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# EXAMINING GENERATIVITY DEVELOPMENT AMONG COLLEGE STUDENT LEADERS WHO MENTOR

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EXAMINING GENERATIVITY DEVELOPMENT AMONG  
COLLEGE STUDENT LEADERS WHO MENTOR

by

Hannah M. Sunderman

A THESIS

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Under the Supervision of Professor Lindsay J. Hastings

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EXAMINING GENERATIVITY DEVELOPMENT AMONG  
COLLEGE STUDENT LEADERS WHO MENTOR

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University of Nebraska, 2018

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The purpose of this cross-sectional study was to examine the influence, if any, of age cohort on generativity among college student leaders who mentor. While previous research has revealed that college student leaders who mentor tend to demonstrate higher levels of generativity than other college student leaders and general college students (Hastings, Griesen, Hoover, Creswell, & Dlugosh, 2015), research as to the development of generativity among college student leaders who mentor has not been determined. Additionally, a need exists for further research on the antecedents of generativity (McAdams, 2001, p. 434). The current study sought to fill these gaps in the literature by examining the influence of year in college and years spent mentoring, on generativity levels for University of Nebraska-Lincoln (UNL) students who mentor with the Nebraska Human Resources Institute (NHRI). Data were collected via an online survey (N=91) using the Loyola Generativity Scale, Generativity Behavior Checklist, and the Personal Strivings measure to assess generativity. A multivariate analysis of covariance indicated that age cohort (year in college and years spent mentoring) did not have a significant influence on generativity after controlling for the influence of gender, G.P.A. range, and major. These results bring into question if and how mentoring acts as an antecedent to generativity development, leading to the potential that “interest in mentoring” be considered an antecedent to generativity rather than the “act of mentoring.” Furthermore,

the finding of the current study presents insight on the influence of generativity on college students' leadership identity development.

## TABLE OF CONTENTS

List of Figures .....	p. vi
List of Tables .....	p. vii
CHAPTER 1: Introduction .....	p. 1 - 2
Research Problem .....	p. 2 - 3
Study Description.....	p. 3 - 4
Purpose Statement.....	p. 4
Research Questions .....	p. 4
Relevance for Audience.....	p. 4 - 5
Definition of Terms.....	p. 6 - 7
Delimitations .....	p. 8
Limitations .....	p. 8 - 9
CHAPTER 2: Literature Review .....	p. 10
Foundations of Generativity Research.....	p. 11 - 16
Generativity Framework .....	p. 16 - 24
Generative Societies and Groups .....	p. 24 - 27
Generativity and Age .....	p. 27 - 34
Mentoring.....	p. 34 - 38
CHAPTER 3: Methods .....	p. 39
Approach and Tradition Rationale.....	p. 39 - 40
Participants.....	p. 41 - 44
Design and Data Collection .....	p. 44 - 50
Threats to Validity .....	p. 50 - 51
CHAPTER 4: RESULTS .....	p. 52
Variables .....	p. 52 - 55
Data Analysis .....	p. 55 - 72
CHAPTER 5: DISCUSSION.....	p. 73
Overview.....	p. 73
Interpreting the Results .....	p. 74 - 79
Future Research .....	p. 79 - 81
REFERENCES .....	p. 82 - 92

## APPENDICES

A. Quantitative Measures .....	p. 93
Loyola Generativity Scale.....	p. 93 - 94
Generativity Behavior Checklist.....	p. 95 - 98
Personal Strivings .....	p. 99 - 100
Demographic Form .....	p. 101
B. Informed Consent Form .....	p. 102 - 103
C. Sample E-mail Scripts.....	p. 104 - 105
D. In-Person Scripts.....	p. 106

## List of Figures

Figure 1.	Literature review map .....	p. 10
Figure 2.	Generativity theory .....	p. 17
Figure 3.	MANCOVA analysis .....	p. 57
Figure 4.	Profile plot of LGS subscale 1 .....	p. 69
Figure 5.	Profile plot of LGS subscale 2 .....	p. 70
Figure 6.	Profile plot of LGS subscale 3 .....	p. 70
Figure 7.	Profile plot of LGS subscale 4 .....	p. 71
Figure 8.	Profile plot of LGS subscale 5 .....	p. 71
Figure 9.	Profile plot of Total Generativity Behavior Checklist .....	p. 72
Figure 10.	Profile plot of Total Personal Strivings .....	p. 72

## List of Tables

Table 1.	Six stages of the LID Model .....	p. 33
Table 2.	Loyola Generativity Scale subscales .....	p. 47
Table 3.	Variables and covariates .....	p. 52
Table 4.	Mentoring and year in college .....	p. 53
Table 5.	Skewness and kurtosis .....	p. 59
Table 6.	Homogeneity of regression test .....	p. 65
Table 7.	Dependent variable intercorrelations .....	p. 66
Table 8.	Covariate intercorrelations.....	p. 66
Table 9.	Descriptive statistics .....	p. 67



## **Chapter 1**

### **Introduction**

Generativity, defined as “primarily the concern in establishing and guiding the next generation” (Erikson, 1950, 1963, p. 267), has been a focus of developmental theory for decades (Browning, 1997; Gruen, 1964; Kotre, 1984; McAdams, 1995; McAdams, D.P. & Logan, R., 2004; McAdams, 2001). Erikson, often believed to be the first theoretician to write an account of generativity (Wakefield, 1998), wrote of the concept as the seventh phase of the eight successive stages of life development (Kotre, 1984) in which a midlife adult either seeks to create and leave a legacy that will live on after death, labeled generativity, or reverts to increased self-centeredness, labeled stagnation (Erikson, 1950). When individuals embrace generativity, which is most commonly experienced through parenthood (Erikson, 1964; McAdams, 2001; Erikson, 1950, 1963), teaching (Kotre, 1984), sharing cultural understanding (Kotre, 1984; Leffel, 2008), mentoring (Azarow, Manley, Koopman, Platt-Ross, Butler, & Spiegel, 2003) and leadership (Huta & Zuroff, 2007), they demonstrate increased levels of psychological well-being (Ochse & Plug, 1986), life satisfaction (Grossbaum & Bates, 2002; Huta & Zuroff, 2007), work satisfaction (Ackerman, Zuroff, & Moskowitz, 2000), and positive affectivity (Ackerman et al., 2000; Huta & Zuroff, 2007; McAdams & Logan, 2004). In addition to the personal benefits of increased generativity, society also relies on generativity. Without the generative actions of individuals through parenting, teaching, identity and morality formation, leadership, and creations that serve others (Azarow et al., 2003; Browning, 1973; Erikson, 1964; Imada, 2004; Wakefield, 1998), “our communities would grind to a halt” (Huta & Zuroff, 2007, p. 47). Generativity has also been identified as the strongest predictor of social responsibility in family, work, and community

environments (Rossi, 2001a). The purpose of this quasi-experimental study was to address the gaps in the literature by assessing the change in generativity levels among age cohorts, which correspond with years spent mentoring, for University of Nebraska-Lincoln (UNL) college students who mentor with the Nebraska Human Resources Institute (NHRI).

### **Research Problem**

Within Erikson's model of the stages of life development, generativity is portrayed as a phase experienced at midlife (Erikson, 1950, 1963). In this model youth are concerned about establishing identity and building relational intimacy, while midlife adults experience an increase in generative concern, commitment, and behavior (Erikson, 1950, 1963). As individuals move past this phase into ego integrity versus despair, focus on generativity decreases, as it is less relevant to the life stage. However, research points to the possibility that generativity development occurs at a far younger age (Espin, Stewart, & Gomez, 1990; McAdams, de St. Aubin, & Logan, 1993), specifically finding that generativity appears to be a developing component of moral concern in adolescence and young adulthood (Lawford, Pratt, Hunsberger, & Pancer, 2005). Previous researchers' focus on generativity at midlife articulates an implicit assumption that generative care matters less to adolescents and young adults and may not even be possible until midlife, which has directed a disproportionate amount of research toward middle age populations and a relative exclusion of adolescents and young adults (Leffel, 2008).

In addition to the existing need for more research focused on generativity at ages younger than midlife, there is a need for further research on the antecedents of

generativity (McAdams, 2001, p. 434). Notably, Hastings, Griesen, Hoover, Creswell, & Dlugosh (2015) conducted a study assessing generativity levels among varied groups of college students, the results of which revealed that college student leaders who mentor tend to demonstrate higher levels of generativity than other college student leaders and general college students. While the study conducted by Hastings et al. (2015) points to the influence of mentoring on generativity, research as to the rate at which this generative edge demonstrated by college leaders who mentor develops has not been determined. The current study may fill these gaps in the literature as it sought to test the theory of generativity by assessing the influence of years in college on generativity level for college student mentors in the Nebraska Human Resources Institute (NHRI) at the University of Nebraska-Lincoln (UNL).

### **Study Description**

In the current study, age cohort, the independent variable, was operationally defined as number of years in college and number of years spent mentoring with Cohort One being second year in college and first year mentoring, Cohort Two as third year in college and second year mentoring, and Cohort Three being fourth year in college and third year mentoring. Generativity, the dependent variable, was operationally defined as score on (a) the Loyola Generativity Scale (LGS; McAdams & de St. Aubin, 1992), which is a self-report scale measuring differences in generative concern, which has been linked to generative behaviors (Ackerman et al, 2000), political interest (Peterson, 2006), life satisfaction and overall happiness (De St. Aubin & McAdams, 1995) and positive interpersonal relationship (Ackerman et al., 2000); (b) The Generativity Behavior Checklist (GBC; McAdams & de St. Aubin, 1992), an assessment of individual

differences in generative behavior within the categories of creating, maintaining, and offering; and (c) the Personal Strivings Measure that assesses generative commitment (Emmons, 1986).

Preliminary statistical assessments were conducted before a factorial MANCOVA analyzed the data of the current study. A factorial MANCOVA was selected to test the data because the current study sought to examine the influence of year in college and years spent mentoring, on generativity level, which resulted in the study having multiple dependent variables, while also allowing for the assessment of the influence of covariates (gender, G.P.A. range, and college major; see Table 3).

### **Purpose Statement**

The purpose of this cross-sectional study was to examine the influence, if any, of age cohort on generativity among college students who mentor.

### **Research Question**

1. Do college students who mentor with NHRI demonstrate a significant difference by age cohort in generativity levels after controlling for gender, G.P.A. range, and college major?

### **Relevance for Audience**

A study comparing generativity levels between age cohorts of college students who mentor is significant for numerous reasons. First, understanding the relationship between year in college (and, therefore, number of years spent mentoring) and generativity levels may help to reveal the developmental pattern of generativity among college student leaders who mentor. This development is particularly relevant given the widespread emphasis on leadership development in college and a need for resources and

tools that can “document and demonstrate impact” (Reinelt & Russon, 2003, p. 129) of leadership growth in college. Second, with an awareness that generativity is necessary for stable societies (Browning, 1973; Erikson, 1964; Imada, 2004), an increased knowledge of generativity at a younger age than typically studied would meet a need in the research field, contributing to the body of research conducted about generativity in young adults, and may encourage developmental programming that effectively furthers generative leadership and social responsibility. This would provide insight as to the evolving impact of mentoring on generativity, which may lead to outcomes such as an increased focus on mentoring at a collegiate level and beyond.

## **Definition of Terms**

*Senior Counselor* – A college student leader selected for participation in the Nebraska Human Resources Institute (NHRI) as a mentor to a young person. He/she has the task of building an investment-level relationship with a junior counselor for approximately three years and promoting the junior counselor’s leadership development (NHRI, n.d.).

*Generativity* —“the concern in establishing and guiding the next generation” (Erikson, 1950, 1963, p. 267).

*Generative Action* – physical behaviors benefitting the well-being of future generations motivated by cultural demand or inner desire (de St. Aubin & McAdams, 1995).

*Generative Commitment* – demonstrated by goals and decisions that take responsibility for the next generation, better one’s community, and leave a lasting legacy (McAdams & de St. Aubin, 1992).

*Generative Concern* – “an overall orientation or attitude regarding generativity in one’s own life and social world” (McAdams et al., 1998, p. 20), which ideally stimulates generative action (McAdams & de St. Aubin, 1992).

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

*Investor* – An individual whose role is to discover the talents of the recipient investee and develop stimulus situations to build competency in the investee’s talents (Dodge, 1986).

*Junior Counselor* – A K-12 student leader selected for the Nebraska Human Resources Institute on the basis of his/her leadership talents. The student is the investee of the senior

counselor's human relations capital through the course of the approximately three-year relationship (Hastings, 2015).

*Multivariate Analysis of Covariance (MANCOVA)* – A statistical procedure testing the effect of certain factors on the linear combination of multiple outcome variables after minimizing the confounding effect of other factors (covariates).

*Ripple Effect* – When an investee becomes an investor in others (Hastings, 2015).

*Social Responsibility* – The “ethical and moral obligations of the citizens of a society to each other and to the society” (Imada, 2004, p. 84).

*Stimulus Situation* – A situation developed by an investor that encourages the investee to use his/her talents to consciously make a positive difference others' lives (Hastings, 2015).

## **Delimitations**

Delimitations are factors that prohibit an author from attempting to apply research findings to all people in all places at all times (Bryant, 2004). The delimitations of this study include that the sample is college students involved in a strengths-based leadership mentoring program at the University of Nebraska-Lincoln. The program featured in this study may differ to varying degrees from other mentoring programs in mission, organizational structure, developmental opportunities for Senior Counselors (mentors), and/or attributes of Junior Counselors (mentees), which may result in the findings of this study not being generalizable to all people who mentor, all college students, and/or all college students who mentor. Additionally, program participants went through a selection process to be admitted as a senior counselor, which may indicate motivation to care for the next generation. In regard to analyzing the data, while MANCOVA, the data analysis procedure used in the current study, may, in a small way, adjust for lack of random assignment of the sample to groups, the generalizability of the results from the sample to a broader population is not affected (Tabachnik & Fidell, 2013).

## **Limitations**

In contrast to delimitations, limitations are a study's restrictions due to the author's methodological choices (Bryant, 2004). While the population of the current study is college students who mentor, the sample is student mentors in the Nebraska Human Resources Institute. Given the sample selection, this study does, at best, generalize to college students who mentor. The sample that participated in the current study is an intact group and, therefore, random assignment was not used, which limits the results of the current study. Without random assignment, there is a larger likelihood that



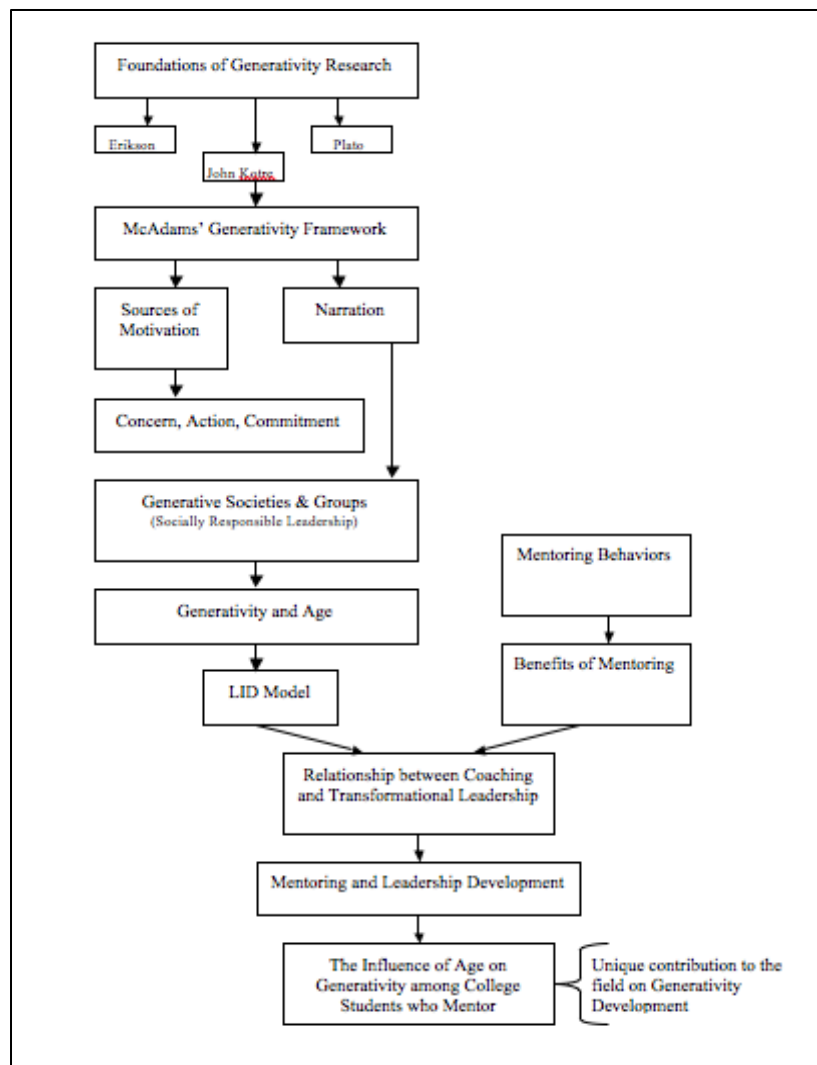
that the three age cohorts have significant differences in some organismic variables (ex. personality, past education, I.Q., mental age, etc.) that are measured, not manipulated (Games, 1976). Furthermore, the cross-sectional design of the current study is limiting as it provides only a snapshot. If a sample had been studied longitudinally or in a different timeframe, the results might differ (Levin, 2006).

Additionally, the data analysis procedure used in the current study has its own limitations. As with all statistical analysis procedures, it is not possible to ensure attribution of causality to the IVs when analyzing data with MANCOVA (Tabachnik & Fidell, 2013). In non-experimental studies, which is the label applied to the current study because variables were measured rather than manipulated, it is suitable to correct for incoming differences in means associated with covariates. However, the adjusted means must be considered with caution as they may not reflect real world situations.

## Chapter 2

### Literature Review

The purpose of this two-phase study was to examine the influence of age cohort on generativity levels among college students who mentor. This literature review will address research in the fields of both generativity and mentoring beginning with a chronological overview of generativity followed by recent research findings and ending with a review of mentoring research (see Figure 1). Examination of how the current study fits with past research findings, as well as how the study addressed a need in the literature, will be discussed throughout.



## **Foundations of Generativity Research**

*Figure 1.* Literature review map.

Erik Erikson introduced the concept of generativity as one of the eight stages of life cycle development in his 1950 writing *Childhood and Society*. Each stage is seen as dependent upon the resolution of the preceding phase and contrasts two opposing routes, such as trust vs. mistrust, which is the first stage of the cycle (Erikson, 1950, 1963). The stage of Erikson's theory that is the focus of this research study, generativity vs. stagnation, highlights the conflict occurring at midlife, ages 40-65. The relevant state is preceded by the stage of intimacy vs. isolation, experienced from ages 18-40, and followed by ego integrity vs. despair, occurring from 65 years on (Erikson, 1950, 1963). In addition to Erikson's definition as "the concern in establishing and guiding the next generation" (1950, 1963, p. 267), generativity, as opposed to ego stagnation, is described as having future plans that demand continued use of skills, avoiding a passive approach to situations, and attempting immortality by engaging in tasks that create things beneficial for others and leave legacies. Huta and Zuroff (2007) assessed the role of immortality in generativity (N = 121, age 18-23, 93 females, 28 males) and found that symbolic immortality, a need to make a difference in others' lives that lasts beyond their lifetime, fully mediated the relationship between generativity and personal well-being, supporting Erikson's proposition that seeking immortality fuels generative action.

In Erikson's life-cycle model, when generativity is not obtained, individuals experience stagnation, a stage in which they need pseudo-intimacy and revert to increased self-centeredness (Erikson, 1950, 1963). However, when generativity is

obtained it is beneficial for not only the recipient, but also the giver. Snow (2015) theorizes that generativity is "necessary, but not sufficient" (2015, p. 263) for flourishing, which is described as living well, engaging in righteous activities, and possessing external goods such as friendship, wealth, good children, and attractiveness. Snow (2015) claims that while an individual can be generative and not flourish, an individual cannot fully flourish without possessing generativity.

While Erikson compares generativity to synonyms such as productivity and creativity, he does not equate them. Rather, he articulates that generative adults must not only create but also give that which they have created to the benefit for future generations, thereby leaving a legacy (Imada, 2004). Additionally, a clear distinction between altruism and generativity may be helpful. Altruism is defined as the "concern and behavior on behalf of another's well-being that is not motivated primarily by anticipated self-benefit" (Azarow et al., 2003, p. 37). Although both constructs focus on prosocial thoughts and behavior (Azarow, 2003), generativity can be distinguished from altruism in its future-orientation and focus on the next generation. Additionally, generativity is motivated by altruism as well as the desire to fuel one's symbolic immortality and psychological legacy (Azarow, 2003; Erikson, 1953, 1960).

While Erikson is often cited as the founding father of generativity, Wakefield (1998) draws the concept of generativity to Plato in his discourse *Symposium*. Although Plato did not coin the term "generativity," according to Wakefield it would have been unnecessary as terms such as "love" and "desire for immortality" would have been adequate for explaining generative motives. In a discussion on Plato's theory, Wakefield explains that erotic love, which is explained as passionate or romantic love, aims to own

beauty in order to generate products living inside the self "that will live on after one is gone," (Wakefield, 1998, p. 148) aligning with Erikson's conceptualization of generativity as legacy building, which can be demonstrated beyond parenthood, or pregnancy of the body, by activities such as the generation of thought, creative artists, and inventors, which he categorized as pregnancy of mind (Wakefield, 1998).

Similar to Erikson, Plato conceived procreation, creativity, and productivity as manifestations of the desire for immortality. Plato points to the production of something (knowledge, an individual, etc.) to replace oneself upon death as a satiation for immortality, which is labeled "the replacement theory of immortality" (Wakefield, 1998, p. 152). While Wakefield points to the similarities of Erikson and Plato's arguments of generativity as a means of immortality, McAdams draws a distinction in that Erikson emphasized caring and kind acts of people who may soon be forgotten, while Plato's conception of generativity emphasized a reputation to be remembered for years and a feeling of immortality due to reputation. Both conceptualizations present a paradox in that generative individuals attempting to be immortal by leaving a legacy still die and do not obtain their objective of immortality. In sum, "although generativity does not allow one to partake of immortality, it does allow one to partake of the fruits of immortality" (Wakefield, 1998, p. 166).

An additional contrast of Plato and Erikson's theories is that Erikson contrived generativity as a dyadic relationship between a generative individual and the product grown or created. On the other hand, Plato saw generativity as a triadic relationship between the generative individual, a generative love object that motivates the creation

and growth of the product, and a generative product that is a result of the relationship between the generative individual and the love object.

From Erikson's work in the mid-20<sup>th</sup> century to the 1980s, little empirical research focused on generativity. However, Gruen's (1964) and Browning's (1973) works are notable exceptions. Specifically, Gruen (1964) sought to test the eight stages of Erikson's developmental theory (N = 108, 56 males and 52 females, age range 40-65) among three age cohorts (40-45; 50-55; 60-65). Correlational analyses revealed results that affirmed some of Erikson's claims. Overall, the results indicated that the use of Erikson's models in analyzing adult personality was successful, which opened the door to further empirical testing of the assumptions of Erikson's theory. Additionally, testing of the potentially confounding variables of age, sex, and social class revealed no major differences, which put the emphasis of results on personality dynamics.

Browning (1973) discussed Erikson's conceptualization of generativity in *Generative Man: Psychoanalytic Perspectives* equating the "generative man" to the "good man" (1973, p. 9). Browning comments, "For generative man, all human activities are judged from the perspective of what they contribute to the generative task itself, i.e. the establishment and maintenance of succeeding generations" (1973, p. 23), echoing Erikson's definition. Browning further describes generativity as passing on a morality to the next generations that is acceptable of their time, place, and main endeavors, indicating an importance on individuality and temporality when engaging in generative behavior.

The first scholar to significantly extend Erikson's theory was John Kotre (1984) who conceptualized generativity to link life experiences to a framework. Kotre confirmed Erikson's theory that generativity as a stage in the eight phases of human development

relies on the outcome of previous stages and discussed generativity as “a desirable achievement, an ideal” (1984, p. 9) that begets care. However, Kotre also pointed out the destructive force of generative actions when an individual doesn’t breed good but evil, which occurs when leaders abandon, disown, or ignore their followers. With added insight to Erikson’s thoughts, Kotre defined generativity as “a desire to invest one’s substance in forms of life and work that will outlive the self” (1984, p. 10).

Kotre also outlined the four types of generativity. The first is biological, which specifically refers to the process of having and raising children. Second, the parental type, rather than biological, is the actions of feeding, protecting, loving, and teaching children as well as welcoming them into family culture and traditions. Third, technical generativity refers to individuals who teach skills to those less developed than themselves throughout life. Fourth, cultural generativity encompasses the growth of the mind, which occurs when an individual provides meaning and becomes a mentor. Kotre (1984) was also the first to draw a distinction between two forms of generativity: agentic and communal. Agency depicts the “self-asserting, self-protecting, self-expanding existence of the individual” (Kotre, 1984, p. 16) in which the forebearer becomes greater because of his or her actions. Communion speaks to the type of generativity in which a forebearer cares more about another than him or herself not because of how the person might benefit the forebearer but because of who he/she is.

Following Kotre’s (1984) work, Dan McAdams (1985) offered the next major empirical advancements to generativity research. Adding to Kotre’s (1984) separation of different modes of generativity, McAdams (1985) aligned communion with intimacy motivation and agency with power motivation. Furthermore, agency is described as "the

separation of the individual from others and from context" (McAdams, 1985, p. 73), while communion is "the coming together of individuals and a merger with context" (McAdams, 1985, p. 73). Agency is mastering one's domain by assertion whereas communion is recognizing that individuals exist within the broader context of society and engaging in openness, union, and cooperation. McAdams (1985) also posited generativity using a life-story model of identity, McAdams stated that "generativity may be incorporated within identity, which is to say in order to know who I am (my life story) I should also have a sense of what I am going to do as an adult in order to fulfill the developmental mandate of generating a legacy" (1985, p. 65). McAdams linked generativity and identity because part of having self-understanding is the knowledge of what one will do in the future to be generative.

### **Generativity Framework**

McAdams and de St. Aubin (1992) conducted a foundational generativity research study that outlined a methodological and conceptual framework as well as assessment strategies. The three assessments for generativity are (a) the Loyola Generativity Scale (LGS) – a self-report scale measuring generative concern, (b) the Generativity Behavior Checklist – behavior checklist assessing generative action, and (c) narratives of foundational life episodes. McAdams et al. (1993) also added Emmon's (1986) measure of generativity commitment assessed by a personal strivings assessment. These assessment strategies are discussed further in Chapter 3.

McAdams and de St. Aubin (1992) discussed generativity as seven interrelated psychological features: cultural demand, inner desire, generative concern, belief in the species, commitment, generative action, and personal narration, which are shown visually



in Figure 2 (see p. 17). Notably, the authors rejected Erikson's conceptualization of generativity as occurring within a clear stage of the life span, favoring a less rigid approach of generativity occurring throughout adulthood. Further, the authors perceived generativity as a construct operating relationally between multiple contexts, requiring the consideration of the particular relation or person/environmental fit, as opposed to a

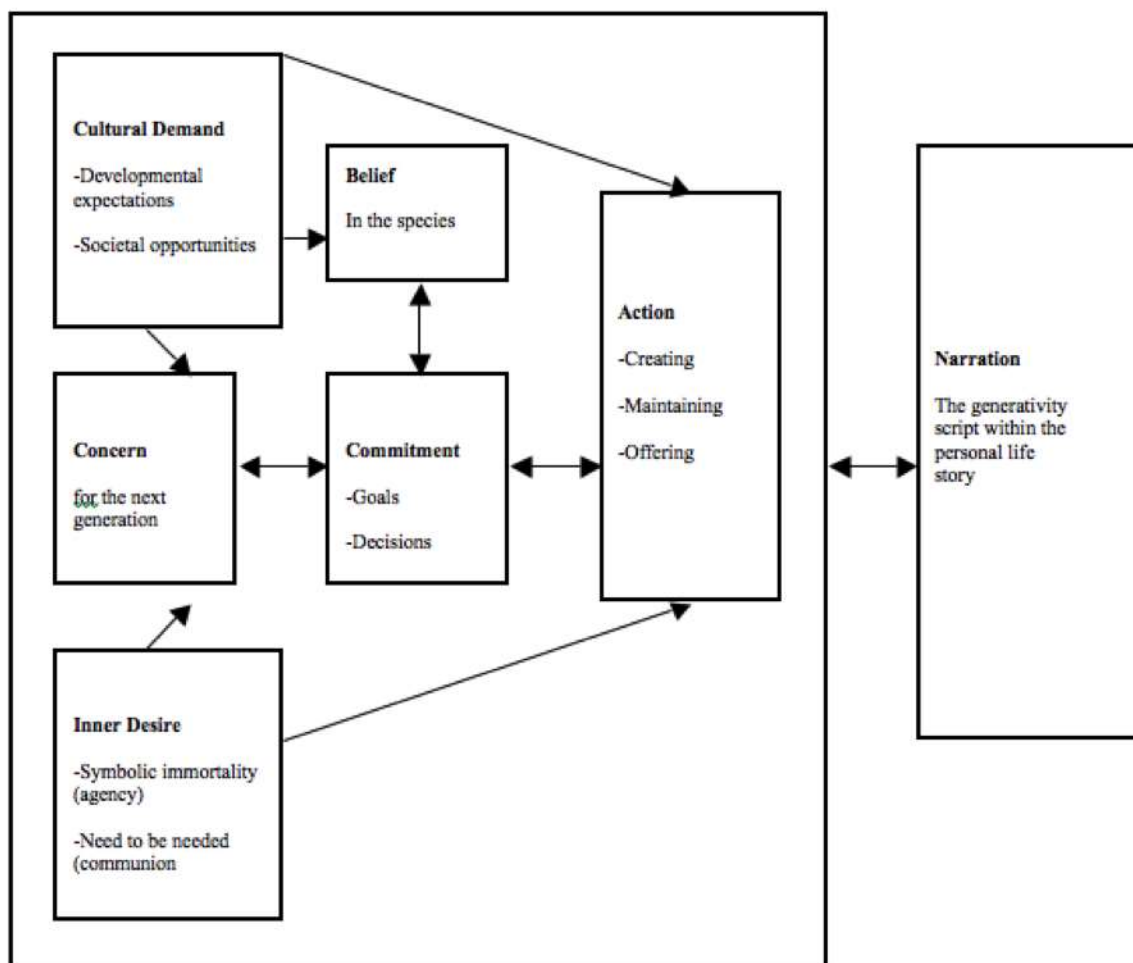


Figure 2. Generativity theory (McAdams & de St. Aubin, 1992).

**Sources of motivation.** The motivation behind the legacy building of generativity is both desire and demand (see Figure 2; McAdams, 2001). Midlife adults have a desire to give to others, explained by Erikson as the "mature man needs to be needed" (1950, 1963, p. 267) and society also needs them to act in such a way to raise the next generation, care for aging adults, become politically and socially involved, etc. There are two kinds of desire driving generative actions: (1) a desire for symbolic immortality and (2) a desire to be needed (McAdams & de St. Aubin, 1992).

The two motivations fueling generative behaviors relate with two general human motivational strategies, agency and communion. The desire for symbolic immortality points to agency while the desire to be needed illustrates communion. As previously discussed, Kotre (1984) was the first to draw a distinction between agentic and communal modes of generativity. Agency depicts the "self-asserting, self-protecting, self-expanding existence of the individual" (Kotre, 1984, p. 16) in which the forbearer becomes greater because of his or her actions. Communion speaks to the type of generativity in which a forbearer cares more about another than him or herself, not because of how the person might benefit the forbearer but because of who he/she is. Adding to Kotre's separation of different modes of generativity, McAdams (1985) aligned communion with intimacy motivation and agency with power motivation. Furthermore, agency is described as "the separation of the individual from others and from context" (McAdams, 1985, p. 73), while communion is "the coming together of individuals and a merger with context"

(McAdams, 1985, p. 73). Agency is mastering one's domain by assertion whereas communion is recognizing that individuals exist within the broader context of society and engaging in openness, union, and cooperation.

In a research study assessing the two modes of generativity, Ackerman et al. (2000) found that agentic (masculine) and communal (feminine) traits equally predicted generativity in both a midlife sample (n=98) and a young adult sample (n= 58). In the midlife sample, life satisfaction, work satisfaction, and positive affectivity were positively related to generativity. In the young adult sample, positive affect at home was predicted by generative concern and tended to demonstrate decreased negative affect at work, which suggests that the relationship between social well-being and generativity may exist beyond adults in midlife. Ackerman et al. (2000) offered an explanation for these findings that generative concern may foster generative behaviors, which build positive interpersonal relationships and increase the generative individual's positive emotions and self-esteem. This study also found that the relationships between agentic and communal traits and generative concern were similar in both populations and demonstrated an additive model. Significant main effects remained for agentic and communal traits, but they did not demonstrate a significant interaction. However, generativity was higher in an adult when agency or communion was high, but high levels of both agency and communion were not requirements of generativity. Rather, "it appears that for most levels of agency, increases in communion predict greater generativity, and that for most levels of communion, increases in agency predict greater generativity" (2000, p. 37). De St. Aubin and McAdams (1995) research findings also showed that

generative concern is strengthened by an individual's combination of agentic and communal traits.

Studying power (agentic) and intimacy (communal) motivations, McAdams, Ruetzel, and Foley (1986) conducted a study looking at ego development, specifically the demonstrated degree of complexity and generativity, which are particularly salient during midlife (N = 50, ages 35-49, 30 females and 20 males). The researchers predicted generativity would be positively related to power and intimacy motivations as generativity in adulthood allows individuals to “experience strength and closeness, mastery and surrender, power and intimacy, at the same time” (McAdams, Ruetzel, & Foley, 1986, p. 802). Using the Thematic Apperception Test (TAT) the results of the study indicated preliminary support for the researchers' hypotheses regarding generativity and power and intimacy motives. The authors explained their findings as “the generativity calls on an adult's fundamental needs to feel close and to feel strong vis-a-vis others” (McAdams, Ruetzel, & Foley, 1986, p. 806), blending agentic and communal needs.

While often described as different modes of generativity, agentic and communal motivations also have been shown to be antecedents of generativity. In a longitudinal study of the data collected from participants in a study of Radcliffe college students, Peterson and Stewart (1996) assessed generativity and its antecedents as well as contextual influences for women at midlife (N = 100+, age 48). Generativity was assessed using TAT picture cues designed for a middle-age sample. Results of the study indicated that while achievement, affiliation, and power motivation at age 18 were not related to generativity, the combination of agentic and communal motivations were

significantly and positively correlated with measured generativity, even after 30 years. When assessed concurrently at 48 years, achievement, affiliation, and power motivation were significantly and positively related to TAT generativity. Additionally, generative women who had careers found satisfaction in work, while generative women who did not work in a career found satisfaction through parenting. Contrasting with aforementioned findings linking generativity to agency and community, Bradley and Marcia (1998; N=100, ages 42 to 64, 50 male, 50 female) revealed that generativity showed no correlation with Agency or Communalness ( $r = .03$ , ns, and  $r = -.19$ , ns, respectively).

*Generative concern, action, and commitment.* Additional distinctions have been made between various expressions of generativity; generative concern, generative action, and generative commitment. In distinguishing generative concern from generative action, De St. Aubin and McAdams (1995) conceived generative concern as a concern for the well-being of future generations, while generative action is an individual's actions that develop specific young individuals and create an environment that allows all individuals to reach for their maximum potential (de St. Aubin & McAdams, 1995). Generative commitment refers to setting goals and making decisions with concern for the next generation (McAdams & de St. Aubin, 1992).

De St. Aubin and McAdams (1995) looked specifically at the relationship between generative concern, generative action, and personality traits. Correlational analyses from survey data among sample one ( $n=79$ ) and sample two ( $n=152$ ) revealed that generative concern was significantly related to extraversion, openness, emotional stability (non-neuroticism), and agreeableness. Additionally, researchers found a relationship between generative concern and achievement, dominance (agentic traits),

affiliation, and nurturance (communal traits). Furthermore, generative concern also showed a significant relationship with life satisfaction and overall happiness. Generative action demonstrated a relationship with extraversion and openness. Looking at generative behavior and generative concern, Grossbaum and Bates' narrative study (N = 49, ages 31-57, 34 women, 15 men) found that generation concern (beta .54,  $p < .001$ ) significantly predicted life satisfaction; however, generative behavior did not (beta -.21,  $p < .17$ ). Generative concern also significantly predicted self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth (Ryff, 1989b).

**Narration.** While generativity is demonstrated in the actions, concerns, and motivations of individuals, it is also shown in the narratives people tell to understand their lives (McAdams & Logan, 2004). Specifically, generativity narratives point to the presence of the redemption sequence. McAdams (2012) sought to assess what motivated highly generative individuals to rise to the challenges of midlife. McAdams posited that this might be due to the narrative identities that support their generative efforts. The researchers administered self-report generativity scales to a small group and asked those scoring either exceptionally high or low to come back for interviews, eventually selecting eight narratives of highly generative individuals and eight of individuals scoring especially low, which were demographically matched. After pouring over the interviews, researchers found a key theme to be a redemption sequence, a shift in a story from an emotionally difficult situation to favorable resolution, which was much more likely to be found in highly generative individuals compared to their less generative counterparts. Furthermore, researchers developed a model of highly generative individuals' common

life-narratives. The themes are first, the protagonist "enjoys a special advantage" (McAdams, 2012, p. 22); second, he/she observes injustice in childhood; third, by the end of adolescence the protagonist has a sense for moral constancy; fourth, throughout adulthood the protagonist transforms negative situations into redemption sequences; fifth, the protagonist establishes prosocial goals that seek to better others' lives and result in a positive legacy.

Along with the redemption narrative, studies have analyzed the agentic and communal motives in narratives of highly generative individuals. McAdams, Diamond, de St. Aubin, and Mansfield (1997) (Ns = 40, 18 males and 22 females, and 30, 14 men and 16 women, respectively), using a two-way multivariate analysis of variance (MANOVA) to compare the results of highly generative and less generative individuals, that those in the high-generativity group scored higher on the commitment story themes, which are specifically identified as (a) experiences an early advantage such as being viewed as special in childhood or experiencing acts of kindness from strangers, (b) an understanding of others' suffering at a young age, (c) holding to a personal moral commitment, (d) positing negative events with a redemptive outcome, (e) setting future goals that benefit the self, his/her family, and/or society. Bond, Holmes, Byrne, Babchuck, and Kirton-Robbins (2008) assessed the narratives of women in leadership from a generativity framework (N = 17, age 28-73) and found that one-third of women indicated communal motivations for involvement such as connecting with others, an outlet for generative expression. Additionally, a handful of women described agentic motives, becoming part of decision-making by being an effectual community member, as reason for involvement.

In sum of current thoughts on generativity theory, McAdams and Logan (2004) presented the 10 propositions of what is known about generativity.

1. "Generativity is the concern for and commitment to the well-being of future generations" (McAdams & Logan, 2004, p. 16).
2. It is a developmental challenge for mid-life adults.
3. Generativity is motivated by selfless (communal) and selfish (agentic) desires.
4. Cultural forces shape generativity.
5. Individuals differ in their levels of generativity.
6. Quality of parenting is influenced by individual variation in generativity.
7. Prosocial behavior is influenced by individual differences in generativity.
8. Generativity encourages psychological well-being.
9. Generativity is shown in the narrative people tell to understand their lives.
10. Highly generative adults commonly tell stories highlighting the strength of redemption.

McAdams and Logan's (2004) 10 propositions reflected current research and provide empirically supported findings on generativity theory. The current study sought to further the field of generativity among young adults by assessing propositions two, four, five, and seven. Specifically, research on generative societies and groups highlights proposition seven: Prosocial behavior is influenced by individual differences in generativity (McAdams & Logan, 2004).

### **Generative Societies and Groups**



When individuals achieve generativity, which both Plato and Erikson conceptualized as an attempt at immortality, society benefits. Looking at the impact of generativity on environmental attitudes and actions, Urien and Kilbourne (2010) used the LGS to measure generativity and the eco-friendly behavioral intentional scale to measure consumers' intentions to demonstrate behavior indicative of environmental care (for American participants: N = 283, average age 20.3, 41% female; French participants: N = 198, average age 20.7, 40% female). Results of the study confirmed the hypothesis that participants scoring highly in generativity also have higher mean scores of eco-friendly intentions. Furthermore, individuals low in generativity and high in self-enhancement, which refers to the values associated with power, wealth, and influence, reported the lowest level of eco-friendly intentions, whereas those high in both generativity and self-enhancement had the highest levels of eco-friendly intentions. For those participants low in self-enhancement, generativity did not have an influence on eco-friendly intentions. Adding to the findings of Urien and Kilbourne (2010), Wells, Taheri, Gregory-Smith, and Manika (2016) assessed the relationship between generativity and environmental attitudes within employees of Iran's hospitality industry (N = 447, 47% male and 53% female). The results of self-report measures indicated a significant relationship between generativity and attitudes toward environmental concerns as well as environmental actions in the workplace and the home.

Generativity has also been demonstrated to have an influence on volunteering and political involvement, factors of societal involvement. Son and Wilson (1995) hypothesized that generativity would mediate the relationship between religion/education and volunteering (N = 3,257). Using structural equation modeling the researchers found

that the effect of parental religiosity on volunteering (15%) and the impact of education on volunteering (4%) in 2005 could both be partially explained by generativity. In regard to political involvement, Cole and Stewart (1996) studied 64 Black and 107 White women who graduated from the University of Michigan between 1967-1973 to assess the correlates of midlife political participation. Correlational analyses of mailed questionnaire responses revealed that for both populations' midlife political participation was related to social responsibility, including generativity. Furthermore, a multivariate analysis suggested that political activity in midlife is motivated by a concern to meaningfully contribute to future generations. Additional studies also demonstrated a significant relationship between generativity and political consciousness (Peterson & Stewart, 1996; Peterson, 2006).

Along with people, organizations, societies, and institutions can be generative (McAdams, 2001). While cultures shape people's generative actions, societies can also be generative themselves as they offer "institutional support and reinforcement for the generative efforts of adults" (de St. Aubin, McAdams, & Kim, 2004, p. 6). Societies choose to promote the prosperity of future generations as they make decisions about family, politics, education, religions, and policy.

Looking at generativity on a group level, Carmeli, Jones, and Binyamin (2015) explored the relationships between caring and generative relationships in organizational teams and their effect on strategic adaptability (N = 77). Data analyses confirmed the hypotheses and revealed a significant relationship between team caring and generativity as well as between generativity and strategic adaptability. Furthermore, the results of a regression analyses confirmed the hypothesis that team generativity mediates the

relationship linking team caring and strategic adaptability, furthering the claim that groups of people can demonstrate generativity.

While generativity offers broad societal benefits, it has also been demonstrated as the highest predictor of social responsibility in family, community, and work domains (Rossi, 2001a). In her first study, Rossi found that parental generosity and sociability to people outside of the family is positively and significantly related to generativity. In her second study, Rossi (2001b) looked at developmental antecedents to adult social responsibility, believing them to be established in early life experiences. The results of the research revealed seven significant and positive predictors of generativity: 1.) Parents' generativity; 2.) Size of family; 3.) Parental affection; 4.) Family focus on chores and use of time restrictions to limit time spent watching television; 5.) Educational level achieved; 6.) Age; and 7.) Communion and agency personality traits, with agency and communion as the strongest predictors.

Research on the societal benefits of generativity has demonstrated a relationship between generativity and pro-social behaviors, such as environmental care (Urien and Kilbourne, 2010), societal involvement (Son and Wilson, 1995), and political participation (Cole and Stewart, 1996), along with generativity being the highest predictor of social responsibility (Rossi, 2001a). While many of the aforementioned studies investigated generativity using adult samples, studies analyzing the link between generativity and age have had varied results.

### **Generativity and Age**

The empirical findings of Erikson's life-cycle development theory are mixed as to the stage model in which each phase is dependent upon the previous phase's resolution.

The lack of conclusiveness in the research's findings encouraged application of theories to other ages outside of Erikson's prescribed ranges, which is the purpose of the current research study.

Furthering Gruen's (1964) research that tested Erikson's eight-stage developmental theory, Ryf and Migdal (1984) studied two cohorts of women, one at a young adult phase (middle-aged women:  $N = 50$ , ages 40-55; young adult women:  $N = 50$ , ages 18-30), and particularly focusing on the transition from intimacy in young adulthood to generativity at middle age. In accordance with Erikson's theory, the results indicated the young adult women gave more saliency to intimacy than women of middle age. Furthermore, middle-aged women's current ratings of generativity were higher than their reflective ratings; however, contrary to Erikson's theory, the young adult women rated themselves higher on generativity currently than their predicted scores at 45.

Assessing all the stages of Erikson's theory, Whitbourne, Elliot, Zuschlag, and Waterman (1992) conducted a study to assess adult personality stability using the Inventory of Psychosocial Development (IPD: Constantinople, 1969), which is based on the Eriksonian stages. Using a sequential design, two of the three cohorts had college students and alumni ranging from ages 20-42. Participants were originally tested in 1966 and 1976-1977 ( $n$  in 1988 = 99 and 83, ages 40-44 and 29-34, respectively). The third cohort of collegiates was tested in 1988-1989 ( $N = 292$ , ages 17-24). The results of the longitudinal, cross-sectional, and sequential analyses challenged findings about the stability of personality in adulthood by showing regular patterns of personality change, especially notable given that the instrument is expected to be sensitive to adulthood developmental changes. The results did provide evidence of increasing psychological

resolution of the Eriksonian psychosocial stages with age, except in the Stage 8 scores, ego integrity versus despair, in which the two cohorts tested over the 1977-1988 time period demonstrated a decline in scores. The authors also indicated a need for further testing on generativity to show if the data is due to a cohort effect or development change that will continue through the individual's 50s (Whitbourne et al., 1992).

McAdams, de St. Aubin, and Logan (1993) conducted a study to examine the differences between age-cohorts for four features of generativity: generative concerns, actions, commitments, and narration. The three age-cohorts were young, ages 22-27 (N = 51); midlife, ages 37-42 (N = 53); old, ages 67-72 (N=48) with a total of 80 women and 72 men. In a second administration of measures assessing generativity, but not in the first, the midlife adults scored higher on overall generativity (an aggregate of the four features and their corresponding measures) than the young adults and older adults, which confirms Erikson's stages of development. However, closer examination of the results are less direct. Both the midlife and older adults demonstrated high scores in generative commitments and narration while the young adults had relatively low scores. Overall, generative concern demonstrated a positive and statistically significant relationship with life satisfaction.

While generativity is typically portrayed and studied as occurring during midlife, theories and research studies have brought that assumption into question. Cohler, Hostetler, and Boxer (1998) drew a distinction between the life-cycle approach to development and the life course approach. The life-cycle perspective focuses on life as a series of progression, age-ordered, phase-based processes, which is in accordance with Erikson's theory of development. The life course perspective, however, portrays "an open

system shaped by social and historical processes as well as by expectable and eruptive life changes within individual lives" (Cohler, Hostetler, & Boxer, 1998, p. 267) and avoids assumptions that a phase or conflict needs to be solved over time, which promotes the belief that generativity is relevant to developmental theory at ages beyond midlife, a foundational belief of the current study.

Marcia (1996) also added to Erikson's theories of ego identity and identity diffusion by conducting a study using The Concept Attainment Task (CAT) to determine "four concentration points along a continuum of ego-identity achievement" (p. 551) that can occur throughout a lifetime, as opposed to a stage-like progression. The four points were made up of two variables, crisis and commitment. Crisis is an individual's stage of engaging in the process of choosing between meaningful options, whereas commitment is an individual's level of demonstrated personal investment. Identity achievement, the first of the four points, is described as having had a crisis period and now being committed to a certain idea or career. Identity diffusion, on the opposite spectrum, is an individual who may or may not have experienced crisis and notably lacks commitment. In between these two contraries lies the second phase, moratorium, which occurs when an individual is in the crisis and has vague commitments. The third stage, foreclosure, refers to an individual who has yet to experience a crisis but demonstrates commitment, oftentimes to the values of his/her parents

In addition to the theoretical critiques of Erikson's conception identity development as a life-cycle approach by Cohler, Hostetler, and Boxer (1998) and Marcia (1996), the empirical literature on generativity as a life cycle stage is mixed as to the influence of age (McAdams, 2001). While research has at times affirmed the lifetime

curve of generativity, "mean differences between age/cohort group should not disguise that many young adults score quite high on various measures of generativity, and many middle-aged and older adults score quite low" (McAdams, 2001, p. 414), emphasizing the individual variability of generativity levels. Furthermore, McAdams claims "the empirical picture is too ambiguous to delineate a clearly demarcated stage of generativity in the middle of the adult life course" (McAdams, 2001, p. 414). Adding to McAdams' assertions, Espin, Stewart, and Gomez (1990) conducted a case study analyzing letters that observed a sharp rise in generativity scores from age 18-22. Furthermore, results from a correlational study comparing three age cohorts (young, ages 22-27 (N = 51); midlife, ages 37-42 (N = 53); old, ages 67-72 (N=48)) indicated partial support for the commonly held belief that generativity peaks in midlife and then experiences a decline (McAdams, de St. Aubin, & Logan, 1993).

Furthermore, Hastings et al. (2015) observed differences in generativity levels between college student leaders who mentor compared with other college student leaders and general college students. Specifically, the results of a MANCOVA procedure and multiple univariate ANOVA tests indicated that college student leaders who mentor demonstrated significantly higher levels of generativity than general college students in all facets of generative concern (LGS Subscale 1-3), generative action (GBC), and generativity commitment (Personal Strivings), indicating that generativity can vary person to person based on developmental experiences and affirming the relevance of using generativity in assessing college student leadership (Hastings et al., 2015). In addition to the previously discussed studies, using generativity theory to study adolescent development has also shown to be useful repeatedly (Mackinnon, Nosko, Pratt, & Norris,

2011; Frensch, Pratt, & Norris, 2007; Lawford et al., 2005). While the previous studies applied generativity theory to populations outside of midlife, they did not address the rate at which the generative edge demonstrated by college leaders who mentor develops, which this study sought to address.

**Leadership identity development model.** In line with those who advocate for the life course perspective (Cohler, Hostetler, & Boxer, 1998), Komives identified an intersection between generativity and identity development among college student while defining leadership identity as "the cumulative confidence in one's ability to intentionally engage with others to accomplish group objectives" (Komives, Owen, Longerbeam, Mainella, & Osteen, 2005, p. 608). The Leadership Identity Development Model (LID; Komives, 2011) presented a grounded theory study that examined leadership identity development by interviewing 13 diverse college-aged students who were recommended by people in professional positions at a mid-Atlantic university because of their demonstrated relational leadership. Each participant underwent a series of three interviews lasting one to three hours. The data was analyzed using open, axial, and selective coding.

The experiences of the students revealed a dynamic process of leadership identity development beginning with adults who were the first people to identity leadership promise. Then, involvement experiences served as a learning laboratory where the students' identity continued to develop. Furthermore, times of reflection and meaningful conversation revealed students' passions and desire for continuous improvement to themselves and times of intentional leadership training gave students a leadership language and presented new ideas on leadership. Throughout the process of leadership



identity development, students indicated a transformation in their self-awareness, starting from a vague sense to self to identified traits and talents by others to, finally, a personal ability to understand identity. This confident self-awareness enabled students to demonstrate a strong belief in their values and kindness in the midst of unpopular circumstances (Komives et al., 2005). Overall, the interviews gave rise to LID Model, which consists of six stages of development experienced by collegiates (see Table 1).

Table 1

*Six Stages of the LID Model (Komives et al., 2005)*

Stage	Description
(1) Awareness	An external identification of the existence of leaders
(2) Exploration/Engagement	Students began to engage in a plethora of groups and took on responsibilities but lacked focus in involvement
(3) Leader Identified	Students identified group leaders as the leadership (positional leadership) and began to be intentional about their roles in groups
(4) Leadership Differentiated	Participants saw the interdependence of group members and believed that all individuals in a group could demonstrate leadership
(5) Generativity	Students believed in the purposes of a group and began to develop younger group members in hopes that it would sustain the organization
(6) Integration/Synthesis	Students engaged daily in leadership and sought integrity

Komives et al. (2006) further explained stage five of the LID model, generativity, by articulating the observation that researchers noted students' personal leadership philosophies crystallized during this phase. Students' transition to the sixth stage of LID, integration/synthesis, was fueled by their mentorship role for others, which caused them

to internalize their personal leadership identity, a critical juncture that the participants in this research study were theoretically experiencing. One of their purposes in developing the LID Model was the lack of current findings that addressed the development of leadership over time, a hole in the literature that the study examined by conducting both cross-sectional and longitudinal studies comparing generativity development throughout college. Additionally, the LID model's portrayal as the fifth of six stages of development might encourage one to conclude that a college junior or senior leader would demonstrate higher levels of generativity than a college freshman or sophomore leader. This hypothesis causes one to ask; does generativity occur after other leadership identity stages have been reached? Or does generativity grow throughout college, even with the minimal age difference between collegiates?

### **Mentoring**

Originated in Homer's classic, *Odyssey*, as the relationship between the hero Odysseus and his wise and guiding friend, Mentor, the concept of mentoring has become regarded as, "a deliberate pairing of a more skilled or experienced person with a lesser skilled or experienced one, with the agreed-upon goal of having the lesser skilled person grow and develop specific competencies," (Murray, 1991, p. xiv) specifically, in the instance of this study, leadership competencies. Additionally, Campbell and Campbell (1997) in an assessment of a collegiate faculty/staff mentoring program defined mentoring as a relationship between a more-experienced individual and a less-experienced individual to guide and support the less-experienced individual and promote his/her chances of success.

The mentoring dyad, an interpersonal and lasting relationship between two individuals, is the traditional form of mentoring, mutually benefitting both parties (Campbell & Campbell, 1997; Noe, 1991; Yukl, 2010). Gardiner, Enomot, and Groger (2000) described a mentor as a teacher, guide, parent, guru, gatekeeper, adviser, role model, and friend or peer who focuses on the mentees' needs in an attempt to help them become a better leader, student, employee, etc. with more knowledge, skills, and self-belief (Burke, 1984; Fagan & Walter, 1982). In seeking to further explain the role of a mentor, Burke (1984) detailed, "Words such as counselor or guru capture some of the more subtle elements of mentoring. Words such as teacher, adviser, or spouse capture other, narrower elements. Mentoring also includes identification, admiration, and internationalization" (p. 355). Mentors have been found to be influential both personally and professionally (N = 80, 63 males and 17 females; Burke, 1984). Burke also found that "mentors had an interesting blend of work commitment (industrious, hardworking) coupled with being approachable and open, sensitive and empathetic, supportive and helpful" (1984, p. 367). Specifically, the training provided by the mentor includes support, exposure, counseling, coaching, friendship, growth-facilitating tasks, and defense (Bass, 1990).

Mentors are benefitted by mentoring as they may have potential help with tasks, build a relationship with someone who will provide access to them in the future, develop pride and satisfaction as the novice grows, experience an increased challenge, and grow their influence (Bass, 1990; Newby & Corner, 1997). The benefits of mentoring for the mentee include an increase in self-esteem and both career and life satisfaction (Bass, 1990). Additional benefits for the novice include informational access, learning from

others' experiences, gaining confidence, opportunities to practice skills, meaningful feedback, encouragement, networking, and opportunities to discuss fears (Bass, 1990).

**Mentoring and leadership.** While general mentoring has repeatedly demonstrated a positive influence personally and professionally for both parties (Bass, 1990; Burke, 1984; Campbell & Campbell, 1997; Noe, 1991; Yukl, 2010), it has also been connected transformational leadership. Specifically, the coaching and individualized focus aspects of mentoring relationships have been demonstrated key characteristics of transformational leadership, which is a style of leadership in which the leader works alongside employees to identify necessary changes, create vision through inspiration, and execute the change (Barbuto, 1997; Howell & Avolio, 1993; Lowe, Kroeck, & Silvasubramaniam, 1996). Transformational leadership has been significantly and positively associated to followers' task performance, motivation, empowerment, commitment, and organizational citizenship behaviors in followers (Wang, Law, Hackett, Wang, & Chen, 2005; Yukl, 2002; Yukl, O'Donnell, & Taber, 2009), which further elucidates the significantly positive impact mentoring has been demonstrated to have on individual and organizational outcomes.

In addition to mentoring being an important feature of transformational leaders, it has been discussed as a tool useful for leadership development (Campbell, Smith, Dugan, & Komives, 2012; Hastings, Griesen, Hoover, Creswell, & Dlugosh, 2015; Komives, Longerbeam, Mainella, Osteen, & Owen, 2009; Priest & Donley, 2014; Thompson, 2006). When mentoring is utilized for leadership development it is a long-term investment into personal as well as leadership development (Campbell et al., 2012). With that investment mentoring relationship, the mentee often emulates the leadership

behavior role modeled by the mentor (Godshalk & Sosik, 2000; Lankau & Scandura, 2002).

Highlighting the ripple effect of mentoring developing leadership traits, Fagan and Walter (1982) conducted a study comparing mentoring among teachers and a control group of police officers and nurses (N = 107 teachers, 70 police officers, and 87 nurses), teachers reported picking up traits such as dedication, work ethic, patience, tactfulness, honesty, relentlessness, and neatness from their mentors. Furthermore, using the chi square test of association, Fagan and Walter found that being mentored was positively related to a tendency to mentor others compared to those who have experienced diffuse mentoring (receiving development for multiple individuals but not one specific mentor) or have not been mentored, results which point to the generative impact of mentorship.

Fagan and Walter's (1982) study highlighted mentors' capacity to care for the next generation who then care for the next generation, etc. Evidence suggests that college student leaders who mentor demonstrate higher levels of generativity themselves than college student leaders and other college students (Hastings et al., 2015). Furthermore, in the fifth stage of the LID model (Komives et al., 2006), the generativity stage, participants began to articulate a desire to give back to organizations and groups, beginning to invest time and energy in coaching and mentoring potential future leaders, which supports the finding of Hastings et al. (2015) that higher levels of generativity encourage mentoring behaviors. Although generativity levels have been demonstrated at varied levels in different groups of collegiates (Hsatings et al., 2015) and pointed to as a key stage in collegiate leadership identity development (Komives et al., 2006), the specific rate of generative change has not been investigated. Specifically, a need exists

for research assessing the rates of generative development (Hastings et al., 2015). In regards to mentoring, few studies have looked at the benefits long-term mentoring relationships (Aryee, Chay, & Chew, 1996; Olian, Carroll, & Giannantonio, 1993). The current study sought to provide insight on this gap in the literature by analyzing the influence of year in college and years spent mentoring on generativity among college students who mentor.

As stated at the start of this section, the purpose of this study is to assess the impact of years spent mentoring on generativity in college students. The methods used to address the study's purpose are addressed in the following section.

**Hypothesis 1:** Given the LID model's illustration of development throughout college (Komives et al., 2005) and Espin, Stewart, and Gomez's case study (1990) that observed a sharp rise in generativity scores from age 18-22, it is hypothesized that generativity scores will differ across age cohorts, with significantly higher generativity levels among older cohorts than young cohorts, after controlling for gender, college major, and G.P.A. range.

## **Chapter 3**

### **Methods**

The purpose of the two-phase quantitative study was to examine the difference in generativity levels by age cohort among college students who mentor. Chapter 3 describes the approach and tradition rationale, participants, variables, instruments, and a pictorial description of the data analysis used in the present study.

#### **Approach and Tradition Rationale**

Building on previous research that analyzed generativity among college students who mentor, college student leaders, and general college students using an explanatory sequential mixed methods approach (Hastings et al., 2015), the current study sought to assess the influence, if any, of age cohort on generativity levels among college students who mentor. Hastings et al. (2015) found that college student leaders who mentor demonstrate significantly higher levels of generativity than either college student leaders or general college students. However, this research did not reveal the developmental trajectory of generativity for college students. The current study sought to fill this gap by answering the following question: Do college students who mentor with NHRI demonstrate a significant difference by age cohort in generativity levels after controlling for gender, G.P.A. range, and college major? A quantitative approach using survey data is fitting to seek answers to these questions as the research study deductively tests established theories and hopes to generalize findings beyond the study's sample.

The current study utilized a quantitative approach to data collection and analysis. Research conducted from a quantitative paradigm "is based on positivism. Science is characterized by empirical research" (Sale, Lohfeld, & Brazil, 2002, p. 44). This

paradigm is an approach that tests theories by studying variables (Creswell, 2014). The variables are measured and result in numbered data analyzed through statistical procedures. The rationale for using this approach is that the study's research questions seek to deductively test theories on generativity and mentoring in college students. Instruments will be utilized to collect and analyze data to further the field's understanding on generativity development among young adults.

The current study used quantitative survey data in the form of questionnaires to provide a numeric description of generativity levels among college students throughout the three years the students mentor. The purpose of survey research is to generalize attitudes, characteristics, or, as in the current study, behaviors from a smaller sample to a larger population (Babbie, 2007). Being able to potentially discover behaviors of a larger population while studying a smaller population provides the advantage of quick data turnaround and being able to draw inferences about a population larger than the sample by using sophisticated statistical analyses (Fowler, 2009). Survey research is economically designed to enable efficient, timely data collection. Additionally, survey research can collect data through both longitudinal and cross-sectional studies, the latter of which is to be utilized in the current research study. This research study used a cross-sectional research design to compare generativity levels by age cohorts among college students who mentor. The surveys were collected using web-based measures, in conjunction with time allotment and in-person instruction at the students' weekly meetings with other mentors in NHRI.



## **Participants**

All participants in the current study were sophomore through senior students attending the University of Nebraska-Lincoln who are participants in Nebraska Human Resources Institute (NHRI), a strengths-based leadership mentoring program. The population was purposively selected because they were selected for participation due to their unique and special status of being Senior Counselors (mentors) in the Nebraska Human Resources Institute (Etikan, Musa, & Alkassim, 2016). NHRI identifies and selects outstanding college students who demonstrate “high human relations capital” – an aptitude for influencing the actions, thoughts, and feelings of those surrounding them. Once a student is selected to be a Senior Counselor (mentor), he or she is matched in a mentoring relationship based on common interests and strengths with a Junior Counselor (mentee), who is a K-12 student in Lincoln, NE. Junior Counselors are also identified on the basis of high human relations capital through an interview, teacher recommendation, or peer interview recommendation process. The type of selection method used depends on the age and school of the Junior Counselor. In the current study, college students who mentor through NHRI will be compared by year in college/years spent mentoring.

**Sampling procedure.** Students selected for NHRI are first recommended for involvement in the Institute by a faculty member, staff member, or peer because of their positive influence on others. After receiving a recommendation, students are invited to sign up for an interview time where they undergo a structured qualitative interview assessing their overall fit for the program and relational strengths, such as mission, rapport drive, listening, empathy, individual perception, investment, activation, position, diversity, acceptance, gestalt, focus, and work ethic. The selection interview has 65

questions total and measures the 13 aforementioned themes. Therefore, there are five questions for each of the 13 themes. Approximately 60 students are chosen for NHRI each year and are in the program for three years. Cumulatively, NHRI consists of approximately 180 college student participants and 180 K-12 youth participants.

As previously noted, all participants in this study were involved in the Nebraska Human Resources Institute (NHRI), a youth leadership program at the University of Nebraska-Lincoln. NHRI was found by Dr. William E. Hall and Dr. Donald O. Clifton in 1949 with the intention of giving outstanding college student leaders the opportunity to be a difference maker in the life of a younger student. Today, the Institute has over 65 years of mentoring experience. NHRI's basic assumptions and mission are as follows:

*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 ("NHRI Mission," n.d.)

A college student (Senior Counselor) selected for NHRI is expected to meet with his or her Junior Counselor for one hour each week for three years. The purpose of the one-on-one mentoring relationship is for the Senior Counselor to identify leadership strengths in the Junior Counselor and to develop those strengths by challenging the Junior

Counselor to engage in “stimulus situations.” Stimulus situations encourage a Junior Counselor to use his or her strengths to make a positive difference in the lives of others. For example, if a Senior Counselor notices that her Junior Counselor is exceptional at influencing others through the creation of deep and meaningful relationships, the Senior Counselor might challenge her Junior Counselor to ask three questions each day for two weeks to one student she has yet to meet. The ultimate goal is that the Junior Counselors are increasingly able to use their leadership strengths to invest in others’ lives, similar to how the Senior Counselor has invested in their life.

In addition to weekly meetings with their Junior Counselor, Senior Counselors also meet in groups, labeled “projects,” for an hour each week. Either the Junior Counselor’s age or the school he or she attends determines a Senior Counselor-Junior Counselor’s project placement. During project meetings Senior Counselors reflect on the progress of their investment relationship, hold one another accountable, and receive guidance from other project members. Each project also hosts two to three project retreats each semester for both Senior Counselors and Junior Counselors to attend. At these retreats the Senior Counselors typically facilitate group activities and discussions focused on a leadership concept. Furthermore, Senior Counselors have the opportunity to take a leadership development course taught by the program’s director during one semester of their involvement. The course engages students in conversations and activities about concepts such as strengths, active listening, and empathy, which they actively apply in their relationship with their Junior Counselors.

In sum, over the course of three years in NHRI, college students experience the following developmental activities: (a) meeting weekly with their Junior Counselor, (b)

weekly project meetings with other Senior Counselors, (c) two retreats each semester with Senior Counselors and Junior Counselors, and (d) the NHRI leadership development course.

For the current study, there were 91 participants, all of whom were participants in NHRI. Sample size was determined based on calculations from Tabachnick and Fidell (2013) that recommended a formula of “ $50 + 8m$ ” with “ $m$ ” being the number of factors. As the current study has one independent variable (age cohort) and three potential covariates (gender, G.P.A. range, and major), a minimum sample size of 82 was necessary to promote valid statistical judgments.

Participants in this study were required to be 19 years of age or older. All participants read an informed consent form and indicated consent by completing the survey measures. Participants were made aware that all of their information and responses would be strictly confidential with anonymous reporting. Approval from the Institutional Review Board was obtained before the study was conducted (see Appendix B).

### **Design and Data Collection**

The current research study utilized a quantitative non-experimental design to examine differences in generativity between age cohorts. Participants were not randomly assigned but, rather, were intact groups accessible to the investigator and relevant to the purpose of the study. Multiple age cohorts were compared, which made the study a between-subjects design.

Participants received a link via email from NHRI undergraduate research assistants that contained a description of the research study; demographic questions

including G.P.A. range, gender, and major; the LGS; the GBC; and personal strivings prompts. Undergraduate researchers followed up in-person with NHRI students at a regularly scheduled student meeting. Overall the survey packet took approximately 10 to 15 minutes to complete. This method of data collection was selected to maintain uniformity in procedure, in addition as to reducing any potential coercion by the researcher, who is professionally engaged with the participants in NHRI.

After data collection concluded, each participant received a score for each of the five LGS subscales and a total GBC score. For the open-ended report of personal strivings, each item was coded for generative commitment (McAdams et al., 1993). Specifically, the researcher, in combination with the three NHRI undergraduate researchers, looked for participation with the next generation, seeking to positively benefit someone else's life through assistance, direction, consolation, etc., and creatively giving to an individual or society. If a generative theme was present in a striving response, it was coded as a 1; while if a striving response did not have a generative theme present, it was coded as a 0. If a response referred to multiple categories, answers received multiple points. The researcher and undergraduate researchers coded all of the personal strivings responses individually before meeting as a group to discuss our scoring. If there was disagreement, the research team came to a unanimous agreement before assigning each response a coded score. The scores for each striving were then totaled to create an overall score.

**Instruments.** As utilized and recommended by seminal authors in the field to measure generativity (McAdams & de St. Aubin, 1992), the current study used three assessments: (a) the Loyola Generativity Scale, (b) the Generativity Behavior Checklist,

and (c) the report of personal strivings. The Loyola Generativity Scale (LGS) is a 20-item self-report scale using a four-point Likert-type response option that assesses generative concern and was developed by McAdams and de St. Aubin (1992). The 20-item scale loads into five subscales (see Table 2; see p. 47). First, passing knowledge to the next generation (questions 1, 3, 12, and 19). Second, caring for others (questions 2, 9, 11, and 16). Third, taking actions that will leave an enduring legacy (questions 4, 6, 8, 10, 13, and 14). Fourth, contributing to improving one's community (questions 5, 15, 18, and 20). Fifth, exhibiting creativity and production (questions 7 and 17). The assessment exhibited test-retest liability ( $r = .73$  over a three-week period; McAdams et al., 1993) and good internal consistency (Cronbach Alpha college sample,  $r = .83$ ; Cronbach Alpha for adult sample,  $r = .84$ ; McAdams & de St. Aubin, 1992) as well as a significant positive correlation with reports of generative acts and themes of generativity in significant life moment narratives, such as mentoring a younger individual (McAdams & de St. Aubin, 1992). Furthermore, the LGS has demonstrated a relationship between generative concern and agentic traits, communal traits, successful offspring outcomes, community involvement, and eco-friendly intentions (Ackerman et al., 2000; Lawford et al., 2005; Peterson, 2006; Urien & Kilbourne, 2010).

In both college and adult participants, each item of the LGS demonstrated (a) broad response variability, (b) relatively high correlations with the overall LGS score, (c) relatively high correlations with other measures of generativity, which indicates convergent validity, such as Hawley's (1984) 14-item scale of generativity and Ochse and Plug's (1986) generativity subscale, and (d) a nonsignificant correlation with Ochse and Plug's (1986) Social Desirability (SD) scale, which indicates discriminant validity

(McAdams & de St. Aubin, 1992). With regard to the use of the LGS in adolescent and young adult populations, LGS scores among 17 to 23 year olds showed a significant correlation to positive adjustment (high self-esteem, low levels of depression, and high social support; Lawford et al., 2005), which matches the results of a similar study with an adult population (McAdams, 2001). Additionally, Lawford et al. (2005) found evidence of strong test-retest reliability in a sample of ages 19 to 23 as the participants demonstrated significant consistency in their individual LGS scores. This instrument will be used in the current study to assess differences in generative concern between age cohorts.

Table 2

*Loyola Generativity Scale Subscales (McAdams & de St. Aubin, 1992)*

Subscale	Explanation	Questions Measuring
Subscale 1	Passing knowledge to the next generation	1, 3, 12, 19
Subscale 2	Caring for others	2, 9, 11, 16
Subscale 3	Taking actions that will leave a legacy	4, 6, 8, 10, 13, 14
Subscale 4	Contributing to improving one's community	5, 15, 18, 20
Subscale 5	Exhibiting creativity and production	7, 17

The Generativity Behavior Checklist (GBC) measures acts of generativity using a 50-item self-report survey (McAdams & de St. Aubin, 1992). Of the 50-item measure, 40 questions assess generative acts while 10 are deemed fillers. The 40 items measuring generative commitment correspond with a specific generative action: creating, maintain,

or offering. Each item is rated by participants on a scale of zero to two based on the frequency of engagement in the action during the past two months (0 = performed never; 1 = performed once, 2 = performed more than once). GBC scores have been significantly and positively related to LGS scores ( $r = .59, p < .001$ ; McAdams & de St. Aubin, 1992) ( $r = .53, p < .001$ ; McAdams et al., 1993). In addition to the studies conducted by McAdams and de St. Aubin (1992) and McAdams et al. (1993), Hart, McAdams, Hirsch, and Bauer (2000) in their study of 253 midlife white and African-American adults and the relationship between generativity and social involvement used the GBC, LGS, open-ended reports of personal striving, and open-ended autobiographical writings. The results of the study showed that the 40 items measuring generativity on the GBC had a significant correlation with participant's overall LGS scores ( $r = .46, p < .001$ ). The GBC will be used in the current study to examine differences in generative action between age cohorts.

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The report of personal strivings is a data collection procedure that measures generative commitment (Emmons, 1986). This open-ended assessment asks participants to finish the phrase "I typically try to..." ten times, with each sentence completion telling a personal striving. Personal strivings are described as the things an individual typically tries to do in everyday life and the goals he or she seeks to accomplish (McAdams, 1993). The collected data is then analyzed by coding each participant's list for generative themes. The personal strivings measure has demonstrated a significant and positive correlation with both LGS scores ( $r = .23; p < .01$ ; McAdams et al., 1993) and GBC scores ( $r = .20; p < .05$ ; McAdams et al., 1993). Hart et al. (2001) had similar findings to that of McAdams et al. (1993). Data analysis showed a significant and positive correlation between personal strivings scores and both total LGS scores ( $r = .29, p < .001$ ) and the 40 items measuring generativity on the GBC ( $r = .26, p < .001$ ). The report of personal strivings will be used in the current study to examine differences in generative commitment between age cohorts.

The use of the LGS, GBC, and report of personal strivings allowed the researcher to measure differences between age cohorts of college students who mentor in three

various expressions of generativity: generative concern, generative action, and generative commitment (McAdams & de St. Aubin, 1992). Individual responses on the three survey measures and the demographics survey were entered into SPSS v. 25 where cumulative scores on the measures and subscales were tabulated. The data was analyzed using a multivariate analysis of covariance (MANCOVA) to determine if age cohort resulted in significant differences on generativity at the  $p < .05$  level. Additionally, MANCOVA statistically removed the potentially confounding influence of gender, G.P.A. range, and college major, which are covariates in the current study.

### **Threats to Validity**

This non-experimental research study may have been influenced by several threats to validity. The internal validity threats, which undermine researchers' ability to draw connections from the data to the population in the experiment, were numerous given the lack of random assignment and control and, therefore, the absence of initial equivalence. History was a potential confounding variable, as the researcher did not have control over the previous experiences of participants (ex. leadership training outside of mentoring and parental levels of generativity) (Cook & Campbell, 1979; Shadish, Cook, & Campbell, 2001).

Along with internal validity threats, the research study may also have been influenced by external validity threats, which undermine researchers' ability to connect the current data to other people, settings, and past and present scenarios. The homogeneity of the sample as undergraduate students at the University of Nebraska-Lincoln in the Nebraska Human Resources Institute may limit the study's generalizability to individuals not at a collegiate age, not mentoring through NHRI, and/or in a different

region. In order for the researcher to know the generalizability of this study to past and future situations, the study would need to be replicated at later times among various populations to determine if the same results occur (Cook & Campbell, 1979; Shadish, Cook, & Campbell; 2001).

## CHAPTER 4

### Results

The purpose of this two-phase quantitative study was to assess the development of generativity in college students. Chapter 4 is organized to present the results of the current study. Data analysis sought to answer the question, *Do college students who mentor with NHRI demonstrate a significant difference by age cohort in generativity levels after controlling for gender, G.P.A. range, and college major?* Table 3 shows the variables of the current study.

Table 3

*Variables and Covariates*

Independent Variable	Covariates	Dependent Variables
Age Cohort	Gender	LGS Subscale 1
Sophomore	Major Category	LGS Subscale 2
Junior	G.P.A. Range	LGS Subscale 3
Senior		LGS Subscale 4
		LGS Subscale 5
		Total GBC Score
		Total Personal Strivings Score

### Variables

The independent variable in the current study was age cohort. Participants self-identified into one of three groups: (a) sophomore (2<sup>nd</sup> year at college); (b) junior (3<sup>rd</sup> year at college); (c) senior (4<sup>th</sup> year at college). Table 4 (see p. 53) shows the relationship between year in college and years spent mentoring with NHRI. Participants self-

identified year in college and number of years spent mentoring. Number of years in college was compared with number of years spent mentoring using a paired samples t-test because two means from the same individuals that represent two different, but related conditions were being compared (Ross & Wilson, 2017). Results indicated that there was not a significant difference in the number of years at college ( $M=2.04$ ,  $SD=0.86$ ) and the number of years spent mentoring ( $M=1.99$ ,  $SD=0.90$ );  $t(89) = 1.752$ ,  $p > 0.05$ .

Additionally, the two variables are significantly and strongly correlated ( $r = 0.917$ ,  $p < 0.001$ ). Therefore, age cohort, the independent variable, accounts for both number of years in college, which is explicitly measured by age cohort, and number of years spent mentoring with NHRI, which is not significantly different from age cohort.

Table 4

*Mentoring and Year in College*

Age Cohort	Year in College	Years Mentoring
Cohort 1	2 <sup>nd</sup> year	1 <sup>st</sup> year
Cohort 2	3 <sup>rd</sup> year	2 <sup>nd</sup> year
Cohort 3	4 <sup>th</sup> year	3 <sup>rd</sup> year

Additionally, preliminary data analyses indicated that three participants self-identified as 5<sup>th</sup> year “Super Seniors.” A cohort 4 of 5<sup>th</sup> year students in their 4<sup>th</sup> year of mentoring was not included in the current study because of the relatively low number of NHRI students in this category. Therefore, the 5<sup>th</sup> year participants were compared with the 4<sup>th</sup> year participants (Cohort 3) using an independent samples t-test (Ross & Wilson, 2017). This method of analysis was chosen because it allows the researcher to test statistical differences between the means of two groups on multiple dependent variables. Results from the independent samples t-test group statistics showed no obvious

differences between the two groups. The Levene's Test for Equality of Variances also showed insignificant  $p$ -values on the GBC ( $t(86) = 1.452, p = .09$ ), Personal Strivings ( $t(84) = .176, p = .712$ ), LGS ( $t(84) = .832, p = .829$ ), LGS subscale1 ( $t(85) = 2.428, p = .702$ ), LGS Subscale 2 ( $t(86) = .601, p = .569$ ), LGS Subscale 3 ( $t(85) = -.663, p = .755$ ), LGS Subscale 4 ( $t(86) = -.035, p = .217$ ), and LGS Subscale 5 ( $t(85) = .1722, p = .624$ ). The insignificant results indicated that there was no statistically significant difference between the two groups and, therefore, the 5<sup>th</sup> year participants were grouped with the 4<sup>th</sup> year participants into Cohort 3.

The dependent variable in the current study was generativity level, which was operationally defined as participants' scores on the Loyola Generativity Scale (LGS) Subscale 1, LGS Subscale 2, LGS Subscale 3, LGS Subscale 4, LGS Subscale 5, Total Generativity Behavior Checklist (GBC), and Total Personal Strivings. The outcomes measured were the direction and the amount of change (Rosenthal & Rosnow, 1991). The 20-item LGS ( $\alpha = .687$ ) and the 50-item GBC were found to be reliable ( $\alpha = .799$ ). Cronbach's alpha was tested on the Total LGS and Total GBC, as was done in the seminal study by McAdams and de St. Aubin (1992).

The covariates in the current study were gender, G.P.A. range, and college major. Gender is the only one of the three covariates examined that has demonstrated a direct relationship with generativity empirically. McAdams and de St. Aubin (1992) and Lawford et al. (2005) found that college-aged women tended to demonstrate higher generativity scores than college-aged men. The relationship between generativity and gender among young adults discovered in these studies leads one to conclude that gender

could have a confounding influence on scores of generativity in the current study, which necessitated its inclusion as a covariate.

Although there is no empirically demonstrated relationship between G.P.A. range and generativity, McAdams (2001) noted that generativity is positively related to level of education. It could be extrapolated that students with a higher G.P.A. range might be more likely to attain advanced degrees. Therefore, the influence of G.P.A. range on generativity ought to be controlled. Additionally, the current study controlled for the influence of college major by category. While college major has not demonstrated a relationship with generativity empirically (Hastings et al., 2015), items on the generativity measures used in the current study are indicative of specific college majors. For example, on the LGS, item one says, “I try to pass along the knowledge I have gained through my experiences” and item three states, “I think I would like the work of a teacher.” Students majoring in education, as opposed to students majoring in finance, for example, might score both of these items higher. Due to the likelihood that education majors will become teachers and will pass along knowledge, the current study controlled for college major. In sum, given the potential for confounding influence on generativity scores, the current study controlled for gender, G.P.A. range, and college major to increase the power of the statistical analysis.

### **Data Analysis**

The LGS subscales, GBC, and personal strivings scores, along with the demographic information, were entered into SPSS v. 25 where individual and group descriptive statistics were calculated. Preliminary statistical assessments of MANCOVA assumptions were conducted. After the preliminary analyses, a factorial multivariate

analysis of covariance (factorial MANCOVA) was conducted to assess the influence of age cohort on generativity levels (LGS subscales, GBC, personal strivings) while examining the covariate influence of gender, college major, and G.P.A. range (see Figure 3; see p. 57) at the  $p < .05$  significance level.

A factorial MANCOVA procedure of data analysis was chosen to test the research question because the current study examined the influence of year in college, and, therefore, years spent mentoring, on generativity scores. This resulted in multiple, related dependent variables, in addition to multiple covariates (see Table 3; see p. 52). By including covariates in the data analysis, the variability between participants within each age cohort is reduced and ability of the findings to denote the actual influence of the independent variables on the dependent variables (in the current student, the influence of year spent mentoring (age cohort) on generativity) is increased (Tabachnick & Fidell, 2013). Additionally, in non-experimental studies, such as the current study, “MANCOVA provides statistical matching of groups...prior differences among groups are accounted for by adjusting DVs as if all subjects scored the same on the covariate(s)” (Tabachnick & Fidell, 2013, p. 287).

**Data screening.** Data were entered and prepared for the MANCOVA analysis procedure. First, an analysis of outliers was performed, and then an analysis of normality. A missing data analysis was performed, and absent data points were handled using pairwise deletion considering low item missing data rates.



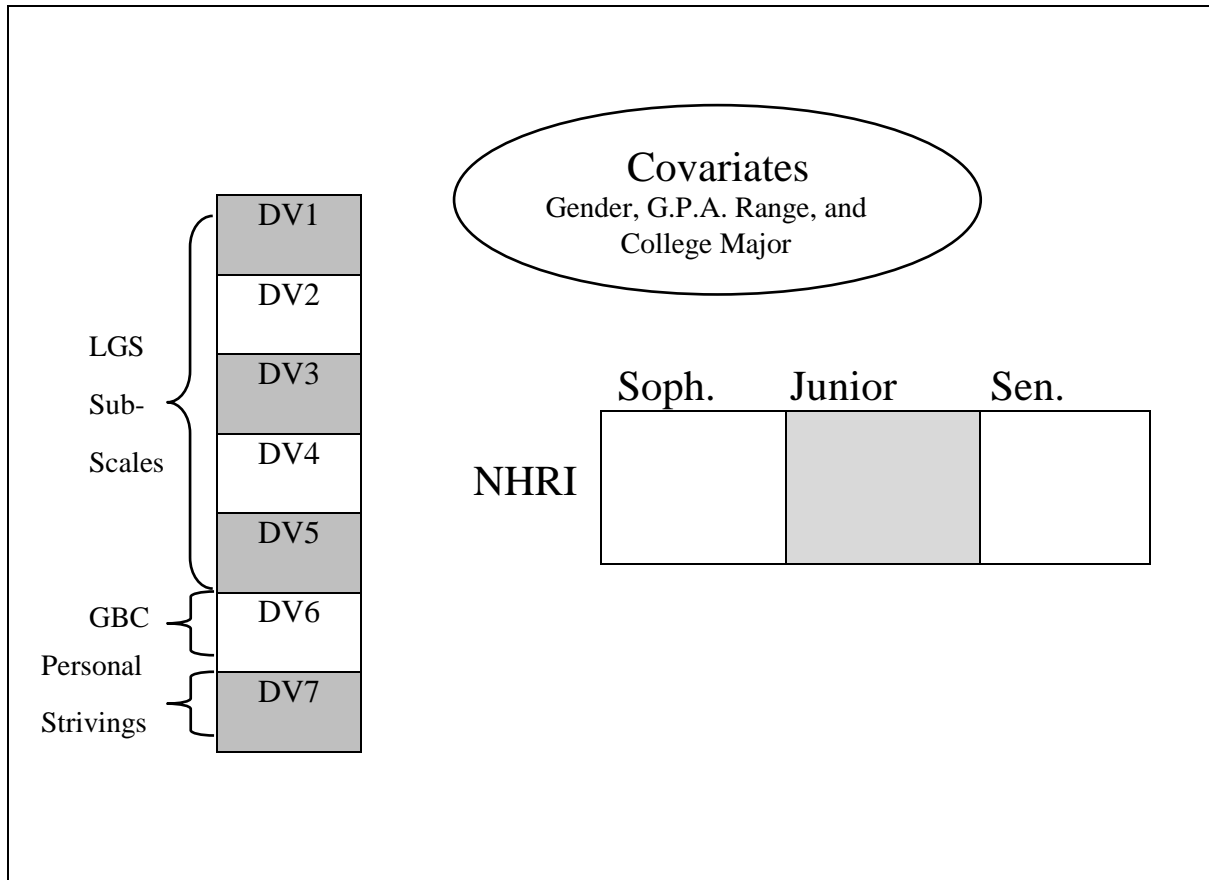


Figure 3. MANCOVA analysis.

**Outlier analysis.** First, an analysis of outliers was performed. Outliers - “cases [in a data set] that are extreme (outlandish)” (Tabachnick & Fidell, 2013, p. 94) – can disproportionately influence findings. Outliers happen in both univariate (an extreme score on one variable) and multivariate (an extreme combination of values on two or more variables) situations. Univariate outliers, which are easier to identify than multivariate outliers, were spotted by converting each variable into z-scores (Tabachnik & Fidell, 2013). Z-scores that were in excess of 3.29 ( $p < .001$ , two-tailed test) were identified as potential outliers and assessed for inaccurate data entry or unusual response patterns. Among the five LGS subscales, total GBC, and total Personal Strivings, no participants had z-scores that were greater than 3.29 standard deviations from the mean.

Therefore, it was determined that no participants were outliers and that no univariate outliers would undergo F transformations, which are acceptable, if needed, to increase the normality of a variable.

Multivariate outliers, which are cases in which there is an extreme combination of values on two or more scores, are calculated using Mahalanobis distance - the distance of a point from the mean of the other points (Tabachnik & Fidell, 2013). Typically, the points in a data set shape a swarm around the mean, and a point that lies outside the swarm is identified as a multivariate outlier. The current study had only one categorical independent variable and, therefore, a test for multivariate outliers was not needed.

**Normality.** Given MANCOVA's assumption of normality, screening for normality includes assessing skewness and kurtosis statistics and frequency histograms for each cohort group (Tabachnik & Fidell, 2013). When a data set has a normal distribution, skewness and kurtosis have values of zero. When skewness and kurtosis values are changed to z-scores (skewness or kurtosis values divided by its standard error), scores between +/- 3.33 are deemed satisfactory (Tabachnik & Fidell, 2013). Table 5 shows the skewness and kurtosis z scores for each variable within each group, which were all between +/- 3.33 (see p. 59).

**Missing data.** Missing data, which is one of the most common problems in data analysis, is difficult because of its influence on generalizability, especially in instances of nonrandom missing values (Tabachnik & Fidell, 2013). In order to assess missing data, item nonresponse was analyzed for the entire data set. There are three possible procedures for handling item nonresponse: (a) a missing data correlation matrix, (b) estimating (imputing) probable missing values, or (c) deleting random cases that have

missing data (Tabachnik & Fidell, 2013). The first option is to use a missing data correlation matrix, which results in calculating the correlations of the variable with other variables based on fewer pairs of numbers than the other correlations with a full or more full data set.

Table 5

*Skewness and Kurtosis Z Scores for Each Variable within Each Group*

DV	Age Cohort 1		Age Cohort 2		Age Cohort 3	
	Skewness	Kurtosis	Skewness	Kurtosis	Skewness	Kurtosis
LGS Subscale 1	-0.158	-0.817	-0.390	-0.177	-0.067	0.271
LGS Subscale 2	0.155	-0.896	-0.632	0.494	-0.336	-1.254
LGS Subscale 3	-0.298	-0.279	-0.259	-0.471	-0.285	0.491
LGS Subscale 4	-0.312	-0.099	-0.479	-0.547	0.527	-1.108
LGS Subscale 5	0.037	-0.402	0.058	-0.292	-0.414	-0.103
Total GBC	0.127	-0.315	0.303	-0.498	-0.088	-0.631
Total Personal Strivings	0.780	1.131	0.696	-0.426	0.618	0.427

*Note.* These values are converted z-scores, not the actual skewness and kurtosis statistics.

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The second option is the process of estimating (imputing) probable missing values. Utilizing prior knowledge, substituting means, regression, expectation maximization, or multiple imputation data analysis procedure can estimate missing data (Tabachnik & Fidell, 2013). Utilizing prior knowledge is when the researcher uses an educated guess to replace a missing value. Mean substitution, less commonly used now that more rigorous methods are available through computer programs, is when a missing value is replaced by the overall mean for the variable. Regression, a more sophisticated method of handling missing values, happens when “other variables are used as IVs to write a regression equation for the variable with missing data serving as DV” (Tabachnik & Fidell, 2013, p. 102), with full data sets writing the regression equation. Expectation maximization methods use a missing data correlation matrix to assume the distribution’s shape for the missing data and inferences are drawn on the probability under that distribution. Finally, multiple imputation builds several data sets with random values from a continuum of possibilities filling the missing data points. Statistical analyses are then conducted on several of the new data sets and the average parameter estimates are reported.

The third option is deleting random cases that have missing data. The first form of deletion is listwise deletion, which removes an entire record from analysis if any data

point is missing. Pairwise deletion, the second form of deletion, doesn't include a participant's response on a particular variable that has a missing value, but it still uses the participant's response when analyzing other variables with non-missing values. Pairwise deletion was used to handle missing data in the current study because only a few data points were missing – less than the recommended 5% (Tabachnik & Fidell, 2013). Given the relatively small percentage of missing data, the problems are less serious and a variety of procedures would have produced similar results. The levels of missing data did not necessitate an estimation procedure. Pairwise deletion was appropriate to handle missing data because it maximizes the inclusion of participants' responses, while excluding missing cases.

Hastings et al. (2015) argued that it is inappropriate to use deletion in studies examining generativity because it has the potential to bias results. For example, if a handful of students don't respond to items 30-50 on the GBC, it may be because they grew bored and stopped, not maintaining a generative desire to contribute, while those who chose to persevere did maintain a generative motivation, therefore, biasing the sample in favor of those demonstrating high levels of generativity. This argument does not apply to the current study because all missing data points were at random on different variables and, therefore, do not show a pattern of fatigue among participants. While the argument of Hastings et al. (2015) is often relevant in this line of research, pairwise deletion is a reasonable choice in the current study because of the low rates of missing data and the maximization of including participants' responses in analyses (Tabachnik & Fidell, 2013).

**Participant information.** Overall, 91 NHRI students participated in this research study with 83 participants providing full data sets. Age Cohort 1 had 28 participants (30.8%). Age Cohort 2 had 33 participants (36.3%). Age Cohort 3 had 29 participants (31.9%). With regard to gender, there were more female participants (59.3%) than male participants (40.7%). Regarding G.P.A. range, the majority of participants self-identified in the 3.5-4.0 G.P.A. range (82.4%), followed by the 3.0-3.49 range (15.4) and then the 2.5-2.99 range (1.1%) and the 1.5-1.99 range (1.1%). In regard to major, the most represented category was arts and sciences majors (27.5%), followed by education and human sciences majors (19.8%), business majors (14.3%), agricultural sciences and natural resources majors (13.2%), journalism and mass communications majors (9.9%), engineering majors (9.9%), fine and performing arts majors (3.3%), undeclared majors (1.1%), and nursing majors (1.1%).

**MANCOVA.** A factorial MANCOVA was selected to test the data because the current study sought to examine the influence of year in college and years spent mentoring, on generativity level, which resulted in the study having multiple dependent variables, while also allowing for the assessment of the influence of covariates (gender, G.P.A. range, and college major; see Table 3; see p. 52).

**MANCOVA assumptions.** Analyzing data and interpreting results appropriately using the MANCOVA statistical analysis requires assumptions to be met. First, the MANCOVA analysis assumes that error terms are independent across independent variables and observations. This assumption is met in the current study because each age cohort (Cohort 1, Cohort 2, and Cohort 3) were different populations. Additionally, no

participants completed the measures more than once and all data was collected in one sitting (Tabachnik & Fidell, 2013).

Second, there is an assumption of homogeneity of variance in the MANCOVA analysis, which assumes that the variances within each population are the same for each dependent variable, along with an assumption of homogeneity of variance-covariance matrices, that assumes equality of the cells in the matrices for each dependent variable across groups. The homogeneity of variances assumption was tested using Levene's Test of Equality of Error Variances. The F statistics for Total GBC,  $F(2, 83) = 2.399$ , LGS Subscale 1,  $F(2, 83) = 0.375$ , LGS Subscale 2,  $F(2, 83) = 0.123$ , LGS Subscale 3,  $F(2, 83) = 1.032$ , LGS Subscale 4,  $F(2, 83) = 0.165$ , and LGS subscale 5,  $F(2, 83) = 2.044$ , were all nonsignificant at the  $p < .05$  level, indicating that the variances were equal across groups for each of these dependent variables. The F statistic for Total Personal Strivings,  $F(2, 83) = 3.628$ , was significant at the  $p < .05$  level, signifying a violation of this assumption. MANCOVA analysis is relatively robust to violations of equality of variance, so the violation on Total Personal Strivings is not devastating (Barrett, 2011). If a variable does not meet the assumption of homogeneity of variances using Levene's Test of Equality of Error Variances, the researcher is encouraged to conduct a  $F_{\max}$  test. The  $F_{\max}$  test divides the larger variance by the smaller variance to determine the  $F_{\max}$  ratio. If the  $F_{\max}$  value falls below 10, the assumption of homogeneity of variance is achieved (Tabachnik & Fidell, 2013). An  $F_{\max}$  test was conducted for Total Personal Strivings. The  $F_{\max}$  statistic was 1.39, which was below the threshold of 10.

To test the homogeneity for variance-covariance matrices assumption the Box's *M* Test of Equality of Covariance Matrices was used in SPSS. Box's *M* Test determines

whether two or more covariance matrices are equal and is very sensitive to disruptions in homogeneity. Box's *M* Test was not statistically significant at the  $p < .001$  level ( $p = .14$ ) (Tabachnick & Fidell, 2013), which denotes that the covariance matrices were equivalent across groups.

A fourth MANCOVA assumption is linearity among dependent variables pairs, covariate pairs, and variable-covariate pairs. No violations in linearity occurred, so it was unnecessary to examine scatterplots for each pair of dependent variables within each group (Tabachnick & Fidell, 2013).

A fifth MANCOVA analysis assumption necessitates overall and step-down homogeneity of regression tests to determine the relationship between each independent variable-covariate interaction, in addition to the overall interaction between the independent variables and the covariates across age cohorts. The results of the current study showed no statistically significant correlations between each of the covariates and the independent variable. Additionally, the overall interaction between all of the covariates and the independent variable was not significant at the  $p < .05$  level, which satisfies the homogeneity of regression assumption. Table 6 shows the multivariate test for each interaction, as well as the overall interaction (see p. 65).

The final two assumptions of MANCOVA data analysis are reliability of covariates and multicollinearity and singularity (Tabachnick & Fidell, 2013). Covariates such as sex and age meet the assumption of covariate reliability because they can be perfectly reliable (Tabachnick & Fidell, 2013). Similarly, the covariates in the current study are demographic and easily determinable variables (gender, G.P.A. range, and college major), as opposed to attitudinal, variables that fluctuate over time. This allows



one to assume that participants were relatively reliable in reporting facts about themselves and, therefore, no adjustment was made for unreliable covariates.

Table 6

*Homogeneity of Regression Test*

	Wilk's Lambda	<i>p</i>
Cohort x Gender	0.795	0.765
Cohort x G.P.A.	0.835	0.524
Cohort x Major	0.816	0.675
Overall Interaction	0.801	0.790

Finally, regarding the assumption of absence of multicollinearity (correlations among variables are high) and singularity (a variable is a combination of other variables), the current study demonstrated modest to small correlations between all of the dependent variables and between all of the covariates. All of the correlations were below the  $r = .90$  upper limit recommendation (Tabachnick & Fidell, 2013). These correlations are shown in Table 7 (see pg. 66) and Table 8 (see pg. 66).

In order to fulfill the assumption of singularity, the Total LGS dependent variable was not included in data analysis because it was a summation of the five LGS subscales and, therefore, would have been a redundant variable. The dependent variables used in the MANCOVA analysis (five LGS subscales, Total GBC score, and Total Strivings score) are independent, which satisfies the singularity assumption.

Table 7

*Dependent Variable Intercorrelations*

Dependent Variable	1	2	3	4	5	6	7
1. LGS Subscale 1	--	.129	.428	-.006	.080	.017	.011
2. LGS Subscale 2	.129	--	.423	.141	.359	.296	.064
3. LGS Subscale 3	.428	.423	--	.248	.112	.147	-.079
4. LGS Subscale 4	-.006	.141	.248	--	.070	.274	.004
5. LGS Subscale 5	.080	.359	.112	.070	--	.148	.035
6. Total GBC	.017	.296	.147	.274	.148	--	.341
7. Total Personal Strivings	.011	.064	-.079	.004	.035	.341	--

*Note.* All values fall below the 0.9 upper limit.

Table 8

*Covariate Intercorrelations*

Variable	1	2	3
1. Gender	--	.191	-.093
2. GPA Range	.191	--	.022
3. Major	-.093	.022	--

*Note.* All values fall below the 0.9 upper limit.

***Descriptive statistics.*** The means and standard deviations for each dependent variable within each age cohort are highlighted in Table 9 (see p. 67).

***Multivariate test.*** To begin the MANCOVA analysis an examination of the influence of age cohort on the combination of the dependent variables was conducted. Four multivariate tests assessed the influence: (a) Pillai's Trace (typically used when Box's *M* Test is significant); (b) Wilks' Lambda (typically used when Box's *M* Test is

not significant and when there are multiple groups); (c) Hotelling's Trace; (d) Roy's Largest Root. The results of the four multivariate tests in the current study indicated that age cohort does not have a significant effect of generativity after controlling for gender, G.P.A. range, and college major, which means that participant's levels of generativity were not significantly influenced by their grade in school.

Table 9

*Descriptive Statistics Within Each Group for Each Dependent Variable*

Dependent Variable	Age Cohort 1 (n=28)	Age Cohort 2 (n=33)	Age Cohort 3 (n=29)
	M (SD)	M (SD)	M (SD)
LGS Subscale 1	13.67 (1.47)	13.48 (1.66)	13.28 (1.67)
LGS Subscale 2	13.50 (1.67)	13.42 (1.70)	13.17 (1.61)
LGS Subscale 3	19.32 (1.98)	18.84 (2.46)	18.90 (2.41)
LGS Subscale 4	6.71 (.81)	6.85 (-.94)	6.66 (.77)
LGS Subscale 5	13.48 (1.55)	13.33 (1.19)	14.07 (1.22)
Total GBC	70.86 (6.69)	72.64 (9.69)	71.52 (9.72)
Total Personal Strivngs	3.82 (1.54)	4.09 (2.11)	3.81 (1.64)

**Multivariate test.** To begin the MANCOVA analysis an examination of the influence of age cohort on the combination of the dependent variables was conducted. Four multivariate tests assessed the influence: (a) Pillai's Trace (typically used when Box's *M* Test is significant); (b) Wilks' Lambda (typically used when Box's *M* Test is not significant and when there are multiple groups); (c) Hotelling's Trace; (d) Roy's Largest Root. The results of the four multivariate tests in the current study indicated that age cohort does not have a significant effect of generativity after controlling for gender,

G.P.A. range, and college major, which means that participant's levels of generativity were not significantly influenced by their grade in school.

Box's *M* Test was not significant, so Wilks' Lambda was interpreted and reported  $F(2, 83) = .814, p = .65$ ; Wilk's  $\lambda = 0.862$ , partial  $\epsilon^2 = 0.07$ . Wilks' Lambda was not significant at the recommended  $p < .05$  level ( $p = .65$ ), indicating that age cohort did not have an effect of generativity after controlling for gender, G.P.A. range, and major.

Additionally, the partial  $\eta^2$  value of 0.07 denotes that approximately seven percent of participants' variance in generativity levels could be due to their age cohort after controlling for the covariates. While this partial  $\eta^2$  value may be regarded as a medium effect size ( $> .06$ ), the non-significant findings indicate that the influence age cohort, the independent variable, on generativity levels, the dependent variable, is not significant. The lack of significant main effects indicated that it was unnecessary to investigate further into the influence of age cohort on generativity. Plots of the estimated marginal means for each of the dependent variables demonstrate the lack of effect that age cohort had on the dependent variables in the current study: (a) Figure 4, LGS Subscale 1 (see p. 69); (b) Figure 5, LGS Subscale 2 (see p. 70); (c) Figure 6, LGS Subscale 3 (see p. 70); (d) Figure 7, LGS Subscale 4 (see p. 71); (e) Figure 8, LGS Subscale 5 (see p. 71); (f) Figure 9, Total GBC (see p. 72); (g) Figure 10, Total Personal Strivings (see p. 72).

No covariate demonstrated a main effect, although gender did show significant between-subjects effects on Total GBC,  $F(2, 83) = 4.43, p < .05$  and on LGS Subscale 1,  $F(2, 83) = 4.66, p < .05$ . Both Total GBC and LGS Subscale 1 had partial  $\eta^2$

values of 0.05, which indicates a small effect size. The finding that aspects of generativity were influenced by gender is consistent with the results of the McAdams and de St. Aubin (1992), as well as Hastings et al. (2015), that showed higher scores on measures of generativity for female young adults than male young adults.

**Summary of results.** In sum, the results of multivariate tests for the MANCOVA analysis indicated that year in college/years spent mentoring (age cohort) did not have a significant influence on generativity levels after controlling for the influence of gender, G.P.A. range, and major.

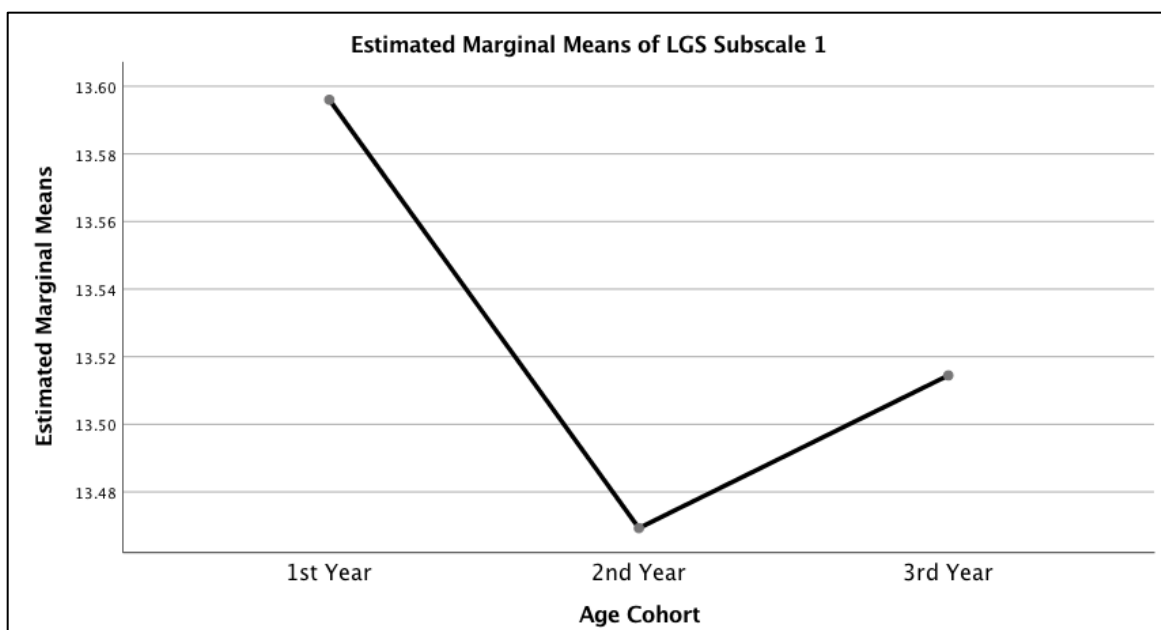


Figure 4. Profile plot of LGS subscale 1 (MANCOVA).

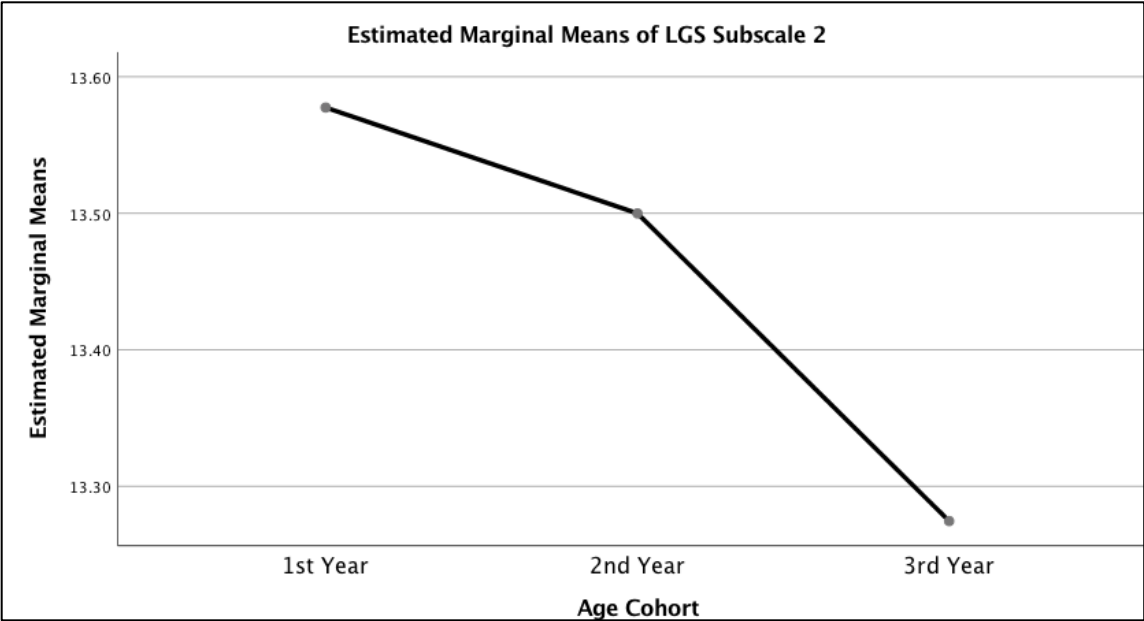


Figure 5. Profile plot of LGS subscale 2 (MANCOVA).

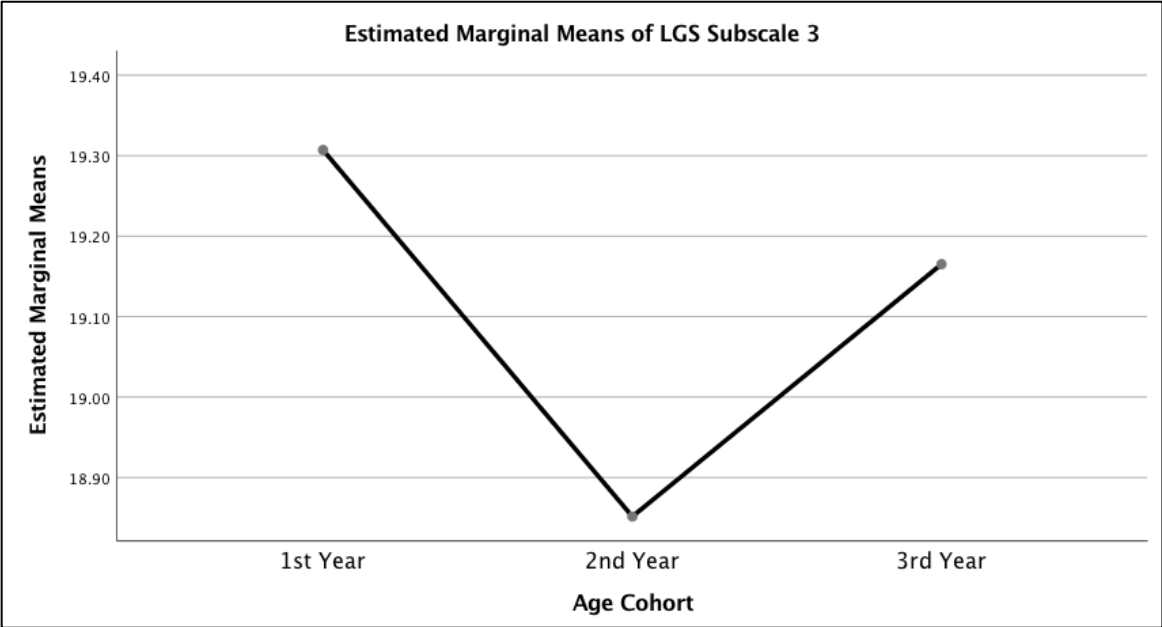


Figure 6. Profile plot of LGS subscale 3 (MANCOVA).

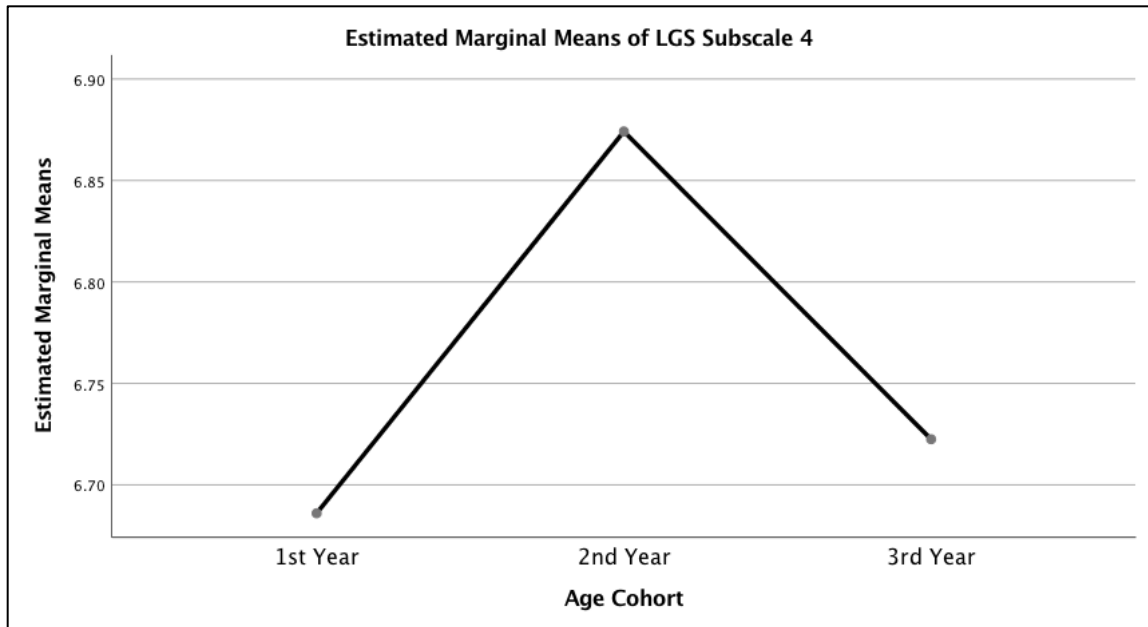


Figure 7. Profile plot of LGS subscale 4 (MANCOVA).

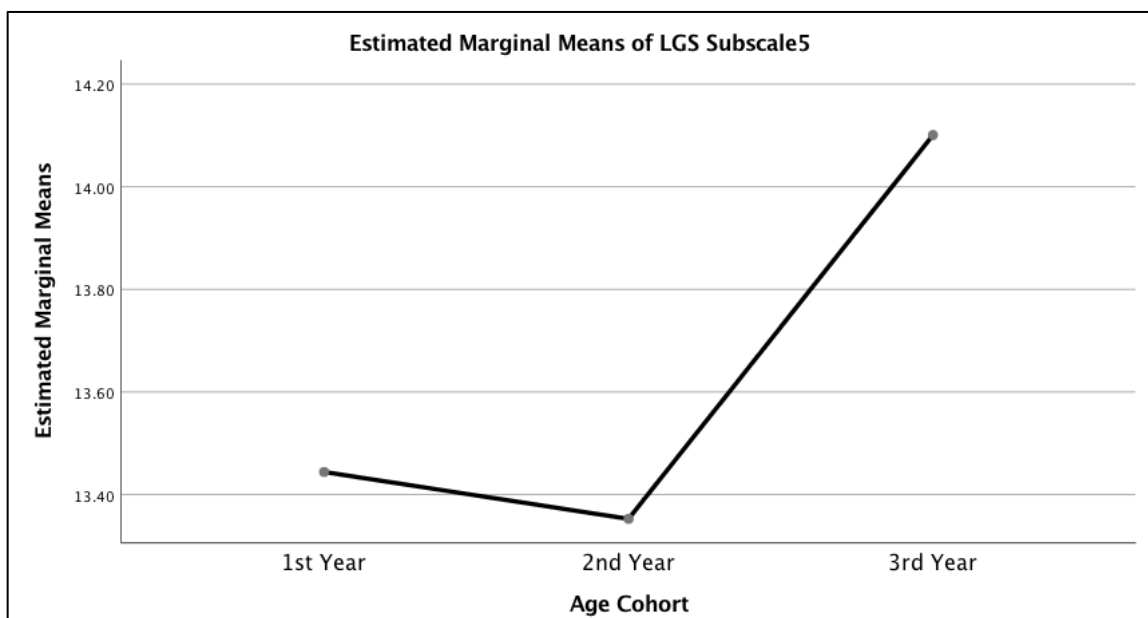


Figure 8. Profile plot of LGS subscale 5 (MANCOVA).

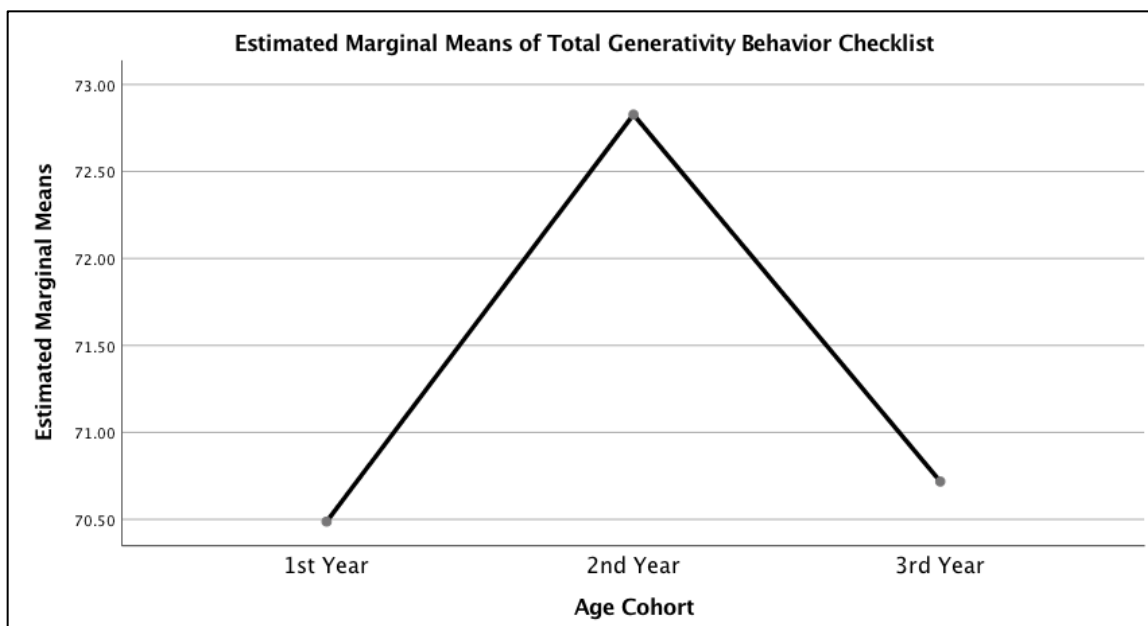


Figure 9. Profile plot of Total Generativity Behavior Checklist (MANCOVA).

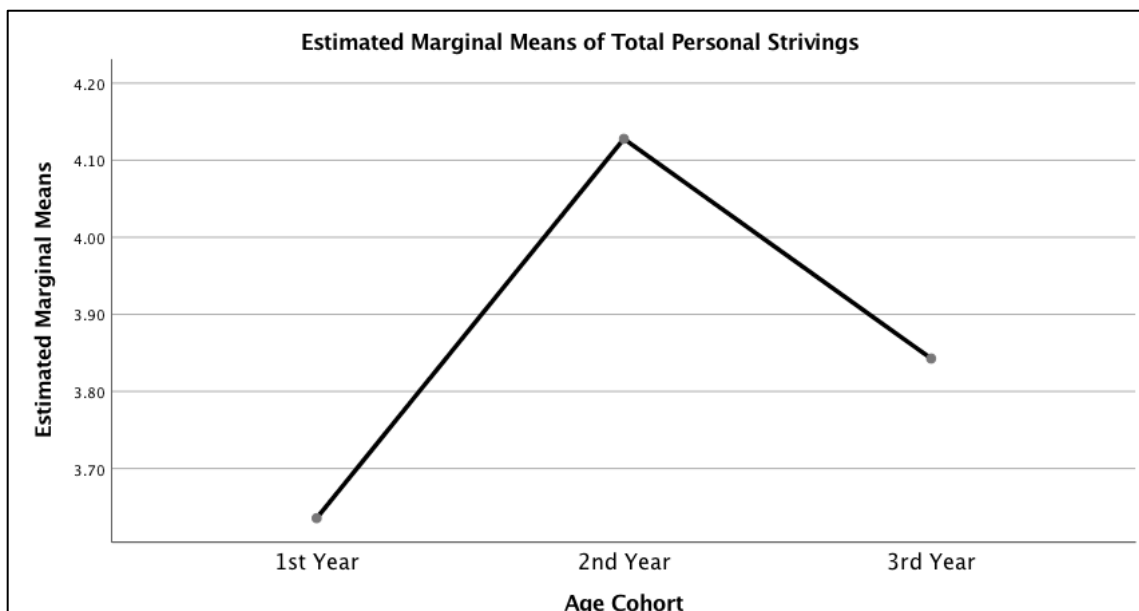


Figure 10. Profile plot of Total Personal Strivings (MANCOVA).

The following chapter interprets the results research and discusses the impact of the current outcome in relation to empirical findings. Implications and directions for future research are then highlighted.



## CHAPTER 5

### Discussion

The purpose of this cross-sectional study was to examine the influence of year in college on generativity levels among college students who mentor. Chapter 5 is devoted to interpreting the quantitative results, discussing the results of the current study in relation to empirical findings on generativity, and, finally, articulating implications and future research directions.

### Overview

The aforementioned purpose of the current study was to examine the influence of year in college (age cohort) on generativity levels among college students who mentor. Generativity levels were compared between student mentors in the Nebraska Human Resources Institute (NHRI) in their 2<sup>nd</sup> year in college (Age Cohort 1), 3<sup>rd</sup> year in college (Age Cohort 2), and 4<sup>th</sup> year in college (Age Cohort 3) to examine the research question, *Do college students who mentor with NHRI demonstrate a significant difference by age cohort in generativity levels after controlling for gender, G.P.A. range, and college major?* Survey data were collected using Qualtrics via in-person meetings with participants conducted by undergraduate researchers. The results of the MANCOVA analysis indicated that year in college (age cohort) did not have a significant influence on generativity levels after controlling for the influence of gender, G.P.A. range, and major. Findings from the current study inform empirical research and theory on generativity in young adults and identity development.

## **Interpreting the Results**

This section explains the data results in light of the current study's research question. Then, the findings are compared and contrasted with existing literature on generativity and mentoring.

MANCOVA results revealed that year in college/years spent mentoring did not demonstrate a significant influence on the generativity of college students who mentor with NHRI at the  $p < .05$  level.

While college student leaders who mentor tend to have higher levels of generativity compared to college student leaders and general college students (Hastings et al., 2015), the finding of the current study indicated that college student leaders who mentor do not experience a statistically significant change in generativity levels during their second through fourth year of college. Additionally, analysis of the plots of the estimated marginal means for each of the dependent variables revealed a visual lack of pattern between generativity and age cohort with participants who had mentored and been in college for more years not demonstrating higher levels of generativity compared to younger students.

**Generativity and mentoring.** The finding of the current study encourages further discussion on the role of mentoring as an antecedent to generativity, particularly in young adult populations. Engaging in the discussion and research is relevant and useful given the established need in the existing literature for further research on the antecedents of generativity (McAdams, 2001).

Hastings et al. (2015) conducted an embedded explanatory sequential mixed methods study that observed differences in generativity levels between college student leaders who mentor with NHRI compared with other college student leaders and general college students. Specifically, the results of a MANCOVA procedure and multiple univariate ANOVA tests demonstrated that college student leaders who mentor had significantly higher levels of generativity than general college students in all facets of generative concern (LGS Subscale 1-3), generative action (GBC), and generativity commitment (Personal Strivings), indicating that generativity can vary person to person based on developmental experiences and affirming the relevance of using generativity in assessing college student leadership (Hastings et al., 2015).

Given the significant difference in generativity levels between college students who mentor and those who do not, researchers proposed mentoring as an antecedent to generativity (Hastings et al., 2015). To date, other established developmental antecedents of generativity include: (a) parents' generativity, (b) family size, (c) parental affection, (d) family focus on chores and use of time restrictions to limit time spent watching television, (e) communion and agency personality traits, (f) parenting style, (g) values teaching, (h) volunteerism, (i) prosocial reasoning, and (j) community involvement (Frensch et al., 2007; Lawford et al., 2005; Peterson & Stewart, 1996; Rossi, 2001b).

While the current study did not necessarily contradict the findings of Hastings et al. (2015), it did further elucidate the role that the act of mentoring plays as a developmental antecedent to generativity. The non-significant findings of the present study signified that year in college and years spent mentoring did not influence rates of generativity. This indicated that perhaps *interest in mentoring* has more of an impact on

generativity levels than the *act of mentoring*, which may explain why college student leaders who mentor show increased levels of generativity compared to college student leaders and general college students (Hastings et al., 2015). This suggested that perhaps interest in mentoring should be labeled be an antecedent of generativity, rather than mentoring itself. Further research is needed to confirm and expand upon these findings.

**Generativity and the Leadership Identity Development Model.** In addition to expanding upon empirical research on antecedents of generativity, the finding of the current study provides insight on the Leadership Identity Development Model (LID Model; Komives et al., 2005, 2006; Komives, 2011). The LID Model was developed from a grounded theory study that examined leadership identity development by interviewing 13 diverse college-aged students at a mid-Atlantic university because of their relational leadership. Overall, the interviews gave rise to a model consisting of six stages of development experienced by college students (see Figure 3; see p. 57). Stage five of the model is generativity. During this phase students crystallized their personal leadership philosophies, were actively committed to the purposes of organizations and groups, and developed younger group members in hopes that they would sustain campus organizations. These developmental experiences were fueled by the mentorship role participants had in the life of others.

Hastings et al. (2015) explained that her mixed methods findings provided support to the grounded theory findings of the LID Model (Komives et al., 2005, 2006).

MANCOVA results noted the college student leaders who mentor with NHRI and college student leaders (who do not mentor) had significantly higher levels of generativity than general college students in (a) generative concern relating to contributing to one's

community and engaging in acts that leave a lasting legacy and (b) generative actions at the  $p < .05$  level (Hastings et al., 2015). In addition to these quantitative results, qualitative findings noted that college student leaders who mentor may have always possessed a “seed” of generativity (Hastings et al., 2015). The quantitative findings that demonstrated increased levels of aspects of generativity for college student leaders compared to general college students suggest that college student leaders, similar to college student leaders who mentor, also have that “seed of generativity” already planted (Hastings et al., 2015). This confirmed the idea that college student leaders develop a leadership identity that is, largely, generative. Additionally, the Hastings et al. (2015) findings suggested that college student leaders (those who mentor and those who do not) demonstrate generativity as an aspect of their leadership identity by showing concern for the betterment of their community and engaging in acts that intend to leave a lasting legacy.

The LID Model (Komives et al., 2005, 2006), along with the discussion by Hastings et al. (2015) comparing quantitative findings on generativity to the grounded theory LID Model, might encourage one to conclude that a college junior or senior leader would demonstrate higher levels of generativity than a college freshman or sophomore leader. However, the finding of the current study provided disconfirming evidence. Specific to the LID Model, the results of the MANCOVA analysis from the current study do not support the notion that college student leaders experience a peak in generativity near the end of their college career as they grow in commitment and prepare younger leaders to take their place (Komives et al., 2005, 2006). While students may act upon generative “seeds” during this time, it appeared unlikely that students experience a sharp

incline in quantifiable levels of generative concern, commitment, or action during the fifth stage of their leadership identity development.

Furthermore, the argument of Hastings et al. (2015) that both populations of college student leaders – those who mentor and those who do not mentor – have a “seed of generativity” and that the NHRI experience provides the “lab” for college student leaders who mentor to learn how to be generative, thus explaining the increased levels of generativity for college student leaders who mentor compared to college student leaders who do not mentor, was not supported by the current study. While mentoring may be an outlet for students to execute their already higher levels of generativity compared to their peers, it did not appear from the results of the current study that mentoring during college serves as a catalyst for increased levels of generativity compared with peer populations. Rather, the results of the current study might lead one to conclude that college students who mentor come into college at a higher level of generativity than their peers, and then maintain a relatively consistent level of generativity throughout their final three years of their undergraduate college education. Additionally, the qualitative results of Hastings et al. (2015), in which participants indicated an increase in their own generativity through their NHRI experience, may be explained by the consciousness that intentional mentoring brought to generative concerns, actions, and commitment. Therefore, while students who mentor with NHRI may feel more generative because of their participation, the results may have more to do with exposure and use than a quantifiable increase in generativity.

In sum, the results of the current study bring into question if and how mentoring acts as an antecedent to generativity development, leading to the potential that the act of mentoring by college student leaders has a less significant impact on increasing levels of

generativity than originally proposed (Hastings et al., 2015). Additionally, the conceptualization of generativity occurring as the fifth of six stages in college student leadership identity development (Komives et al., 2005, 2006) was not confirmed by the MANCOVA analysis of the current study. More research is needed to determine the progression of generativity development in adolescents, college students, and young adults, as well as the influence that the act of mentoring and interest in mentoring has on generativity. Directions for future research are detailed in the following section.

### **Future Research**

Current research on generativity suggests that generativity largely peaks at midlife (Erikson, 1950, 1963). Erikson's psychosocial model indicated that levels of generativity are increasing throughout the first forty years of an individual's life and then are decreasing after an individual achieves "peak" generativity at ages 40-65. Hastings et al. (2015) suggested a potential longitudinal study analyzing the lifetime trend of generativity comparing the trend of college students who mentor to a general population to examine if the findings that college student leaders who mentor demonstrate significantly higher generativity than college student leaders and general college students continue throughout individuals' lifetimes. This potential research study would help to more definitively articulate the influence of mentoring during college on generativity levels over a longer period of time and with a comparison group.

As articulated in the limitations section, interpretation of the current findings was limited by both the cross-sectional design and lack of comparison groups. While the current study provided important insights on the influence, or lack thereof, of years in college/years mentoring, future research is needed to determine if the findings of the

current cross-sectional research study are able to be replicated in a research study using a within-subjects longitudinal design. A future research study addressing this need would be a longitudinal examination of the influence of years mentoring and year in college on generativity level for college students who mentor. Students in their first-year mentoring (second year of college), second-year mentoring (third year of college), and third-year mentoring (fourth year of college) would complete measures of generativity. The three data points could be compared using repeated measures MANCOVA to provide insight on generativity development in a consistent college student population, which would help to control for individual variations in generativity. An additional variation of this potential study would be to longitudinally compare the generativity levels of college student leaders who mentor to control populations such as college student leaders and general college students. The results of these future studies would further elucidate the role of mentoring in generativity development, as well as how the “seed of generativity” concept (Hastings et al., 2015, p. 115) influences the starting level of generativity for different groups of college students.

Other directions for future research include: (a) replicating the current study on a sample of college students who mentor through a different organization, (b) replicating the current study on a sample of workplace mentors to measure the influence of workplace mentoring on generativity for both the mentor and mentee (c) conducting a path analysis quantitative study assessing the various antecedents to generativity development among college student leaders, (d) measuring the influence of having a college mentor on generativity for the mentee, and (e) conducting a repeated measures MANCOVA analysis to assess longitudinally the influence of age cohort (14-17 years to



18-22 years) on generativity, which would more directly test the case study findings of a sharp peak in generative themes during the latter time period (Espin et al., 1990). These potential research studies, along with others not mentioned here, may provide clarifying findings on the impact of mentoring on generativity and other antecedents of generativity. Further elucidating these concepts may encourage the development of programming that effectively promotes the growth of socially responsible and generative leadership.

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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 were 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...

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---

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...

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**Demographic Form**

Year in School (Circle One):    Sophomore                      Junior                      Senior

Major: \_\_\_\_\_

Gender (please check one):                      \_\_\_\_\_Male                      \_\_\_\_\_Female

G.P.A. Range (please check one):

\_\_\_\_\_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



COLLEGE OF EDUCATION AND HUMAN SCIENCES  
Department of Educational Administration

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#### INFORMED CONSENT FORM

IRB #: 11596

**Title of Project:** Gene Comparing Generativity and Socially Responsible Leadership Amongst Collegiate Student Leaders who ~~Mentor~~.

**Purpose of Study:** The purpose of this study is to examine the relationship between generativity and socially responsible leadership among UNL college students. You must be 19 years of age or older to participate. You were invited to participate in this study because you are a UNL student and a student participant in Nebraska Human Resources Institute (NHRI).

**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 402-472-2351.

**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.

Page 1 of 2

141 Teachers College Hall / P.O. Box 880360 / Lincoln, NE 68588-0360 / (402) 472-3726 / FAX (402) 472-4300

**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 contacting the principal investigator at the telephone number above or by e-mail: [lhastings2@unl.edu](mailto: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 Withdrawal:** 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.

**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:**

<i>Lindsay J. Hastings, Ph.D. Student, Principal Investigator</i>	<i>Office: 402-472-3477</i>
<i>Hannah Sunderman, Secondary Investigator</i>	<i>Office: 605-228-5753</i>

## APPENDIX C

### Sample Email Scripts

Subject: "NHRI Research during Project Meeting"

[Date]

Dear NHRI Student,

As a NHRI student, you have been invited to participate in a research study examining generativity and socially responsible leadership among NHRI college students at UNL. Generativity refers to your attitudes and behaviors toward the next generation. Socially responsible leadership emphasizes serving some social good. You must be 19 years of age or older in order to participate.

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](tel:402-472-3477) or the secondary investigator, Hannah Sunderman, at [605-228-5753](tel:605-228-5753).

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](mailto:lhastings2@unl.edu) or [hannahmsunderman@gmail.com](mailto:hannahmsunderman@gmail.com), 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](tel: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.

Sincerely,

Will Schulenberg, Liz O'Doherty, and Morgan Heimes

[https://unleducation.az1.qualtrics.com/jfe/form/SV\\_3yJdoDTN8QmXOdL](https://unleducation.az1.qualtrics.com/jfe/form/SV_3yJdoDTN8QmXOdL)

## APPENDIX D

### In-Person Scripts

As a NHRI student, you have been invited to participate in a research study examining generativity and socially responsible leadership among NHRI college students at UNL. Generativity refers to your attitudes and behaviors toward the next generation. Socially responsible leadership emphasizes serving some social good. You must be 19 years of age or older in order to participate.

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](tel:402-472-3477) or the secondary investigator, Hannah Sunderman, at [605-228-5753](tel:605-228-5753).

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](mailto:lhastings2@unl.edu) or [hannahmsunderman@gmail.com](mailto:hannahmsunderman@gmail.com), 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](tel: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.