest reliability of the LGS over a 3-week period was 0.73 ($p < 0.001$), suggesting moderately high stability over time (McAdams & de St. Aubin, 1992). In both college and adult samples, all 20 items on the LGS showed (a) wide variability in responses, (b) high correlations with overall LGS scores, (c) high correlations with external measures of generativity developed by Osche and Plug (1986), and (d) low correlations with responses about social desirability (McAdams & de St. Aubin, 1992).

The LGS has demonstrated a relationship between generative concern and generative action, generative goals, socially responsible behavior, psychological well-

being, agentic behaviors, communal behaviors, extraversion, agreeableness, environmentally responsible behavior, and offspring generativity (Ackerman et al., 2000; Bradley & Marcia, 1998; Colby, Sippola, & Phelps, 2001; Hart, McAdams, Hirsch, & Bauer, 2001; McAdams, Hart & Maruna, 1998; Peterson, 2006; Urien & Kilbourne, 2010). Lawford, Pratt, Hunsberger, and Pancer (2005) tested generativity in young adult samples (ages 19 to 23) using the LGS. LGS scores did not differ significantly within individuals from ages 19 to 23 ($r = 0.45$, $p < 0.001$). The LGS showed a positive correlation with self-esteem, a positive correlation with social support, and a negative correlation with depression for 19 and 23-year-old participants (Lawford et al., 2005). The LGS will be used to assess differences in generative concern for participants over time in the present study.

The Generative Behavior Checklist (GBC) is a 50-item checklist that measures the behavioral manifestations of generativity (McAdams & de St. Aubin, 1992). 40 items describe generative behaviors within specific generative actions (creating, maintaining, and offering) and 10 filler items describe neutral behaviors. Participants are asked to indicate how often they have engaged in particular behaviors over the past two months by giving a rating of 0 (not performed), 1 (performed once), or 2 (performed more than once). Scores on the GBC have been significantly correlated with LGS scores ($r = 0.46$, $p < 0.001$; Hart et al., 2001; $r = 0.59$, $p < 0.001$; McAdams & de St. Aubin, 1992; $r = 0.53$, $p < 0.001$; McAdams, de St. Aubin, & Logan, 1993). Test-retest reliability for the GBC after 6 months was 0.69, which is relatively high considering the subjects responded to items with a reference to a different 2-month period compared with the first

period (McAdams et al., 1993). The GBC will be used to assess differences in generative actions for participants over time in the present study.

Personal strivings are defined as the things "individuals are characteristically aiming to accomplish through their behavior" and/or as the "purposes that a person is trying to carry out" (Emmons, 1986, p. 1059). Following a procedure created by Emmons (1986), participants are asked to complete ten sentences beginning with "I typically try to…" Responses are coded for generativity according to three categories: (a) next generation (involvement with younger people), (b) care (providing care, help, assistance, instruction, guidance, comfort, etc.), and (c) creative contribution (engaging in creative activities or attempting to act in such a way that significantly contributes to society) (McAdams et al., 1993). Scores on generative commitments, assessed through personal strivings, have been positively and significantly associated with scores on the LGS ($r = 0.46$, $p < 0.001$; Hart et al., 2001; $r = 0.23$, $p < 0.01$; McAdams et al., 1993) and the GBC ($r = 0.20$, $p < 0.05$; McAdams et al., 1993). Personal strivings will be used to assess differences in generative commitment for participants over time in the present study.

Design and Data Collection

The current study used a quantitative, non-experimental design to examine differences in participants' generativity within subjects and across age cohorts between two time points. To collect time 1 data, the researcher utilized data from a previous study of NHRI Senior Counselors that examined differences in generativity levels by age cohort among college students who mentor (Sunderman, 2018). At the time of Sunderman's data collection, all senior counselors had some experience mentoring, even

those in their first year of mentoring. Participants in Sunderman's (2018) study completed the LGS, GBC, and personal strivings measures. Participants in the present study completed the same three measures, approximately one year after their assessment for Sunderman's (2018) study. In that time period, counselors spent an estimated 30 hours mentoring their junior counselors and an additional 30 hours in meetings with other counselors to process the results of their one on one meetings with their junior counselors. These numbers are estimated from the required one hour per week that counselors and junior counselors spend together and the one-hour a week counselors spend in meetings with other counselors discussing their investment relationships over the course of a semester. These figures represent a minimum requirement - many counselors will exceed 60 hours spent mentoring and in project meetings over the course of a year.

Data collection in the present study took place over a one-week period so the researcher could attend each NHRI project meeting. NHRI students were approached by the researcher in-person during their weekly project meetings and were presented with the opportunity to participate in the present study (see Appendix C). The researcher provided each participant with a brief description of the research study and a link to a Qualtrics survey that contains a more robust description of the research study, demographic questions including gender, the LGS, the GBC, and personal strivings measure.

After data collection was concluded, each participant received an LGS score, a GBC score, and score on the personal strivings measure. The researcher coded the personal strivings responses for generative commitment (McAdams, et al., 1993). A

participant's personal striving receive a score of 1 if it contains a response involving guiding the next generation, seeking to positively benefit someone else's life through assistance, direction, or consolation, or creative contributions to individuals or society. A personal striving received multiple points if it included multiple themes from the aforementioned list. If a personal striving lacks all three of the generative themes, it was coded as a 0.

Data Analysis

A repeated-measures multivariate analysis of covariance (MANCOVA) was selected for the current study to test one categorical independent variable (age cohort) and a quantitative dependent variable (generativity) while controlling for the effect of a covariate (gender). As previously stated, the present study utilized a convenience sample. MANCOVA is an appropriate data analysis procedure when random assignment is not possible as it provides statistical matching of groups (Tabachnick & Fidell, 2013). Furthermore, repeated measures MANCOVA can compare differences in generativity between age cohorts as well as individual differences in generativity scores across multiple time periods while accounting for the effect, if any, of a covariate (Mertler & Vannatta, 2002). Gender is an appropriate covariate to test in the present study because it has a documented association with generativity (Hastings et. al, 2015; McAdams & de St. Aubin, 1992; Sunderman, 2018) and therefore could have a confounding effect on generativity scores.

Threats to Validity

The present research study had various threats to its internal, statistical conclusion, and external validity. Internal validity threats impede the researcher's ability

to make connections between the independent variable(s) and the dependent variable(s) in a study. The lack of random assignment in the present research study impacted the internal validity of the study due to a lack of initial equivalence. Without random assignment, participants bring potentially confounding variables into the study. The study's convenience sample decreased its generalizability (Little, 2013). Due to the longitudinal nature of this study design, the researcher experienced ongoing equivalence issues between time-one and time-two. If participants' generativity levels changed due to an outside force, the researcher had no way to control for this confounding effect.

Statistical conclusion threats undermine a researcher's ability to statistically relate independent variables and dependent variables. There is a subscale of the LGS that measures the generative concern of exhibiting creativity and production, yet this subscale is only measured with two items on the LGS. More questions would inspire more confidence that the LGS reliably measures for creativity and production.

External validity threats weakened the researcher's ability to extend the research findings to other populations, settings, tasks, or situations. The research subjects in the present study were all student mentors in NHRI which may have limited the generalizability of the study's findings to individuals who are not in college, college students who are not mentors, or college mentors who do not mentor in NHRI. NHRI college student mentors in this study work with a population of youth that are selected for the program on the basis of leadership talent. Not all college student mentors focus on developing the leadership talents of their mentee which could have an effect on levels of generativity experienced by general college mentors. Due to the unique sample in this

study, results may not be generalizable beyond the population of NHRI mentors from which the sample was taken.

CHAPTER 4

Results

The purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors. Chapter 4 presents results from the study. Data analysis sought to answer the question: *To what extent do college students who mentor with NHRI experience generativity development over time after controlling for gender?* Table 1 shows the variables in the cross-sectional portion of the present study. Table 2 shows the variables in the longitudinal portion of the present study.

Table 1

Cross-Sectional Study Variables and Covariates

Independent Variable	Covariate	Dependent Variables
Age Cohort	Gender	Total LGS Score
		Total GBC Score
		Total Personal Strivings Score

Table 2

Longitudinal Study Variables and Covariates

Independent Variable	Covariate	Dependent Variables
Time	Gender	Total LGS Score
		Total GBC Score
		Total Personal Strivings Score

Variables

The independent variable in the cross-sectional study was age cohort. The independent variable in the longitudinal study was time. The dependent variable in both the cross-sectional and longitudinal portions of the present study was generativity level, which was operationally defined as participants' total GBC score, total LGS score, and Personal Strivings score. The covariate was gender which was collected through participant self-report. Gender was included as a covariate because it has a direct empirical relationship with generativity (McAdams & de St. Aubin, 1992) and has a significant between subjects effect on generativity level for college students who mentor (Hastings et al, 2015; Sunderman, 2018).

In Sunderman's (2018) study, participants self-identified into one of three groups: (a) sophomore (2nd year in college); (b) junior (3rd year in college); (c) senior (4th year in college). In the present study, participants self-identified into the same three groups. Each participant who self-identified into the sophomore age cohort in Sunderman's study

self-identified as a junior in the present study, and each participant who self-identified as a junior in Sunderman's study self-identified as a senior in the present study.

A paired samples t-test was performed to determine if there was a significant difference between participants self-report of their year in college and their self-report of number of years spent mentoring with NHRI. A paired samples t-test was able to compare two means that represent to different but related conditions from the same individuals (Ross & Willson, 2017). Results indicated that the year in college and years spent mentoring with NHRI were not significantly different, $t(141) = -1.643$, $p > 0.05$. The two variables were significantly correlated ($r = 0.884$, $p < 0.001$). Therefore, the independent variable in the cross-sectional study (age cohort) accounts for both number of years in college and number of years spent mentoring in NHRI, the latter of which is not significantly different from age cohort.

In addition, two participants self-identified as 5th-year 'super seniors' in the present study. A cohort of 5th-year participants was not included in the present study because of the low number of students who self-identified in this category. Fifth- year participants were compared to 4th-year participants on LGS, GBC, and personal strivings scores using an independent samples t-test. Data results from Levene's Test for Equality of Variance showed insignificant *p*-values on total LGS score, $t(1.254) = 1.924$, $p = 0.295$, and total GBC score, $t(1.338) = 0.275$, $p = 0.268$. These results indicate that there were no significant differences between 5th-year and 4th-year participants' scores on the LGS and GBC scores. However personal strivings scores between the two groups were significantly different at the $p < 0.05$ level, $t(37) = 2.665$, $p < 0.05$. Because the personal strivings scores between these two groups were significantly different, the researcher

removed the two 5th year participants from the dataset. Table 3 shows the relationship between year in college and years spent mentoring in NHRI.

Before conducting the MANCOVA data analysis, the researcher coded participants' personal strivings. Each personal striving received a score from 0 to 3, with 1 point awarded for each of the following if it was included in the personal striving statement: (a) involving guiding the next generation, (b) seeking to positively benefit someone else's life through assistance, direction, or consultation, and/or (c) creative contributions to individuals or society. A personal striving statement could receive multiple points if it included multiple themes. If a personal striving lacked all three generative themes, it received a score of 0. Two Masters and five Ph.D students voluntarily scored the personal strivings independently from one another and independently from the researcher. Each student scored approximately 20 personal strivings and each of these scores was compared to the researcher's scores. Less than 20 % of responses resulted in a discrepancy, which resulted in definitive inter-rater reliability (Krippendorff, 1980). In any instance where there was discrepancy, the researcher consulted Sunderman's (2018) and Hastings et al. (2015) coding rationale to reach consensus.

Table 3

Relationship Between Year in College and Years Spent Mentoring

Cohort	Year in College	Years Spent Mentoring
Cohort 1	2nd year	1st year
Cohort 2	3rd year	2nd year
Cohort 3	4th year	3rd year

Data Analysis

Participant demographic information, LGS, GBC, and Personal Strivings scores were entered into SPSS v. 25. LGS questions 2, 5, 9, 13, 14, and 15 were reverse-coded and questions 3, 4, 8, 14, 18, 22, 33, 39, 46, and 47 were removed from the GBC because they are filler questions. In order to prepare the data for MANCOVA analysis, an outlier analysis, a test for normality, and a missing data analysis were performed.

Outlier Analysis. An outlier is a case where a specific value on one variable or a combination of values on two or more variables distorts the statistical analysis (Tabachnick & Fidell, 2013). Outliers can be present in both dichotomous and continuous variables and in both multivariate and univariate scenarios. Univariate outliers were investigated by converting total LGS score, total GBC score, and Personal Strivings scores to *z*-scores to look for outliers that were +/- 3.29 standard deviations above the mean ($p < 0.001$, two-tailed test) (Tabachnick & Fidell, 2013, p. 108). Only one participant's responses resulted in a significantly large *z*-score on the GBC ($Z =$

4.61853, $p < 0.001$). The participant's responses on the GBC indicated fatigue as evidenced by a consistent score of 0 for over 25 responses in a row, resulting in more than 50% of the data being unusable. This participant's responses on all measures were removed from the dataset using listwise deletion. No other participant had a *z*-score that was 3.29 standard deviations above or below the mean so the researcher determined no remaining participants were outliers. Multivariate outliers occur when two or more scores combine to create an extreme value. These are calculated using Mahalanobis distance - the distance between two points in a multivariate space (Tabachnick & Fidell, 2013). The Mahalanobis distance measures how similar a set of conditions is to a known set of conditions and subsequently identifies multivariate outliers. The present study only had a single categorical independent variable so a test for multivariate outliers was not necessary.

Normality. Multivariate normality assumes that "each variable and all linear combinations of variables are normally distributed" (Tabachnick & Fidell, 2013, p. 112). Data analysis results tend to require normal distribution for a researcher to draw inferences. There are two components of normality: skewness and kurtosis. Skewness describes the symmetry of variable distribution and kurtosis describes the peakedness of a distribution. Skewness and kurtosis both have values of 0 in a normally distributed data set. When skewness and kurtosis values are converted to *z*-scores (skewness or kurtosis value divided by its standard error), a score between 0 and +/- 3.33 is considered normal (Tabachnick & Fidell, 2013). Table 4 displays skewness and kurtosis *z*-scores. All scores were between 0 and +/- 3.33.

Table 4

Skewness and Kurtosis Z Scores for Each Variable

DV	Skewness	Kurtosis
Total LGS	-0.158	-0.817
Total GBC	0.155	-0.896
Total Personal Strivings	0.780	1.131

Missing Data. Missing data are a pervasive problem in data analysis. There are different patterns of missing data and the pattern tends to be more important than the amount of data missing. To test for missing data in the present study, a missing data frequency table was created. The frequency table indicated that two participants gave no responses for personal strivings and that LGS and GBC scores each had one missing data point across all participants. The researcher had three options for dealing with nonresponse data: (a) create a missing data correlation matrix, (b) input the mean for each item score as an estimate of the probably missing value, or (c) deleting random cases of missing data (Tabachnick & Fidell, 2013).

A missing data correlation matrix uses all available pairs of values to calculate correlations of the variable instead of calculating the correlation with a full data set. This approach uses as much data as is available to the researcher, but the stability of the correlation can vary depending on the number of missing data cases. Mean substitution is another approach to dealing with missing data. In essence, the mean for a variable is

calculated from available data and is used to replace a value prior to analysis. Using this approach, the researcher does not have to guess or delete a value, but the variance of the variable is necessarily reduced. The final option for dealing with missing data is deleting cases or variables. If there are only a few instances of missing data and they seem to be random, deletion is a quick and appropriate solution. If less than 5% of data is missing from a large dataset, any procedure for dealing with missing data ultimately yields a similar result (Tabachnick & Fidell, 2013).

The minimal LGS and GBC non-response data in the present study was pairwise deleted because it was a very small amount of the total data collected - far less than the limit of 5% - and it was missing at random. The two participants with non-responses on the entire Personal Strivings Measure both fully completed the GBC and LGS. Hastings et al. (2015) argued that in generativity research, listwise deletion of participants who grow bored and do not maintain a generative desire to contribute can bias a sample in favor of participants who display a generative motivation to complete the entire survey. The two participants in the present study who did not respond to the personal strivings measure showed signs of fatigue and a lack of generative commitment to complete the survey. Therefore, pairwise deletion was used to handle this non-response data as well.

Participant Information

In total, 135 NHRI students participated in the cross-sectional study. Participants were 44.6% male and 55.4% female. Cohort 1 (1st year mentors) had 48 participants (35.6%), cohort 2 (2nd year mentors) had 51 participants (37.8%), and cohort 3 (3rd year mentors) had 36 participants (26.7%). Additionally, 45 NHRI students participated in the longitudinal study. Participants were 43.8% male and 65.2% female.

MANCOVA

A multivariate analysis of covariance (MANCOVA) was selected for the cross-sectional study to test changes in a dependent variable (generativity) across age cohorts while controlling for a covariate (gender). A repeated-measures MANCOVA was selected for the longitudinal study to test for changes in a quantitative dependent variable (generativity) using multiple measures of the dependent variable over time while controlling for a covariate (gender). MANCOVA is an appropriate data analysis procedure when random assignment is not possible as it provides statistical matching of groups (Tabachnick & Fidell, 2013). Furthermore, MANCOVA is able to compare differences in generativity across age cohorts and between time periods while accounting for the effect, if any, of a covariate (Mertler & Vannatta, 2002). Utilizing MANCOVA statistical analysis and appropriately interpreting results relies on seven assumptions to be met. First, MANCOVA assumes that the observations are independent of one another, that there is not any pattern for selection of the sample, and that error terms are independent across independent variables (Tabachnick & Fidell, 2013). In the present study, each cohort is a different group within the population, participants voluntarily took part in the study, data collection took place one year apart, and each participant only completed each measure once. For these reasons, the first MANCOVA assumption was met.

Second, MANCOVA assumes that there is homogeneity of variance in the sample, meaning the variance between all comparison groups is equal. Homogeneity of variance was tested using Levene's Test of Equality of Error Variances. The F statistic for total LGS score, $F(2,132) = 1.341$, $p = 0.265$, and Personal Strivings score, $F(1,132)$

= 2.020, $p = 0.137$, were non-significant at the $p < 0.05$ level. The F statistic for total GBC score, $F(2,132) = 3.054$, $p = 0.051$, was on the verge of significant at the $p < 0.05$ level. In order to verify homogeneity of variance, an F_{max} test was conducted. The F_{max} test divides the larger variance by the smaller variance for two comparison groups on the dependent variable. The F_{max} statistic for GBC scores was 1.301 which is less than the cutoff value of 10, indicating that homogeneity of variance was achieved (Tabachnick & Fidell, 2013).

In addition, MANCOVA assumes homogeneity of variance-covariance matrices, meaning the observed covariance matrices of the dependent variables are equal across groups. A Box's Test of Equality of Covariance Matrices tests this null hypothesis. Box's test was non-significant at the $p < 0.05$ level ($p = 0.137$), meaning the covariance matrices were equal across cohorts in the present study. Therefore, the third MANCOVA assumption was met.

The fourth assumption is linearity among dependent variable pairs, covariates, and covariate-variable pairs. No violations of linearity occurred, so it was not necessary to create and examine scatterplots for each pair of dependent variables within each group (Tabachnick & Fidell, 2013).

The fifth assumption is homogeneity of regression. It is common practice to ask if a statistical relationship exists between covariate(s) and independent variables. In the present study, there was no significant relationship between the independent variable (age cohort) and the covariate (gender) at the $p < 0.05$ level as evidenced by the Wilks' Lambda Test, $F(21) = 0.1.552$, $p = 0.058$.

The sixth MANCOVA assumption is reliability of covariates, meaning the covariate is measured with little to no error. Relatively stable covariates like sex and age tend to be perfectly reliable (Tabachnick & Fidell, 2013). In the current study, the covariate (gender) is demographic in nature so it can be assumed that participants were reliable in self-reporting. Therefore, the assumption was met.

The final assumption is an absence of multicollinearity and singularity, meaning the dependent variables cannot be too correlated to one another. Tabachnick and Fidell (2013) suggest that no correlation should be above $r = 0.90$. In the present study, all dependent variables are correlated below $r = 0.90$ (see Table 5).

Table 5

Dependent Variable Intercorrelations Cross-Sectional Data Analysis

Dependent Variable	Total LGS Score	Total GBC Score	Total Personal Strivings Score
1. Total LGS Score	-	-	-
2. Total GBC Score	0.57	-	-
3. Total Personal Strivings Score	0.07	0.01	-

Descriptive Statistics. Table 6 includes means and standard deviations for the three dependent variables within each age cohort.

Table 6

Descriptive Statistics Within Each Age Cohort for Each Dependent Variable

Dependent Variable	Age Cohort 1 (n=48) M (SD)	Age Cohort 2 (n=51) M (SD)	Age Cohort 3 (n=36) M (SD)
Total LGS Score	65.40 (5.073)	67.71 (5.077)	67.22 (5.514)
Total GBC Score	70.5 (10.345)	72.94 (7.953)	75.03 (10.024)
Total Personal Strivings Score	3.81 (1.58)	3.63 (1.523)	3.78 (1.899)

Cross-Sectional Multivariate Test. To test the effect of age cohort on generativity level during one time point, a MANCOVA analysis was conducted. The MANCOVA analysis uses four multivariate tests to examine this effect: (a) Pillai's Trace (used when Box's Test is significant); (b) Wilks' Lambda (used when Box's Test is non-significant and there are multiple groups in the analysis); (c) Hotelling's Trace; (d) Roy's Largest Root. Box's Test was non-significant at the $p < 0.05$ level so Wilks' Lambda was interpreted, $F(2,132) = 1.337$, $p = 0.24$. Wilks' Lambda was not significant at the $p < 0.05$ level ($p = 0.24$) so there was no significant difference in generativity scores across age cohorts. The partial eta squared value ($\eta^2 = 0.03$) indicates that approximately 3% of participants' variance in generativity scores can be attributed to their age cohort after controlling for gender. This partial eta squared value can be regarded as a small effect size (< 0.06). Because the main effect of age cohort on level of generativity for college

students who mentor was non-significant, the reported 3% variance in participants' generativity scores as a result of age cohort is no different than a 0% variance. No further investigation into this effect was conducted. Profile plots of the effect of age cohort on each dependent variable are displayed below: total LGS scores (Figure 5), total GBC scores (Figure 6), total Personal Strivings scores (Figure 7).

The covariate in the present study (gender) demonstrated a significant main effect on level of generativity for college student mentors, $F(2,132) = 4.037$, $p < 0.01$. The partial eta squared value for gender ($\eta^2 = 0.086$) indicates that approximately 8.6% of participants' variance in generativity scores can be attributed to their gender. This partial eta squared value can be regarded as a medium effect size (> 0.06).

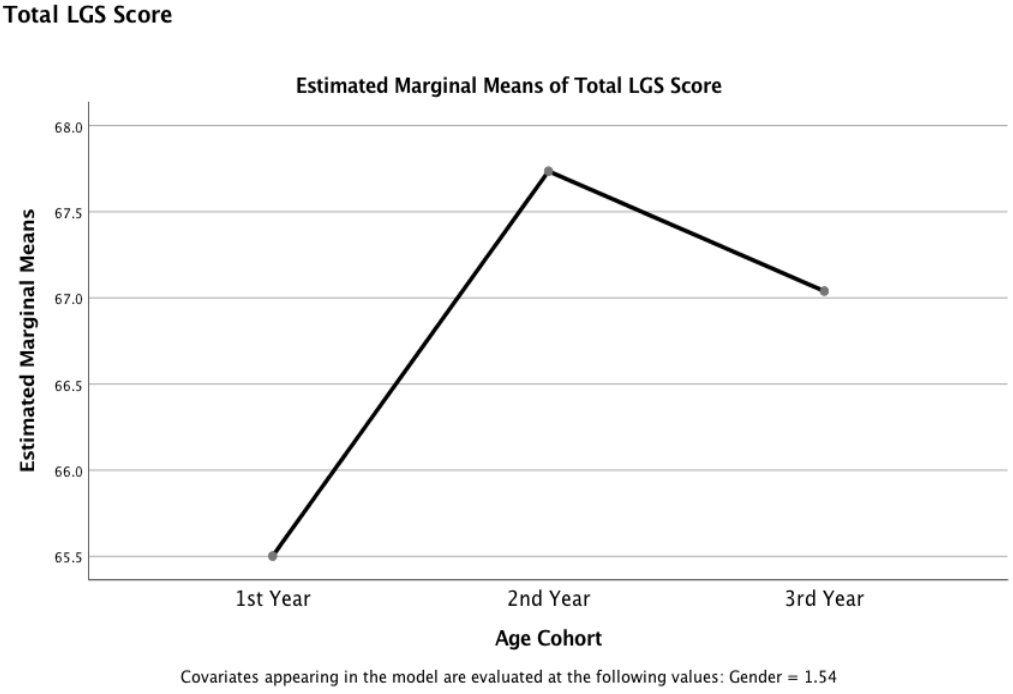

Figure 5. Profile plot of total LGS scores (MANCOVA).

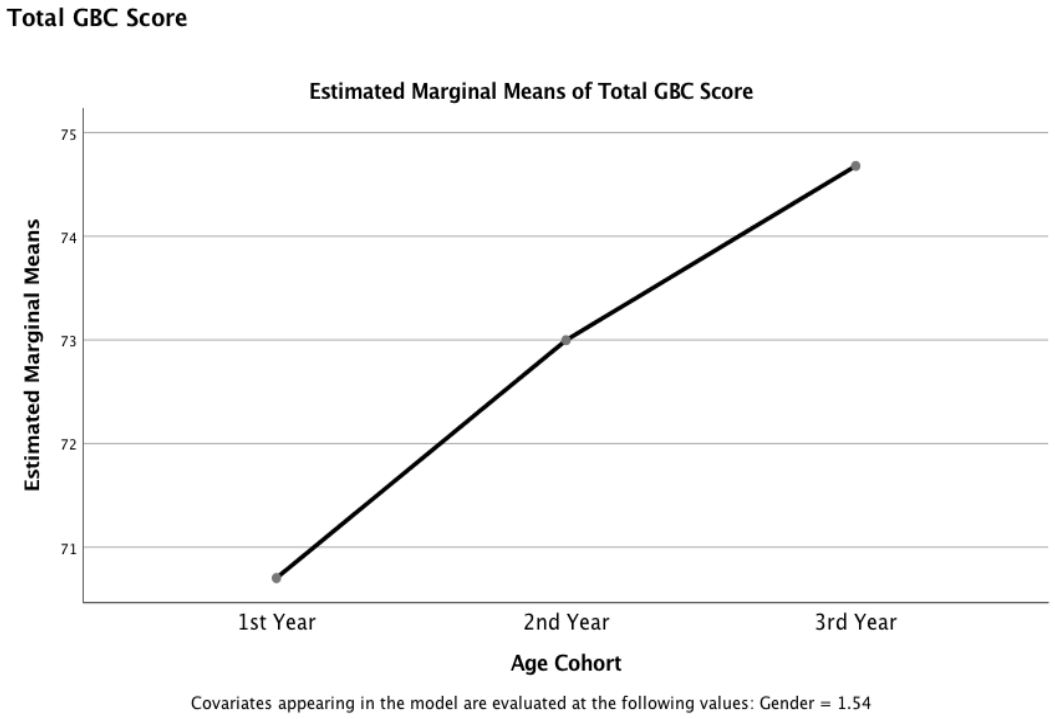

Figure 6. Profile plot of total GBC scores (MANCOVA).

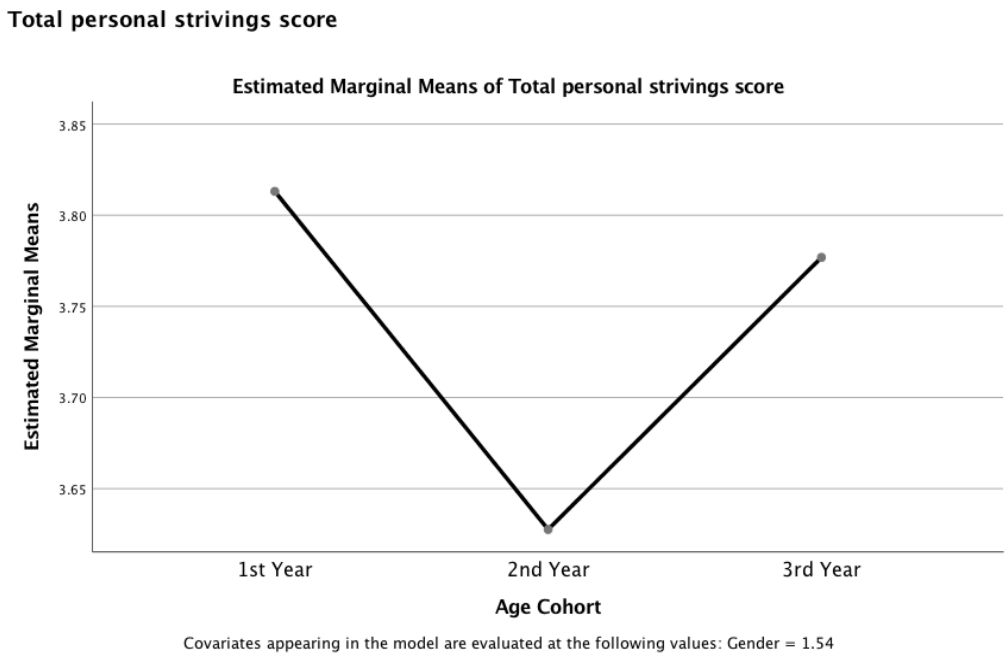

Figure 7. Profile plot of total Personal Strivings scores

Repeated Measures Multivariate Test. In order to conduct the repeated measures multivariate test, cohort 2 and cohort 3 participants' data from the present study were merged with the same participants' data from Sunderman's (2018) study. Participants' total LGS scores, total GBC scores, and Personal Strivings scores from Sunderman's (2018) study were merged in SPSS with their scores on the same measures from the current study. The seven assumptions of MANCOVA were checked with the longitudinal data set prior to conducting repeated measures MANCOVA data analysis.

The assumption of independence of observations and independence of error terms was met because each cohort is a different population and each participant only completed each measure once per data collection period (twice total). Levene's test of Equality of Error Variances indicated that the assumption of homogeneity of variance was met for the LGS and Personal Strivings Measure. The GBC was significant at the $p < 0.05$ level, $F(1,44) = 4.666$, $p < 0.05$ so an F_{max} test was conducted. The F_{max} statistic was 1.254 which is well below the threshold value of 10, meaning the assumption of homogeneity of variance was met for all dependent variables (DVs) (Tabachnick & Fidell, 2013). No violations of linearity occurred, so it was not necessary to create and examine scatterplots for each pair of dependent variables within each group. To test for homogeneity of regression, Wilks' Lambda test indicated no significant correlation between the covariate (gender) and independent variable (time), $F(36) = 0.558$, $p = 0.098$. In terms of reliability of covariates, it is safe to assume that participants reliably reported their gender during time one and time two data collection periods. In addition, all dependent variables were correlated below $r = 0.90$ (see Table 7), confirming the assumption of multicollinearity and singularity.

Table 7

Dependent Variable Intercorrelations Repeated Measures Data Analysis

Dependent Variable	Total LGS Score	Total GBC Score	Total Personal Strivings Score
1. Total LGS Score	-	-	-
2. Total GBC Score	0.608	-	-
3. Total Personal Strivings Score	0.150	0.229	-

The repeated measures analysis of the present study examined participants who were first year mentors (cohort 1) and second year mentors (cohort 2) in Sunderman's (2018) study. In the present study, these participants were second year mentors (cohort 2) and third year mentors (cohort 3) respectively. Sunderman's (2018) study collected data from 28 participants in cohort 1 and 33 participants in cohort 2 for a total of 61 students. Of these original 61 participants, 7 were no longer involved with NHRI at the time of data collection for the present study. An additional two participants had remained anonymous in Sunderman's study, preventing their responses from being matched to a participant in the present study. The remaining 52 participants represented the maximum number of participants who could have comprised the sample size for the repeated measures analysis of the present study. Sample size requirements for sufficient power were calculated based on Tabachnick and Fidell's (2013) recommendation of $50 + 8m$ where m is the number of independent variables. The present study includes one

independent variable (time), meaning a sample size of 58 was required in order to guarantee accurate and reliable statistical judgements. The total sample size available at the time of data collection (n = 52) and the final sample size after data collection (n = 45) were ultimately less than the ideal sample size necessary for repeated measures MANCOVA analysis.

To test for changes in generativity level between two time periods, a repeated measures MANCOVA analysis was conducted. Wilks' Lambda was interpreted, $F(3,41) = 0.927$, $p = 0.436$. Wilks' Lambda was not significant at the $p < 0.05$ level ($p = 0.436$) so there was no significant change in generativity scores within individuals between two time points. The partial eta squared value ($\eta^2 = 0.064$) indicates that approximately 6% of participants' variance in generativity scores can be attributed to the change in time between data collections after controlling for gender. This partial eta squared value can be regarded as a medium effect size (> 0.06). Because the main effect of time on level of generativity for college students who mentor was non-significant, the reported 6% variance in participants' generativity scores as a result of time spent mentoring is no different than a 0% variance. No further investigation into this effect was conducted. Profile plots of the effect of time on each dependent variable are displayed below*:* total LGS scores (Figure 8), total GBC scores (Figure 9), total Personal Strivings scores (Figure 10).

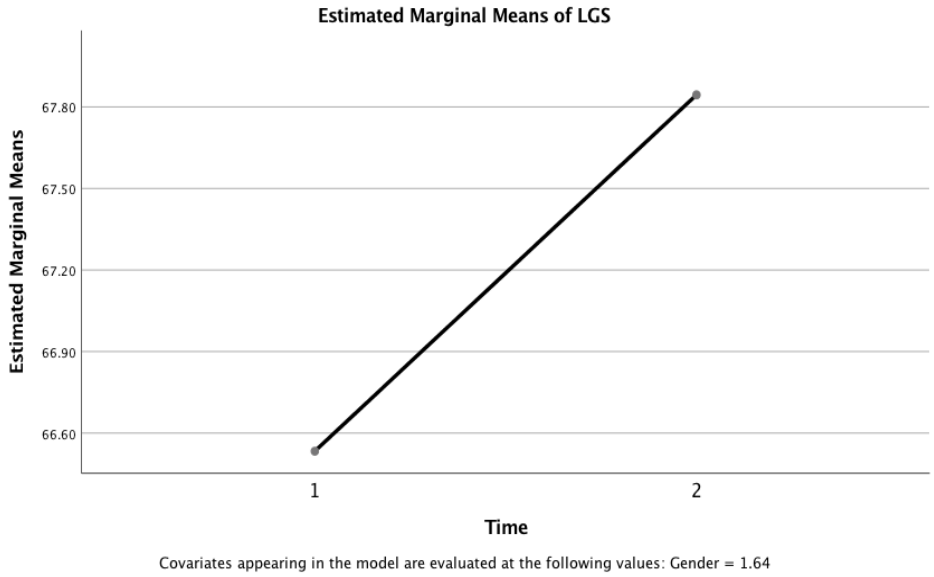

Figure 8. Profile plot of change in LGS score over time (Repeated Measures MANCOVA).

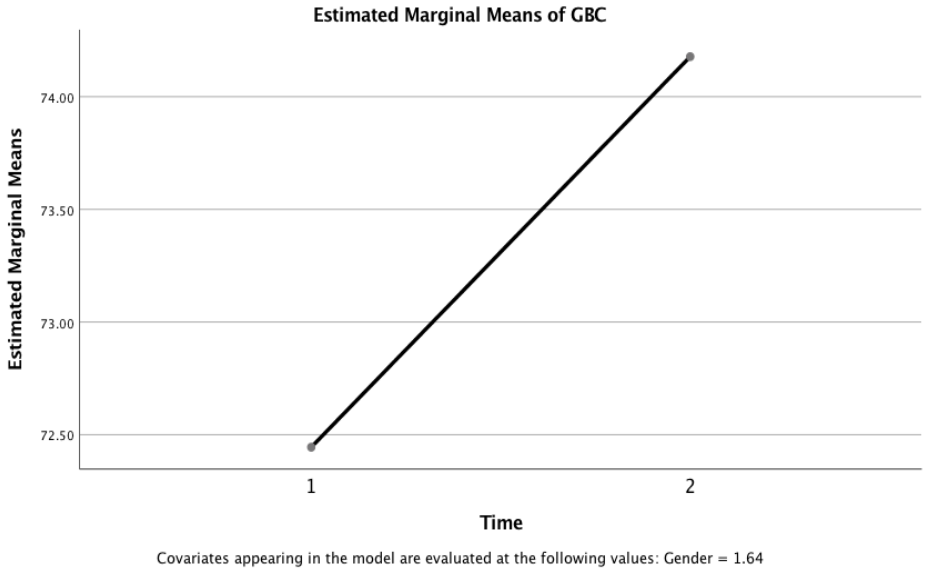

Figure 9. Profile plot of change in GBC score over time (Repeated Measures MANCOVA).

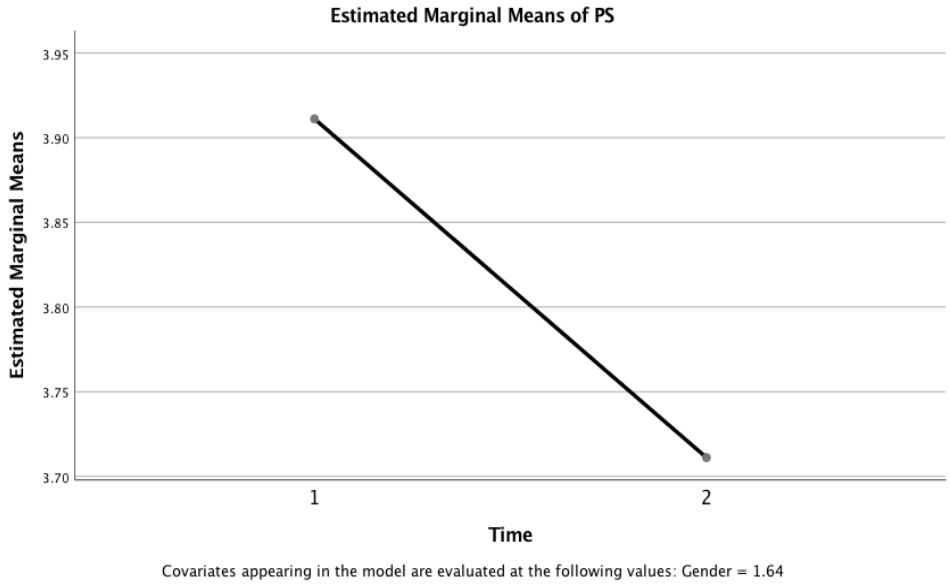

Figure 10. Profile plot of change in Personal Strivings scores over time (Repeated Measures MANCOVA).

Summary of Results

The results of cross-sectional MANCOVA analysis revealed a non-significant statistical relationship between years spent mentoring and generativity level for college student mentors after controlling for gender. The results of the repeated measures MANCOVA analysis revealed a non-significant statistical change in generativity scores for college student mentors during a one-year time period. Chapter 5 will present a discussion of research findings, conclusions drawn from data analysis, and recommendations for future research.

CHAPTER 5

Discussion

The purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors. Chapter 5 is dedicated to interpreting the results of the study and explaining how they answer the research question: *To what extent do college students who mentor with NHRI experience generativity development over time after controlling for gender?* The chapter also discusses how the present findings contribute to the generativity literature and identifies implications for the research in existing college mentoring organizations. Finally, the researcher provides recommendations for future research.

Overview

As previously stated, the purpose of this study was to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors. The researcher utilized a quantitative, non-experimental design to examine differences in participants' generativity within subjects and across age cohorts. Data were collected from college student mentors in NHRI, a leadership-based mentoring organization. The independent variable in the cross-sectional study was age cohort, defined as the number of years in NHRI. The independent variable in the longitudinal study was time between data collections. Generativity, defined as "primarily the concern in establishing and guiding the next generation" (Erikson, 1950, 1963, p. 267), was the dependent variable in the study and was operationally defined as scores on: (a) The Generativity Behavior Checklist (GBC;

McAdams & de St. Aubin, 1992), a list of everyday actions within the three common behavioral manifestations of generativity: creating, maintaining, or offering; (b) The Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992), a 20-item self-report scale measuring generative concern ; and (c) a report of personal strivings that measures generative commitment (Emmons, 1986). The control variable in this study was gender which was collected through participant self-report.

MANCOVA data analysis for the cross-sectional study was used to test one categorical independent variable (age cohort) and a quantitative dependent variable (generativity) while controlling for the effect of a covariate (gender). During cross-sectional data analysis, participants' scores on the LGS, GBC, and Personal Strivings Measure were compared between students in cohort 1 (1st year mentors), cohort 2 (2nd year mentors), and cohort 3 (3rd year mentors). MANCOVA data analysis indicated that there was no significant difference in generativity scores across age cohorts. Gender demonstrated a significant main effect on level of generativity for college student mentors which was consistent with findings in previous generativity research (Hastings et. al, 2015; McAdams & de St. Aubin, 1992; Sunderman, 2018). The repeated measures data analysis examined generativity development in participants from Sunderman's (2018) study over a one-year time period. Repeated measures MANCOVA data analysis indicated that there was no significant generativity development over a one-year time period for college student mentors. The results from this analysis have limited interpretability due to an insufficient sample size and a lack of power to fully identify a main effect.

Discussion of Results

Generativity and Mentoring. The act of mentoring is one of the proposed antecedents that leads to generativity development (Azarow, et. al, 2003; Hastings, et al., 2015). Research has shown that college students who mentor tend to demonstrate higher levels of generativity than other college student leaders and general college students (Hastings et al., 2015), but the results of the present study indicate that college student mentors with more mentoring experience do not demonstrate significantly higher generativity levels than mentors with less mentoring experience. The results of the current study do not necessarily contradict the findings of Hastings et al. (2015), but they do help to explain the role mentoring plays as a developmental antecedent to generativity.

Qualitative results from Hastings and colleagues (2015) study indicated that students may enter a mentoring role with a "seed of generativity" (p. 663) already planted and that generativity gradually becomes a part of what they do and who they are as a result of their mentoring experience. The cross-sectional and repeated measures findings in the current study point out that experience mentoring in college did not influence generativity levels for students who have mentored for more years compared with students who have mentored for fewer years. Perhaps NHRI mentors begin to claim a generative identity as they are better able to identify and describe generativity over time, not as they become significantly more generative themselves. A mentoring experience may give students the language to describe generative behaviors that ultimately become a part of their identity, but across a sample of college students with different amounts of mentoring experience, significant generativity development has not been observed. The findings from the present study substantiate the idea that college students seek out a

mentoring program like NHRI because they already have significantly higher levels of generativity than other college students. Sunderman (2018) supports this conclusion by suggesting that perhaps an *interest in mentoring*, rather than the *act of mentoring*, impacts generativity levels. Perhaps an interest in mentoring should be considered as an antecedent to generativity rather than the act of mentoring itself.

Generativity is a life-cycle construct, meaning it develops over the course of one's lifetime. The literature suggests that although young adults have the capacity for generativity (Ackerman, Zuroff, & Moskowitz, 2000), generativity fully emerges once an individual reaches adulthood (McAdams & de St. Aubin, 1992). In the present study, generativity development was examined in college student mentors over the course of three years. Statistically significant change was not observed in that time which highlights the possibility that three years may not be long enough to detect significant generativity development.

Generativity and the Leadership Identity Development Model. In addition to implications for generativity in college student mentors, the findings from the present study provide insights into the LID model (Komives et al, 2005, 2006). This model was developed from a grounded theory study examining the interview results regarding the leadership identity of 13 undergraduate students. The LID model includes six stages, each of which must be fully explored before a student moves onto the next (see Figure 3; see p. 25). The fifth stage of the LID model is generativity, in which students become actively committed to larger purposes and to the groups and individuals who sustained them (Komives et al., 2005). Students who reach the generativity stage often play a

mentorship role in the lives of younger students in their organizations (Komives et al., 2006).

The results from Hastings and colleagues (2015) explanatory sequential mixed-methods study supported the inclusion of a generativity stage in the LID model (Komives et al., 2005, 2006). Quantitative data results indicated that college students who mentor and college student leaders who do not mentor have a significantly higher generative concern with doing things that will have an enduring legacy and they exhibit significantly more generative behaviors than general college students who are not leaders and do not mentor (Hastings et al. 2015). This finding supports the LID model's description of generative leadership behavior including a commitment to sustaining groups and mentoring younger students in their organizations. The qualitative findings of Hastings et al. (2015) indicated that college students who mentor experience generativity as a part of their personal identity - it integrates into what they do and who they are. These results support the idea that college student leaders and college students who mentor can develop their leadership identity through the generativity stage in college.

Given the LID model's inclusion of four stages before the generativity stage, each of which must be fully explored before a student moves onto the next, one might expect generativity development to occur later in a college student's academic career (junior or senior year) rather than early on in their academic career (freshman or sophomore year). The results of the present study do not support this notion and indicate that college students do not experience an increase in generativity towards the end of their time in college as they prepare to leave their organizations and prepare younger students to take their place.

Although college student leaders may enter college with a "seed of generativity" already planted and a mentoring experience like NHRI may act as a "lab" for students to develop their generativity (Hastings et al., 2015, p. 663), the results of the present study do not support the idea that mentoring alone leads to significant generativity development throughout a student's academic career. The difference in generativity between college students who mentor and college student leaders who do not mentor may be significant before the college student leaders begin mentoring and remain significant yet relatively constant throughout students' years spent mentoring.

In conclusion, the results of cross-sectional MANCOVA analysis revealed a non-significant statistical relationship between years spent mentoring and generativity level for college student mentors after controlling for gender. Gender demonstrated a significant main effect on level of generativity for college student mentors, which was expected based on findings in previous research (Hastings et. al, 2015; McAdams & de St. Aubin, 1992). The present findings suggested that the act of mentoring may not have as significant of an effect on generativity level as originally proposed (Hastings et al., 2015), and that an interest in mentoring is perhaps a more appropriate antecedent for generativity development than the act of mentoring. In addition, the results from the present study did not support the idea that college student leaders experience an increase in generativity toward the end of their college experience as shown in the LID model (Komives et al., 2005, 2006). Further research is needed to fully understand the generativity development of college students and the impact that mentoring and interest in mentoring has on generativity. Calls for future research are included in the following section.

Future Research

Previous generativity research by Hastings et al. (2015) and Sunderman (2018) called for a longitudinal study to examine the influence of years spent mentoring and year in college on generativity level for college student mentors. The present study answered this research call, but due to an insufficient sample size, the results of the longitudinal study have limited interpretability and insufficient power to fully identify a main effect. A future study could extend the longitudinal component of this study to examine college student mentors who were first year mentors in Sunderman's (2018) study, second year mentors in the current study, and would be third year mentors in a future study. This study would longitudinally examine the effect of years spent mentoring on generativity development within a cohort of college student mentors over three years. In order to achieve sufficient statistical power necessary to find a main effect, a future study would ideally need to utilize multi-level modeling data analysis to deal with the relatively small sample size that would necessarily be a factor in the study. Multi-level modeling nests repeated-measures measurements within a single individual, controlling for the individual variability, which would allow the researcher to effectively conduct the proposed study with a small sample (Tabachnick & Fidell, 2013). The results of a longitudinal study could be used to draw potentially different conclusions than the conclusions from the of the present study.

The present study pointed out a potentially important distinction between the *act of mentoring* and an *interest in mentoring* in terms of impact on generativity level. This idea is supported by Sunderman's (2018) study and does not support the conclusion that the act of mentoring is an antecedent to generativity development (Hastings et al., 2015).

Future research should examine this distinction and explore if an interest in mentoring alone has a significant influence on generativity levels for college student leaders. A significant finding could expand the antecedents of generativity development for college students in the literature beyond the presence of a mentor (Espin, Stewart & Gomez, 1990) and the act of mentoring (Hastings et al., 2015).

The cross-sectional component of the present study did not find significant differences in generativity between 3 age cohorts, each separated in age by 1 year. The same design used in the present study could be expanded to age cohorts that have more substantial age and experience differences. For example, a 3-cohort study including: (a) NHRI junior counselors (ages 14-18); (b) NHRI counselors (age 19-22); (c) NHRI young alumni (ages 23-27) may reveal a significant difference in generativity levels between age cohorts. At the very least, the age and experience differences between junior counselors who have never formally mentored, counselors who are currently mentoring, and young alumni who have completed three full years of formal mentoring would more likely tap into the life-cycle nature of generativity (McAdams & de St. Aubin, 1992).

The present study specifically examined generativity development in college students who had experience mentoring a younger student. Many other populations and settings exist in which similar research would be worthwhile, including: (a) replicating the current study for mentoring relationships in the workplace; (b) replicating the current study for college student mentors in another organization; (c) examining the effects of having a college student mentor on generativity development of the mentee. Each of the aforementioned future research studies, along with others not mentioned here, may

provide findings that elucidate the impact of mentoring on generativity development and provide evidence for other antecedents of generativity.

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APPENDIX A

Quantitative Measures

Loyola Generativity Scale (McAdams & de St. Aubin, 1992)
Instructions: Please rate yourself on the items listed below. The following items are rated on a 4-point scale ranging from (0) *this statement never applies to me* to (3) *this statement applies to me very often*.

Question	0 This statement never applies to me	1 This statement rarely applies to me	2 This statement sometimes applies to me	3 This statement applies to me very often
1. I try to pass along the knowledge I have gained through my experiences				
2. I do not feel that other people need me				
3. I think I would like the work of a teacher				
4. I feel as though I have made a difference to many people				
5. I do not volunteer or work for a charity				
6. I have made and created things that have had an impact on other people				
7. I try to be creative in most things that I do				
8. I think I will be remembered for a long time after I die				
9. I believe that society cannot be responsible for providing food and shelter for all homeless people				

10. Others would say that I have made unique contributions to society				
11. If I were unable to have children of my own, I would like to adopt children				
12. I have important skills that I try to teach others				
13. I feel that I have done nothing that will survive after I die				
14. In general, my actions do not have a positive effect on others				
15. I feel as though I have done nothing of worth to contribute to others				
16. I have made many commitments to many different kinds of people, groups, and activities in my life				
17. Other people say that I am a very productive person				
18. I have a responsibility to improve the neighborhood in which I live				
19. People come to me for advice				
20. I feel as though my contributions will exist after I die				

Questions 5, 9, 13, 14, and 15 are reverse scored.

Generativity Behavioral Checklist (McAdams & de St. Aubin, 1992) Fifty-item GBC. Instructions. Below is a list of specific behaviors or acts. Over the past two months, it is likely that you may have performed some of these behaviors. It is also likely that you have not performed many of them during this time. Please consider each behavior to determine whether or not you have performed the behavior during the past two months, and if so, how many times you have performed it during the past two months. For each behavior, provide one of the following ratings:

Write a "0" in the blank before the behavior if you have not performed the behavior during the past two months.

Write a "1" if you have performed the behavior one time during the past two months.

Write a "2" if you have performed the behavior more than once during the past two months.

____ 1. Taught somebody a skill.

____ 2. Served as a role model for a young person.

____ 3. Won an award or contest.

____ 4. Went to see a movie or play.

____ 5. Gave money to a charity.

____ 6. Did volunteer work for a charity.

____ 7. Listened to a person tell me his or her personal problems.

____ 8. Purchased a new car or major appliance (e.g., dishwasher, television set).

____ 9. Taught Sunday School or provided similar religious instruction.

____ 10. Taught somebody about right and wrong, good and bad.

____ 11. Told somebody about my own childhood.

____ 12. Read a story to a child.

____ 13. Babysat for somebody else's children.

____ 14. Participated in an athletic sport.

____ 15. Gave clothing or personal belongings to a not-for-profit organization (such as the "Good Will," "Salvation Army," etc.).

____ 16. Was elected or promoted to a leadership position.

____ 17. Made a decision that influenced many people.

____ 18. Ate dinner at a restaurant.

____ 19. Produced a piece of art or craft (pottery, quilt, woodwork, painting, etc.).

____ 20. Produced a plan for an organization or group outside my own family.

____ 21. Visited a nonrelative in a hospital or nursing home.

____ 22. Read a novel.

____ 23. Made something for somebody and then gave it to them.

____ 24. Drew upon my past experiences to help a person adjust to a situation.

____ 25. Picked up garbage/trash off the street or some other area that is not my property.

____ 26. Gave a stranger directions on how to get somewhere.

____ 27. Attended a community or neighborhood meeting.

____ 28. Wrote a poem or story.

____ 29. Took in a pet.

____ 30. Did something that other people considered to be unique and important.

____ 31. Attended a meeting or activity at a church (not including conventional worship service such as Mass, Sunday morning service, etc.).

____ 32. Offered physical help to a friend or acquaintance (helped them move, fix a car, etc.).

____ 33. Had an argument with a friend or family member.

____ 34. Contributed time or money to a political or social cause.

____ 35. Planted or tended a garden, tree, flower, or other plant.

____ 36. Wrote a letter to a newspaper, magazine, Congressman, etc. about a social issue.

____ 37. Cooked a meal for friends (nonfamily members).

____ 38. Donated blood.

____ 39. Took prescription medicine.

____ 40. Sewed or mended a garment or other object.

____ 41. Restored or rehabbed a house, part of a house, a piece of furniture, etc.

____ 42. Assembled or repaired a child's toy.

____ 43. Voted for a political candidate or some other elected position.

____ 44. Invented something.

____ 45. Provided first aid or other medical attention.

____ 46. Attended a party.

____ 47. Took an afternoon nap.

____ 48. Participated in or attended a benefit or fund-raiser.

____ 49. Learned a new skill (e.g., computer task, musical instrument, welding, etc.).

____ 50. Became a parent (had a child, adopted a child, or became a foster parent).

For the scoring procedure, cross out responses to items 3, 4, 8, 14, 18, 22, 33, 39, 46, and 47. Then, sum the rest of the item responses for the total GBC score.

Personal Strivings (McAdams et al., 1993, adapted from Emmons, 1986)
Instructions: Please write ten sentences, each beginning with "I typically try to…", and each describing a personal striving. Two blank lines will be provided for each striving. Personal strivings will be defined as "the things that you typically or characteristically are trying to do in your everyday life" and/or as the "objectives or goals that you are trying to accomplish or attain."

1. I typically try to…

_____

_____

2. I typically try to…

_____

_____

3. I typically try to…

_____

_____

4. I typically try to…

_____

_____

5. I typically try to…

_____

_____

6. I typically try to…

_____

_____

7. I typically try to…

_____

_____

8. I typically try to…

_____

_____

9. I typically try to…

_____

_____

10. I typically try to…

_____

_____

Demographic Form

Year in School: Sophomore Junior Senior

Major: _____

Gender: _____Male _____Female

G.P.A. Range :

_____0.0 – 0.99

_____1.0 – 1.49

_____1.5 – 1.99

_____2.0 – 2.49

_____2.5 – 2.99

_____3.0 – 3.49

_____3.5 – 4.0

APPENDIX B

Informed Consent Form

Institutional Review Board #: 17400

Title of Project: Generativity Development of College Student Mentors

Purpose of Study: The purpose of this study is to compare the levels of generativity within individuals and across age cohorts during a one-year time period while controlling for gender for college student mentors.

Procedures: The three surveys and demographic form you will be asked to fill out will require approximately 10-15 minutes of your time. Further, you will be asked to read this informed consent form. The information you share on these surveys and on the demographic form will be held in strict confidence.

Risks and/or Discomforts: There are no known risks or discomforts associated with this study. In the event of any problems resulting from participation in this study, psychological treatment is available on a sliding fee schedule at the UNL Psychological Consultation Center at 402-472-2531.

Benefits: There may be no direct benefit to you as a participant in this research; however, you may find the survey questions helpful in self-understanding. Additionally, the information you provide will contribute to improving the developmental opportunities offered to NHRI students and UNL students in the future.

Confidentiality: Any information obtained during this study which could identify you will be kept strictly confidential. Your name will not be included in the project or other documents. The data will be stored in a locked cabinet in the principal investigator's office and will only be seen by the investigators until the completion of the study. The information obtained in this study may be published in academic journals or presented at academic meetings, but the data will be reported as aggregate data.

Opportunity to Ask Questions: If you have any questions about this research, you may call the principal investigator, Lindsay Hastings, at any time at 402-472-3477. You may ask questions before or during the study, either by consulting the principal investigator at the telephone number above or by e-mail: lhastings2@unl.edu. If you have any questions concerning your rights as a research subject that have not been answered by the principal investigator or to report any concerns about the study, you may contact the University of Nebraska-Lincoln Institutional Review Board at 402-472-6965.

Freedom to Withdraw: Participation in this research project is voluntary and you are free to decide not to participate in this study or to withdraw at any time without adversely affecting your current and/or future relationships with the investigators, NHRI, the NHRI Director, NHRI Staff, or the University of Nebraska-Lincoln. Your decisions will not result in any loss of benefits to which you are otherwise entitled.

Consent, Right to Receive a Copy: You are voluntarily making a decision whether or not to participate in this research study. By completing the surveys, you are showing your consent. You may retain a copy of this consent form for your records.

Name and Telephone Numbers of Investigators:

Dr. Lindsay J. Hastings, Principal Investigator - (402) 472-3477
Nick Knopik, Secondary Investigator - (402) 560-4629

APPENDIX C
In-Person Scripts

As a NHRI student, you have been invited to participate in a research study examining generativity development over time for NHRI college students at UNL. Generativity refers to your attitudes and behaviors toward the next generation.

The survey and demographic form you will be asked to fill out will require approximately 10 – 15 minutes of your time. Further, you will be asked to read an Informed Consent letter. The information you share on this survey and demographic form will be held in strict confidence.

Participation in this research project is voluntary and you are free to decide not to participate in this study or to withdraw at any time without adversely affecting your current and or future relationship with the investigators, NHRI, the NHRI Director, NHRI Staff, or the University of Nebraska-Lincoln. Your decision will not result in any loss of benefits to which you are otherwise entitled.

Attached to this email is the informed consent form as well as a link to the surveys, which you will have time to complete during project meeting this week. If you cannot attend project meeting this week, please read the informed consent form and, should you decide to participate, begin completing the survey and demographic form. You are not required to sign and return the consent form. You will demonstrate your consent by completing the surveys.

If you have any questions about this research, you may call the principal investigator, Lindsay Hastings, at any time at 402-472-3477 or the secondary investigator, Nick Knopik, at 402-560-4629

You may ask questions before, or during the study, either by contacting Lindsay or Hannah at the telephone numbers above or by email: lhastings2@unl.edu or nknopik@huskers.unl.edu, respectively. If you have any questions concerning your rights as a research subject that have not been answered by the principal investigator or to report any concerns about the study, you may contact the University of Nebraska-Lincoln Institutional Review Board at 402-472-6965.

There may be no direct benefit to you as a participant in the research; however, the information you provide will contribute to help determine effective developmental opportunities for college students in the future.

I hope you will consider assisting us in this research.