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In Pursuit of Purpose: The Effects of Involvement on the Development of Calling in College Students

Jeffry T. Aupperle
Taylor University

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IN PURSUIT OF PURPOSE: THE EFFECTS OF INVOLVEMENT ON THE

DEVELOPMENT OF CALLING IN COLLEGE STUDENTS

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A thesis

Presented to

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Master of Arts in Higher Education and Student Development

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by

Jeffry T. Aupperle

May 2014

CERTIFICATE OF APPROVAL

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MASTER'S THESIS

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This is to certify that the Thesis of

Jeffry Todd Aupperle

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In Pursuit of Purpose: The Effects of Involvement on the
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has been approved by the Examining Committee for the thesis requirement for the

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_____   _____
Stephen Bedi, Ph.D.   Date   Todd Ream, Ph.D.   Date
Thesis Supervisor   Member, Thesis Hearing Committee

_____
Scott Gaier, Ph.D.   Date
Member, Thesis Hearing Committee

_____
Tim Herrmann, Ph.D.   Date
Director, M.A. in Higher Education and Student Development

Abstract

Using national HERI data – 14,407 respondents –this study tested the impact of

involvement on longitudinal changes in students' self-ratings and goals. The aspiration

was to explore research-based principles to provide students with resolute answers to

questions of calling. The results of the study indicated that the quantity of student

involvement matters in the development of calling. The regression outcomes

substantiated the hypothesis that greater levels of involvement positively correlate to

higher levels of calling indicators in the lives of college students as represented by CIRP

constructs. On average in the sample, students' calling indicators changed very little

between their first year of college and graduation. For example, their Academic Self-

Concept increased less than a single point on a 100-point scale. The largest gains were

observed in Social Self-Concept and Social Agency, yet both increased approximately 3-

points on a 100-point scale. The experimental scale, *Philosophy of Life,* was designed

based on the conceptual parallels in the definitions of calling and maintaining a

meaningful philosophy of life. Reliability analysis was conducted revealing a Cronbach's

Alpha score of .587 indicating a moderate coefficient of reliability. Among the five

involvement constructs explored, Habits of Mind and Leadership predicted statistically

significant effects on all four of the criterion variables. These two involvement constructs

were the most prevalent in the final model for each outcome. A conceptual alignment

between these constructs and the relevant literature on calling along with implications for

higher education practice are explored.

Acknowledgements

On a cold March morning two years ago, I stood before the Church that I loved and shared some difficult news. While I had dearly loved serving there for seven years, I felt called to something else. I had made the decision to pursue a Master's of Higher Education and Student Development degree at Taylor University. This decision was deeply rooted in the sense that the gifts, passions, and abilities God had given to me would be enlivened in the university setting, investing my life into the formation and development of students. As I reflect on the choice now, Palmer's (2000) words, which are foundational in the following study, were no less true in my life at the present time: "This is something I can't not do, for reasons I'm unable to explain to anyone else and don't fully understand myself, but that are nonetheless compelling" (p. 25).

There is not adequate space or time for me to tell of God's faithfulness to our family during our time in grad school. Time and time again I was reminded again of God's faithfulness to those He calls. I look forward to sharing this story with our kids—Reid and Jaelynn—again and again as they ruminate on the big decisions of their lives. If God is calling, He is faithful.

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Chapter 1

Introduction

"Vocation does not mean a goal that I pursue. It means a calling that I hear. Before I can tell my life what I want to do with it, I must listen to my life telling me who I am" (Palmer, 2000, p. 4).

On college campuses students tend to change majors as steadily as the variable autumn leaves. Students are often indecisive as they face the daunting question of what to do with their lives. According to recent research from Penn State (2010) up to 80 percent of students enter college unsure about their selection of major, and "50 percent of college students change their majors at least once before graduation, and some change several times" (Leonard, 2010, p. 1). Career counselors on college campuses today are advising students who are not merely concerned about the trajectory of their careers, but also the trajectory of their lives. "Today's students are grappling with the more philosophical questions. What is my life's purpose? What can I do to serve the greater good? What is my personal calling?" (Braun, 2005, p. 6).

Understanding calling as a pursuit provides context toward establishing a definition of the term. In an effort to develop further clarity toward a conceptual definition of calling and its relation to vocation, Parker Palmer (2000) provides distinction: "Vocation does not mean a goal that I pursue. It means a calling that I hear.

Before I can tell my life what I want to do with it, I must listen to my life telling me who I am" (p. 4).The increasing saliency of calling is a compelling trend in the vocational development of college students. Contemporary inquiry has revealed that the pursuit of a calling holds significant gravity in the realm of higher education. Approximately 40 percent of college students report having a calling, and 30 percent report they are in search of one (Duffy & Sedlacek, 2010).

Pursuing calling in terms of vocational aspirations can offer students significant benefits: "For college students, those who identify their careers as a calling display greater levels of career decidedness, comfort, self-clarity, and use of adaptive coping strategies" (Dik, Duffy, & Eldridge, 2009, p. 626). Fostering an environment where the pursuit of calling is encouraged can also lead to the rewarding benefits discovered in developing an internal sense of meaning and external purpose in understanding their lives and contributions to society: "If our lives are to have enduring meaning, it is not enough that we merely satisfy our own needs; we must know that the world needs us" (Daloz & Parks, 2003, p. 22).

The construct of calling is widely embraced; Duffy, Bott, Allan, Torrey, and Dik (2012) posit: "In sum, spanning diverse groups, calling appears to be endorsed by a substantial percentage of the population, lending support to the importance of exploring this construct in greater depth" (p. 50). Specifically relating to students, institutions of higher education have the opportunity not only to send their students into the world with a degree, but also with direction. In turn, students can achieve something much more meaningful than job attainment.

The college years can be a uniquely formative time for the pursuit of calling. Research efforts toward understanding the effects of energy invested inside and outside of the classroom may be a noteworthy realm of study for college student development professionals, especially those in the field of career development. Providing students with diversity in educational opportunities in the curriculum potentially can shape their quest toward calling. Additionally, the amount of energy students devote to co-curricular involvement may prove to be highly formational in this pursuit.

The intersection of involvement and calling may prove to be an illuminating context for understanding such development among college students. Involvement holds potential to serve as a stimulating variable in understanding students' search for calling in their lives. Measuring involvement in relation to external and internal indicators of calling in students' lives can provide informed principles for calling and career development practitioners.

In defining the terminology of involvement, Astin's (1984) theory of student development is foundational. Thus, a conceptual definition of student involvement for the present inquiry was inspired by his work; Astin (1984) posited that student involvement "refers to the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). Accordingly, the current study sought to explore the particular kinds of involvement that might serve as catalysts in the development of calling in students' lives. Astin (1984) went as far as observing that "the connection between particular forms of involvement and particular outcomes is an important question that should be addressed in future research" (p. 527). The consequential aspiration was to make practical use of Astin's theory of student involvement for this

precise purpose. The CIRP Freshman and College Senior surveys, developed by Astin and the Higher Education Research Institute at UCLA, were the instruments employed. Longitudinal data provided measures for quantifying student involvement and its effects on indicators of calling in the lives of college students as supported by the calling literature.

Furthermore, student engagement is a compelling indicator of student learning in the modern culture of higher education (Carini, Kuh, & Klein, 2006). The personal characteristics and types of student engagement—campus involvements, service activities, engaged learning, and psychological sense of community—significantly impact college students' sense of vocational calling (Phillips, 2011).

Purpose

The purpose of the current study was to explore the corollary relationship between the quantity of student involvement and the external and internal indicators of the presence of calling in the lives of college students. The stated objectives were: to describe the relationship between the quantity of student involvement and the extent of the presence of indicators of calling; and more specifically, to gain understanding toward what kinds of involvement foster a sense of calling in the lives of college students. "The most common concerns college students raise with career counselors often boil down to a single question: 'What am I going to do with my life?'" (Thompson & Feldman, 2010, p. 12). The aspiration of the current research project was to provide research-based principles for institutions to help students discover resolute answers to this question.

Chapter 2

Literature Review

"Man's search for meaning is the primary motivation in his life" (Frankl, 1946, p. 105).

Calling: Etymology and Definition

The term vocation originated from the Latin word *vocare*, meaning to call. Understanding the etymology of the term provides a depth of insight into the intertwined nature of vocation and calling. The aforementioned conceptual definition from Palmer (2000) provided initial clarity toward a foundational understanding of calling. An additional definition from Palmer provides an effective operational definition: "Vocation at its deepest level is, 'this is something I can't not do, for reasons I'm unable to explain to anyone else and don't fully understand myself, but that are nonetheless compelling'" (p. 25). Guiding students to this level of resolve in vocational calling provides the compelling impetus for further inquiry in this field in the realm of higher education.

In delineating the terminology surrounding calling, vocation and work are often found to be employed in a synonymous fashion: "The American culture encourages us to look to our work for our sense of purpose and calling" (Brennfleck, 2005, p. 4). It can be challenging to disentangle these terms in developing a clear understanding of calling. Dorothy Sayers (2005) posited:

For the artist there is no distinction between work and living. His work is his life, and the whole of his life—not merely the material world about him, or the colors and sounds and events that he perceives, but also all his own personality and emotions, the whole of his Life—is the actual material of his work. (p. 408)

Work, vocation, and calling are linked throughout the relevant literature on calling; however, calling is often distinguished as a meaningful philosophy of life developed in association with one's work. Dreher, Holloway, and Schoenfelder (2007) differentiated calling accordingly: "Recent years have witnessed a renewed concern with vocation or calling: the process by which people find joy and meaning in their life's work" (p. 99).

Accordingly, calling is set apart from similar terms—work and vocation—as the maturation and development of aspirations and purpose discovered within one's work. Bolman and Gallos (2011) delineated calling as such: "Common to all definitions of calling is the importance of listening to one's life and surrendering to a deep sense of mission" (p. 207). In a vocational sense, calling is often understood as "the place where deep gladness and the world's deep hunger meet" (Buechner, 1993, p. 119).

What was once secluded as a term with predominantly religious implications, currently calling is more frequently used in the vernacular of both the secular and the sacred (Thompson & Miller-Perrin, 2003). As a result, the term calling is used by career development practitioners regardless of religious affiliation: "Today this term has grown to take on a variety of meanings and is often applied to both religious and nonreligious career paths" (Duffy & Sedlacek, 2010, p. 27).

The challenges faced by college students are not merely academic trials; these challenges cultivate character in residence halls, on athletic fields, and in performance

centers, among others. All of these conditions create a unique environment for the development of purpose in students' lives. Furthermore, Astin (2004) made the case for the investigation of spirituality: "In exploring the connection between spirituality and higher education, a good way to start is to take a look at the interior lives of our students" (p. 36). As a result, institutions of higher education are charged with the responsibility of fostering an atmosphere where students can consistently reflect on their experiences and make meaning. Parks (2000) captured the essence of this notion:

> Higher education is intended to serve as a primary site of inquiry, reflection, and cultivation of knowledge and understanding on behalf of the wider culture. As such, institutions of higher education hold a special place in the story of human development. (p.10)

The pursuit of calling may be salient principally in the formative environment that college and universities' campuses offer. Research on related topics has increased in recent years for the purpose of addressing a growing sense of a predicament surrounding vocation among youth (Dreher et al., 2007).

In the context of an ever-changing culture, colleges and universities are critical spaces for the cultivation of purpose in students' lives; the pursuit of calling may afford significant stability: "Every resource of our humanity, as individuals and as communities, will be needed if we are to safely navigate the shoals of the future. Clearly, higher education is one of the institutions that must rise to that challenge" (Palmer, Scribner, & Zajonck, 2012, p. 17). The emotional undulations of the college experience both inside and outside of the classroom can have disorienting effects on students: "Confused, depressed, and disengaged, they are unable to commit time to their studies or pursue a

meaningful philosophy of life" (Dreher et al., 2007, p. 114). Guiding students toward a sense of their calling can provide the sustaining ballast needed in the midst of this proverbial storm.

Nonetheless, measuring the presence, existence, and level of calling in a college student's life is a challenging endeavor. Calling is not tangible and can be difficult to quantify: "We know how to measure those objective, external variables, but are largely ignorant about how to explore the more subtle world of the soul" (Palmer, 2003, p. 385). Nevertheless, the great reward of inquiry is the promise of informed responses to even the most difficult questions.

The pursuit of an operative measurement for calling is a worthy one. The previously mentioned surveys from the Higher Education Research Institute—HERI— may prove to be useful instruments for such measurement. The previous definition provided by Palmer (2000) served to be operational in the utilization of these instruments and informed the potential to develop a quantitative approach for measuring the indicators of calling in the lives of college students. As supported by the definitions provided in the literature, these measurements were based on two primary indicators: the internal development of meaning and the external development of compelling purpose in students' lives.

Defining Student Involvement

A student's involvement during the college years can have a significant impact on their maturation and development (Astin, 1984, 1993). Student's active involvement has been proven to have a positive effect on his/her academic success (Ullah & Wilson, 2007). Astin (1984) advanced that the amount of a student's involvement in college

would directly correlate to the amount of learning and personal development experienced. If the pursuit of calling in the context of higher education is to be fully understood, it becomes essential to gain understanding toward how it is effectually attained by students. Astin's (1984) well-received theory points to the significant impact of involvement influences on the development of meaning and purpose.

A conceptual definition for student involvement "refers to the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1984, p. 518). The study of student involvement offers the potential of understanding the correlation between student experiences and student development. Astin's (1993) study made this case: "This review once again underscores the tremendous potential that student involvement has for enhancing most aspects of the undergraduate student's cognitive and affective development" (p. 394).

Moreover, Astin's involvement theory offers practical application for the purposes of inquiry. Astin (1984) contended that researchers can implement his theory in exploring the development of students as colleges and universities seek understanding in fostering environments of effective learning. In addition, faculty and administrators are encouraged to "focus less on content and teaching techniques and more on what students are actually doing – how motivated they are and how much time and energy they are devoting to the learning process" (p. 526). Therefore, and most importantly, grasping the motivation for choices related to involvement in the developmental college years may hold abundant potential in gaining clarity on the saliency of calling in the lives of students.

In association with Astin's involvement theory (1984) is the comparable

discipline of exploring student engagement. Kuh's (1995) definition of student

engagement is in many ways very similar to Astin's definition of student involvement.

However, there is significant distinction to be understood between the two. While Astin

(1984) focused on the physical and psychological energy dedicated by a student to the

learning experience, Kuh (1995) placed more emphasis on the concrete activities in

which the physical and psychological energy was exerted. Engagement, then, focuses on

activities outside of the classroom and the indelible effect these have on student learning

and development.

Kuh (1995) offered examples—extracurricular activities, residence halls,

interaction with faculty, and conversations with peers—that had been connected

positively to critical student development. In addition, social competence, autonomy,

confidence, self-awareness, and appreciation for human diversity were presented as

specific development outcomes of active engagement. Student engagement has proven to

be an important indicator of successful student outcomes during and after the college

experience (Kuh, 1995).

Forms of Involvement

Not all students gain equally from the same forms of curricular and co-curricular

activity (Pasceralla & Terenzini, 1991). In addition, "with exception to a handful of

single-institution studies little is known about which out-of-class activities are linked

with what outcomes" (Kuh, 1995, p. 124). In search of these trustworthy linkages, Kuh's

recommendation is relevant: "Students, and those who advise them, could use such

information when deciding to which out-of-class activities to devote time" (Kuh, 1995, p.

124). The exploration of the physical and psychological energy students invested and the active participation in out-of-class activities may provide specific principles and direction in knowing what kinds of involvement lead to specific outcomes. The aspirational outcome in focus for the present study was characterized by reliable student involvement linkages that signified the presence of calling in the lives college students.

For the purposes of the current study, specific forms of student involvement needed to be identified to establish measures. To provide an operational definition for the development of these measures, Astin (1984) offered a salient example: "A highly involved student is one who, for example, devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students" (p. 518).

Different forms of involvement can have varying effects on a student's development. Astin (1993) demonstrated this premise in the following description: "A number of involvement measures highlight the importance of student-faculty interaction in raising students' degree aspirations: hours per week spent talking with faculty outside of class, working on professor's research projects, and having class papers critiqued by instructors" (p. 267). Astin (1993) expounded by displaying a form of involvement that resulted in a negative correlation: "The only involvement variables showing negative associations with degree aspirations are working on group projects for a class and hours per week spent on hobbies" (p. 267). The positive and negative correlations demonstrated here establish the practice of researching different forms of involvement and their related effects on a particular student outcome.

Recent research documented a connection of specific activities to calling. In a quantitative research study by Miller-Perrin and Thompson (2010), the impact of the study abroad experience was explored. In support of the authors' research hypothesis, "the understanding of vocational calling, and having the inclination to serve others, were both significantly affected by a study abroad experience" (p. 96). Their study revealed that the choice to study abroad could be a significant factor in the development of vocational calling in students' lives. In addition, the experience of studying abroad provided the opportunity for students to "grow stronger in a sense of certainty of life direction and in resolve to serve others" (Miller-Perrin & Thompson, 2010, p. 96).

Correspondingly, service learning experiences can have a sustaining impact on college students' sense of calling. Astin (2004) contended, "The pedagogical key to an effective service learning experience appears to be the use of personal reflection" (p. 40). This form of reflection embedded in the context of experiential service learning can point students toward important questions: "What did the service experience mean to you, not only in terms of the academic content of the course, but also in terms of who you are, why you are a student, and what kind of life you want to lead?" (Astin, 2004, pp. 40-41). Study abroad and service learning experiences are prominent among activities that have been identified as having a noteworthy impact on the internal development of meaning and external purpose that may cultivate calling in the lives of college students.

Research on Calling

In exploring the recent research on calling, the inquiry of Duffy et al. (2012) provided a basis for understanding the significance of calling and its correlation to meaning and satisfaction in career outcomes. The results of their study clearly

demonstrated the importance of calling in the workplace: "Even if people are able to understand their callings, they are unlikely to reap the rewards of career commitment and work meaning and (subsequently) job satisfaction if they are not able to live out their callings" (p. 57). This foundational understanding of the benefits of living out a calling provides a compelling direction for future research.

Dreher et al. (2007) created a *Vocation Identity Questionnaire* (VIQ) to develop a sense of calling. They postulated: "As our evidence indicates, the VIQ measures the level of personal fulfillment—joy, flow, intrinsic motivation, social value, and meaning—people find in their work, as opposed to external reward motivation" (p. 111). These results provide further support for the deeply impactful role that meaning plays in the perception people have of their work, even in comparison to the more tangible and financial recompenses that work can provide.

Calling-focused inquiry may be principally beneficial for those who work toward the career development of college students. Johnson, Nichols, Buboltz, and Riedesel (2002) contended that "most students have a variety of developmentally based needs concerning their careers, including decision making and exploration" (p. 4). Moreover the results of their study confirmed the benefits of a life-planning course dedicated to inspiring the pursuit of calling and the vocational development of college students.

Furthermore, the research of Duffy and Sedlacek (2007) was formative among conducted inquiry specific to calling in the lives of college students. In surveying 3,570 first-year students, the authors discovered a distinct correlation that demonstrated the existing link connecting student values and desired career outcomes: "Although 29% of the sample participants were seeking a career consistent with their interests, 47% were

seeking careers in line with their values, or outcomes they desired from that career" (p. 362). The conclusion of their findings communicated the influence that values can have on decision making (Duffy & Sedlacek, 2007). The weight that values carry in connection with career outcomes provides further context for understanding the development of calling in college students.

Duffy and Sedlacek (2010) built on this foundation with further research among first-year college students in the area of calling:

> In this exploratory study, the finding that more than 40% of students believed that having a calling was mostly or totally true of themselves may speak to the notion that a significant portion of students currently entering college seem cognizant of this term as it applies to their career. (p. 35)

These findings were further clarified as the authors discovered no significant variance by gender and extremely small differences by race (Duffy & Sedlacek, 2010). In addition to these conclusions, the research of Duffy and Sedlacek (2010) yielded a substantial outcome indicating a greater sense of purpose for students who maintain an understanding of a career calling: "Students who were more likely to endorse a career calling were also moderately more likely to believe that their lives were meaningful" (p. 36).

The correlation of students endorsing a career calling and their ability to make meaning of their lives raises an important question for further inquiry: What types of experiences foster the development of vocational calling within the formative years of college? Answering this question through inquiry may offer higher education professionals informed principles in counseling students seeking direction.

The complexity of the challenges students face during the college years creates competing noises in their lives. Some is heard externally, and some is audible internally. The increasing volume can make it difficult for students to create the needed space for reflection, introspection, and listening. Nevertheless there is great value in creating opportunity for students to pause and make meaning of their lives. Thompson and Feldman (2010) prefaced the discussion of their research by detailing an elective course offered at Santa Clara University, entitled "Let Your Life Speak," which sought to: "address students' often overscheduled, activity-driven lives, as well as their desire to explore questions of calling and purpose" (p. 13). Among the existing research, their study stands out as an exemplary best practice. The students who took the elective course "reported more satisfaction in their school and work lives, greater confidence in their ability to achieve goals, and a deepened and elaborated philosophy or framework of life meaning" (pp. 16-17). Thompson and Feldman (2010) concluded that implementing a course like this can "effectively support college students' exploration of questions of meaning, purpose, and calling" (p. 18).

A broad overview of this body of research revealed limitations; in each of these studies the authors recognized restraints. The precarious nature of the introspective self-report of college students opens itself to criticism in the field. Nevertheless, the consistent findings of the research data reveal a development that is too important for stakeholders in college student development to ignore.

The future directions for research in the field are compelling. In recognition of the limitations of the current research, Duffy and Dik (2009) noted the need for a better understanding of outside influences on vocational psychology: "The potential influence

of external influences has been widely overlooked and represents a research domain in desperate need of catching up with practice" (p. 37). Furthermore, Duffy and Sedlacek (2010) drew attention to the pressing need for clarity: "A more thorough understanding is needed of how college students interpret the term calling and this may be best accomplished through qualitative studies" (p. 39). They went on to suggest that useful research could also be done in "determining the degree to which one's career calling actually affects one's career choices" (p. 39).

As the research moves forward in the realm of calling, the inspiration of the inquiry will shift; "Having established consistent answers to the question of if calling links to work related outcomes (e.g., job satisfaction), an important next question concerns how these links operate" (Duffy et al., 2012, p. 51). This type of research may present more challenging processes, but could provide more practical implications.

In relation to the stated purpose of the present study, existing research has examined the relationship between involvement and calling. Phillips (2011) was the first to explore personal characteristics and involvement variables that affect a sense of vocation calling among Christian college students. In presenting the findings of his study, Phillips (2011) noted that Miller-Perrin and Thompson's (2005, 2007) longitudinal studies also examined faith, identity, and life purpose (i.e., vocational calling) among 300 Christian college students. These studies pointed to a significant connection between the faith of college students and maintaining a life calling. Phillips (2011) explored relationships among demographic variables, personal characteristics, and student involvement variables along with "how these relationships contribute to their sense of vocational calling" (p. 301).

The results of Phillips (2011) inquiry established principles for future research. The results were especially revealing in understanding the differences between genders: "Women gained a sense of vocational calling through relational patterns of behavior (hope and engaged learning), drawing from affective domains that contribute to general feelings of confidence in making decisions and learning" (p. 314). In direct relation to these findings, "Men's direct paths from career decision self-efficacy and service activities to vocational calling represent practical abilities that sharpen individual understanding" (p. 315). In support of previously mentioned research (Miller-Perrin & Thompson, 2010), Phillips' (2011) findings identified volunteer service as a prominent form of engagement in connection with a sense of vocational calling. Experiential learning was also found to be vital as students develop a faith-based approach to understanding calling.

Impetus for the Present Study

It is noteworthy that Phillips' (2011) results and ensuing conclusions were found through research that was conducted in the environment of a Christian college campus. His study, however, utilized the instruments developed by Astin to measure student involvement—the CIRP Freshman Survey and College Senior Survey (CSS) from the Higher Education Research Institute (HERI) of UCLA through an approved proposal to HERI for the use of national data sets. The potential benefits of researching the national data are numerous, including strength in total respondents, diversity of university contexts, and greater balance in terms of the religious orientation of the institutions represented. Calling has been demonstrated through the research to be salient among

college students, institutional environment or ethos notwithstanding (Duffy and Sedlacek, 2010; Phillips, 2011).

The impetus for the present research was found in the pressing question previously alluded to at the outset of this study: "The most common concerns college students raise with career counselors often boil down to a single question: 'What am I going to do with my life?'" (Thompson & Feldman, 2010, p. 12). The aspiration of the current inquiry was to discover tools that could be placed in the hands of caring counselors, helping them to foster an environment where calling could be pursued and even tied to the student's academic pursuits. While this may have vocational implications, the aim of the study was to help students discover calling that goes beyond occupational goals and points toward students developing aspirations, compelling purpose, and a meaningful philosophy of life.

The formative years of higher education hold great promise for the development of life-changing purpose. Instead of an aimless pursuit, educators can provide students with a meaningful sense of direction, which a sustainable sense of calling can offer: "Higher education needs to educate people in every field who have ethical autonomy and the courage to act upon it – who possess knowledge, skill, and the highest values of their vocations" (Palmer, 2007, p. 7). The combination of values and vocation in the presence of calling in students' lives may produce immeasurable outcomes. Astin (1993) stated: "A liberal education is really about encouraging the student to grapple with some of life's most fundamental questions: What do I think and feel about life, death, God, religion, love, art, music, history, and science?" (p. 437). Inspiring students to pursue these questions offers the promise of untold benefits. Astin (1993) concluded: "Often we have

no idea what these good things will be, but the students will seldom disappoint us" (p.

437).

Chapter 3

Methodology

Purpose Statement

The purpose of the study was to investigate whether or not a correlate relationship exists between student involvement and the indicators of calling in the lives of college students. The objectives were to describe the relationship between the quantity of student involvement and the indicators of calling; and more specifically, to gain understanding toward what forms of involvement most foster a sense of calling in the lives of college students. The aspiration was to offer research-based principles for institutions to provide students with resolute answers to questions of calling.

Research Questions

- Do higher levels of student involvement correlate to the development of calling in the lives of college students?

- What forms of student involvement foster a sense of calling in the lives of college students?

Hypothesis

Greater levels of involvement positively correlate to higher levels of calling indicators in the lives of college students as represented by Cooperative Institutional Research Program (CIRP) constructs and controlling for freshman scores on calling indicators.

Data Collection

The participants for the study were 14,407 graduating senior respondents from four-year colleges and universities from the 2010 College Senior Survey (CSS) and the corresponding matched cases from the CIRP Freshman Survey (TFS). TFS was administered during orientation or registration on campuses across the country to hundreds of thousands of entering students (HERI, 2013a). In similar fashion, the College Senior Survey (CSS) was administered as an exit survey for graduating seniors. The CSS can be used and analyzed in isolation, but also holds the potential to offer significant longitudinal data on students' development during the college years (HERI, 2013b). As a result, the present study utilized matched cases to explore longitudinal change in a national cohort of participants.

Discussion of Methodology

In order to answer the research questions, a correlate design was implemented using multiple regression analysis (Creswell, 2008). The correlate nature of the study explored the relationship between the quantity of student involvement as the predictor variable and the indicators of the presence of calling in the lives of college students as the criterion variable. Furthermore, TFS calling indicators were utilized as control variables to isolate the effect of college student behaviors on calling indicators among graduating seniors.

The overall design of the study tested the longitudinal influence of involvement-related constructs on constructs comprised of involvement constructs: Academic Self-Concept, Social Self-Concept, and Social Agency. These constructs consisted of items that asked students to rate themselves in comparison to their peers and items that asked

students to indicate personal goals (see Appendix A for a complete listing of items). An additional experimental grouping was also requested; reliability analysis was conducted to evaluate the strength of the proposed scale. All of the valid constructs used throughout the study were developed using Item Response Theory (HERI, 2013c) and have been widely tested and refined.

Astin (1970) suggested a methodology for research on college impact using the relationship between three components: student inputs, the college environment, and student outputs. For the student input and output components, the HERI-created constructs and experimental grouping measured changes in self-ratings and goals in connection with the notion of calling. In regard to this notion, Palmer (2000) provided the following definition that operationalized calling for the purposes of the present inquiry: "this is something I can't not do, for reasons I'm unable to explain to anyone else and don't fully understand myself, but that are nonetheless compelling" (p. 25). Therefore, the current study investigated changes in two key areas in alignment with the operational definition: an internal sense of meaning and an external sense of purpose.

Calling is frequently associated with an internal sense of meaning (Dik & Duffy, 2009; Dreher et al., 2007; Duffy et al., 2012; Palmer, 2000; Thompson and Feldman, 2010). Furthermore, calling is often delineated as a sense of external purpose (Brennfleck, 2005; Dik et al., 2009; Duffy et al., 2012; Duffy & Sedlacek, 2010; Palmer, 2000). As a result, the measures for internal sense of meaning were constructs comprised of two students' self-rating variables: Social Self-Concept and Academic Self-Concept. The Social and Academic Self-Concept constructs measured students' beliefs (on a Likert scale 1-5) regarding their abilities and confidence in social situations and academic

environments (HERI, 2010). The five specific items measuring self-ratings in leadership, public-speaking, academic abilities, drive to achieve, along with social and intellectual self-confidence all conceptually point to students' development of an internal sense of meaning.

Furthermore, the Social Agency construct was utilized to measure students' external sense of purpose. The Social Agency construct measured students' goals on a Likert scale of four options (not important, somewhat important, very important, and essential) relating to political and social involvement (HERI, 2010). The specific items measuring goals involving participation in community action programs, community leadership, influencing social values, helping others in difficulty, and helping to promote racial understanding all conceptually point to students' development of an external sense of purpose.

The experimental grouping, termed *Philosophy of Life*, measured both internal and external indicators. Unlike the other constructs utilized in the study, the experimental grouping as a simple sum of four items measuring students' goal of developing a meaningful philosophy of life and student's self-ratings of self-understanding, spirituality, and understanding of others. The grouping potentially offered a broader picture of calling, as the development of meaning and purpose may not always be connected to specific career outcomes.

Therefore, the present inquiry was focused on the relationship between student involvement and calling throughout the students' college experiences. The longitudinal changes in the criterion variables, including the experimental scale, may reflect development in the indicators of calling as supported by the relevant literature.

Accordingly, the study hypothesized that students who demonstrated development in an internal sense of meaning and an external sense of purpose, as described by CIRP constructs, were more likely to possess a personal calling. Though each of these dependent variables alone may not completely describe the literature's notion of calling, these variables in composite begin to captivate the contours of students' search for meaning and purpose.

The college environment component was represented by five student involvement constructs. Astin (1984) offered an example, providing an operational definition: "A highly involved student is one who, for example, devotes considerable energy to studying, spends much time on campus, participates actively in student organizations, and interacts frequently with faculty members and other students," (p. 518). A calling-conscious research agenda should investigate the effects of energy invested inside and outside of the classroom. The HERI constructs for the study were: Habits of Mind, Academic Disengagement, Student-Faculty Interaction, Civic Awareness, and Leadership. The constructs are scaled 0-100, with a mean of 50 and a standard deviation of 10. The constructs consisted of items that asked students to indicate their frequency of involvement in a number of activities using a three-point scale (not at all, occasionally, and frequently).

Analytical Plan

A blocked OLS regression analysis tested the relationship between five CSS involvement constructs and the longitudinal change of each of the four dependent variables—Academic Self-Concept, Social Self-Concept, Social Agency, and Philosophy of Life. The constructs were blocked for theoretical reasons to answer the research

questions. The first block included the matched pre-test data of the selected dependent variable from the TFS, along with sex and race/ethnicity. The second block included the Academic Disengagement construct. The third block included CSS constructs related to the academic experience (Habits of Mind and Student Faculty Interaction). The fourth block included CSS constructs related to co-curricular and civic involvement (Civic Awareness and Leadership). The procedure was conducted for each of the four dependent variables.

Table 1

Blocked OLS Regression – Model Building Plan

Student Input (Block 1) TFS 2005-2007	College Environment (Blocks 2-4) CSS 2010 Constructs	Student Output (Dependent Variable) CSS 2010
Academic Self-Concept	Block 2: Academic Disengagement	Academic Self-Concept
Social Self-Concept		Social Self-Concept
	Block 3:	
Social Agency	Habits of Mind and Student-Faculty Interaction	Social Agency
Experimental Scale: Philosophy of Life	Block 4:	Experimental Scale: Philosophy of Life
GOAL15: Goal: Developing a meaningful philosophy of life	Civic Awareness and Leadership	GOAL14: Goal: Developing a meaningful philosophy of life
RATE15: Self Rating: Self-understanding		RATE15: Self Rating: Self-understanding
RATE16: Self Rating: Spirituality		RATE16: Self Rating: Spirituality
RATE17: Self Rating: Understanding of others		RATE17: Self Rating: Understanding of others

Chapter 4

Results

The results of the aforementioned analytical plan follow with the univariate,

bivariate, and multi-variate regression analyses presented below.

Univariate Analysis

As shown in Table 2, the mean score for Academic Self-Concept increased .43

points from the time the participants took the TFS to the time the students took the CSS.

In addition, the mean score for Social Self-Concept increased 2.93 points; the most

substantial change among the pre-test and post-test mean scores. Reviewing the change in

Social Agency mean scores revealed an increase of 2.91 points. Finally, the experimental

scale, Philosophy of Life, increased by .54 points.

In the sample, females, unexpectedly, were over-represented (62.6%) compared to

males (37.4%). Additionally, with regard to race/ethnicity, white students were over-

represented (approximately 80% of the sample) in comparison to others.

The results displayed in Table 3 revealed strong positive linear relationships, as

expected, between the TFS pre-test and CSS post-test scores: Academic Self-Concept

($R = .740$), Social Self-Concept ($R = .785$), and Social Agency ($R = .554$). Conversely,

the TFS and CSS Philosophy of Life correlation was moderate ($R = .453$). Moreover, the

strong positive linear relationship between Social Self-Concept and Leadership was

noteworthy ($R = .605$). There were no instances of collinearity among predictor variables.

Table 2

Descriptive Statistics for 2010 CSS and Matched Cases from the TFS

Variable	*N*	*M*	*SD*	*Min*	*Max*
TFS Academic Self-Concept	14054	50.06	8.38	13.19	70.11
CSS Academic Self-Concept	14290	50.49	9.08	10.09	72.19
TFS Social-Self Concept	14049	50.06	8.66	18.64	70.43
CSS Social-Self Concept	14289	52.99	8.44	21.33	72.18
TFS Social Agency	13696	49.84	9.08	24.17	76.80
CSS Social Agency	14259	52.75	9.51	24.89	78.84
TFS Philosophy of Life	14407	13.35	2.27	4.00	19.00
CSS Philosophy of Life	14134	13.89	2.37	4.00	19.00
CSS Habits of Mind	14316	50.80	9.76	14.53	67.41
CSS Academic Disengagement	14396	51.43	7.76	36.29	75.71
CSS Student-Faculty Interaction	14253	51.40	8.41	27.33	66.99
CSS Civic Awareness	14395	52.08	8.36	18.89	64.70
CSS Leadership	14404	53.71	8.08	21.79	67.69

Student Gender	62.6% female; 37.4% male
Race/Ethnicity	.14 % American Indian
	5.31% Asian
	3.08 % Black
	4.10% Hispanic
	79.86% White
	1.84% Other
	5.68% Two or more race/ethnicity

Bivariate Analysis

Table 3

Pairwise Correlations for Model Outcome and Predictor Variables n=14,407

	TFS ASC	TFS SSC	TFS SA	CSS Habits	CSS AcDis	CSS StuFac	CSS CivAw	CSS Lead	CSS ASC	CSS SSC	CSS SA	TFS Phil	CSS Phil
TFS ASC	1.00												
TFS SSC	.415**	1.00											
TFS SA	.112**	.293**	1										
CSS Habits	.235**	.274**	.244**	1									
CSS AcDis	-.076**	.027**	.006**	-.006	1								
CSS StuFac	.134**	.136**	.163**	.390**	-.097**	1							
CSS CivAw	.088**	.126**	.161**	.236**	-.025**	.184**	1						
CSS Lead	.252**	.447**	.242**	.333**	-.022**	.259**	.214**	1					
CSS ASC	.740**	.340**	.075**	.327**	-.124**	.225**	.137**	.312**	1				
CSS SSC	.343**	.785**	.232**	.327**	.015	.188**	.167**	.605**	.466**	1			
CSS SA	.046**	.230**	.554**	.309**	.025**	.261**	.288**	.335**	.098**	.287**	1		
TFS Phil	.315**	.385**	.450**	.222**	.001	.118**	.110**	.195**	.207**	.273**	.285**	1	
CSS Phil	.188**	.285**	.270**	.292**	.008	.193**	.208**	.291**	.304**	.422**	.455**	.453**	1

*p<0.05, **p<0.01, ***p<0.001

Multiple Regression Results

A blocked OLS regression analysis was performed to test the impact of five CSS constructs on the longitudinal change of each of the four dependent variables—Academic Self-Concept, Social Self-Concept, Social Agency, and Philosophy of Life.

Table 4

Results of Multiple Regression Models for Criterion Variable CSS Academic Self-Concept

	Block 1	Block 2	Block 3	**Block 4**
	10.421***	14.836***	6.430***	**3.043*****
Constant	(.314)	(.483)	(.561)	**(.624)**
TFS Academic	.801***	.795***	.751***	**.735***
Self-Concept	(.006)	(.006)	(.006)	**(.006)**
CSS Academic Disengagement		-.080*** (.007)	-.075*** (.007)	**-.075*** (.006)**
CSS Habits Of Mind			.126*** (.006)	**.105*** (.006)**
CSS Student Faculty Interaction			.077*** (.006)	**.062*** (.007)**
CSS Civic Awareness				**.025*** (.006)**
CSS Leadership				**.087*** (.007)**
R^2	.548	.552	.581	**.587**
Model *F*-test	16748.901	8532.761	4804.586	**3282.719**
(df_1, df_2)	1, 13838	2, 13837	4, 13835	**6, 13833**

*$p<0.05$, **$p<0.01$, ***$p<0.001$

Table 5

Results for the Final Regression Model for Criterion Variable CSS Academic Self-Concept

	B	Std. Error	β	t	Sig.
Constant	3.043	.624		4.876	<.001
TFS Academic Self-Concept	.745	.006	.679	118.37	<.001
CSS Academic Disengagement	-.075	.006	-.064	-11.669	<.001
CSS Habits of Mind	.105	.006	.113	17.960	<.001
CSS Student Faculty Interaction	.062	.007	.058	9.570	<.001
CSS Civic Awareness	.025	.006	.023	4.028	<.001
CSS Leadership	.087	.007	.078	12.965	<.001

As shown in Tables 4 and 5, in the final model, a 1-point difference in TFS Academic Self-Concept was positively associated with a 6.79-point difference in CSS Academic Self-Concept, adjusting for all other predictors in the model, $t = 118.37$, $p < .001$. In addition, a 1-point difference in CSS Academic Disengagement was negatively associated with a -.64-point difference in CSS Academic Self-Concept, adjusting for all other predictors in the model, $t = -11.699$, $p < .001$. A 1-point difference in CSS Habits of Mind was positively associated with a 1.13-point difference in CSS

Academic Self-Concept, adjusting for all other predictors in the model, t = 17.960,

p < .001. Moreover, a 1-point difference in CSS Student Faculty Interaction was

positively associated with a .58-point difference in CSS Academic Self-Concept,

adjusting for all other predictors in the model, t = 9.570, p < .001. A 1-point difference in

CSS Civic Awareness was positively associated with a .23-point difference in CSS

Academic Self-Concept, adjusting for all other predictors in the model, t = 4.028,

p < .001. Finally, in the final model, a 1-point difference in CSS Leadership was

positively associated with a .78-point difference in CSS Academic Self-Concept,

adjusting for all other predictors in the model, t = 12.965, p < .001.

Table 6

Results of Multiple Regression Models for Criterion Variable CSS Social Self-Concept

	Block 1	Block 2	Block 3	**Block 4**
	14.737***	15.146***	9.644***	**2.103***
Constant	(.261)	(.389)	(.470)	**(.475)**
TFS Social	.765***	.765***	.732***	**.619***
Self-Concept	(.005)	(.005)	(.005)	**(.005)**
CSS Academic Disengagement		-.008 (.006)	-.002 (.006)	**.005 (.005)**
CSS Habits Of Mind			.087*** (.005)	**.041*** (.005)**
CSS Student Faculty Interaction			.047*** (.006)	**.004 (.005)**
CSS Civic Awareness				**.010* (.005)**
CSS Leadership				**.313*** (.006)**
R^2	.616	.616	.631	**.698**
Model *F*-test	22221.62	11112.636	5917.743	**5327.771**
(df_1, df_2)	1, 13832	2, 13831	4, 13829	**6, 13827**

*p<0.05, **p<0.01, ***p<0.001

Table 7

Results for the Final Regression Model for Criterion Variable CSS Social Self-Concept

	B	Std. Error	β	t	Sig.
Constant	2.103	.475		4,427	<.001
TFS Social Self-Concept	.619	.005	.636	120.202	<.001
CSS Academic Disengagement	.005	.005	.004	.898	.369
CSS Habits of Mind	.041	.005	.047	8.845	<.001
CSS Student Faculty Interaction	.004	.005	.004	.857	.392
CSS Civic Awareness	.010	.005	.010	2.047	.041
CSS Leadership	.313	.006	.300	54.658	<.001

As exhibited in Tables 6 and 7, in the final model, a 1-point difference in TFS Social Self-Concept was positively associated with a 6.36-point difference in CSS Social Self-Concept, adjusting for all other predictors in the model, $t = 120.20$, $p < .001$. A 1-point difference in CSS Academic Disengagement was positively associated with a .04-point difference in CSS Social Self-Concept, adjusting for all other predictors in the model, t = .898, p > .001. Additionally, a 1-point difference in CSS Habits of Mind was positively associated with a .47-point difference in CSS Social Self-Concept, adjusting

for all other predictors in the model, t = 8.845, p < .001. A 1-point difference in CSS Student Faculty Interaction was positively associated with a .04-point difference in CSS Social Self-Concept, adjusting for all other predictors in the model, t = .857, p > .001. Furthermore, a 1-point difference in CSS Civic Awareness was positively associated with a .10-point difference in CSS Social Self-Concept, adjusting for all other predictors in the model, t = 2.047, p > .001. Last, in the final model, a 1-point difference in CSS Leadership was positively associated with a 3.00-point difference in CSS Social Self-Concept, adjusting for all other predictors in the model, t = 54.658, p < .001.

Table 8

Results of Multiple Regression Models for Criterion Variable CSS Social Agency

	Block 1	Block 2	Block 3	**Block 4**
Constant	23.932*** (.380)	22.450*** (.589)	10.144*** (.704)	**-.997 (.771)**
TFS Social Agency	.578*** (.007)	.578*** (.007)	.521*** (.007)	**.481*** (.007)**
CSS Academic Disengagement		.029** (.009)	.045*** (.009)	**.049*** (.008)**
CSS Habits Of Mind			.133*** (.007)	**.075*** (.007)**
CSS Student Faculty Interaction			.147*** (.009)	**.107*** (.008)**
CSS Civic Awareness				**.171*** (.008)**
CSS Leadership				**.167*** (.009)**
R^2	.306	.306	.353	**.395**
Model *F*-test (df_1, df_2)	5948.180 1, 13503	2981.666 2, 13502	1837.373 4, 13500	**1468.816 6, 13498**

*p<0.05, **p<0.01, ***p<0.001

Table 9

Results for the Final Regression Model for Criterion Variable CSS Social Agency

	B	*Std. Error*	*β*	*t.*	*Sig.*
Constant	-.997	.771		-1.293	.196
TFS Social Agency	.481	.007	.460	65.262	<.001
CSS Academic Disengagement	.049	.008	.040	5.877	<.001
CSS Habits of Mind	.075	.007	.077	10.053	<.001
CSS Student Faculty Interaction	.107	.008	.095	12.798	<.001
CSS Civic Awareness	.171	.008	.151	21.468	<.001
CSS Leadership	.167	.009	.142	19.349	<.001

The results displayed in Tables 8 and 9 show, in the final model, a 1-point difference in TFS Social Agency was positively associated with a 4.60-point difference in CSS Social Agency, adjusting for all other predictors in the model, $t = 65.262$, $p < .001$. A 1-point difference in CSS Academic Disengagement was positively associated with a .40-point difference in CSS Social Agency, adjusting for all other predictors in the model, $t = 5.877$, $p < .001$. Furthermore, a 1-point difference in CSS Habits of Mind was positively associated with a .77-point difference in CSS Social Agency, adjusting for all other predictors in the model, $t = 10.053$, $p < .001$. A 1-point difference in CSS Student

Faculty Interaction was positively associated with a .95-point difference in CSS Social

Agency, adjusting for all other predictors in the model, t = 12.798, p < .001. Additionally,

a 1-point difference in CSS Civic Awareness was positively associated with a 1.51-point

difference in CSS Social Agency, adjusting for all other predictors in the model,

t = 21.468, p < .001. Finally, a 1-point difference in CSS Leadership was positively

associated with a 1.42-point difference in CSS Social Agency, adjusting for all other

predictors in the model, t = 19.349, p < .001.

Table 10

Results of Multiple Regression Models for Criterion Variable CSS Philosophy of Life

	Block 1	Block 2	Block 3	**Block 4**
Constant	7.672*** (.106)	7.534*** (.159)	4.751*** (.190)	**2.445*** (.211)**
TFS Philosophy of Life	.466*** (.008)	.466*** (.008)	.417*** (.008)	**.393*** (.008)**
CSS Academic Disengagement		.003 (.002)	.005* (.002)	**.006** (.002)**
CSS Habits Of Mind			.042*** (.002)	**.029*** (.002)**
CSS Student Faculty Interaction			.022*** (.002)	**.014*** (.002)**
CSS Civic Awareness				**.028*** (.002)**
CSS Leadership				**.042*** (.002)**
R^2	.200	.200	.245	**.275**
Model *F*-test	3531.52	1767.61	1145.18	**891.01**
(df_1, df_2)	1, 14132	2, 14123	4, 14085	**6, 14078**

*p<0.05, **p<0.01, ***p<0.001

Table 11

Results for the Final Regression Model for Criterion Variable CSS Philosophy of Life

	B	*Std. Error*	*β*	*t*	*Sig.*
Constant	2.44	.211		11.6	<.001
TFS Philosophy of Life	.393	.008	.383	49.80	<.001
CSS Academic Disengagement	.006	.002	.020	2.72	.007
CSS Habits of Mind	.029	.002	.120	14.56	<.001
CSS Student Faculty Interaction	.014	.002	.048	6.08	<.001
CSS Civic Awareness	.028	.002	.099	13.16	<.001
CSS Leadership	.042	.002	.144	18.38	<.001

The results shown in Tables 10 and 11 exhibit, in the final model, a 1-point change in TFS Philosophy of Life was positively associated with a 3.83-point change in CSS Philosophy of Life, adjusting for all other predictors in the model, $t = 49.803$, $p < .001$. A 1-point change in CSS Academic Disengagement was positively associated with a .22-point change in CSS Philosophy of Life, adjusting for all other predictors in the model, t = 2.907, p > .001. In addition, a 1-point change in CSS Habits of Mind was positively associated with a 1.19-point change in CSS Philosophy of Life, adjusting for

all other predictors in the model, t = 13.901, p < .001. A 1-point change in CSS Student Faculty Interaction was positively associated with a .47-point change in CSS Philosophy of Life, adjusting for all other predictors in the model, t =5.656, p < .001. Further, in the final model, a 1-point change in CSS Civic Awareness was positively associated with a 1.01-point change in CSS Philosophy of Life, adjusting for all other predictors in the model, t = 13.053, p < .001. Finally, a 1-point change in CSS Leadership was positively associated with a 1.39-point change in CSS Philosophy of Life, adjusting for all other predictors in the model, t = 17.127, p < .001.

Chapter 5

Discussion

"The job of the teacher and, collectively, of the college, is to help students in the arduous work of answering [the question] for themselves" (Delbanco, 2012a, p. 14).

In discussing the implications of the preceding results, the research questions and hypothesis are revisited, noteworthy involvement variable results are discussed, and the experimental scale are evaluated. In addition, the impact of pre-college development is explored briefly along with limitations and conclusions of the study.

Research Questions and Hypothesis

The results of the study indicated that the quantity of student involvement matters in the development of calling in the lives of college students. The regression outcomes substantiated the hypothesis that greater levels of involvement positively correlate to higher levels of calling indicators in the lives of college students, as represented by CIRP constructs. In analysis of the longitudinal impact on each of the criterion variables, the effects of all predictors related to student involvement on graduating seniors' Academic Self-Concept were statistically significant in the sample. In addition, the pre-test ($\beta = .636$), along with Habits of Mind ($\beta = .047$) and Leadership ($\beta = .300$) predictor variables were statistically significant for the criterion variable Social Self-Concept.

Moreover, all selected involvement variables predicted statistically significant change in Social Agency. Finally, all predictor variables, with the exception of Academic Disengagement ($\beta = .020$), had a statistically significant effect on graduating seniors' Philosophy of Life, controlling for pre-test scores.

While the results support the study's hypothesis, it was not anticipated that the amount of change would be considerably small. In each of the regression models, the effect of pre-test scores explained a large proportion of the variability in each outcome construct. On average in the sample, students' calling indicators changed very little between their first year of college and graduation. For example, their Academic Self-Concept increased less than a single point on a 100-point scale. The largest gains were observed in Social Self-Concept and Social Agency, yet both increased approximately 3-points on a 100-point scale.

Pre-test scores in longitudinal student studies are often very significant predictors with a resulting impact on the interpretation of assessment data (Astin, 2012). In a personal communication with Alexander Astin (2013), he confirmed the vast effect of input measures. Astin posited: "The fact that the pre-test (input) is usually the strongest predictor of post-test (outcome) means simply that differences among people remain relatively stable over time; people can change, of course, but usually not that much" (A. Astin, personal communication, October 30, 2013). The results of the current study must be understood in the larger context of higher education research in which the immense impact of the pre-test is understood (Astin, 2012).

Thus, having affirmatively answered the first research question, the impetus for the study turned to the second research question, which sought to investigate the specific

forms of involvement that would be most salient in predicting indicators of calling in students' lives. The answer to the second question would be instructive toward the aspiration of the research: to provide research-based principles for institutions to provide students with resolute answers to questions of calling

Student Involvement Predictors of Calling

The results of the study indicated that the two most prominent student involvement predictors in relationship to indicators of calling were reflected in the CIRP constructs: Habits of Mind and Leadership. Per a consultation with HERI, contemporary IEO regression analyses of this type have noted and discussed predictor variable results represented by a standardized coefficient beta score of .08 or higher (K. Eagan, personal communication, October 24, 2013).

Among the five involvement constructs explored, Habits of Mind and Leadership predicted statistically significant effects on all four of the criterion variables. These two involvement constructs were the most prevalent in the final model for each outcome. Habits of Mind significantly predicted change in all of the criterion variables. The one criterion variable in which it did not have the highest effect ($\beta = .047$) was impacted by the other noted involvement variable, Leadership. Leadership also significantly predicted change in all of the criterion variables and produced the highest individual beta score outside of the pre-test predictors, scoring a ($\beta = .300$) in predicting the Social Self-Concept criterion variable.

The standardized coefficient beta scores of Habits of Mind ranged from .047 to .120. In similar fashion, Leadership coefficient beta scores ranged from .08 to .300,

indicating that they were the two most salient predictors of changes in the indicators of calling as defined by the relevant literature.

Habits of mind. Habits of Mind predicted statistically significant effects on all four of the criterion variables and maintained consistent standardized coefficient beta scores (β = .113, .047, .08, .120). The 2010 CIRP Construct Technical Report defined Habits of Mind as: "A unified measure of the behaviors and traits associated with academic success. These behaviors are seen as the foundation for lifelong learning" (HERI, 2010, p. 2). Embedded in this construct are individual items relating to a student's involvement in class, ability to solve problems, desire to explore, and willingness to accept mistakes.

Leadership. Similar to Habits of Mind, Leadership predicted statistically significant effects on all four of the criterion variables. Leadership scores were also the most consistently high standardized coefficient beta scores in comparison to the other predictor variables (β = .08, .300, .142, .144). The 2010 CIRP Construct Technical Report defined Leadership as: "A unified measure of students' beliefs about their leadership development, leadership capacity, and experiences as a leader" (HERI, 2010, p. 13). This construct is comprised of individual items that explore a student's development of self-ratings, opinions, and experiences in leadership throughout their college experience.

Meaningful Philosophy of Life

Experimental scale. In light of the operational definition for the study adapted from Palmer (2000), an experimental scale, termed *Philosophy of Life*, was developed to potentially capture the compelling nature of calling in students' lives. The selected items

reflected an effort to begin to describe the sense of a broad, overarching purpose demonstrated through longitudinal changes in a combination of students' self-ratings and goals.

Three self-rating items and one goal item that were not otherwise represented in the selected CIRP constructs were grouped in an attempt to develop a functional measurement. These items measured changes in students' self-ratings in self-understanding, spirituality, and understanding of others, and in students' goal of developing a meaningful philosophy of life. Reliability analysis was conducted on the experimental scale revealing a Cronbach's Alpha score of .587, indicating a moderate coefficient of reliability.

The moderate Cronbach's Alpha score indicated that continued experimentation with additional items relating to students' self-ratings and goals should inform the development of the scale for use in further research. Theoretically, the addition of items to the scale would hold potential to increase its reliability. The measurement of students' self-ratings in self-confidence, leadership, and creativity along with the addition of items relating to students' goals of influencing social values and helping others who are in difficulty, all offer speculative intrigue in further refinement of this experimental scale.

The experimental scale was designed based on the conceptual parallels discovered in the definitions of calling and maintaining a meaningful philosophy of life. Inspiration for this scale came through a desire to further explore the forty-year longitudinal changes in students' goal in this specific area as revealed in the research by Pryor, Hurtado, Saenz, Santos, and Korn (2007) for the Higher Education Research Institute (HERI):

The percentage who report that "developing a meaningful philosophy of life" is a

"very important" or "essential" personal goal declined steadily from 1967 at 85.8

percent to the all-time low of 39.3 percent in 2003. Since that time, however,

there has been a slight reversal of this trend and the percentage has moved upward

to 46.3 percent in 2006. (pp. 52-53)

The significance of the trend is instructive for the implications for future research in

understanding the magnitude of the decline.

The 2009 CSS results, further validated the increase in the importance students

place upon developing a meaningful philosophy of life. The cohort represented in these

survey results showed a longitudinal change of 8.1 percent—from 50.7 to 58.8 percent

(HERI, 2009). The results of the study suggested a further increase revealing a

longitudinal change of approximately 17 percentage points (47% in the TFS to 62% in

the CSS). Therefore, further research is recommended in order to refine and extend

operative philosophy of life measures.

Impact of Pre-College Development

The results of the regression analysis indicated that students changed very

minimally over the course of their time in college. The highest observed change was

approximately 3 points on a 100-point scale. The overwhelming impact of the pre-test as

predictors in the research served as an alarming and instructive principle for future

research. In a similar study commissioned by the Wabash National Study of Liberal

Education (2013), longitudinal research revealed that students changed very slightly and

even regressed in some cases. Moreover, *Academically Adrift* (Arum & Roksa, 2011)

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detailed the decline of the ability of institutions of higher education to effectively inspire change in students' lives.

Students' appear to be inherently resistant to change. This presents significant challenges for those who seek to study the impact of the college environment on their lives. Astin (2013) maintained: "that's just the nature of reality—most people resist change, which tends to diminish the observed effects of environmental (involvement) variables" (personal communication, October 30, 2013).

Institutions of higher education must seek to understand the complexities of today's student and engage them in the most effective ways, implementing research-based principles to develop who they are and inspire them toward what they will do. Further research should explore the impact of pre-college development and the cognitive gains made by students in the pre-college years.

Implications for Practice

Colleges and universities seeking to foster an environment for the development of calling should consider the theoretical connection between its indicators and valuable lessons learned in students' academic and leadership involvement. The results of the study indicated that institutions which seek to inspire their students toward maintaining a sense of calling should enrich and inspire their academic curiosity.

In addition, on account of the conceptual congruence between calling and leadership, institutions which seek to provide students with resolute answers to questions of calling should challenge them to invest their physical and psychological energy in assuming leadership roles on campus, along with the learning that takes place through mentorship opportunities with campus leaders throughout the formative college years.

In reviewing the Habits of Mind construct, the principal connection identified to calling, as it was described in the relevant literature, was the manner in which both were seemingly driven by aspirations that were compelling in nature. The operational definition for the study from Palmer (2000) clearly demonstrated this element of calling: "this is something I can't not do, for reasons I'm unable to explain to anyone else and don't fully understand myself, but that are nonetheless compelling" (p. 25).

The amount of a student's physical and psychological energy devoted to his or her educational pursuit illustrates a connection to the compelling nature of his or her academic work. The determination to ask questions, to search relentlessly for answers even when it is not connected to class assignments, and to maintain resilience in the midst of adversity and failure all conceptually point to a compelling force upon students internal sense of meaning and external sense of purpose. It is precisely this fortitude that may not only inform students' pursuit of academic achievement, but also a compelling, overarching purpose for their lives.

Returning again to the operational definition of calling for the current study, the principles embedded within the Leadership construct maintained a strong conceptual alignment with the indicators of calling. Students' internal development of meaning and external development of purpose inform their beliefs about their ability to lead. In likewise fashion, the literature surrounding calling continually pointed to these developments as essential to understanding one's calling in life. In both cases, a progressive maturation and development was evident both internally and externally in students' lives.

Creative pedagogy and programs that inspire leadership communicate principles that are congruent with the conceptual framework of calling. As students mature in their willingness and capacity to lead, they progress in the same developments of internal meaning and external purpose that are critical to understanding calling.

Among the best practices in calling development is the aforementioned "Let Your Life Speak" elective course at Santa Clara (Thompson and Feldman, 2010). Along those same lines, institutions seeking a research-based program for the cultivation of calling should consider the development of students' intellectual and leadership pursuits. Such a program could connect rudderless students to opportunities for academic investment and to positions of leadership to inspire the pursuit of purpose in their lives. The ideal time to encourage this path is within the first semester of the freshman year. Working with students toward understanding the pursuit of calling may provide more decidedness and determination in their vocational goals and dreams. As students persist in changing majors as steadily as the autumn leaves, programs like this one may offer meaningful purpose for their lives.

The results of the present inquiry indicated that institutions seeking to inspire their students toward the pursuit of purpose should accentuate and advance their efforts to inspire involvement relating to students' habits of mind and leadership as described by CIRP constructs. The compelling spirit required in the face of academic rigor fosters an environment for students to persist, nurturing a steady resolve that will serve them well as they pursue an overarching purpose in their lives and contributions to society.

Colleges and universities are uniquely positioned to provide a wide variety of academic challenges and leadership roles to all students both inside and outside of the

classroom. The lessons that students learn through academic curiosity and leading others are consistent with the types of learning that ultimately inform the pursuit of purpose.

Limitations

The current study had multiple limitations which must be considered in determining the direction for future research in the area of calling. Any inquiry relating to the pursuit of calling must recognize the challenges of conceptual and operational precision in the construct. As was previously mentioned, calling can be very difficult to delineate or quantify. However, admission of this lack of clarity does not hold as a reason to cease the search for measurement.

Perhaps the most glaring limitation was that the constructs do not comprehensively offer an operative measurement for calling as described in the literature. There are implications to be gleaned from the results as they are, but these are mitigated by the presiding reality of students' resistance to change. This is reflected in the strong pre-test regression scores, especially in comparing and contrasting those results to those of the experiential independent variables.

While the national data set used in the study was helpful in painting a more robust picture of the impact of involvement, it did not provide for individual institutional clarity. Every college and university has an institutional mission and ethos that carries noteworthy weight in determining the internal meaning and external purpose development of its students. Furthermore, additional research should explore potential changes in findings when delineated by race/ethnicity and/or gender.

While the researcher attempted to represent calling accurately in light of the relevant literature, future research in the field could explore a more operative manner by

which to study calling in the lives of college students. Moreover, additional research should be conducted qualitatively in investigation of this construct. Good qualitative research can provide much-needed depth of content that may describe more accurately college students' experiences relating to questions of calling.

Another possibility to be explored could be the isolation of students for whom their construct scores increased or decreased the most during their college experience. This could potentially shed more light on the developmental processes for those students who do experience substantive shifts in calling indicators.

Conclusion

The results of the study substantiated the initial hypothesis that greater levels of student involvement would positively correlate to higher levels of calling indicators in the lives of college students as represented by CIRP constructs and controlling for freshman scores on calling indicators. More specifically, the results suggested that, among the student involvement constructs explored, Habits of Mind and Leadership were the most salient in predicting an increase in calling indicators as described by the relevant literature.

The foundational aspiration of the study was to provide research-based principles for institutions to provide students with resolute answers to questions of calling. Though each of these dependent variables alone may not completely describe calling, the results of the study begin to provide a framework for exploring students' search for meaning and purpose.

In the case of both habits of mind and leadership and their relationship to calling, the impetus for institutions is not in the product but the process. Colleges and

Universities should seek not to provide answers but space for seeking. Delbanco (2012b) posited:

> It seems hard to come up with a better formulation of what a college should strive to be: an aid to reflection, a place and process whereby young people take stock of their talents and passions and begin to sort out their lives in a way that is true to themselves and responsible to others. (para. 38)

In the pursuit of purpose, encouraging students toward involvement, especially in the development of the habits of their minds and their ability and capacity to lead, creates a culture that is conducive for the development of internal meaning, external purpose, and the resulting benefits of an embraced calling.

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Appendix

Complete List of Items within Analyzed Constructs

Habits of Mind – Participants answer on a 3-point scale (Frequently, Occasionally, Not at all)

"Since entering college, how often have you:"

Habits of Mind: Ask questions in class
Habits of Mind: Support your opinions with logical argument
Habits of Mind: Seek solutions to problems and explain them to others
Habits of Mind: Revise your papers to improve your writing
Habits of Mind: Evaluate the quality or reliability of information you received
Habits of Mind: Take a risk because you feel you have more to gain
Habits of Mind: Seek alternative solutions to a problem
Habits of Mind: Look up scientific research articles and resources
Habits of Mind: Explore topics on your own, even though it was not required for class
Habits of Mind: Accept mistakes as part of the learning process
Habits of Mind: Seek feedback on your academic work

Academic Disengagement – Participants answer on a 3-point scale (Frequently, Occasionally, Not at all)

"Since entering college, how often have you:"

Act: Come late to class
Act: Fell asleep in class
Act: Turned in course assignments late
Act: Skipped class
Act: Turned in course assignments that did not reflect your best work
Act: Missed class for other reasons

Student Faculty Interaction – Participants answer on a 3-point scale (Frequently, Occasionally, Not at all)

"Since entering college, how often have you:"

Faculty Provide: Encouragement to pursue graduate/professional study
Faculty Provide: An opportunity to work on a research project
Faculty Provide: Advice and guidance about your educational program
Faculty Provide: Emotional support and encouragement
Faculty Provide: A letter of recommendation
Faculty Provide: Help to improve your study skills
Faculty Provide: Feedback about your academic work (outside of grades)
Faculty Provide: An opportunity to discuss coursework outside of class
Faculty Provide: Help in achieving your personal goals

Social Agency – Participants answer on a 4-point scale (Essential, Very important, Somewhat important, Not important)

"Indicate the importance to you personally of each of the following:"

Goal: Keeping up to date with political affairs
Goal: Participating in a community action program
Goal: Influencing social values
Goal: Becoming a community leader
Goal: Helping others who are in difficulty
Goal: Helping to promote racial understanding

Leadership – Participants answer on a 5-point scale (Much stronger, Stronger, No Change, Weaker, Much Weaker)

"Compared with when you first entered college, how would you now describe your:"

Change: Leadership ability
Self Rating: Leadership ability
Opinion: I have effectively led a group to a common purpose
Act in College: Participated in leadership training
Act in College: Been a leader in an organization

Civic Awareness – Participants answer on a 5-point scale (Much stronger, Stronger, No Change, Weaker, Much Weaker)

"Compared with when you entered college, how would you now describe your:"

Change: Understanding of the problems facing your community
Change: Understanding of global issues
Change: Understanding of national issues

Academic Self-Concept - Participants answer on a 5-point scale (Highest 10%, Above Average, Average, Below Average, Lowest 10%)

"Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself:"

Self-Rating: Academic Ability
Self-Rating: Drive to achieve
Self-Rating: Mathematical Ability
Self-Rating: Self-confidence (intellectual)

Social Self-Concept - Participants answer on a 5-point scale (Highest 10%, Above Average, Average, Below Average, Lowest 10%)

"Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself:"

Self-Rating: Leadership Ability
Self-Rating: Public speaking ability
Self-Rating: Self-confidence (social)
Self-Rating: Popularity

Experimental Scale: Philosophy of Life
Goal Item: Participants answer on a 4-point scale (Essential, Very important, Somewhat important, Not important)

"Indicate the importance to you personally of each of the following:"

Self Rating Items: Participants answer on a 5-point scale (Highest 10%, Above Average, Average, Below Average, Lowest 10%)

"Rate yourself on each of the following traits as compared with the average person your age. We want the most accurate estimate of how you see yourself:"

Goal: Developing a meaningful philosophy of life
Self Rating: Self-understanding
Self Rating: Spirituality
Self Rating: Understanding of others