Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity

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ABSTRACT

This study investigated the relationship between undergraduate student employee workplace experiences and the development of socially responsible leadership capacity using a quantitative, cross-sectional design. Grounded in the Social Change Model of Leadership, a sample of 81 student employees were surveyed at three public universities to examine how the frequency of 19 distinct workplace experiences influenced scores on the Socially Responsible Leadership Scale (SRLS-R2). Data analysis involved a sequential approach, using bootstrapped regressions and Kruskal-Wallis H tests to explore relationships between experience frequency and leadership outcomes. The findings identified a standardized workplace environment within this specific sample, as variables such as collaboration, problem-solving, and task repetition were omitted from the final analysis due to a lack of variance among respondents. While informal supervisor interactions and feedback were associated with higher scores in Commitment, Congruence, and Change, and idea experimentation emerged as a factor for Consciousness of Self and Controversy with Civility, the small sample size limits the generalizability and interpretability of these results beyond the research sites. These findings offer localized evidence that intentional supervision and opportunities for innovation may serve as potential drivers of student employees' leadership development, though further research with larger populations is necessary to confirm these relationships.

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DEDICATION

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Chapter I

Introduction to the Study

Higher education in the United States faces significant challenges, including declining enrollments (Irwin et al., 2023; Sanchez, 2023) and increased scrutiny of its value (Arum & Roksa, 2011; Blake, 2024; Palmer, 2023). Against this backdrop, it is increasingly important to ensure that college students develop the knowledge, skills, and competencies identified as important outcomes for a college education, including leadership. At the same time, colleges and universities must ensure that students are adequately prepared to meet the demands of employers when they enter the workforce, particularly in terms of the soft, career-ready skills employers expect of recent college graduates. Employers have identified leadership as an essential skill for recent graduates; however, they consistently find that recent graduates lack the leadership skills necessary for success (Gray, 2025; National Association of Colleges and Employers [NACE], 2019, 2020, 2021, 2023). Higher education scholars have noted that student employment, as one of the most common experiences students engage in outside of class, has untapped potential for helping students develop critical skills including leadership (McClellan et al., 2018). This study addresses the gap in understanding the impact of student employment on leadership development. Previous research has shown mixed results regarding the relationship between on-campus employment and leadership capacity (Lewis, 2017, 2019, 2020; Salisbury et al., 2012), highlighting the need for further exploration. Therefore, this study examines the relationship between undergraduate students' on-campus employment experiences and their leadership development. The findings inform strategies to align leadership outcomes with contemporary workforce needs.

Background

Higher education in the United States has been viewed as the key to future economic success of both individuals and the greater economy (Arum & Roksa, 2014; Carnevale & Cheah, 2013). However, the landscape of higher education is changing. The value and purpose of higher education are questioned by various stakeholders, ranging from students themselves to the legislators who authorize funding to support higher education. Over the past 20 years, concerns about the effectiveness of colleges and universities have increasingly been a part of the public dialog (Arum & Roksa, 2011). At the same time, many institutions face declining enrollment that threatens their continued existence (Dorn et al., 2020). Undergraduate student enrollment in the United States decreased by 2.7 million students from 2018 to 2021 (Irwin et al., 2023). Moreover, overall undergraduate enrollments are predicted to decline 10 to 15% between 2025 and 2029 (Grawe, 2017), with declines anticipated through at least 2041 (Lane et al., 2024).

These challenges were compounded in recent years by the financial ramifications of the COVID-19 pandemic (Bauer-Wolfe, 2020; Fernandes, 2020) that resulted in billions in lost revenue for universities and required layoffs to remain solvent (Kelchen et al., 2021). Kelchen et al. (2021) predicted that the long-term effects on higher education would persist at least through 2026. This prediction is supported by a surge in academic program cuts (Moody, 2024) and university closures (Marcus, 2024; Schackner, 2024). Often occurring with a suddenness that shocks students, faculty, staff, and the community alike (Letang, 2024; Neil, 2024; Unglesbee, 2023), these closures underscore the financial circumstances destabilizing higher education.

Researchers and the media increasingly question the cost and value of higher education (Blake, 2024; Palmer, 2023; Saurbier, 2020). These concerns are reflected in the declining enrollment for traditional undergraduate degree programs and rising pressure from alternatives to

the traditional four-year degrees. The number of students enrolling in trade programs after high school increased significantly between 2021 and 2022 and at the same time the number of students enrolling in traditional degree programs declined by 3.4% (Sanchez, 2023). A 2023 survey indicated that high school students are less interested in pursuing a four-year degree; 63% indicated they were open to other credentialing options and 35% indicated they did not believe any education beyond high school was necessary for future success (Mowreader, 2023).

Colleges and universities have faced calls for increased accountability for meeting the demands of the 21st century workforce (Busteed, 2020; Flynn, 2020). The contemporary workforce demands a diverse array of competencies from graduates, as evidenced by multiple surveys conducted across various sectors (Hart Research, 2018; NACE, 2024; Watson & McConnell, 2018; World Economic Forum, 2023). These essential skills, often termed soft skills, encompass a broad spectrum of individual and relational competences such as establishing professional relationships, effective communication, technological literacy, teamwork, global fluency, data skills, creativity, and leadership, among others (Gray, 2025; Hart Research 2018; Watson & Drezek McConnell, 2018; World Economic Forum, 2023).

Given this shifting landscape, it is essential to revisit the specific skills students develop during their undergraduate education. More than simply earning a degree, college students develop a range of learning outcomes, skills, and competencies, manifesting changes in attitudes and beliefs (Arum & Roksa, 2011; Mayhew et al., 2016). Students demonstrate growth in critical thinking, self-concept, independence, comfort with diversity, moral reasoning, and leadership, among other outcomes. The long-term effects of college include increased earnings, improved job satisfaction, lifelong learning engagement, and increased civic engagement. Furthermore, these benefits extend to improved health and behavioral outcomes, as well as generational effects

on the wellness and civic engagement of the children of college graduates (Mayhew et al., 2016). Those outcomes arise not only from in-class curricular learning, but from the complete range of experiences, including co-curricular and extracurricular experiences (Astin, 1984; Mayhew et al., 2016).

Undergraduate students' development of leadership skills is often characterized as one of the most essential outcomes of a college education. Higher education organizations, including the Association of American Colleges and Universities (AAC&U) and the Council for the Advancement of Standards in Higher Education (CAS), identify leadership development as a crucial student outcome (AAC&U, 2007; CAS, 2015). A Rice University Doerr Institute study (Kolditz et al., 2021) found that the public is strongly aligned with this priority, with 70% of college-educated adults affirming student leadership development as a core college outcome. While 67% of respondents believed universities effectively develop students' leadership capabilities (Kolditz et al., 2021), employer surveys revealed a persistent gap between organizational expectations and graduates' actual leadership competencies (Gray, 2025; NACE, 2019, 2020, 2021, 2023).

Over the past two decades, researchers have explored the relationship between undergraduate students' college experiences and leadership outcomes. Leadership scholars have collected data pointing to a variety of college experiences that had a positive impact on student leadership identity and leadership skill development (Dugan & Komives, 2010; Dugan et al., 2008; Kilgo et al., 2015; O'Neill, 2012; Shim, 2013). Academic coursework, co-curricular, and extra-curricular activities including instructional experiences, participation in campus leadership programs, and involvement in student organizations influence students' leadership development (Mayhew et al., 2016). Noted scholar of college student leadership development, Susan Komives

(2018), wrote "…leadership development [is] not just the responsibility of the campus's leadership program, Center for Student Involvement, or the business school but by every major, student employment position, and area for student learning and involvement" (p. xix). Most undergraduate students work while enrolled as college students (National Center for Education Statistics [NCES], 2022). While researchers have posited a theoretical link between work experience and leadership development (Devaney, 1997; Dugan & Komives, 2007; Lewis, 2020; McClellan et al., 2018; Peck & Callahan, 2019; Perozzi, 2019; Salisbury et al., 2012), the relationship between on-campus employment and undergraduate students' leadership skills, the central focus of this study, requires further empirical investigation.

Working while enrolled is a common experience for today's college students (Marshall & Guthrie, 2024). Indeed, in 2014, approximately 41% of full-time students and 80% of part-time students worked while enrolled at a college or university (Snyder et al., 2016). By 2022, the number of college students working remained similar with approximately 42% of full-time students and 78% of part-time college students employed (NCES, 2022). Students may work on-campus, off-campus, or both (Salisbury et al., 2012). Burnside et al. (2019) defined student employment specifically as undergraduate students employed on-campus and supervised by a university employee while earning an hourly wage. Student employment is the subject of this study.

Students work for a variety of reasons and are particularly motivated by the need to cover the rising cost of higher education (Burnside et al., 2019). While working takes a significant amount of time and may reduce their ability to engage in other undergraduate experiences, hindering student development (Astin, 1993), researchers have identified positive effects associated with student employment (Astin, 1993; McCormick et al., 2010; Riggert et al.,

2006). Indeed, the literature suggests that working limited hours on-campus can improve academic performance and retention, whereas working long hours or off-campus can have negative impacts. Students who work on-campus on a part-time basis, for example, performed better academically than students who worked off-campus (Cramer & Kulm, 2006; Pike et al., 2008). Furthermore, some studies indicate that that student employment has positive post-college outcomes such as more advanced professional skills, higher rates of full-time employment, and higher salaries (Carnevale et al., 2015; Cheng & Alcántara, 2007; Pascarella & Terenzini, 2005; Stern & Nakata, 1991).

Other researchers have argued that student employment can have a direct, positive impact on student learning outcomes. Keeling (2004) defined learning as "a comprehensive, holistic, transformative activity that integrates academic learning and student development…throughout and across the college experience" (p. 4). Drawing on the work of Kolb (1984), Pascarella (1985), Pascarella and Terenzini (2005), Padgett and Grady (2009); Perozzi (2019), and Lewis and Contreras (2009) all argued that on-campus student employment supports student learning. McClellan et al. (2018), Peck and Callahan (2019), Perozzi (2019), and Savoca and Creager (2023) extended these findings to develop frameworks for student learning vis-a-vis student employment designed to maximize the potential for learning on the job. Savoca and Creager (2023) and Savoca et al. (2024) argued that integrating student employment with elements of Kuh's (2008, 2018) high impact practices will have the greatest potential for positive learning outcomes.

Scholars argued that student employment can and should be designed to support student employees' leadership development (Devaney, 1997; Dugan & Komives, 2007; Lewis, 2020; McClellan et al., 2018; Peck & Callahan, 2019; Perozzi, 2019; Salisbury et al., 2012). In fact, in

a 2019 study on student employment, university administrators indicated that leadership development was an intended outcome for student employees (Burnside et al., 2019).

The potential for student employment to serve as a vehicle for leadership development represents an important yet underexplored opportunity in higher education. Employers expect recent college graduates to demonstrate leadership abilities but often find these skills lacking among new hires (Gray, 2025; NACE, 2019, 2020, 2021, 2023). This gap highlights the need to investigate how student employment might serve as a vehicle for students' leadership development. This section examines existing research on this relationship, identifies methodological limitations of past studies, and establishes the conceptual foundation for this study's exploration of workplace experiences that may enhance leadership capacity.

Empirical research connecting student employment and leadership development remains limited and contradictory. Early qualitative studies by Cheng and Alcántara (2007) and Ketchum-Ciftci (2004) suggested modest positive effects of student employment on leadership development. However, quantitative confirmation of these findings has proven elusive, with studies lacking consistent theoretical frameworks and yielding inconsistent results (Lewis, 2017, 2019; Riggert et al., 2006). While Akos et al. (2021) found that federal work-study students reported significantly higher leadership skills than non-working peers, other researchers discovered either no relationship (Salisbury et al., 2012) or even negative relationships between on-campus employment and leadership capacity (Lewis, 2017, 2019, 2020).

The most methodologically rigorous quantitative studies in this area have measured leadership using the Socially Responsible Leadership Scale (SLRS) (NCLP, n.d.), which operationalizes the Social Change Model designed specifically for college students (Higher Education Research Institute [HERI], 1996). Both Salisbury et al. (2012) and Lewis (2017)

employed this approach but faced significant sampling limitations. Salisbury's analysis focused exclusively on first-year residential students, while Lewis' (2017) efforts to balance covariance excluded non-traditional and third- and fourth-year students who might live off-campus. These limitations underscore the need for more comprehensive research examining the relationship between student employment and leadership development.

Lewis' (2020) subsequent analysis revealed significant variations in leadership outcomes based on workplace contexts. Students employed in different campus departments demonstrated significantly different leadership capacity scores, for example, with those in spiritual life functions scoring nearly twice as high as those in libraries or public safety departments (Lewis, 2020). This finding suggests that specific workplace experiences, rather than employment status alone, may be the critical factor in leadership development through campus employment. Reflecting on findings from his earlier study linking workplace experiences with learning and leadership development (Lewis, 2007, 2010; Lewis & Contreras, 2009), Lewis suggested this relationship should be an important direction for future research (Lewis, 2020)

Additional studies have explored students' workplace experiences and their association with learning and leadership outcomes (Carlisle, 2015; Dorman, 2020; Hansen, 2019; Hansen & Hoag, 2018; Lewis 2007, 2010; Lewis & Contreras, 2009; Marshall & Guthrie, 2024; Rocco & Beatty, 2023; Satterlee, 2009; Savoca & Creager, 2023). Researchers have associated specific workplace experiences with leadership development, including task repetition, various forms of training, collaboration, reflection, diverse interactions, and supervisory responsibilities (Carlisle, 2015; Dorman, 2020; Hansen & Hoag, 2018; Lewis, 2010; Marshall & Guthrie, 2024; Savoca & Creager, 2023). However, despite these potential connections, there has been no systematic,

theoretically grounded, large-scale quantitative study measuring the relationship between specific workplace experiences and leadership capacity.

In total, 19 workplace experiences that might support students' workplace learning were identified in the literature. I have organized the nineteen distinct workplace experiences into three categories. The first category, employee experiences, includes participation in formal and informal training, peer observation, collaboration with coworkers, receiving feedback from both peers and supervisors, informal supervisor interactions, task repetition, problem solving, idea experimentation, intuitive decision making, reflection, and connecting job tasks to classroom learning (congruence). The second category encompasses supervisory experiences, where student employees coordinate work assignments for peers, provide feedback, and deliver both formal and informal training to other student employees. The final category focuses on interactions with others, specifically engaging with individuals of different identities and adapting communication approaches to improve effectiveness. This study addresses the significant gap in the literature by exploring how these nineteen workplace experiences relate to the development of leadership skills and abilities, collectively defined as leadership capacity, among undergraduate student employees across multiple institutions.

Statement of the Problem

Employers expect recent college graduates will possess the skills necessary to succeed in the workplace, including leadership skills; however, employers indicated that recent graduates do not demonstrate the desired level of leadership skills (Gray, 2025; NACE, 2019, 2020, 2021, 2023). Although scholars have argued that on-campus student employment provides an opportunity for leadership development (Devaney, 1997; Dugan & Komives, 2007; Lewis, 2020; McClellan et al., 2018; Peck & Callahan, 2019; Perozzi, 2019; Salisbury et al., 2012), research

findings are inconsistent. Salisbury et al. (2012) found no significant relationship or a negative relationship between working on-campus and leadership development. Lewis (2017, 2019, 2020) found a negative relationship between working on-campus in general and leadership development; however, the strength and direction of the relationship varied by on-campus employment location. Lewis (2020) argued that future research was needed to explore whether this variance might be explained by differences in frequency and type of experiences across on-campus workplaces. Writing nearly a decade earlier, Lewis (2010) conducted a limited study that provided for the preliminary identification of employment experiences that had a positive relationship with students' leadership development, yet there has been no broader effort to confirm whether these relationships hold for a larger sample, nor have these kinds of experiences been correlated with a theoretically grounded concept of leadership such as socially responsible leadership. This study addresses this gap in the literature by exploring the kinds of work experiences that are associated with socially responsible leadership capacity, surveying a sample of student employees from multiple on-campus locations across three universities.

Purpose of the Study

The purpose of this study is to uncover the relationship between 19 identified on-campus student employment experiences and student employees' leadership capacity measured using the socially responsible leadership scale. This quasi-experimental quantitative study used a cross-sectional design with comparative and correlation techniques to examine this relationship. The goal of this study is to inform the design of student employment experiences to support students' growth in leadership capacity and to better align the outcomes of undergraduate work experiences with the needs of prospective employers, demonstrating the value of work and return on investment in students who work. Identification of relationships between types of

employment experiences and students' development of socially responsible leadership capacity is relevant to a variety of audiences including those interested in leadership development, student employment, and co-curricular learning outcomes.

Research Questions

This study is designed to examine the following research questions:

RQ1: What is the relationship, if any, between the frequency of 19 on-campus workplace experiences and socially responsible leadership capacity amongst student employees?

RQ2: To what degree, if any, is there variation in socially responsible leadership capacity amongst student employees with different frequencies of each of the 19 workplace experiences?

RQ3: To what degree, if any, are there differences in frequencies of workplace experiences and socially responsible leadership capacity between identified on-campus employment locations?

Conceptual and Theoretical Frameworks of the Study

This study is situated in Astin's (1993) model of collegiate impact and uses the theoretical framework of Socially Responsible Leadership.

Conceptual Framework: Astin's Input-Environment-Outcome Model

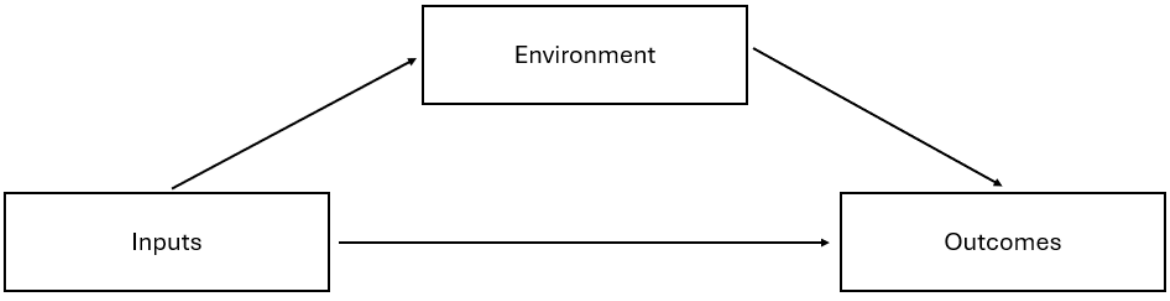
Astin's student involvement theory (1984) posits that students' learning and development are a function of the quality and quantity of students' involvement in an educational program and that increasing student involvement helps achieve better learning and development outcomes. According to Astin (1984), student employment is one of many student involvement factors that contribute to student learning and development because it provides additional opportunities for interactions in the educational environment with faculty, staff, and peers. This is operationalized

in Astin's (1993) model for college impact, sometimes referred to as Astin's input-environment-outcome (I-E-O) model (see Figure 1). The I-E-O model is a framework for explaining the impact of students' college experiences with their development, while accounting for previous experiences and demographics that might explain a portion of the change students experience.

In Astin's model, "inputs refer to the characteristics of the student at the time of initial entry to the institution; environment refers to the various programs, policies, faculty, peers, and educational experiences to which the student is exposed; and outcomes refers to the student's characteristics after exposure to the environment" (Astin, 1993, p. 7). While the I-E-O model is typically used in longitudinal designs, it has been adapted and operationalized for cross-sectional studies on undergraduate student leadership outcomes to account for response shift bias that has been shown to be a concern in measurement of leadership outcomes (Dugan, 2015; Howard, 1980; Rohs & Langone, 1997). Indeed, there is a vast record of research related to socially responsible leadership situated in Astin's (1993) I-E-O framework as it allows the researcher to account for the impact of college students' experiences on leadership outcomes (Multi-institutional Study of Leadership [MSL], n.d.,).

Figure 1

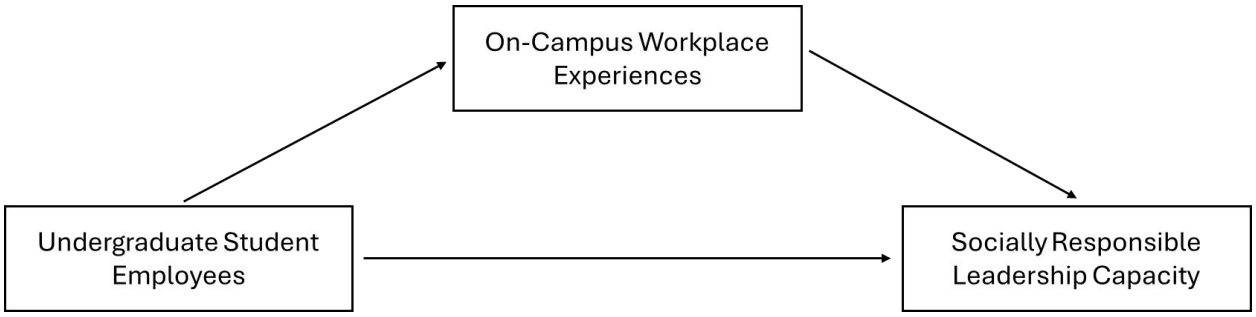
Astin's (1993) Inputs – Environment – Outcome model for college impact.



In the context of this study of the relationship between student employment and leadership development, undergraduate student employees and their characteristics serve as the inputs, while student employment experiences operate as the environmental factors for student involvement that are posited to have a relationship with leadership development, which operates as the output (see Figure 2).

Figure 2

Conceptual Framework



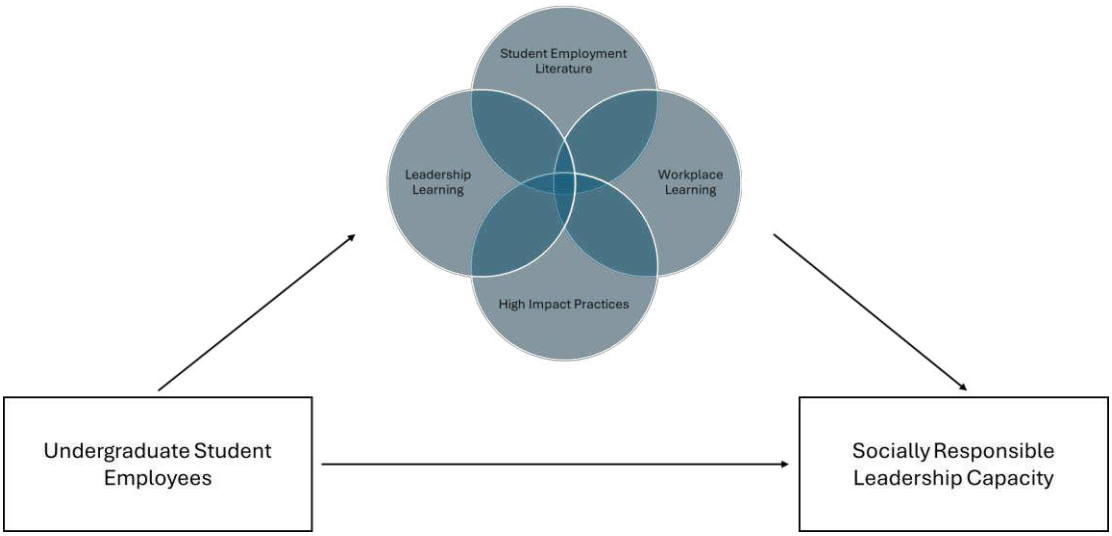
Socially Responsible Leadership

This study is situated in the theoretical framework of Socially Responsible Leadership. Socially responsible leadership, operationalized by the Social Change Model for Leadership, is a model where leadership is "a purposeful, collaborative, values-based process that results in positive social change" (Komives et al., 2013, p. xii). This model was developed specifically as an adaptation of post-industrial leadership intended to foster leadership outcomes for undergraduate college students (Dugan & Komives, 2010). The Social Change Model of Leadership (SCM) is, perhaps, the theory most widely applied to college students (Dugan et al., 2014; Kezar et al., 2006; Owen, 2012). SCM is a post-industrial theory of leadership conceived as a dynamic process rather than as a feature of individual's position, emphasizing values such as equity, social justice, self-awareness, collaboration, and service (HERI, 1996). SCM was

developed by HERI (1996) as a customized leadership development framework for college students (see Figure 3). The framework consists of seven elements including consciousness of self, congruence, and commitment (individual values); collaboration, common purpose, and controversy with civility (group values); and citizenship (community value) (HERI, 1996). These values and their distinct levels (individual, group, and community) interact in self-reinforcing ways across levels to foster leadership development (Dugan, 2011). This model was the framework for multiple studies on the relationship between student employment and student leadership development (Lewis, 2017, 2019, 2020; Milton & Meadee, 2018; Salisbury et al., 2012).

Figure 3

Theoretical Framework



This theoretical framework is developed further as an outgrowth of the literature review in Chapter 2.

Additional Theoretical Components of this Study

The idea that students can develop leadership capacity as a result of workplace experiences and interactions is derived from the integration and synthesis of the literature on

learning theory (Vygotsky, 1978), workplace learning theory developed by Eraut (2000, 2004, 2007); leadership learning theory (Guthrie & Jenkins, 2018), and Kuh's (2008) high impact practices, all coupled with empirical findings from the literature. In this model, an individual's job experiences lead to learning, without necessarily being explicitly or intentionally designed to produce learning outcomes.

Significance of the Study

Employers seek recent college graduates who possess leadership competencies but have indicated that recent college graduates lack the desired level of leadership competency (Gray, 2025; NACE, 2019, 2020, 2021, 2023). Researchers have argued that student employment can improve students' leadership development (Devaney, 1997; Dugan & Komives, 2007; Lewis, 2020; McClellan et al., 2018; Peck & Callahan, 2019; Perozzi, 2019; Salisbury et al., 2012). Furthermore, most on-campus employers indicated that leadership is a focal point for student employee's professional development (Burnside et al., 2019). These factors, coupled with contrary findings from Lewis (2017, 2019, 2020) and Salisbury et al. (2012) suggest that current efforts may be falling short of their potential. This is significant because it provides empirical insight into improving leadership outcomes, ensuring student employees are better prepared for their careers. Identifying positive associations between workplace experiences and leadership capacity can inform the design of targeted interventions and provides a foundation for future studies to assess their impact.

Assumptions, Delimitations, and Limitations

The following assumptions, delimitations, and limitations define the bounds of the current study and address concerns regarding validity and generalizability of findings.

Assumptions

Leadership studies is a mature field of scholarly inquiry with decades of research behind it; however, there is not a consensus definition of leadership that is applied to all scholarly inquiry in the discipline (Lewis, 2017; Northouse, 2016). This study used a post-industrial definition of leadership since that has been the overriding framework for leadership development most often applied to college students. In addition, this study is embedded in an empirical framework where leadership skills and abilities can be learned through workplace experiences. This assumption is an outgrowth of constructivist epistemology, drawing on theories of experiential learning, situated workplace learning, high impact educational practices, and leadership learning.

Delimitations

This study surveyed student employees to measure the relationship between elements of their work experience identified in the literature as potential influencers of student leadership development. The population was 1,630 student employees at three regional public universities in the United States. A sample of 81 undergraduate student employees was collected. The survey was distributed electronically using the Qualtrics platform. This study used a quantitative, quasi-experimental, cross-sectional design to examine the relationship between workplace experiences and socially responsible leadership capacity. Leadership capacity was measured exclusively through the Socially Responsible Leadership Scale (SRLS-R2) (NCLP, 2024) which focuses on the eight values of the Social Change Model (HERI, 1996). Data analysis was performed using SPSS with techniques appropriate to the research questions and the data returned from the survey. It followed a sequential approach using regression to explore predictive relationships and

non-parametric tests to identify differences based on the frequency of 19 specific workplace experiences.

Limitations

Methodological, instrumental, and contextual factors limit the generalizability of the findings. Methodologically, the sample size ($N = 81$) was likely underpowered the regression models and necessitated the use of non-parametric techniques, which restricted the ability to explore complex interaction effects. Instrumentally, the exclusion of leadership self-efficacy and motivation scales and the lower reliability of specific SRLS-R2 subscales may have left significant psychological drivers of leadership capacity uncaptured. Contextually, the overrepresentation of a single institution and the omission of previous and concurrent leadership roles make it difficult to isolate the workplace as the sole contributor to leadership development. These constraints define the scope of the research and provide a rationale for further inquiry using larger student populations. These limitations affect the overall generalizability of the findings. Limitations are discussed in greater depth in Chapter 5.

Definitions

Leadership. An intentional, collaborative, and values-driven process that leads to social change. This definition is adapted from Komives et al. (2006) and underlies the development of the Social Change Model for Leadership Development.

Leadership Capacity. An individual's knowledge, skills, and attitudes that play a role in the leadership process (Dugan, 2011) that serves as the dependent variable under investigation in this study. Leadership capacity is operationalized in terms of the Social Change Model (SCM) of Leadership, which will be measured using the validated Socially Responsible Leadership Scale –

Revision 2 (SLRS-R2) from the National Clearinghouse for Leadership Programs (NCLP) (National Clearinghouse for Leadership Programs, n.d.).

Leadership Development. Growth in leadership skills, abilities, attitudes, and beliefs that happens as a result of leadership learning, both individually and in relationship to others in a group (Guthrie & Jenkins, 2018).

Social Change Model of Leadership. A post-industrial theory of leadership conceived as a dynamic process, emphasizing values such as equity, social justice, self-awareness, collaboration, and service (HERI, 1996) and designed specifically to maximize leadership development among undergraduate college students.

Student Employee. An enrolled college student who works in a part-time on-campus student employment position in exchange for pay. While a student employee could be either a graduate or undergraduate student, this study limits the definition to include undergraduate students only.

Student Employment. On-campus part-time job opportunities available to enrolled college students.

Students Who Work. Students who work in exchange for pay concurrently with enrollment in college courses. This includes students who may work on-campus, off-campus, or both.

Workplace Experiences. A list of 19 experiences (such as task repetition, peer observation, problem solving, interactions, among others) that student employees may have while working in an on-campus student employment position that have been linked either theoretically or empirically to learning and/or leadership development. These experiences serve as independent variables in this study.

Chapter Summary

This chapter provided an overview of the growing importance of demonstrating the positive learning outcomes of an undergraduate education, including soft skills in general and leadership in particular. The narrative establishes the role that student employment might play in students' development of leadership capacity and sets the stage for the analysis of workplace experiences as contributing to leadership development outcomes and how these findings could support the development of student employment experiences that maximize students' potential for leadership development while working on-campus.

Outline of the Study

This dissertation consists of five chapters, each addressing a key aspect of the research process: an introduction, a review of the literature, and a discussion of research methodology.

Chapter 1 provides an overview of the study, including the background, problem statement, theoretical framework, purpose, research questions, significance, and operational definitions of key terms.

Chapter 2 presents a comprehensive review of the literature related to undergraduate student employment and leadership development, analyzing existing research, identifying theoretical perspectives, and highlighting gaps that warrant further investigation.

Chapter 3 details the research methodology, outlining the study's design, variables, data collection procedures, and analysis plan.

Chapter 4 provides a narrative of the statistical analysis and findings generated from the methodology described in Chapter 3.

Chapter 5 discusses the significant findings in the context of the relevant literature, analyzes limitations of the current study, and provides recommendations for future research.

Chapter II

Review of the Literature

This chapter explores literature regarding student employment and leadership development to establish the theoretical and empirical foundations for this study. The review synthesizes existing literature through several interconnected domains: the historical and current context of student employment, leadership development, student and leadership learning theories and frameworks, and the intersection between workplace experiences and leadership outcomes. Furthermore, this review identifies 19 distinct workplace experiences that contribute to leadership growth that serve as the primary variables of interest for the quantitative analysis presented in subsequent chapters.

Student Employment

Student employment has been a feature of higher education in the United States throughout its history (Tuttle et al., 2005). Research from the 1920s and 1930s indicated that approximately 65% of Columbia University students held jobs while enrolled in undergraduate and graduate programs (Smith, 1937). This population grew in the following decades from 45% in 1959 to 56% in 1986 (Stern & Nakata, 1991). Carnevale et al. (2015) found that over 70% of all students attending college worked while enrolled. According to the National Center for Educational Statistics (NCES) (2022), 42% of full-time students and approximately 78% of part-time college students were employed.

Demographics of Students who Work

The employment distribution among students shows similarities across distinct types of educational institutions. For full-time undergraduates, the employment rate stands at 47% at two-year colleges and 38% at four-year colleges (NCES, 2022). In contrast, part-time students exhibit much higher employment rates, with 68% at two-year institutions and 78% at four-year institutions (NCES, 2022). Undergraduate employment patterns also differ by ethnicity: 42% to 43% of Latinx and White full-time students work, compared to 33% of full-time African American students, around 28% of Asian American students, and 21% of Native American students (NCES, 2022). Undergraduate employment patterns differ by gender as well, with 57% of women and 43% of men employed while enrolled (NCES, 2022). Additionally, the likelihood of employment increases with age among full-time college students (NCES, 2022).

There is a distinction in the literature discussed by McClellan et al. (2018) between students who work and workers who are students; this is a distinction between students who work part-time and full-time workers who are part-time students. This literature review is focused on students who work part-time jobs on-campus.

Why Students Work

College students work for a variety of reasons. Višnjić et al. (2024) conducted a systematic review of the literature on student employment and academic achievement across the globe and concluded that there are six reasons that students work while enrolled: financial reasons, to gain field-specific experiences or skills, to develop generic transferable skills, to build social networks, to start building their careers, and to fill spare time. Several of these factors are confirmed in the literature stemming from higher education in the United States. Some students must work to cover rising educational costs including tuition, fees, and living expenses (Burnside

et al., 2019). Other students choose to work, seeking to develop or maintain workplace skills or to gain practical work experience (Carnevale et al., 2015). Others might work to develop a professional network and gain experience aligned with their curriculum (Carnevale et al., 2015; Peck, 2017). Taken together this implies that future career preparation constitutes an important reason students work while enrolled.

Where Students Work

Students are employed on-campus, off-campus, and sometimes both (Salisbury et al., 2012). Comprehensive tracking of the breakdown between students who work off-campus and on-campus is not available; however, King (2006) reported that approximately 10% of students worked on-campus. More recently, McCormick et al. (2010) analyzed National Survey of Student Engagement data to examine student employment patterns and found that off-campus work was more prevalent than on-campus employment. Specifically, about one-third of full-time first-year students and half of seniors worked off-campus. In contrast, on-campus employment was lower, with approximately 20% of first-year students and one-third of seniors working on-campus (McCormick et al., 2010). Among part-time students, 69-77% of students worked off-campus, compared to 11-13% of part-time students who worked on-campus (McCormick et al., 2010).

Data on the kinds of roles students work in off-campus is not readily available; however, King (2006) reported that 63% of students who work off-campus work for for-profit companies, 12% work at non-profit entities, and an additional 12% were in the military. Carnevale et al. (2015) reported that among working students, the majority work in sales and office support or food and service industries, but this data should not be seen as definitive since it includes students who work both off-campus and on-campus.

On the other hand, there is more data available on the kinds of roles afforded to students who work on-campus as student employees. Student employees at four-year institutions serve in a variety of roles that support a wide array of university functions, including residence life, student affairs, academic and athletic departments, and libraries (Burnside et al., 2019). They perform tasks such as helping to maintain facilities, supporting student recruitment activities, and other responsibilities reflecting a wide array of work-related experiences (Perozzi, 2019). Students might be employed through federal work-study programs where employment is considered part of a student's financial aid package or through regular hourly wage positions available to all students regardless of financial aid status (Peck & Callahan, 2019).

Data for student employees' on-campus work locations were collected in two national studies. Lewis (2017) found that the largest numbers of traditionally aged undergraduate students worked in departments connected to academic and research functions (24.7%); followed by residence life (12.1%); athletics, recreation, and wellness programs (11.8%); administration (10.5%); and student affairs (9.2%). Burnside et al. (2019) identified different top employers for student workers. Their ranked list of areas hiring the most student employees (in descending order) included student life/student affairs, recreation services and fitness centers, residential life, academic schools/departments, and athletic departments. The top employers change when isolating four-year public universities where the top three employers where residential life, followed by recreation/fitness, then academic schools and departments (Burnside et al., 2019). The different findings could be accounted for by different data sources used in each study – Lewis' assessment was based on individual students' reports of where they worked, and Burnside et al. (2019) aggregated institutional reports of distributions of student workers by location.

Impact of Work

Students have always worked while attending college, and the impact of working has been an area of concern for scholars since at least the 1970s with many scholars arguing that any time a college student spends working is less time they have to devote to their learning and growth (Burnside et al., 2019; Tuttle et al., 2005). Burnside et al. (2019) framed this as the working student dilemma, or the tradeoff between the monetary and student development benefits of working and the potential decline in the working student's campus engagement and academic performance as measured by grades and persistence. The exact nature of the relationship between work and various outcomes is not straightforward; the literature on student employment includes studies of the positive and negative effects of work on engagement and academic performance (Tuttle et al., 2005).

Academic Outcomes

Historically, the literature framed working while enrolled as a detriment to academic achievement, suggesting a zero-sum relationship where any work would necessarily have a negative effect on academic outcomes (Burnside et al., 2019); however, more recent studies indicate that work location and the number of hours worked influence academic outcomes. A recent international metanalysis found that working had no significant negative effect on academic achievement, except when students worked high-intensity jobs requiring substantial time commitments (Kroupova et al., 2024). Students working part-time on-campus have been shown to academically outperform students who work off-campus (Cramer & Kulm, 2006; Pike et al., 2008). Multiple researchers found that working up to 20 hours per week was a critical threshold, beyond which both course grades (McCormick et al., 2010; Pike et al., 2008) and credit hour completion rates declined (Darolia, 2014).

Research specifically examining on-campus student employment yielded positive findings. Students working on-campus often demonstrate academic performance better than non-working peers, including higher grades and improved persistence rates (McCormick et al., 2010; Perna et al., 2007; Riggert et al., 2006; Roksa, 2011). Astin's (1993) longitudinal analysis established a positive correlation between part-time on-campus employment and academic achievement. Pike et al. (2008) later confirmed these findings, showing that students working up to 20 hours on-campus demonstrated moderate improvements in both achievement and engagement. McCormick et al. (2010) extended these findings to both full-time and part-time students, noting slight GPA improvements among those working up to 20 hours per week on-campus compared to non-working students. Studies have also indicated that work positively impacts post-graduation outcomes, including rates of full-time employment, salary, and growth in professional skills (Carnevale et al., 2015; Cheng & Alcántara, 2007; Pascarella & Terenzini, 2005; Stern & Nakata, 1991).

Student Engagement Outcomes

Scholars have explored the impact of work on students' engagement outside the classroom (Cheng & Alcántara, 2007; McCormick et al., 2010). McCormick et al. (2010) identified non-financial benefits for student employment in terms of student engagement measured through NSSE, where both first- and fourth-year full-time students who work reported increased academic challenge, active and collaborative learning, student faculty interactions, enriching educational experiences, and a more supportive campus environment compared to non-working peers.

Cheng and Alcántara (2007) concluded that on-campus student employment also makes the college experience more meaningful both academically and socially. When their on-campus

jobs were meaningful or when they found meaning in their employment, they saw its value as part of their holistic undergraduate experience. They found that students' sense of meaning in their education was enhanced through the job search process, by a sense of pride in performing challenging work, and by making connections between their work and learning (Cheng & Alcántara, 2007).

Student Employment and Student Learning

Student employment is conceptualized as a student learning experience, whereby the experience students have working on-campus can lead towards measurable learning outcomes (Cheng & Alcántara, 2007; Dorman, 2020; Ketchum-Ciftci, 2004; Lewis, 2020; Mayhew et al., 2016). Copious research studies connected co-curricular and extracurricular activities with a wide range of student learning and student development outcomes (Mayhew et al., 2016). These outcomes have included personal and identity development (Cheng & Alcántara, 2007) and the development of career-ready and professional skills such as communication, critical thinking, problem solving, teamwork, collaboration, ability to work with diverse others, and leadership (Dorman, 2020; Ketchum-Ciftci,2004).

Leadership

The study of Leadership has evolved over time, moving from a chaotic state to one of more systematic study (Kezar et al., 2006; Komives, 2011). This evolution is categorized into two paradigms: industrial, which emphasizes leadership as a function of positional authority; and post-industrial, which focuses on relational processes and shared responsibility (Dugan, 2011; Kezar et al., 2006). These perspectives make defining leadership challenging since scholars and others may have differing views influenced by varied epistemologies; industrial theories often assume positivism, while post-industrial ones embrace constructivist or critical approaches

(Lewis, 2020). College students tend to adopt an industrial view of leadership, but evidence for this remains mixed due to methodological limits (Lewis, 2020).

The most applied leadership models in higher education are Kouzes and Posner's (2012) Five Practices of Exemplary Leadership, the relational leadership model (Komives et al., 2013), and the Social Change Model (HERI, 1996). Kouzes and Posner's (2012) model includes five practices: Modeling the Way, Inspiring a Shared Vision, Challenging the Process, Enabling Others to Act, and Encouraging the Heart. Komives et al.'s (2013) relational leadership model describes leadership as a complex, inclusive, and ethical group process. The Social Change Model emphasizes personal values, group values, and citizenship, applicable to diverse programs (HERI, 1996). This study is rooted in the social change model of leadership development, which serves as the conceptual framework for this study since it was intended to apply directly to undergraduate college students.

The Social Change Model of Leadership Development

The Social Change Model of Leadership Development (SCM) was created specifically for use with college students and is often used as a framework for college student leadership programs (Dugan et al., 2014; Kezar et al., 2006). SCM emerged in the 1990s from the Higher Research Education Institute (HERI) where leading scholars worked to integrate and reconcile research on leadership and college students to develop an applied model for leadership that could be taught to college students to help build their leadership skills toward the end goal of improving the world through social change (HERI, 1996). This non-hierarchical, post-industrial model defines leadership as "a process rather than as a position" (HERI, 1996, p. 18). Leadership is a relational and inherently collaborative process concerning the interplay between the individual, the group, and the community, recognizing that individual leadership growth and

development is enhanced through group collaboration and energizing the group to effective change in the community or society. When applied to college student learning, SCM leadership is intended to enhance student self-knowledge and increase student leadership capacity to improve students' ability to facilitate positive social change (HERI, 1996).

The model consists of seven core values that operate on the three levels (HERI, 1996):

Individual Values

- Consciousness of Self is one's awareness of attitudes, beliefs, values, and emotions that underly one's actions.
- Congruence is consistently behaving in ways that align with and are authentic to one's beliefs and convictions.
- Commitment is the energy one applies to motivate service and drive group efforts towards the intended outcomes.

Group Values

- Collaboration is a joint effort among group members that multiplies effectiveness achieved through the multiple diverse talents and perspectives of the group members.
- Common Purpose is working with others toward shared goals or values, best achieved when group members share a vision and mission.
- Controversy with Civility is understanding that it is inevitable that different perspectives will exist among group members, but acknowledging that differences should be aired openly, civilly, and without personal criticism to help the group arrive at new, creative solutions.

Societal/Community Values

- Citizenship is the process where the group becomes responsibly connected to the broader community in the interest of working for positive change.

These seven core values interact within and between levels in self-reinforcing ways to spur leadership development (Dugan, 2011).

Socially responsible leadership capacity serves as the main outcome variable in this study. Socially responsible leadership is defined as "a purposeful, collaborative, values-based process that results in positive social change" (Komives et al., 2013, p. xii). This concept has been operationalized through the development of the Socially Responsible Leadership Scale Revision 2 (SRLS-R2) (NCLP, n.d.), which has been used in numerous studies, including the Multi-Institutional Study of Leadership (MSL).

Leadership Development During College

Much of the research on leadership development outcomes for college students has been situated in the framework of the Social Change Model for Leadership (SCM) (Mayhew et al., 2016). Researchers identified a relationship between leadership outcomes and the combination of demographics, pre-collegiate experiences, environmental factors including institutional size, and a wide array of academic, co-curricular, and extra-curricular experiences (Buschlen & Dvorak, 2011; Campbell et al., 2012; Dugan et al., 2008; Dugan & Komives, 2010; Early, 2014; Hannah et al., 2008; Keating et al., 2014; Martin, 2013; McCormick et al., 2010). These include leadership self-efficacy, leadership capacity, motivation to lead, social change model leadership behaviors, social perspective taking, and others. These outcomes are embedded in the Multi-institutional Study of Leadership and have been evaluated in an ever-growing body of research using MSL data (MSL, 2023) but extend beyond the limitations of this research study.

Leadership Self-efficacy

Leadership self-efficacy is an individual's belief in their capacity to effectively assume leadership roles and serves as a predictor of leadership capacity (Hannah et al., 2008). This construct plays a critical role in leadership development by driving students to engage in experiences that enhance their leadership knowledge and skills (McCormick et al., 2002). Dugan and Komives (2010) underscored the role of this construct in shaping college students' leadership development. The significance of demographics, particularly race and gender, further complicates the study of leadership self-efficacy. Gender disparities have been observed, with male students often displaying higher leadership self-efficacy, emphasizing the impact of gender norms on women's leadership development (Eagly et al., 2003). Furthermore, variations in social change values across racial groups and gender have been found, emphasizing the importance of identities and their role in leadership outcomes (Dugan et al., 2008; Dugan et al., 2014; Kodama & Dugan, 2013). Additional elements shown to influence leadership self-efficacy include socio-cultural contexts, positional leadership roles, mentoring relationships, as well as variations among students in STEM and non-STEM majors, and commuter status. (Dugan et al., 2008; Dugan et al., 2014; Kodama & Dugan, 2013).

Leadership self-efficacy relates to various student activities and experiences that influence socially responsible leadership development. Participation in activities such as student organizations, campus recreation, ROTC programs, and mentoring have shown positive associations with the development of socially responsible leadership (Campbell et al., 2012; Dugan et al., 2008, 2014; Early, 2014; Martin, 2013). Analyses of student participation in leadership training have yielded varied results; the duration of these programs influences leadership outcomes, with longer-duration courses predicting less growth in leadership

development (Dugan & Komives, 2010). However, short-term leadership courses have shown more promise for predicting growth (Buschlen & Dvorak, 2011; Keating, et al., 2014). Indeed, leadership self-efficacy, intertwined with various demographics and experiences, is a central focus in leadership development research, yet as a practical matter, scales for the measurement of self-efficacy are not available for use in this proposed study.

Leadership Motivation

Chan and Drasgow's (2001) model for predicting leadership action includes leadership self-efficacy, leadership capacity, and leadership motivation. Chan and Drasgow (2001) defined leadership motivation as the determinant of one's level of commitment and persistence to participate in the leadership process. They hypothesized a unidirectional relationship between the constructs where leadership self-efficacy influences motivation, which then influences leadership capacity. They posited that increases in leadership capacity will not necessarily result in increases in motivation or self-efficacy (Chan & Drasgow, 2001).

Correia-Harker (2016) noted that Dugan and Komives (2007, 2010) established the empirical relationship between leadership self-efficacy and leadership capacity but had not accounted for the role motivation to lead might play in the relationship. Dugan (2017), on the other hand, argued that the relationship between these constructs is bidirectional, whereby an increase in any of the three constructs will lead to an increase in the other two, which Correia-Harker (2016) describes as a "recursive, on-going leadership development process" (p. 3). Correia-Harker (2016) concluded that leadership motivation plays a critical role in college students' leadership development process, where leadership motivation mediates the relationship between leadership self-efficacy and leadership capacity. Therefore, the researcher suggested that future research on leadership self-efficacy and leadership capacity should account for the

effect of leadership motivation (Correia-Harker, 2016; Correia-Harker & Dugan, 2020). And although this construct is important, leadership motivation is not included in the current study due to the financial barrier of licensing the applicable scales and the practical consideration of sample sizes required to introduce additional constructs and items into the analysis.

Leadership Capacity

Leadership capacity, as defined by Dugan (2011), is a construct that includes an individual's skills, knowledge, and attitudes that play a role in the leadership process. This concept has been a focal point in college student leadership development. O'Neill (2012), and Shim (2013) found that undergraduate students grow in their self-reported capacity for or understanding of leadership during their four years in college.

Researchers have identified numerous variables that have a relationship to leadership capacity including demographics, pre-college experiences; environmental factors including programmatic experiences, pedagogy, and institutional characteristics; and psychological variables (Arminio et al., 2000; Astin, 1993; Campbell et al., 2012; Dugan & Komives, 2007; Dugan & Komives, 2010; Dugan et al., 2014; Gehrke, 2008; Kezar & Moriarty, 2000; Owen, 2012; Renn & Ozaki, 2010; Zimmerman-Oster & Burkhardt, 1999). Buschlen and Dvorak (2011) found that participating in a leadership course framed around SCM improved students' leadership capacity. SCM has been the guiding theoretical framework for many of these studies, providing valuable insights into the development and enhancement of leadership capacity among college students.

Student Employment and Leadership

The relationship between student employment and leadership development represents a significant gap in the literature on college student leadership development. Given the

considerable number of students who work while in college and the substantial time they dedicate to their jobs (NCES, 2022), it is important to examine whether work experiences contribute to leadership development. Scholars have argued that on-campus student employment could be designed to support leadership development outcomes (Devaney, 1997; Dugan & Komives, 2007; Lewis, 2020; McClellan et al., 2018; Peck & Callahan, 2019; Perozzi, 2019; Salisbury et al., 2012). Three researchers created student employment frameworks intended to enhance leadership development outcomes. McClellan et al. (2018) suggested that employers incorporate career ready skill development, including leadership development activities, into student employment experiences. Gott (2019) and Perozzi (2019) argued that student affairs practitioners can intentionally cultivate specific employment experiences to foster leadership development. These frameworks, however, have not seen wide-scale adoption or been empirically confirmed as effective mechanisms for leadership development.

Multiple researchers have argued that on-campus student employment provides an opportunity to enhance students' leadership development (Devaney, 1997; Dugan & Komives, 2007; Peck & Callahan, 2019; Perozzi, 2019). Burnside et al. (2019) analyzed results from a survey of on-campus employers who indicated that they focus a significant amount of time on professional development on leadership for student employees (Burnside et al., 2019).

However, research specifically examining the relationship between employment in general and leadership development yielded mixed results. Three studies which included work in predictive modeling found no relationship between working and socially responsible leadership capacity (Dugan & Komives, 2010; Dugan et al., 2008; Stephens & Rosch, 2015). Salisbury et al. (2012) found that working off-campus had a positive effect on self-reported leadership capacity among first-year students.

Multiple qualitative studies suggested that student employment could have a limited positive effect on leadership development (Cheng & Alcántara, 2007; Ketchum-Ciftci, 2004; Jackson, 2024). Additional studies have focused on student employees' perceptions of their growth and development resulting from their on-campus employment. While these studies have typically been conducted within the bounds of a single university and have used different definitions of leadership, students consistently indicate that their leadership skills increase as a result of their student employment (Akos et al., 2021; Daniel, 2020; Hutson, et al., 2022; Martinez, 2023).

Attempts to quantitatively study the effects of student employment on leadership development have yielded mixed results. Fischer et al. (2015) conducted a study, situated in the ecological model of leadership, with the goal of understanding what factors contribute to changes in students' leadership attitudes and beliefs. They found that among thirty variables measured for effect on change in leadership thinking, participation in a work-embedded leadership development seminar for student employees in leadership roles was the only experience that had a significant positive relationship with students' change in thinking about leadership (Fischer et al., 2015). Lewis (2007, 2010) found that higher frequencies of particular work experiences were associated with growth in self-reported leadership outcomes.

Studies of the relationship between student employment and leadership capacity grounded in SCM have also yielded mixed results. Salisbury et al., (2012) found no relationship or a negative relationship between working on-campus and leadership development (Lewis, 2020). Salisbury et al. (2012) collected data measuring change in students SCM leadership competencies over time and found no significant difference in leadership competencies between students who worked on-campus for more than 10 hours per week and students who did not

work. Salisbury et al. (2012) also found that students who work off-campus reported higher levels of leadership development compared to students who worked on-campus.

Lewis (2017, 2019, 2020) built upon the work of Salisbury et al. (2012). Lewis (2020) offered a methodological critique of the self-selection bias inherent in their study and their treatment of working on-campus as an aggregated category. Lewis used hierarchical linear modeling to analyze a sample of 77,000 undergraduate students and isolate the influence of work on their leadership development. Lewis' (2017, 2019, 2020) analysis indicated that students who work on-campus demonstrated less capacity for leadership than students who work off-campus. However, there were significant differences in leadership capacity when results were disaggregated by students' on-campus workplace location (Lewis, 2017, 2019, 2020). Lewis (2020) suggested that differences in the variety and frequency of workplace experiences between workplace locations could account for the variability in student employee's leadership capacity. Milton and Meade's (2018) study lent credence to this supposition, finding that interactions with supervisors and reflection were key to student employee's growth as leaders. These inconsistencies in the literature highlight a critical need for further research that examines the relationship between student employment and leadership development.

Theoretical Underpinnings of Learning and Leadership Development

While empirical studies have established potential connections between student employment and leadership development, the inconsistent findings and methodological limitations are indicative of a need for a deeper theoretical exploration of the underlying processes that may support leadership development (Lewis, 2020). The mixed results, ranging from positive to negative relationships between employment and leadership capacity with variability by employment location, suggest that employment itself may be less important than

the specific learning experiences students have across different workplace locations (Lewis, 2020). This requires examining theoretical frameworks that explain how workplace experiences translate into learning and leadership development. By integrating theories of student development, workplace learning, and leadership learning, and high impact practices, it is possible to come to a more robust understanding of how student employment might be a catalyst for learning and leadership growth. The following section explores these theoretical foundations.

Student Development Theory

Astin's Student Involvement Theory posits that the amount of student learning and development is directly proportional to the quality and quantity of student involvement in educationally purposeful activities (Astin, 1984). This theory underscores the importance of active participation and engagement in a variety of campus activities, including on-campus employment. Student employment positions, such as working in the library or dining services, provide students with opportunities to immerse themselves in the university environment, interact with diverse peers, staff, and faculty, and engage in meaningful work that supports their development.

Sociocultural Learning Theory

Sociocultural learning theory enriches this framework by situating learning as a fundamentally social process of knowledge construction (Vygotsky, 1978). It emphasizes the importance of social interaction and collaborative learning, suggesting that individuals learn more effectively when they engage with more knowledgeable others in their environment. This social learning environment supports the acquisition of both technical and tacit knowledge essential for effective leadership (Eraut, 2004). In the workplace, student employees' social

interactions might include collaboration with peers, guidance from supervisors, and engagement with the university community that supports their learning.

Studies have shown that leadership development programs that incorporate mentoring, team-based projects, and reflective practice align well with sociocultural principles, facilitating deeper skill acquisition (Day, 2001; Kempster, 2009). Since student employment might naturally incorporate these elements, the potential exists for the social and cultural dimensions of the workplace to foster student employees' leadership development.

Workplace Learning

Eraut's (2000, 2004, 2007) workplace learning theory complements these frameworks and is relevant given the underlying premise that learning and development occur through student employees' workplace experiences. Eraut (2004) argued that informal learning occurs through everyday workplace activities, collaboration, and mentorship, not merely through formal training activities. In student employment settings, this process might manifest as learning through problem-solving, observation of more experienced peers and supervisors, and progression of responsibility.

Research supports that leadership development is enhanced by opportunities for informal learning, mentoring relationships, and feedback mechanisms, which facilitate continuous professional growth (Eraut, 2007; Kempster, 2009). These elements might be present in well-structured student employment programs, where students can develop skills through practical engagement with real-world challenges.

Leadership Learning Theory

Guthrie and Jenkins (2018) defined leadership learning as "changes in knowledge, skills, behavior, attitudes, and values resulting from educational experiences, both co-curricular and

curricular in nature, associated with the activity of leadership" (p. 57). They synthesized research into a framework with six domains of leadership learning: knowledge, development, training, observation, engagement, and metacognition (Guthrie & Jenkins, 2018).

When applied to student employment, this framework suggests that leadership development is most effective when students actively engage with authentic leadership challenges, observe effective practices and behaviors, receive appropriate training, reflect on their experiences, and integrate their learning through metacognitive processes (Guthrie & Jenkins, 2018). Guthrie and Jenkins (2018) specifically noted that student employment offers significant potential for leadership learning, particularly through observation and engagement, even without explicit leadership development programming.

High Impact Practices

High-impact practices (HIPs) provide a powerful framework for understanding how student employment can foster leadership development. Kuh (2008) identified these practices as educational approaches that demand significant time and effort, facilitate substantive interaction with faculty and peers, encourage collaboration with diverse others, and provide frequent feedback and opportunities for reflection. When intentionally structured, on-campus employment incorporates many of these elements, creating rich environments for leadership learning. Research highlights the significant impact of HIPs on student learning and development. For example, Kilgo et al. (2015) found that students who participate in HIPs show greater gains in learning outcomes, including leadership skills.

When implemented within the context of on-campus student employment, HIPS can create a dynamic environment for learning (Savoca et al., 2024) where students can develop and refine their leadership abilities. For instance, student employees in university libraries may take

on roles that involve managing stacks, coordinating events, or leading peer training sessions that constitute substantive interaction with employees and peers. These responsibilities could help students develop leadership skills such as planning, communication, and team management. Similarly, student workers in dining services might oversee shifts, manage customer service teams, ensure operational efficiency, fostering collaboration and reflection, and which cultivates skills in delegation, conflict resolution, and operational oversight (Cermak & Filkins, 2004).

Further, student employment experiences can include opportunities for feedback and reflection, where students are encouraged to think critically about their work experiences and how they relate to their academic and career goals (Hansen, 2019). For example, Halper et al. (2020) found that student employees who participated in structured reflection about their job demonstrated improved learning outcomes compared to students who did not participate. This reflective practice is crucial for leadership development as it encourages continuous personal and professional growth (Sessa et al., 2009).

An Integrated Framework for Leadership Development in Student Employment

Synthesizing these theoretical perspectives creates a comprehensive framework for understanding how student employment fosters leadership development:

- Active engagement in authentic work (Astin's (1984) involvement theory; Eraut's (2000) workplace learning) provides the foundational experiences necessary for skill development.
- Social interactions and collaborative learning (Vygotsky's (1978) sociocultural theory) facilitate the development of interpersonal leadership competencies and tacit knowledge acquisition.

- Structured reflection and feedback (HIPs (Kuh, 2008); Guthrie and Jenkins' (2018) leadership learning) transform experiences into integrated learning and leadership development.
- Progressive responsibility and application (workplace learning (Eraut, 2000); leadership learning (Guthrie & Jenkins, 2018)) allow students to practice and refine leadership skills in increasingly complex contexts.

This integrated approach positions well-designed student employment experiences as potentially powerful vehicles for leadership development. When campus employers intentionally incorporate high-impact elements into student positions, providing regular feedback, encouraging reflection, facilitating peer collaboration, and creating opportunities for increasing responsibilities, they transform routine jobs into transformative learning experiences that prepare students for future leadership roles in diverse contexts. Through this theoretical lens, we can understand how student employment experiences might cultivate essential competencies such as communication, problem-solving, and adaptability (Riggert et al., 2006), skills that Dugan (2011) linked directly to involvement in group experiences like campus employment. The integration of these theories highlights the complex nature of leadership learning, where active participation, social interactions, and contextualized experiences converge to create meaningful developmental opportunities. How then might specific workplace experiences contribute to leadership learning?

Leadership Learning through Student Employment

Lewis (2020) suggested that the quality and characteristics of a student's role are critical factors in determining whether employment leads to measurable leadership outcomes. In other words, certain kinds of employment experiences may be more likely than others to influence

students' leadership development. For example, campus jobs that are transactional or require students to engage in repetitive tasks might be less likely to support leadership growth. Indeed, Hernandez and Smith (2019) suggested that students employed on-campus in paraprofessional roles that are less transactional have a unique opportunity to connect competencies and skills developed through classes with student employment activities, which creates the potential for leadership learning.

An earlier study conducted by Lewis (2007, 2010), offers additional evidence to support this assertion (Lewis, 2020). Lewis (2007, 2010) used a framework derived from the student affairs and workplace learning literature to identify elements of student employment experiences theorized to maximize student employment learning outcomes. These included formal and informal training, observation of coworkers, collaboration and teamwork, feedback from peers, feedback from supervisor, informal/mentoring interactions with supervisor, task repetition, problem solving, idea experimentation, reflection, intuitive decision making, and congruence between job and coursework. Students were surveyed and reported the extent to which they engaged in the employment experiences theorized to maximize learning. Then they were asked to rate the impact of employment experiences on learning outcomes including overall learning, career development, civic and community engagement, ethics and values, responsible independence, and leadership. Lewis (2007, 2010) conducted an analysis of these student employment experiences and found a statistically significant positive relationship between leadership learning and higher frequencies of the following workplace experiences: peer observation, collaboration and teamwork, feedback from supervisors, problem solving, idea experimentation, reflection, intuitive decision making, and congruence with coursework.

Workplace experiences and Leadership Learning

Lewis (2007, 2010) suggested nine workplace experiences theorized to support learning through student employment as outlined above. Subsequent research by multiple scholars has expanded this work, documenting specific elements of student employment that participants themselves attribute to their development of leadership competencies. By synthesizing these elements with themes from workplace learning theory, leadership learning, and high impact practices, a set of nineteen distinct workplace experiences emerges as potentially significant contributors to leadership development.

Task Repetition

Task repetition is an important aspect of workplace learning that helps the employee develop an intuitive understanding of their role and tasks to be performed, developing a holistic understanding of what job responsibilities compared to conceiving of them as a list of tasks to be performed as if following a checklist (Eraut, 2000; Lewis 2007). Lewis (2007, 2010) noted that task repetition is a common feature of student employees' responsibilities. Previous studies have found evidence to suggest that task repetition supports student employees' workplace learning (Carlisle, 2015; Lewis, 2007, 2010); however, no relationship has been established between task repetition and leadership development (Lewis, 2007, 2010).

Observation of Peers

Learning through observation of peers performing work tasks and responsibilities is posited as an employment experience that supports leadership development. New or inexperienced student employees shadowing more experienced student employees is a common feature of student employment (McClellan et al., 2018; Perna, 2010). Carlisle (2015) found that observation of peers was critical to campus recreation student employees' workplace learning.

Dorman (2020) found that less experienced students reported that observation of more experienced employees performing job tasks or functions was a key method for learning how to perform job tasks and for developing necessary skills. This was confirmed by Marshall (2020) who found that the learning that occurred through observation was a major contributor to student employees' growth in leadership capacity. Marshall and Guthrie (2024) concluded that formalizing this practice supports student employees' growth in leadership capacity.

Collaboration

Kuh (2008) found that learning is enhanced when students work together on collaborative assignments. Moreover, Kilgo et al. (2015) found that there was a significant positive relationship between students engaged in collaborative learning and Socially Responsible Leadership capacity. Similarly, Eraut (2004, 2007) found that learning was likely to occur in the workplace through activities where individuals work together as teams towards a common goal. Collaboration in the student employment setting might include student employees working together on a workplace project, resolving scheduling issues for workers shifts, planning, and problem solving together (Lewis 2007, 2010). Student employees' engagement with workplace collaboration was significantly correlated with both learning in general and leadership development (Lewis, 2007, 2010). More recently, Daniel (2020) found that student employees attribute growth in leadership skills to working with others.

Problem Solving

Eraut (2007) found that engaging in problem solving activities in the workplace necessarily supports employee learning. Kuh (2008) identified engagement with problem solving in real-world situations as a factor that promotes student learning. Student employees practice problem solving, using critical thinking and creativity to address the challenges they may face on

the job (Kuh, 2018). Carlisle (2015) and Dorman (2020) found that student employees' problem-solving experiences were important in shaping how and what they learned through their jobs.

Empirical findings suggest that this is accurate, particularly in the context of leadership learning. Hansen and Hoag (2018) and Hansen (2019) concluded that workplace problem solving allows student employees to integrate learning from multiple domains with practice to enhance leadership development. Student employees in one study reported that workplace problem solving experiences contributed to their development of leadership capacity (Marshall & Guthrie, 2024). Lewis (2007, 2010) found that the degree to which student employees engage in problem solving varies depending on their assigned roles and responsibilities and that a higher frequency of problem-solving experiences had a positive effect on students self-reported learning and leadership development.

Idea Experimentation

Experimenting with new ideas and new ways of doing work may improve student employees' leadership capacity. Nikolova et al. (2014) found that the potential for learning to occur within the workplace is partially determined by the extent to which employees feel supported and safe in attempting new ways of working, completing tasks, and resolving problems. Eraut (2007) found that one workplace process by which learning occurs is "trying things out" when encountering unanticipated challenges (p. 411). In the student employment context, Lewis (2007, 2010) described this process as occurring when student employees test out new ways of relating to others on the job or trying innovative ways to complete a task or solve a challenging situation. Lewis (2007, 2010) found that higher frequency of idea experimentation was correlated with higher levels of learning in general and with higher levels of leadership development.

Training

Training is an integral part of most student employees' experience. Newly hired students are expected to learn how to perform their assigned responsibilities and tasks, as well as learn and understand the policies and procedures that provide a framework in which the work is performed (Scrogham & McGuire, 2009). Eraut (2000) distinguishes between formal and informal training in the workplace. Formal training occurs most often in a structured, but not necessarily in a classroom-like setting, and takes place within a defined time and setting with clear goals. Informal training is more reactive, brief, and less intentional and could be characterized as being spontaneous (Eraut, 2000). In the context of student employment, Formal training may include a scheduled orientation to the employing organization, specific task tutorials or activities that take place with a predetermined timeframe and goal, where informal training opportunities might include incidental, hands-on task learning experiences or spontaneous review of changes in policy or technology relevant to student employees in the exercise of their job responsibilities (Scrogham & McGuire, 2009).

Results of empirical research on the link between training, both formal and informal, and leadership development are mixed. Carlisle (2015) and Dorman (2020) found that formal training was a key workplace process for learning, critical to developing the knowledge and skills necessary to perform work responsibilities and tasks. Lewis (2007, 2010) found no relationship existing between the frequency of formal training and self-reported leadership development, Marshall and Guthrie (2024) found that student employees leadership capacity was enhanced by formal training that provided an opportunity to learn a task or responsibility, practice, what they learned, and receive feedback on their performance.

The link between informal training and leadership development is less murky. Marshall (2020) found that student employees identified informal peer-to-peer training as workplace experience instrumental to their development of leadership capacity. Lewis (2007, 2010) found student employees who had more frequent informal training experiences reported higher levels of leadership development. Student employees who participated in informal training with both supervisors and peers reported that these experiences enhanced their leadership capacity through a continual process of learning, interaction, and support (Marshall & Guthrie, 2024)

Feedback

Feedback has been found to enhance student learning outcomes. Kuh (2008) established that regular feedback and critique supports stronger learning outcomes for students. This principle extends beyond the classroom and into the workplace. Eraut (2007) found that receiving feedback from supervisors and coworkers was a highly effective vehicle for learning. In the context of student employment, Kuh (2018) argued that feedback enhances the learning that occurs through student employment. Building on this, Savoca and Creager (2023) found that supervisor feedback encourages student employee reflection that can enhance learning and job performance. This perspective gains additional support from Lewis (2007, 2010) who found a positive relationship between more frequent feedback from both supervisors and peers with not only learning in-general, but also with leadership development.

Informal Interactions with Supervisor

McClellan et al. (2018) note the importance of the relationship between student employee and supervisor as a crucial factor in supporting student learning through employment. By offering training, feedback, and supervision the supervisor plays a key role in formally supporting workplace learning. Informal interactions between students and other members of the

campus community have been found to support mentoring relationships that support greater student learning (AAHE et al., 1998). In the context of student employment, informal interactions might include incidental interactions outside of the workplace setting (Lewis, 2007, 2010).

Dorman (2020) found that supervisors of student employees not only serve as mentors to student employees but also support their emotional wellbeing and served as advocates for students struggling with issues outside the workplace. Lewis (2007, 2010) found a significant correlation between students' informal interactions with supervisors and overall learning. There were divergent findings on the relationship between informal supervisor interactions and leadership development. Milton and Meadee (2018) identified informal supervisor interactions as an important driver of SCM leadership growth; however, Lewis (2007, 2010) found no significant association between the frequency of informal interactions and leadership development. This suggests that frequency alone may not explain students leadership growth.

Reflection

Reflection, or thinking about one's own thinking, is critical to college students learning (Silver et al., 2023) and is an oft-cited component of the student employment experience associated with positive learning outcomes (Hansen, 2019; Hansen & Hoag, 2018; Lewis, 2007, 2010; Lewis & Contreras, 2009). Kolb (1984) identified reflection as critical to experiential learning and Eraut (2000) situated reflection as a critical process in learning from workplace experiences. In the context of student employment, research suggested that student employees who engage in a higher degree of reflection about their work demonstrated higher levels of learning in general (Halper et al., 2020;) Notably, a literature review conducted by Rocco and Beatty (2023) found that reflection is consistently associated with leadership learning. Extending

these concepts to student employment, Marshall and Guthrie (2024) found that students' reflection on their job experience was a critical component of students' integration of employment experiences and knowledge that indirectly influenced their development of leadership capacity. Hansen (2019) argued that more frequent reflection is associated with improved leadership learning among student employees, which has been verified by empirical studies (Hansen & Hoag, 2018; Lewis, 2007, 2010; Lewis & Contreras, 2009).

Intuitive decision making

As one gains knowledge of workplace processes and goals, the integrated knowledge allows the individual to make decisions about what to do in different workplace situations and how to go about resolving them. The rapidity with which these decisions are made makes them nearly intuitive (Eraut, 2000). Lewis (2007, 2010) notes that in the student employment context this is represented by student employees becoming able to make decisions without having to consult with an outside source, such as a supervisor, to determine how to proceed in a particular situation. Lewis (2007, 2010) found a positive correlation between the frequency of student employees engaged in this process and both learning and leadership learning.

Congruence/Integration with Coursework

Congruence, or overlap, between what students learn in the classroom and their outside of class/co-curricular participation is critical to holistic and transformative student learning. In the college environment, connecting what students learn through their academic courses and assignments with co-curricular experiences has been shown to facilitate the transfer of learning to new experiences helping students to adapt to the changing circumstances they face throughout their lives and encourages their development as life-long learners (Hansen & Hoag, 2018). In the literature on workplace learning, integrating learning from employment with previous knowledge

and experience is an element of informal workplace learning (Eraut, 2000, 2007). In the context of student employment, students may work in areas that are clearly linked to the majors (Lewis, 2007, 2010), such as a sociology major employed for a campus research center or a student studying information technology who works at the information technology help desk helping to trouble shoot students' and faculty technology problems. Or, as Mestre and LeCrone (2015) found, students may apply things they learned in class, such as technology skills, to their student employment positions in ways that helped them develop better leadership skills. This congruence has been shown to correspond with greater learning through student employment (Pascarella & Terenzini, 2005) and with leadership development (Lewis, 2007, 2010; Pierard et al., 2022).

Supervision and Coordination

Student employment offers students opportunities for progression through positions and growth in responsibilities that support leadership development, with many campus offices having a structured hierarchy of roles, including supervisory or lead roles, that students can progress through as they gain experience and demonstrate competency and growth by training and supervising other student employees (Hansen, 2019). Indeed**,** growth in responsibilities, promotion into formal leadership roles, and training other student employees have been identified as workplace experiences that enhanced student employees' leadership capacity (Marshall, 2020; Marshall & Guthrie, 2024). Satterlee (2009) and Burnett (2021) found that students who worked in formal/positional leadership roles discussed how their supervisory responsibilities allowed them to develop and practice leadership skills with subordinate co-workers. Student employees gained leadership skills by coordinating, developing, and motivating others (Dorman, 2020) and by assigning or delegating work (Everett & Bischoff, 2021) to other student employees.

Relational Experiences

An individual's interpersonal experiences are theorized to be a key facet of learning and are associated with leadership development. Kuh (2008) argued that high impact experiences that promote student learning include experiences with a variety of identities, perspectives, and styles of interaction encourage students to examine their own biases and fosters learning. Student employment experiences have the potential to expose students to these experiences with diversity (Kuh, 2018). Since leadership is conceived as a relational process, this necessarily includes group and interpersonal dimensions that help students build social capital by forming better relationships (Guthrie & Jenkins, 2018).

Kuh (2008) noted that student learning is supported through interactions with faculty and peers that help forge relationships that provide students with experience working with different behavioral preferences, such as communication style, which help students hone interpersonal skills and student employment experiences can play this role in a student's development (Kuh, 2018). Students have potential to engage with their diverse campus community through their employment experiences where they are working with others who are different than themselves both in terms of the teams they work on, and the clients or customers of the services they provide (Hansen, 2019).

Marshall and Guthrie (2024) found that student employees who had daily interactions with a diverse community while working enhanced their leadership capacity through their development of better social skills and situational awareness. Similarly, Carlisle (2015) found that differentiating their approaches to interactions with the diverse community enhanced students' leadership skills. Taken together, these elements of students' learning experiences that

permeate student employment constitute a vehicle to explore leadership learning vis-à-vis student employment.

Chapter Summary

This chapter synthesized the relevant literature on student employment, leadership, and learning through student employment to uncover student employee workplace experiences that may be related to students' development of leadership capacity. These identified experiences form foundational independent variables for the instrument used in this study. The development and implementation of the research instrument, along with quantitative research design are detailed in the subsequent chapter on research methodology.

Chapter III

Methodology

This chapter provides an overview of the research methods employed for this study of the relationship between student employees' workplace experiences and leadership capacity as measured using the Socially Responsible Leadership Scale – R2 (NCLP, n.d.). This study used a quantitative, quasi-experimental, cross-sectional design that employed comparative and predictive methods to explore group differences and associations related to workplace experiences and socially responsible leadership capacity. The following research questions informed the research methods described in this chapter:

RQ1: What is the relationship, if any, between the frequency of 19 on-campus workplace experiences and socially responsible leadership capacity amongst student employees?

RQ2: To what degree, if any, is there variation in socially responsible leadership capacity amongst student employees with different frequencies of each of the 19 workplace experiences?

RQ3: To what degree, if any, are there differences in frequencies of workplace experiences and socially responsible leadership capacity between identified on-campus employment locations?

Given that there is little previous quantitative research that examines how different frequencies of student employee workplace experiences relate to leadership capacity, this study employed a sequential statistical approach to analysis, first leadership capacity and subscales were regressed on the workplace experience variables to uncover any significant effects in

combination and individually. Then group differences in leadership outcomes were explored as a function of the frequency of workplace experiences. Finally, the analysis was extended to explore how workplace experiences coupled with work location related to leadership capacity. The statistical approach to this analysis is described in the Data Analysis section.

Research Design

This quasi-experimental quantitative study used a cross-sectional design incorporating comparative and correlational techniques to examine this relationship between student employment experiences and self-reported socially responsible leadership capacity. A survey was administered at a single point in time to collect data on student employee demographics, on-campus employment location, and specific workplace experiences, as well as to measure socially responsible leadership capacity. In terms of Astin's (1993) I-E-O model, demographics constituted the inputs, on-campus employment experiences constituted the environment, and leadership capacity and subscale scores represented the outcomes.

Analyzing the relationship between student employees' workplace experiences and leadership capacity required an instrument used to measure college students' leadership outcomes. The Socially Responsible Leadership Scale – Revision 2 (SLRS-R2) has been validated for assessing college students' self-reported leadership capacity (Dugan et al., 2008; NCLP, n.d.; Rubin, 2000; Tyree, 1998). The SRLS-R2 can be licensed for academic research and thus offers a validated and practical option for assessing students' capacity for socially responsible leadership (NCLP, n.d.). Furthermore, the SRLS has been used in previous studies of the relationship between student employment and leadership capacity (Lewis, 2019, 2020; Salisbury et al., 2012).

Dugan (2015) noted that there are numerous criticisms of using cross-sectional self-reported data in research studies; however, the use of self-reported, cross-sectional data in leadership research is justified by its ability to mitigate specific biases associated with longitudinal designs and its established reliability in capturing leadership perceptions. Leadership development involves evolving cognitive frameworks, meaning individuals' interpretations of survey items can shift over time, especially in longitudinal studies (Dugan, 2015). This response-shift bias, where participants' internal standards change from pretest to posttest, poses a risk to data consistency by blending changes in perception with actual development (Howard, 1980; Rohs & Langone, 1997). In contrast, cross-sectional designs capture perceptions at a single time point, thus avoiding interpretive drift and maintaining consistency in how participants respond to leadership items (Day et al., 2009; Komives et al., 2006). Although self-reported data can be vulnerable to social desirability bias and the halo effect, studies on self-reported leadership outcomes indicate strong alignment between self-reported leadership behaviors and peer evaluations, with minimal discrepancies (Posner, 2012). Posner's (2012) international study of five leadership behaviors, for instance, revealed only minor differences between self-reports and observer ratings where reported leadership practices ranged from 21.2 to 23.9, while observer ratings for the same behaviors ranged from 22.5 to 24.5. On a 30-point scale, the absolute discrepancies between these means were small, ranging from only 0.6 to 1.3 points and effect sizes ranging from 0.16 to 0.31, reinforcing the reliability of self-assessment in leadership contexts (Posner, 2012). Furthermore, continuous psychometric improvements to the SRLS have addressed issues related to item clarity and response consistency, strengthening the validity of self-report measures in cross-sectional designs (Dugan, 2015). These factors collectively support the appropriateness of cross-sectional, self-reported

data in evaluating leadership capacity, providing a stable and credible snapshot of individual leadership skills and abilities at a specific point in time (Dugan, 2015).

Population and Sample

This study used a non-probability convenience sample reduced through the application of specific criteria drawn from the literature. The population for this study was undergraduate student employees working in on-campus jobs at three regional public universities in the United States. Public universities were selected as the site for this study since public universities were underrepresented in the sample for previous studies of the relationship between student employment and leadership outcomes (Lewis, 2017). The three regional public universities were located in different states across different regions of the United States; one in the mid-Atlantic region (referred to as Mid-Atlantic University, or MAU), one in the southeast (referred to as Southeast University or SEU), and one in the south-central region (referred to as Southcentral University, or SCU). These universities were selected by leveraging the researcher's professional networks to maximize the potential to gain access to the target student population. Each university provided a list of email addresses for all student employees; however, the sample was reduced through the application of selection criteria so that it aligned with previous recommendations in the literature. Therefore, this study used a non-probability, convenience, criterion-based sample.

Selection criteria for narrowing the sample include undergraduate student status, student class level, number of semesters worked, and hours worked per week all of which were justified on theoretical or empirical grounds. Researchers who conducted previous studies have used a variety of methods to select their sample of students who work. Astin's (1993) I-E-O model is designed for undergraduate students who have interacted with the collegiate environment for one

year or more. Consequently, the sample was selected from student employees that have attended college for at least one year, therefore student employees who have been enrolled for less than two semesters were excluded from the analysis. Previous researchers suggested that the sample should be limited to students who worked on-campus for at least two semesters (including summer) and worked for at least 10 hours per week (Dugan et al., 2014; Dugan & Komives, 2007; McClellan et al., 2018; Perna, 2010). These reductions in the sample further ameliorate concerns about the use of self-reported data as the impact of the halo effect and social desirability bias are reduced with older college students (Dugan, 2015).

Sample Size

The researcher secured cooperation from the three research sites during June and July 2025 and later solicited and received lists of student employees in September 2025 resulting in a population of 1630 student employees (MAU $n = 1075$, SEU $n = 408$, SCU $n = 147$). Automated survey reminders were coupled with an extension of the survey administration period to maximize responses as outlined in the procedures section below. One hundred and seventy surveys were received for a 10.4% response rate. Three surveys were missing responses for multiple SRLS-R2 items and were therefore excluded from analysis. The total number of cases for analysis was reduced through the application of the sampling criteria resulting in a final sample of 81 ($N = 81$) (MAU $n = 54$, SEU $n = 14$, SCU $n = 13$). The statistical tests selected for the analysis of research questions required a variety of sample sizes, with the multiple one-way ANOVAs for RQ2 requiring the largest minimum sample of 200 respondents. The reduced sample was significantly smaller than the minimum required to have enough statistical power for interpretability at the 95% confidence level for any of the statistical tests intended for all three

research questions: thus, requiring the application of alternative tests described in the Data Analysis section of this chapter.

Variables and Instrumentation

The variables used in this study followed the form of Astin's (1993) I-E-O model where student employee demographics and workplace location were the input variables, 19 identified student employment experiences served as environmental variables, and Social Change Model leadership competencies measured by SRLS-R2 leadership capacity and leadership sub-scales were the outcome variables.

Input Variables

Previous studies have identified significant relationships between students' gender, race, residential status, sexual orientation, and first-generation status and self-reported leadership outcomes (Dugan et al., 2008; Dugan et al., 2014; Kodama & Dugan, 2013). In addition, students' class level, residential status (living on-campus or off), and age were collected. Additional input variables of interest included eight on-campus workplace locations identified by Burnside et al. (2019) plus other for a total of nine locations, number of semesters worked, hours worked per week, and whether a student worked off-campus in addition to on-campus. Lewis (2017, 2020) found significant differences in student self-reported leadership capacity between both workplace locations and when compared to the overall mean for leadership capacity, thus workplace location was also included as an environmental variable. Hours worked per week was included as previous research demonstrated a link between hours worked and student employment outcomes (Dugan et al., 2014; Dugan & Komives, 2007; McClellan et al., 2018; Perna, 2010). The complete list of input variables is presented in Table 1.

Table 1

Input Variables

Variable	Description	Measurement Scale
Age	Student's age	Ratio
Race	Student's race	Nominal
Gender	Student's gender identity	Nominal
Residential Status	Whether a student lives on-campus or off-campus	Nominal
Sexual Orientation	Student's sexual orientation	Nominal
Class-Level	Whether the student is first, second, third, or 4th or higher year student	Ordinal
Location	On-campus employment office or department	Nominal
Student Life/Student Affairs Recreation Services/Fitness Center Residential Life Academic Schools/Departments Athletics Department Dining Halls/Food Services Academic Support Services Libraries Other		
Semesters	Number of Semesters Worked on-campus	Ordinal
Hours Worked	Estimated average hours worked per week	Ordinal
Off-Campus	Whether the student also works an off-campus job	Nominal

Since workplace location was a key variable of interest in this study, additional discussion of how this variable was operationalized is warranted. There is no definitive data on student employees' workplace locations. The two largest studies by Burnside et al. (2019) and Lewis (2017) that explored workplace locations came to different conclusions. This difference is explained by the different populations, samples, and data collection procedures. Lewis (2017, 2019) used a national sample of undergraduate students with a final sample biased toward

traditionally aged, residential undergraduates in the first or second year of college attending selective, private institutions. Lewis (2017) used text mining methods to analyze students' open-ended reports to construct workplace location categories. Burnside et al (2019), used a priori employment locations based on their knowledge of the field and reading of the literature to conduct a national survey of university administrators at 236 different institutions (public, private and two-year) and reported the top eight student employment locations.

Selecting an appropriate categorization method required balancing descriptive sensitivity, functional accuracy, and the practical constraints of sample size. While Lewis (2017) provided 14 employment locations based on student descriptions, this model groups together functionally distinct roles, such as facility-based athletics positions and mentorship-oriented recreation roles. Conversely, the eight-category framework proposed by Burnside et al. (2019) better captures the variance in functional workplace tasks and experiences. Adopting Burnside et al.'s (2019) framework offered the practical advantage of reducing the workplace location variable to eight categories. This decreased the required sample size for statistical testing while maintaining acceptable power (Field, 2018).

Environmental Variables

Student employees' workplace experiences were the primary environmental variables of interest. These variables were adapted from Lewis' (2010) single-institution study, which identified critical experiences such as informal training, collaboration, supervisory feedback, and problem-solving. Lewis' (2010) list was adapted (with permission; see Appendix A) and expanded to include additional experiences identified in contemporary research on student employment and leadership (Carlisle, 2015; Dorman, 2020; Hansen, 2019; Hansen & Hoag, 2018; Marshall & Guthrie, 2024; Rocco & Beatty, 2023; Satterlee, 2009; Savoca & Creager,

2023). Variables were added that reflect the broader literature on workplace learning (Eraut, 2000, 2004, 2007; Kempster, 2009; Nikolova et al., 2014). The list of 19 workplace experience variables is presented in Table 2.

Table 2

Environmental Variables

Variable	Description	Measurement Scale
Employee Experiences		
Informal Training	Participate in formal training for specific tasks	Ordinal
Formal Training	Receive informal/incidental training for specific tasks	Ordinal
Peer Observation	Observe coworkers performing job tasks	Ordinal
Collaboration	Collaborate with coworkers	Ordinal
Feedback from Peers	Receive feedback from other student employees	Ordinal
Feedback from Supervisor(s)	Receive feedback from your supervisor(s)	Ordinal
Supervisor Interactions	Interact informally with your supervisor(s)	Ordinal
Task Repetition	Repeat the same task multiple times	Ordinal
Problem Solving	Engage in problem solving on the job	Ordinal
Idea Experimentation	Try new ways to complete a job task or responsibility	Ordinal
Intuitive Decision Making	Make decisions without checking with a supervisor	Ordinal
Reflection	Reflect about your job	Ordinal
Congruence	Relate job tasks or experiences to what you are learning in your classes	Ordinal
Supervisory Experiences		
Coordination	Coordinate or assign work to other student employees	Ordinal
Provide Peer Feedback	Provide feedback to other student employees	Ordinal
Provide Formal Training	Provide formal training to other student employees	Ordinal
Provide Informal Training	Provide informal/incidental training to other student employees	Ordinal
Interactions with Others		
Different Identity	Interact with others whose identity is different than your own	Ordinal
Adaptable Approaches	Adapt your approach to interacting with others to improve communication	Ordinal

Output Variables

The purpose of this study was to measure the relationship between work experiences and SCM leadership capacity, thus leadership capacity serves as the output variable for this study. Leadership capacity is operationalized and measured as the mean score of all items on the SLRS-R2 (NCLP, 2024). The SRLS is one of the most widely used measures of college student leadership development. The SLRS was embedded in the Wabash National Study used by Salisbury et al. (2012) and the MSL used by Lewis (2017, 2019) to study the relationship between student employment and leadership development outcomes. Tyree (1998) developed the Socially Responsible Leadership Scale to measure socially responsible leadership as defined by SCM. The scale consists of eight subscales associated with the seven SCM Constructs (consciousness of self, congruence, commitment, common purpose, collaboration, controversy with civility, citizenship) and change, the central construct of SCM (HERI, 1996). The original SRLS consisted of 104 items rated on the Likert-scale of agreement. The SRLS evidenced high internal reliability with Cronbach's alpha values ranging from .72 to .90 and was found to be psychometrically valid (Tyree, 1998). A second study by Rubin (2000) further validated the instrument. Later, standard data reduction methods were applied to the SRLS to reduce the overall number items on the scale from 103 to 68 resulting in the SRLS-R2. The SRLS-R2 showed only a minor change in reliability across the eight sub-scales (Dugan et al., 2008).

The eight SCM constructs measured by the SRLS-R2 plus overall leadership capacity (mean of all SRLS-R2 items) will be the output/dependent variables. The eight constructs are:

- Consciousness of Self (being aware of the values, emotions, attitudes, and beliefs that motivate one to act)

- Congruence (thinking, feeling, and behaving with consistency, genuineness, authenticity, and honesty toward others)
- Commitment (intensity and duration in relation to a person, idea, or activity-the energy and passion that propels one to act)
- Collaboration (working with others in a joint effort)
- Common Purpose (working with others within a shared set of aims and values)
- Controversy with Civility (recognizing two fundamental realities of any group effort, that (a) differences of viewpoint are inevitable and valuable, and (b) such differences must be aired openly and with respect and courtesy
- Citizenship (believing in a process whereby a person or group is responsibly connected to the environment and the community)
- Change (adapting to continuously evolving environments and situations, while maintaining the primary functions of the group)

Table 3

Output Variables

Variable	Description	Measurement Scale
SRLS-R2 Subscales		
Consciousness	Mean score on the Consciousness of Self subscale	Ratio
Congruence	Mean score on the Congruence subscale	Ratio
Commitment	Mean score on the Commitment subscale	Ratio
Collaboration	Mean score on the collaboration subscale	Ratio
Common Purpose	Mean score on the Common Purpose subscale	Ratio
Controversy	Mean score on the Controversy with Civility subscale	Ratio
Citizenship	Mean score on the Citizenship subscale	Ratio
Change	Mean score on the Change subscale	Ratio
Leadership Capacity	Mean score of all SRLS-R2 items	Ratio

The National Clearinghouse for Leadership Programs (NCLP), housed at the University of Maryland, controls the license for the SRLS-R2 and grants research licenses to doctoral students free of charge (NCLP, n.d.). A research license can be obtained via email by providing the NCLP with a summary of one's research proposal, research questions, and proposed methodology. Once a license has been granted, the NCLP will release the complete SRLS-R2 instrument and scoring instructions to the researcher. NCLCP was contacted via email, and a research license was granted on February 25, 2025 (See Appendix B).

Survey Instrument

Data was collected via survey. The survey instrument was built on the Qualtrics platform. This platform is available to all students at Valdosta State University via a site license subscription maintained by the university. The instrument was comprised of three sections, each corresponding to environmental, output, and input variables. The first section of the survey measured the environmental variables that were used to collect data on frequency of student employees' on-campus work experiences. Each experience was measured using a single question; however, the questions were divided into three themed subsections: employee experiences, supervisory experiences, and relational experiences. The items in this section were adapted with permission from Lewis' (2007, 2010) study and augmented with items drawn from the review of the literature. Item responses took the form of 19 5-point Likert scales with response categories as follows: 1 = never, 2 = rarely, 3 = occasionally, 4 = sometimes, 5 = often.

The second survey section was the embedded SRLS-R2 scale used to measure the outcome variable for this study, student's self-reported leadership capacity (NCLP, n.d.). The SRLS-R2 consists of eight scales with multiple items. In total the SRLS-R2 section is comprised

of 68 items that have been identified as valid and reliable measures of self-reported leadership capacity (Dugan et al., 2008; NCLP, n.d.).

The final survey section collected data on the inputs in the model; demographics and work variables established in Table 1. Each variable had one question; thus, this section was comprised of ten items. Placement of demographic/input variables at the end of the survey is in keeping with recommended best practices for survey question placement (Ary et al., 2019).

The 98-question instrument was preceded by survey instructions and informed consent information to ensure that potential participants were made aware that their participation in the survey was voluntary and that they could withdraw their consent to participate at any time. A Qualtrics system-generated estimate of time to complete the survey was approximately 13 minutes; however, most respondents who completed valid surveys did so in 10 minutes or less.

Procedures

The procedure for this study was broken into two phases: a survey item development and testing phase and a survey administration phase. The following sections outline the procedures undertaken to develop and evaluate survey items and administer the entire survey instrument.

Survey Item Development and Testing

Survey items designed to measure work experiences were adapted with permission from Lewis (2007, 2010) (see Appendix A) with modifications to better reflect additional insights on employment experiences that may support students' leadership capacity. Additional changes included rescaling response categories from Lewis' (2007) 7-point frequency scale to a unipolar five-point frequency scale to improve reliability of ratings and to ensure consistency of number of item response categories throughout the entire instrument (Warren & Buning, 2021) since the SRLS-R2 uses a five-point response scale.

Overall reliability and validity are supported when respondents understand the concepts inherent in survey questions, therefore it was necessary to establish content validity to ensure that student employees interpret the meaning of the items in similar ways to one another and understand them to mean the same thing that was intended (Ary et al., 2019). Focus groups with the target population are useful for establishing content validity (Vogt et al., 2004). The adapted survey items were tested with 12 student employees across two focus group sessions. The survey items were distributed electronically using Qualtrics via QR code or weblink. Twelve students completed the questionnaire on a variety of mobile devices. Upon completion, focus group debriefing sessions ensured that the survey instructions were clear and established content validity for the items. All students indicated that they could access the survey without difficulty and indicated that the questions were clear. After completing the survey, each item was read aloud to the students who provided feedback on how they understood the meaning of the question. Students indicated that they interpreted two of the questions on congruence with coursework as having the same meaning. Further discussion revealed which question better reflected their understanding of course congruence. The confusing question was eliminated from the final instrument.

Data Collection/Survey Administration

Survey administration proceeded in three steps: institutional agreements and approvals, survey preparation, and data collection. Formal letters of cooperation were obtained from the research sites and submitted to the VSU Institutional Review Board (IRB) for review. The VSU IRB granted IRB Exempt status and permission to proceed on August 18, 2025 (see Appendix C). A copy of the approved survey instrument is included in Appendix D.

Survey preparation commenced after IBR permission was granted. Qualtrics was configured for survey administration. First, lists of student employees and their email addresses were obtained from each University. The lists were reviewed and screened for the presence of any personally identifying information except email addresses. Email addresses were imported into Qualtrics as three separate address lists to response tracking by research site. All IRB-approved survey invitation correspondence and reminders were created in Qualtrics and linked to the three email lists for distribution. Additional configurations were applied to ensure anonymity of responses and so that each member of the population received a personal, single-use link to the survey to ensure that each respondent completed the survey one time. Six individuals ineligible to complete the actual survey participated in a pilot study. These individuals pilot-tested a preview of the survey to ensure the mechanics of the survey instrument functioned as intended and to confirm that responses could not be linked back to individual email addresses.

With all necessary IRB approval secured and the completion of survey configuration and pilot testing, the researcher initiated the data collection phase on the eve of the approved survey administration and scheduled automated survey invitations and email reminders in Qualtrics but discovered that permissions settings limited the researchers' weekly email distributions to 500 emails. VSU Information Technology personnel applied new account permissions to correct this issue, resulting in a three-hour delay for email invitations sent to students to SEU and MAU. The distribution to SCU was prioritized to minimize any reputational risk to the researcher or VSU, since obtaining access to this site had been more difficult. The three-hour delay was applied to all automated email reminders to SEU and MAU students for the duration of data collection phase to ensure consistency of practice.

Initially, respondents had 15 days to complete the survey. Qualtrics sent scheduled, automated reminders to any invitee who had not completed the survey after five days, 10 days, and with two days remaining to maximize the response rate (see Appendix E for sample correspondence). The initial 15-day survey window yielded 156 completed surveys with 77 valid cases once sampling criteria were applied. Since this was well below the 200 cases necessary for analysis, the researcher was granted permission by SEU and MAU to extend the survey for 15 days. Sixteen additional responses were received during the extension (170 total responses) with 81 valid surveys after sampling criteria were applied ($N = 81$). The researcher received a response from SCU two weeks after the extended 15-day administration window closed, but constraints on the researcher's time made it infeasible to send an additional distribution to SCU students.

Data Analysis

Survey data was exported from Qualtrics and loaded into SPPS for analysis. Descriptive statistics, along with means and standard deviations, were calculated for continuous variables and care was taken to ensure proper coding and description for all categorical variables. The researcher used instructions provided in the SLRS-R2 Codebook to calculate Leadership Capacity and SRLS-R2 subscale means (NCLP, 2024). The alpha value was set to .05 for all inferential tests of statistical significance.

Bootstrapped regression was used to answer RQ1 to determine if the 19 independent variables (workplace experiences) could predict the dependent variable (leadership capacity). Originally, multiple linear regression was proposed to answer RQ1; however, a combination s sample size and data analysis precluded the use of this procedure. The required a priori sample size, calculated using G*Power (Faul et al., 2009) for this analysis was 153 cases with settings at

a = .05, .80 value for power (Cohen, 1988), and .15 medium effect size for regression (Cohen, 1988). A known population correction was applied indicating a required minimum of 140 cases, far more than the 81 cases in the sample. Furthermore, preliminary data analysis showed severe assumption violations precluding standard multiple regression. All 19 IVs failed Shapiro-Wilks normality test and five IVs (Task Repetition, Problem Solving, Collaboration, Different Identity, and Adaptable Approaches) showed restriction of range with 65 to 78% of responses clustered at the mode. These variables we excluded from analysis due to insufficient variation for predictive modeling. Factor analysis of the remaining 14 IVs identified four items related to providing training that formed a reliable composite scale (α = .877), resulting in a final set of 11 predictors. After dimension reduction, the minimum required sample size for multiple regression with 11 IVs with known population correction applied was 114. The actual sample (*N* = 81) was still insufficient to achieve results with sufficient predictive power. While bootstrapped regression is robust to non-normal data (Field, 2018), it cannot overcome the limitation to power due to small sample size. Therefore, multiple single regressions were conducted to determine what underlying patterns may be present in the data.

RQ2 was answered using the Kruskal-Wallis test for group comparison to determine if there was any difference in leadership capacity between students experiencing different frequencies of workplace experiences. For this research question, workplace experiences measured as frequencies (never = 0, rarely = 1, occasionally = 2, sometimes = 3; often = 4) were treated as an ordinal value since it cannot be assumed that these scores are equally spaced and is thus suited to analysis techniques for categorical data (Williams, 2020).

The original 5-point frequency scales were collapsed into three categories: Low (1–2), Moderate (3), and High (4–5). Recoding was necessary to ensure adequate cell sizes for

statistical analysis while maintaining meaningful distinctions between frequency levels (DiStefano et al., 2021). Adjacent categories were merged following recommendations from DiStefano et al. (2021) to ensure all subgroups maintained sufficient sample sizes ($n \geq 14$) for valid non-parametric comparison; this approach prioritized stability of estimation to sensitivity of scale. Simulation studies have demonstrated that when category usage is uneven, 3-point scales yield validity comparable to 5-point scales while minimizing Type II error inflation associated with empty cells (Preston & Colman, 2000). The three-category approach balanced statistical power considerations with theoretical interpretability, distinguishing between students who rarely engaged in an experience, those who occasionally engaged, and those who frequently engaged.

Originally, a one-way ANOVA with five groups was planned for each workplace experience; requiring a minimum of 200 cases (Faul et al., 2009) with settings at $a = .05$, .80 value for power (Cohen, 1988), and .25 medium effect size for regression (Cohen, 1988). Recalculated minimum sample size for an ANOVA with three groups with known population correction applied was 145. A follow-up ANCOVA was proposed to explore potential demographic covariates. Given the distributional characteristics of the dependent variables documented in RQ 2, including significant departures from normality for six of nine outcomes (Shapiro-Wilk $p < .05$) and ceiling effects in leadership capacity scores ($M = 4.02$, $SD = 0.37$), non-parametric tests were selected for RQ2. Kruskal-Wallis H tests were conducted to compare overall leadership capacity and each of the eight SRLS subscales across the three frequency groups for each of the 11 workplace experiences retained from RQ1.The Kruskal-Wallis H test is a rank-based non-parametric alternative to one-way ANOVA that does not assume normally distributed data or homogeneity of variance. It tests whether the distributions of scores differ

across groups by comparing mean ranks rather than means (Field, 2018). This approach is particularly appropriate given the ceiling effects observed, as rank-based methods are less sensitive to restricted range than parametric alternatives.

Post-hoc Dunn's tests with Bonferroni correction were performed to show which groups differed in frequency. Dunn's test uses the rank sums generated by the Kruskal-Wallis test, compared to the Mann-Whiney U test which uses a different data point for post hoc-tests (Dinno, 2015; Dunn, 1964) and accounts for the definition of alpha vis-à-vis pairwise comparisons (Dunn, 1961). Effect sizes for omnibus tests were calculated using epsilon-squared (ε^2), computed as $\varepsilon^2 = H/(N\text{-}1)$, where H is the Kruskal-Wallis test statistic and N is the total sample size. Epsilon-squared represents the proportion of variance in ranks explained by group membership. Following established guidelines, effect sizes were interpreted as small (.01–.06), medium (.06–.14), or large (> .14) (Cohen, 1988).

Before using a non-parametric alternative to ANCOVA, correlations were explored between demographic variables and leadership outcomes and the trichotomized workplace experience frequences. Results of the correlation analysis indicated lack of significant demographic correlations to warrant use of a non-parametric alternative to ANCOVA.

RQ3 was answered using the Kruskal-Wallis test for group comparison to determine whether there was any significant difference in frequency of workplace experiences and leadership capacity between different workplace locations. Preliminary analysis of workplace location data showed lack of variation in responses that would make for uninterpretable comparisons between groups, including the uninterpretable heterogeneous other group. Groups were therefore collapsed into three new categories breaking along functional lines with academic

functions comprising one group, student affairs, and services in another group, and other as the third. These newly formed groups created cell sizes sufficient for analysis.

Originally, a MANOVA was proposed where the frequency of workplace experiences and leadership capacity were the dependent variables, and the independent variable was workplace location with nine levels corresponding to the nine possible workplace locations with 20 independent variables, requiring a minimum sample of 180 cases (Faul et al., 2009). Collapsing the nine location categories to three, coupled with the reduction of the workplace experience variables to 11 plus leadership capacity and SRLS-R2 subscales brings the number of response variables to 19. Recalculated minimum sample size at .25 effect size with known population adjustment applied was a total of 88 cases (Faul et al., 2009), which exceeded the sample for the study ($N = 81$).

Instead, the Kruskal-Wallis test was performed since the data violated the assumption of normality and homogeneity of variance required for a MANOVA. Since the Kruskal-Wallis test is limited to one dependent variable, first a Kruskal-Wallis test was performed to detect differences in leadership capacity by workplace location. Additional tests were performed using the eight SRLS-R2 subscales to determine if there were any differences in these subdimensions of leadership by location. This sequence, while not proving specific relationships between leadership capacity and location, assessed whether an underlying relationship might exist. This broke the question into two processes for each location: if a location differed on both leadership and frequency of experience, it suggests that differences in experiences could operate as an element that explained a relationship between location and leadership capacity. Future research with a larger sample size would be required to confirm whether any such relationships exist. Post hoc testing was not necessary since no significant results were found; however, since the other

category is heterogeneous and uninterpretable, a separate sensitivity analysis using the Mann-Whitney U test was conducted on the reduced sample, (n = 61) comparing the two theoretically meaningful locations.

Ethical Considerations

Survey data was used for this research study. The risk to the participants was no greater than those associated with everyday life. The researcher completed required and supplemental CITI training modules beyond those mandated by VSU to ensure rigorous adherence to ethical standards on data privacy and the protection of human subjects. This project was deemed exempt by the VSU Institutional Review Board (IRB) (See Appendix C). The VSU IRB standard consent statement was presented to each respondent before completing the survey. Participation in the survey was construed as consent. Respondents had the option to discontinue participation at any time to withdraw their consent. Thus, incomplete surveys were not used as part of the data analysis. No personally identifiable information was collected. Survey responses were anonymized by the Qualtrics platform by separating responses from email distribution lists. Respondent IP addresses were not collected to further ensure anonymity.

Chapter Summary

The preceding chapter provided a description of the methods and reasoning used to select the data for this cross-sectional correlational and comparative study. The chapter included a description of the variables selected for consideration in the study, instrumentation development and selection, data collection procedures, and methods of data analysis. Finaly, the limitations of the research design were discussed. Chapter 4 presents the results of data analysis, followed by Chapter 5 where results, limitations, and directions for future research are presented.

Chapter IV

Findings

The purpose of this study was to uncover the relationship between 19 identified on-campus student employment experiences and student employees' leadership capacity measured using the socially responsible leadership scale. The study examined the correlation between these experiences using regression methods, used group comparison tests to examine the differences in leadership capacity by frequency of workplace experiences; and additional group comparison tests to explore differences in leadership capacity and student employment experiences by workplace location.

This study was guided by the following research questions:

RQ1: What is the relationship, if any, between the frequency of 19 on-campus workplace experiences and socially responsible leadership capacity amongst student employees?

RQ2: To what degree, if any, is there variation in socially responsible leadership capacity amongst student employees with different frequencies of each of the 19 workplace experiences?

RQ3: To what degree, if any, are there differences in frequencies of workplace experiences and socially responsible leadership capacity between identified on-campus employment locations?

This chapter demonstrates the findings from the three research questions; first the population and sample are discussed, followed by a report of participant demographics and descriptive data. After an overview of initial data analysis and assumption testing, results for

each research question are presented. Bootstrapped regression was used to determine if frequency of workplace experience predicted leadership capacity to answer RQ1.The Kruskal-Wallis test, a non-parametric alternative to ANOVA, was coupled with post-hoc Dunn's test to determine if there were significant differences in leadership capacity by frequency of workplace experience to explore RQ2. The Kruskal-Wallis test and the Mann-Whitney test were used to determine if there were significant differences in leadership capacity and student employment experiences by workplace location to address RQ3.

Overview of the Sample and Data Preparation

Exactly 1630 student employees from three regional public universities in the United States were invited to participate in the study by completing an anonymous online survey. The survey was open for approximately seven weeks, having launched on September 15, 2025, and closing on October 29, 2025. During the survey administration period 170 responses were received for a response rate of 10.4%. The response data were loaded into IBM SPSS version 28.0.1.0 for analysis.

Since the participating institutions did not provide demographic data for student employees, data filters were created in SPSS to narrow the sample by the demographic criteria selected through the review of the relevant literature. This process eliminated from analysis graduate student employees, student employees who had attended college for less than two semesters, student employees who had worked for less than two semesters, and student employees who worked for less than 10 hours per week (Astin, 1993; Dugan et al., 2014; Dugan & Komives, 2007; McClellan et al., 2018; Perna, 2010). After the application of these criteria, the final reduced sample for analysis was 81 students ($N = 81$). A review of these 81 responses indicated that all surveys were complete for all variables of interest.

Several data preparation steps were performed in advance of statistical analysis. The SRLS-R2 consisted of 68 items, eight of which are reverse-scored items. These questions were framed as negative statements so that a response is the opposite of what it would be if worded as a positive statement. This strategy is employed as a check against the tendency for respondents to not read the questions and choose the same response category repeatedly. According to the SRLS-R2 Research Guidebook (NCLP, 2024), scores for these negative response items must be reversed before conducting statistical analysis. Therefore, these items were recoded into new variables so that a score of 1 was transformed to a 5, 2 was transformed to a 4, and so forth. The recoded variables were then used to ensure proper calculation of each respondent's omnibus mean for leadership capacity and mean score for each of the eight SRLS-R2 subscales, following procedures outlined in the SRLS-R2 Guidebook (NCLP, 2024). These computed variables were then used to perform all subsequent statistical analysis.

Demographics

The 81 participants were disproportionately represented across the three university research sites with nearly 67% of all respondents hailing from MAU (MAU n = 54, 66.7%, SEU n = 14, 17.3%, SCU n = 13, 16%).

Academic and Employment Characteristics

Regarding class level, the sample consisted primarily of fourth-year students (n = 47, 58.0%), followed by third-year students (n = 22, 27.2%) and second-year students (n = 12, 14.8%). Participants reported varying lengths of on-campus employment tenure. The largest proportion worked two to three semesters (n = 37, 45.7%), followed by those who worked four or more semesters (n = 29, 35.8%) and those who worked three to four semesters (n = 15,

18.5%). Most participants worked 10 to 20 hours per week (*n* = 67, 82.7%). Smaller proportions worked more than 20 but fewer than 30 hours (*n* = 11, 13.6%) or 30 hours or more (*n* = 3, 3.7%).

Employment Location

Participants reported employment across nine workplace location categories. The largest proportion worked in positions categorized as other (*n* = 20, 24.7%), followed by libraries (*n* = 16, 19.8%), academic schools/departments (*n* = 9, 11.1%), and student life/student affairs (*n* = 7, 8.6%). Equal numbers worked in residential life (*n* = 7, 8.6%), dining halls/food services (*n* = 7, 8.6%), and academic support services (*n* = 7, 8.6%). Fewer students worked in athletics departments (*n* = 6, 7.4%) and recreation services/fitness centers (*n* = 2, 2.5%).

Residential Status and Off-Campus Employment

Among participants with valid responses (*n* = 79), the majority resided off-campus (*n* = 46, 58.2%), while the remaining participants lived on-campus (*n* = 33, 41.8%). Two cases contained no residential status responses and were excluded from this calculation. Regarding concurrent off-campus employment, approximately one-third of participants (*n* = 27, 33.3%) reported working off-campus in addition to their on-campus position, while the majority (*n* = 54, 66.7%) worked exclusively on-campus.

Age, Gender and Sexual Orientation, and Race

Most participants were traditionally aged college students falling in the range of 18 to 24 year olds (*n* = 76, 93.8%) and only five respondents in the 25 to 34 year old category (6.2%).

Of the 81 participants, 21 identified as male (25.9%), 46 identified as female (56.8%), 10 identified as non-binary/third gender (12.3%), 1 self-described as demigirl (1.2%), and 3 preferred not to answer (3.7%). Participants reported sexual orientation across five response categories. Among participants with valid responses (*N* = 81), the largest proportion identified as

heterosexual (*n* = 37, 45.7%), followed by bisexual (*n* = 18, 22.2%), other (*n* = 12, 14.8%), homosexual (*n* = 7, 8.6%), and prefer not to say (*n* = 7, 8.6%). Over half of participants (54.3%) identified with a sexual orientation other than heterosexual or declined to disclose their orientation.

Participants reported racial and ethnic identity across two items consistent with federal reporting guidelines. In terms of race, the sample (*N* = 81) was predominantly White (*n* = 53, 65.4%), followed by Black or African American (*n* = 15, 18.5%), Other (*n* = 5, 6.2%), Asian (*n* = 4, 4.9%), and Prefer not to say (*n* = 4, 4.9%). Regarding Hispanic/Latino ethnicity, six participants (7.4%) identified as Spanish-Hispanic-Latino, 71 (87.7%) selected None of These, and four (4.9%) preferred not to say. Among participants who identified as Spanish-Hispanic-Latino (*n* = 6), three (50.0%) also identified as White, one (16.7%) selected Other, and two (33.3%) preferred not to disclose their race. No participants who identified as Spanish-Hispanic-Latino selected Black or African American or Asian as their racial identity.

Non-Demographic Descriptives

In addition to demographic data presented above, descriptive statistics were calculated for the output variables (leadership capacity and SRLS-R2 subscales) and environmental variables (workplace experiences). The omnibus mean for Leadership Capacity was (*M* = 4.02) with subscale means ranging from a low of 3.72 for Change to a high of 4.41 for Commitment) indicating that respondents rated themselves highly overall for leadership competencies. Caution is warranted as the high mean scores could indicate evidence of the ceiling effect. Descriptive statistics for all subscales are presented in Table 4.

Table 4

Descriptive Statistics for SRLS-R2 Subscales and Overall Leadership Capacity

Variable	Min	Max	Mode	*M*	*Mdn*	*SD*
Consciousness of Self	1.67	5.00	3.89	3.75	3.78	0.59
Congruence	3.00	5.00	4.00	4.24	4.14	0.47
Commitment	3.33	5.00	4.00	4.41	4.33	0.36
Collaboration	1.38	5.00	4.13	4.10	4.13	0.55
Common Purpose	3.22	5.00	4.11	4.15	4.11	0.42
Controversy with Civility	2.64	4.64	3.73	3.91	3.91	0.36
Citizenship	3.00	5.00	4.00	4.17	4.13	0.50
Change	1.80	4.80	3.80	3.72	3.8	0.53
Leadership Capacity[a]	2.53	4.69	3.69	4.02	4.06	0.37

Note. $N = 81$.

[a] Multiple modes exist for Leadership Capacity; the smallest value is shown in this table

Descriptive statistics for employment experience variables are presented in Table 5. Respondents reported the frequency they experienced each variable in the workplace (1 = never, 2 = rarely, 3 = occasionally, 4 = sometime, 5 = often). Mean scores ranged from a low of 2.40 (task repetition) to a high of 4.67 (different identities). High mean/mode scores for different identities and adaptable approaches indicate the possibility of clustering of responses around the mode indicating little variation in response which could impact interpretability of any inferential tests using these variables. Variation for all IVs was assessed during preliminary data analysis and is reported in the relevant section below.

Table 5

Descriptive Statistics for Workplace Experience Variables

Environmental Variable	Min	Max	Mode	*M*	*Mdn*	*SD*
Formal Training	1	4	2	2.83	3	0.88
Informal Training	1	4	2	2.79	3	0.86
Peer Observation	1	4	2	2.51	2	0.79
Collaboration	2	4	2	2.41	2	0.74
Feedback from Peers	1	4	2	2.75	3	1.01
Feedback from Supervisors	1	4	2	2.79	2	0.90
Task Repetition	2	4	2	2.40	2	0.75
Problem Solving	2	4	2	2.41	2	0.79

Table 5 (Continued)

Environmental Variable	Min	Max	Mode	*M*	*Mdn*	*SD*
Idea Experimentation	2	4	2	2.77	2	0.88
Intuitive Decision Making	1	4	3	2.86	3	0.89
Reflection	2	4	2	2.89	3	0.82
Course Congruence	1	4	2	2.60	2	0.92
Coordination	1	4	1	2.83	3	1.46
Provide Peer Feedback	1	4	3	3.00	3	1.32
Provide Formal Training	1	4	1	2.48	2	1.32
Provide Informal Training	1	4	4	3.07	3	1.31
Different Identity	2	5	5	4.67	5	0.65
Adaptable Approaches	3	5	5	4.56	5	0.67

Note. N = 81. Response categories ranged from 1 (*never*) to 5 (*often*).

Instrumentation/Preliminary Data Analysis

Prior to conducting inferential statistical analyses addressing the research questions, preliminary analyses were conducted to assess the psychometric properties of the instrumentation and evaluate distributional assumptions required for the planned parametric statistical tests.

A reliability analysis was conducted to assess the internal consistency for the SRLS-R2 and each of the eight subscales using Cronbach's alpha with a sample of 81 participants. The overall 68 item instrument demonstrated excellent internal consistency with an alpha of .95, which exceeds the threshold of .90 typically considered good for research purposes. Subscale reliability coefficients were compared against values reported in the original 2006 validation study that included over 55,000 participants (NCLP, 2024). Six of the eight subscales demonstrated acceptable internal consistency that was comparable to or exceeded the original validation estimates. These included Collaboration (α = .83, original α = .80), Change (α = .83, original α = .82), Citizenship (α = .81, original α = .90), Consciousness of Self (α = .79, original α = .78), Congruence (α = .79, original α = .79), and Common Purpose (α = .78, original α = .81)

(NCLP, 2024). These values indicate the instrument performed consistently with the current sample despite the smaller size.

Two subscales demonstrated lower internal consistency than the commonly accepted threshold of .70 and their original validation values. The Commitment subscale alpha was .66, which was below the original validation estimate of .83 (NCLP, 2024). The Controversy with Civility subscale demonstrated the lowest reliability at .59 compared to its original validation estimate of .72 (NCLP, 2024). Examination of item total statistics for the Controversy with Civility subscale revealed three survey items with corrected item total correlations below .30. These items included "Creativity can come from conflict" (r = .18), "Greater harmony can come out of disagreement" (r = .15), and "When there is a conflict between two people, one will win and the other will lose" (r = .07) (NCLCP, 2024). This suggests heterogeneity among items within this construct in the current sample.

The lower reliability for the Commitment and Controversy with Civility subscales may reflect sample specific characteristics. This includes restricted variance due to the smaller and more homogeneous sample of undergraduate student employees compared to the nationally representative sample used in the previous validation study (Dugan et al., 2008). Smaller samples are more susceptible to fluctuations in reliability estimates, particularly when items exhibit lower communality or when ceiling effects reduce response variability. Despite the lower subscale reliability for these two constructs, the excellent overall instrument reliability of .95 supports the use of the overall leadership capacity mean score as the primary dependent variable in the analysis. Results involving the Commitment and Controversy with Civility subscales should be interpreted with caution given the lower than expected internal consistency in this sample.

Following reliability assessment, distributional assumptions were evaluated for all dependent and independent variables using Shapiro-Wilks normality test, descriptive statistics, and visual inspection of histograms. The Shapiro-Wilks test is deemed more sensitive for detecting departures from normality with small samples (Shapiro & Wilk, 1965). Results are presented separately for SRLS-R2 subscales (dependent variables) and workplace experience variables (independent variables) in Tables 6 and 7.

Table 6

Shapiro Wilks Test for Leadership Capacity and SRLS Subscales

Variable	*W*	*p*	*df*
Leadership Capacity Mean	.948	.003**	81
Consciousness of Self	.965	.025*	81
Congruence	.964	.021*	81
Commitment	.942	.001**	81
Collaboration	.900	< .001**	81
Common Purpose	.967	.034*	81
Controversy with Civility	.971	.063	81
Citizenship	.972	.077	81
Change	.967	.036*	81

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

Shapiro-Wilks tests were significant for Leadership Capacity, as well as for six of the eight subscales. Consciousness of Self, Congruence, Commitment, Collaboration, Common Purpose, and Change. Shapiro-Wilks tests for all workplace experiences were significant, indicating a departure from normality for all environmental variables. These results are reported in Table 7.

Table 7

Shapiro Wilks Tests for Workplace Experience Variables

Variable	*W*	*p*	*df*
Formal Training	.844	< .001*	81
Informal Training	.791	< .001*	81

Peer Observation	.696	< .001*	81
Collaboration (Work)	.573	< .001*	81
Feedback from Peers	.851	< .001*	81
Feedback from Supervisors	.760	< .001*	81
Supervisor Interactions	.811	< .001*	81
Task Repetition	.542	< .001*	81
Problem Solving	.521	< .001*	81
Idea Experimentation	.716	< .001*	81
Intuitive Decision Making	.856	< .001*	81
Reflection	.786	< .001*	81
Course Congruence	.813	< .001*	81
Coordination	.873	< .001*	81
Provide Peer Feedback	.902	< .001*	81
Provide Formal Training	.873	< .001*	81
Provide Informal Training	.885	< .001*	81
Different Identity	.569	< .001*	81
Adaptable Approaches	.663	< .001*	81

*$p < .001$

Histograms were inspected to confirm non-normal findings and showed distinct distributional patterns between the two variable types. The SRLS-R2 subscales demonstrated approximately continuous distributions with isolated outliers, consistent with multi-item scale means that benefit from the averaging effect across items. Histogram charts for these variables are in Appendix F. In contrast, the workplace experience variables exhibited discrete distributions characteristic of single-item measure 5-point scales. Histogram charts for the workplace experience variables are presented in Appendix G.

Three workplace experience variables demonstrated severe floor effects, with the majority of responses concentrated at the same scale value. Specifically, collaboration showed 74% of responses at value 2, task repetition showed 77% at value 2, and problem solving showed 78% at value 2. Conversely, different identity demonstrated a severe ceiling effect with 75% of responses at value 5, the maximum scale value. These distributional characteristics reflect the inherent measurement constraints of single-item ordinal scales rather than violations that can be

corrected through data transformation. The SRLS Collaboration subscale was notable among the dependent variables for demonstrating elevated kurtosis (6.37), driven by a single extreme outlier (score = 1.38).

The normality assessment influenced subsequent methodological choices. Leadership Capacity and five of the SRLS-R2 subscales demonstrated a departure for normality, with two subscales (Citizenship and Controversy with Civility) meeting the Shapiro-Wilks criterion for acceptable normality ($p > .05$). All 19 workplace experience variables demonstrated severe departures from normality ($p < .001$). For Research Question 1 (multiple regression), the normality assumption applies to residuals rather than to predictor variables; the closer approximation to normality observed in the primary dependent variable (Leadership Capacity) increases the likelihood that residuals will be approximately normal; however, for RQ2 and RQ3 (group comparisons), the severe non-normality of the workplace experience variables, combined with floor and ceiling effects that restrict response variability, and supports the use of Kruskal-Wallis tests as the non-parametric alternative to one-way ANOVA, consistent with the analytic approach outlined in Chapter Three.

Analyses of Research Questions

Each research question was analyzed using statistically appropriate techniques. The analysis of RQ1 included additional steps to assess variation in the data and to test the possibility of dimension reduction, an important step towards enhancing the statistical power and interpretability of results for each research question given the small sample size ($N = 81$).

Analysis of Research Question 1

Bootstrapped regression was used to determine if any of the 19 workplace experience variables predicted leadership capacity. Analysis revealed potential ceiling effect in the

Leadership Capacity, which coupled with mostly non-normal dependent variables, severely clustered non-normal IVs and a small sample size increases the likelihood of unreliable standard errors, thus a robust approach to regression was required (Field, 2018). Non-significant results for entry method indicated that effects of IVs may have been hidden, thus individual bootstrapped regressions were performed for each IV-DV combination, resulting in a total of 100 bootstrapped regressions.

Prior to analysis the distributional properties of leadership capacity and the 19 workplace experience variables were reviewed. Visual inspection of Leadership Capacity scores in conjunction with a high mean and small standard deviation ($M = 4.02$, $SD = 0.37$) indicated potential ceiling effects. Visual inspection of the 19 workplace experience variables coupled with variation analysis showed extreme clustering at the mode with 90% of all responses spread across two to three response categories in five IVs (collaboration, task repetition, problem solving, different identities, and adaptable approaches), suggesting limited meaningful variation between individuals on these workplace experiences, effectively making certain modal frequencies a near-constant experience across the sample. The full results of the variation assessment are reported in Table 8.

Table 8

Workplace Experiences Variation Assessment

Variable	*M*	*SD*	CV	Mode	% at Mode	Categories > 10%[a]
Formal Training	2.83	0.88	31.0	2	37.00%	3
Informal Training	2.79	0.86	30.9	2	45.70%	3
Peer Observation	2.51	0.79	31.6	2	64.20%	3
Collaboration	2.41	0.74	30.6	2	74.10%	3
Feedback from Peers	2.75	1.01	36.6	2	35.80%	4
Feedback from Supervisors	2.79	0.90	32.4	2	49.40%	3

Supervisor Interactions	2.65	0.87	32.7	2	49.40%	3
Task Repetition	2.40	0.75	31.4	2	76.50%	3
Problem Solving	2.41	0.79	32.7	2	77.80%	2
Idea Experimentation	2.77	0.88	32.0	2	53.10%	2
Intuitive Decision Making	2.86	0.89	31.1	3	34.60%	3
Reflection	2.89	0.82	28.4	2	39.50%	3
Course Congruence	2.60	0.92	35.2	2	50.60%	3
Coordination	2.83	1.46	51.8	1	27.20%	4
Provide Peer Feedback	3.00	1.32	44.1	3	27.20%	5
Provide Formal Training	2.48	1.32	53.4	1	30.90%	5
Provide Informal Training	3.07	1.31	42.7	4	34.60%	5
Different Identity	4.67	0.65	14.0	5	75.30%	2
Adaptable Approaches	4.56	0.67	14.7	5	65.40%	3

Note. [a] The number of frequency categories with more 10% of respondents illustrating variation among responses.

Principal Access Factoring (PAF) was conducted to evaluate the factor structure of workplace experience variables to confirm problematic items and explore the possibility of dimension reduction to enhance the statistical power for regression. PAF was selected as the extraction method based on several considerations. First, with a sample-to-variable ratio of 4.3:1 ($N = 81$, $k = 19$), the sample size fell well below recommended thresholds for Maximum Likelihood extraction, which requires larger samples for stable parameter estimation (Costello & Osborne, 2005; De Winter & Dodou 2012; Fabrigar et al., 1999; MacCallum et al., 1999) . Second, the workplace experience variables demonstrated substantial departures from normality, with 65-78% of responses clustering at modal values for several of these variables. PAF does not require multivariate normality assumptions, making it more appropriate for these distributional

characteristics (Fabrigar et al., 1999). Third, as this research is exploratory without a priori hypotheses about factor structure, PAF's focus on describing patterns within the observed sample rather than estimating population parameters aligns with the study's objectives (Floyd & Widaman, 1995; Widaman, 1993).

Initial PAF analysis with all 19 workplace experience variables failed to converge and revealed severe multicollinearity issues with nine variables showing negative MSA values indicating poor model fit. The five variables showing extreme clustering were eliminated. Subsequent analysis with the 14 remaining variables successfully converged with improved adequacy (KMO improved from .589 to .654) and a clearer factor structure. A four-factor model was determined to be optimal with all eigenvalues less than 1.0 and no split-loadings. The four factors explained 38.75% of the variance with the first factor (provide peer feedback, provide informal training, coordination, provide formal training) explaining 20.9% and demonstrating potential use as a reliable composite scale.

A scale reliability analysis was performed for the items loading on the first factor to determine if they could be treated as a composite scale. Reliability analysis of the four item *Training Provider* scale resulted in a Cronbach's alpha of .877, exceeding the .70 threshold for scale reliability. Alpha if item deleted statistics showed that removing any item would reduce the reliability of the scale, confirming that all four items should be included. Given the results, the four variables were computed into a composite scale score, *Training Provider* scale, for subsequent analysis. PAF therefore resulted in meaningful reduction in dimensionality of the IVs with five variables eliminated and four variables combined into one composite scale. The final list of workplace experiences retained for subsequent analysis was:

1. Formal Training (receiving structured training)

2. Informal Training (learning through unstructured guidance)
3. Peer Observation (watching colleagues work)
4. Feedback from Peers (receiving input from coworkers)
5. Feedback from Supervisors (receiving input from supervisors)
6. Supervisor Interactions (informal discussions about life and matters outside of work)
7. Idea Experimentation (trying new approaches)
8. Intuitive Decision Making (making decisions based on experience)
9. Reflection (thinking about work experiences)
10. Course Congruence (connection between coursework and employment)
11. *Training Provider* scale (composite: providing training/supervising peers)

After dimension reduction was performed, a two-stage approach was used to explore the relationship between the retained workplace experiences and the dependent variables. First, forced entry bootstrapped multiple regressions were conducted to assess the collective predictive effect of the 11 workplace experiences on Leadership Capacity and the SRLS-R2 subscales. As shown in Table 9, none of the nine omnibus models reached statistical significance ($p > .05$). The proportion of the variances explained by the models ranged from $R^2 = .127$ (Consciousness of Self) to $R^2 = .221$ (Controversy with Civility). Correspondingly, Adjusted R^2 values were low, ranging from -.013 to .097, indicating that after adjusting for the number of predictors, the models provided negligible predictive power. *F*-statistics for the models ranged from $F(11, 69) = .91$, $p = .563$ to $F(11, 69) = 1.78$, $p = .074$.

Table 9

Model Summaries for Forced Entry Bootstrapped Multiple Regression (All 11 IVs)

Variable	*R*	R^2	Adj. R^2	*F* (11, 69)	*p*
Leadership Capacity	.412	.170	.038	1.285	.252

Consciousness of Self	.356	.127	-.013	0.910	.536
Congruence	.444	.197	.069	1.539	.138
Commitment	.380	.144	.008	1.057	.408
Collaboration	.415	.173	.041	1.308	.239
Common Purpose	.412	.170	.038	1.285	.252
Controversy with Civility	.470	.221	.097	1.781	.074
Citizenship	.375	.141	.003	1.025	.434
Change	.439	.193	.064	1.498	.152

Note. $N = 81$. None of the forced entry models reached statistical significance ($p < .05$).

Given the 11 predictors and small sample size (N = 81) these models were underpowered to detect the unique contribution of each workplace experience to the DVs and may have suppressed meaningful relationships between IV-DV pairs. Therefore, a second stage of analysis was conducted where individual bootstrapped regressions were run for each IV-DV pair (99 individual bootstrapped regressions). This approach facilitated examination of bivariate relationships that may have been masked by variance partitioning. Nine significant bivariate relationships were revealed. Summary results of significant findings are presented in Table 10.

Table 10

Summary of All Significant Bootstrapped Simple Regression Findings

Variable		*B*	*SE*	95% BCa CI		*F* (1, 79)	*p*
IV	DV			*LL*	*UL*		
Supervisor Interactions	Leadership Capacity	.096	0.04	0.016	0.179	6.084	.016*
Idea Experimentation	Leadership Capacity	-.090	0.04	-0.164	-0.014	5.382	.023*
Idea Experimentation	Consciousness of Self	-.150	0.06	-0.260	-0.043	5.309	.024*
Supervisor Interactions	Congruence	.167	0.06	0.061	0.279	8.167	.025*
Supervisor Interactions	Collaboration	.148	0.06	0.028	0.276	4.711	.026*

Informal Training	Controversy w/ Civility	-.130	0.04	-0.207	-0.051	8.388	.027*
Idea Experimentation	Controversy w/ Civility	-.100	0.04	-0.177	-0.020	4.798	.028*
Supervisor Interactions	Citizenship	.110	0.06	0.004	0.211	3.452	.029*
Idea Experimentation	Change	-.150	0.07	-0.269	-0.022	5.025	.030*
Feedback from Supervisors	Change	-.140	0.06	-0.254	-0.032	4.951	.031*

Note. $N = 81$. BCa CI = bias-corrected and accelerated confidence interval; *LL* = lower limit; *UL* = upper limit.

*$p < .05$.

Individual bootstrapped simple regressions revealed several significant workplace experiences that predicted leadership outcomes. Supervisor interactions emerged as a positive predictor across multiple outcomes including Leadership Capacity ($B = 0.096$, $p = .016$), Congruence ($B = 0.167$, $p = .025$), Collaboration ($B = 0.148$, $p = .026$), and Citizenship ($B = 0.11$, $p = .029$). Conversely, idea experimentation showed a consistently negative relationship with Leadership Capacity ($B = -0.09$, $p = .023$), Consciousness of Self ($B = -0.15$, $p = .024$), Controversy with Civility ($B = -0.10$, $p = .028$) and Change ($B = -0.15$, $p = .030$), with BCa confidence intervals for all these relationships excluding zero. A summary of findings by significant workplace experience is presented in Table 11.

Table 11

Individual Bootstrap Regression Trends

IV	Relationships Found	Direction of Relationship
Supervisor Interactions	4 significant DVs	Positive
Idea Experimentation	4 significant DVs	Negative
Informal Training	1 significant DV	Negative
Feedback from Supervisors	1 significant DV	Negative

Although the collective forced-entry models were non-significant, the second stage bivariate analysis identified ten specific significant relationships. These results suggest that while the workplace experiences do not collectively predict leadership capacity in this sample, individual experiences such as supervisor feedback and informal training exert significant unique influences on leadership capacity or specific leadership subscales.

To assess the robustness of bivariate relationships, a sensitivity analysis was conducted by removing any influential cases. Examination of the standardized residuals showed one case (Case 1) with residuals that consistently exceeded -3 for multiple models. This participant scored substantially lower than predicted on leadership outcomes suggesting a systematic pattern. The bootstrapped simple regressions (N = 80) were rerun with the outlier case removed, and results are shown in Table 12.

Table 12

Significant IV-DV Regressions with Outlier Case Removed

Variables		*B*	*SE*	95% BCa CI		*F* (1, 79)	*p*
IV	DV			*LL*	*UL*		
Supervisor Interactions	Leadership Capacity	0.081	0.042	0.007	0.152	3.70	.058
Idea Experimentation	Leadership Capacity	-0.083	0.041	-0.162	-0.006	4.08	.047*
Idea Experimentation	Consciousness of Self	-0.144	0.067	-0.258	-0.030	4.63	.035*
Supervisor Interactions	Congruence	0.163	0.059	0.062	0.271	7.69	.007**
Supervisor Interactions	Collaboration	0.119	0.058	0.003	0.227	4.28	.042*
Informal Training	Controversy w/ Civility	-0.125	0.041	-0.204	-0.043	9.32	.003**
Idea Experimentation	Controversy w/ Civility	-0.092	0.041	-0.159	-0.024	5.07	.027*

Supervisor Interactions	Citizenship	0.098	0.062	-0.021	0.203	2.50	.118
Idea Experimentation	Change	-0.140	0.06	-0.268	-0.029	5.41	.023*
Feedback from Supervisors	Change	-0.136	0.059	-0.253	-0.021	5.40	.023*

Note. $N = 80$. BCa CI = bias-corrected and accelerated confidence interval; *LL* = lower limit; *UL* = upper limit.

*$p < .05$. **p < .01

Most of the previously reported relationships were stable, with predictive power increasing for informal training on Controversy with Civility ($p = .003$ compared to original $p = .027$). However, two relationships became non-significant ($p > .05$): supervisor interactions as a predictor of Leadership Capacity ($p = .058$) and Citizenship ($p = .118$). While supervisor interactions remained a significant predictor of Collaboration, significance decreased ($p = .042$, original $p = .026$). These changes suggest the relationships between variable pairs were partially driven by extreme scores and should be interpreted with caution.

Overall, these results indicate that the forced entry bootstrapped multiple regression models lacked the statistical power to predict leadership outcomes from the collective combination of workplace experiences. However, individual bootstrapped regressions revealed ten significant bivariate relationships where specific workplace experience predicted leadership outcomes with small effects. Supervisor interactions emerged as the most consistent positive predictor across leadership outcomes with small to moderate effects (R^2 ranging from .042–.096). including Leadership Capacity, Congruence, Collaboration and Citizenship. Conversely, idea experimentation demonstrated a consistent negative pattern, with significant negative relationships with Leadership Capacity, Consciousness of Self, Controversy with Civility and

Change. Sensitivity analysis confirmed the robustness of these findings, with eight of ten significant relationships remaining stable after outlier removal. Collectively, these results suggest that informal interpersonal exchanges with supervisors may facilitate leadership development among student employees, while unrestricted experimentation with new approaches may impede leadership growth. The negative outcomes observed for feedback from supervisors and informal training with certain outcomes warrant further investigation in future studies using larger samples with greater statistical power.

Analysis of Research Question 2

Research Question 2 examined whether socially responsible Leadership Capacity differed across low, moderate, and high frequency levels of workplace experiences. Workplace experience frequency scores were trichotomized into three categories (Low = 1–2, Moderate = 3, High = 4–5), and Kruskal-Wallis H tests were conducted to compare overall Leadership Capacity and each of the eight SRLS subscales across frequency groups for all 11 workplace experiences ($N = 81$). Assessment of potential demographic confounds revealed no demographic variable that correlated significantly with both the leadership outcomes and frequency of workplace experience for any significant finding, eliminating concerns about confounding. Of 99 tests conducted (11 overall Leadership Capacity regressions and 88 subscale regressions), eight subscale findings reached statistical significance. All eight demonstrated medium effect sizes ($\varepsilon^2 = .078$ -.122). The findings revealed a counterintuitive less is more pattern: five of eight significant effects showed that low frequency of supervisor feedback, idea experimentation, or informal training was associated with higher leadership scores. Two findings, supervisor interactions predicting congruence and *Training Provider* scale predicting Collaboration, showed the expected pattern where higher frequency was associated with higher leadership capacity.

Sensitivity analysis excluding the influential case identified in RQ1 confirmed that eight of nine findings remained statistically significant, and all RQ2 findings demonstrated directional convergence with the RQ1 correlational results, providing robust cross-method validation.

Prior to conducting primary analyses, correlations between demographic variables and all key study variables were examined to identify potential confounds. For a variable to function as a confound, it must correlate significantly with both the independent variable (workplace experience frequency) and the dependent variable (leadership outcome) in the same analysis. If such patterns emerged, they would have warranted acknowledgment as potential alternative explanations for findings or formal covariate analysis if sample size permitted.

Ten demographic variables were examined: semesters worked, hours worked per week, off-campus work status, age, Spanish-Hispanic-Latino ethnicity, race, gender, sexual orientation, residential status, and class level. Correlations were computed separately for demographic variables with SRLS subscales (dependent variables) and demographic variables with workplace experience frequencies (independent variables). Three significant correlations emerged between demographic variables and leadership subscales: off-campus work Status was negatively correlated with both Commitment (r = -.221, p = .047) and Controversy with Civility (r = -.225, p = .043), and residential status was negatively correlated with Commitment (r = -.269, p = .017). Results are presented in Table 13.

Table 13

Significant Correlations Between Demographic Variables and Leadership DVs

Demographic Variable	Leadership DV	*r*	*p*	*n*
Off-Campus	Commitment	-.221	.047*	81
Off-Campus	Controversy with Civility	-.225	.043*	81
Residential Status	Commitment	-.269	.017*	79

*$p < .05$.

Seven significant correlations emerged between demographic variables and workplace experience frequencies. Most notably, hours worked was positively correlated with the *Training Provider* scale ($r = .281$, $p = .011$), off-campus work status was negatively correlated with the *Training Provider* scale ($r = -.237$, $p = .033$), and Spanish-Hispanic-Latino ethnicity was negatively correlated with idea experimentation ($r = -.339$, $p = .002$). Results are presented in Table 14.

Table 14

Significant Correlations Between Demographic Variables and Workplace Experience IVs

Demographic Variable	Workplace Experience IV	*r*	*p*	*n*
Hours Worked	Training Provider	.281	.011*	81
Off-Campus	Training Provider	-.237	.033*	81
Age	Reflection	-.279	.012*	81
Spanish-Hispanic-Latino	Idea Experimentation	-.339	.002**	81

Table 14 Continued

Demographic Variable	Workplace Experience IV	*r*	*P*	*n*
Race	Reflection	.271	.014*	81
Gender	Reflection	-.277	.012*	81
Residential Status	Feedback from Peers	-.262	.020*	79

Note. $N = 81$.

*$p < .05$. ** $p < .01$.

Systematic examination of each significant finding revealed no demographic confounds. Although seven demographic variables correlated with either IVs or DVs individually, no demographic variable correlated significantly with both the IV and corresponding DV for any significant finding. For example, Spanish-Hispanic-Latino ethnicity correlated with idea experimentation ($r = -.339$, $p = .002$) but showed no significant correlation with any of the subscales for which idea experimentation demonstrated significant effects: Consciousness of Self

(r = .090, p = .422), Controversy with Civility (r = -.045, p = .687), or Change (r = .003, p = .979). Similarly, hours worked correlated with the *Training Provider* scale (r = .281, p = .011) but did not correlate with Collaboration (r = -.047, p = .680), the subscale showing significant *Training Provider* effects. Correlations between workplace experiences and leadership subscales were used to inform this analysis and are presented in Table 15. Given that no demographic variable met the criteria for confounding, formal covariate analysis was not warranted. The significant RQ2 findings can be interpreted without concern for demographic confounding.

Table 15

Significant IV-DV Correlations

IV	DV	*r*	*p*
Feedback from Peers	Controversy with Civility	.22	.046*
Feedback from Supervisors	Change	-.24	.029*
Idea Experimentation	Change	-.24	.028*
Idea Experimentation	Consciousness of Self	-.23	.040*

Table 15 Continued

IV	DV	*r*	*p*
Idea Experimentation	Controversy with Civility	-.24	.032*
Informal Training	Controversy with Civility	-.31	.005**
Supervisor Interactions	Collaboration	.24	.034*
Supervisor Interactions	Congruence	.31	.005**
Supervisor Interactions	Leadership Capacity Mean	.23	.041*
Training Provider Composite Scale	Collaboration	.23	.042*

Note. N = 81.

*p < .05. **p < .01

The analysis then proceeded in three stages. First, Kruskal-Wallis tests were performed to explore differences in overall Leadership Capacity across frequency groups for each of the 11 workplace experiences, yielding 11 omnibus tests. Second, to explore whether specific leadership dimensions showed differential patterns, additional Kruskal-Wallis tests examined each of the eight SRLS subscales across frequency groups for each workplace experience,

yielding 88 additional tests (11 experiences × 8 subscales). This comprehensive approach allowed identification of both broad patterns affecting overall Leadership Capacity and subscale-specific effects that might be masked in aggregate scores. Finally, post hoc Dunn's tests with Bonferroni corrections were performed for significant findings.

Kruskal-Wallis *H* tests comparing overall leadership capacity across workplace experience frequency groups revealed no statistically significant findings at $p < .05$. Supervisor interactions approached significance ($H = 5.843$, $df = 2$, $p = .054$), with a medium effect size ($\varepsilon^2 = .073$). Students reporting high frequency of informal supervisor interactions showed higher mean ranks for Leadership Capacity than those reporting low frequency, though this test did not reach the conventional threshold for statistical significance. Results are presented in Table 16.

Table 16

Kruskal-Wallis H Tests Comparing Overall Leadership Capacity Across Workplace Experience Frequency Groups

Workplace Experience	*H*	*df*	*p*	ε^2
Supervisor Interactions	5.843	2	.054	.073
Training Provider Scale	4.812	2	.090	.060
Feedback from Supervisors	4.541	2	.103	.057
Idea Experimentation	4.203	2	.122	.053
Formal Training	2.987	2	.225	.037
Informal Training	2.654	2	.265	.033
Peer Observation	1.876	2	.391	.023
Feedback from Peers	1.654	2	.437	.021
Intuitive Decision Making	1.432	2	.489	.018
Reflection	0.987	2	.611	.012
Course Congruence	0.765	2	.682	.010

Note. $N = 81$.

Next, Kruskal-Wallis tests examined the eight SRLS-R2 subscales for each workplace experience. Eight tests reached statistical significance ($p < .05$). All significant findings demonstrated medium effect sizes ($\varepsilon^2 = .078–.122$) and are presented in Table 17.

Table 17

Significant Kruskal-Wallis H Tests for SRLS Subscales by Workplace Experience Frequency

IV	DV	*H*	*df*	*p*	ε^2
Feedback from Supervisors	Commitment	9.741	2	.008**	.122
Supervisor Interactions	Congruence	9.077	2	.011*	.113
Informal Training	Controversy with Civility	8.469	2	.014*	.106
Idea Experimentation	Controversy with Civility	7.267	2	.026*	.091
Idea Experimentation	Change	7.093	2	.029*	.089
Idea Experimentation	Consciousness of Self	6.610	2	.037*	.083
Training Provider Scale	Collaboration	6.397	2	.041*	.080
Feedback from Supervisors	Change	6.243	2	.044*	.078

Note. N = 81.

**p < .05. **p < .01*

Following the identification of significant omnibus effects across SRLS-R2 subscales, further analysis was required to isolate exactly which levels of workplace experience frequency drove these differences. For each significant omnibus test, a post hoc Dunn's (1964) test was performed, and a Bonferroni correction was applied to all resulting significance values to account for increased risk of Type I error with multiple comparisons (Field, 2018). This adjustment ensure only the most robust differences are identified as statistically significant. The test statistic (*z*) and adjusted p-values show the specific nature of the differences between groups on the leadership subscales. Seven of the eight significant omnibus tests yielded at least one significant pairwise comparison after Bonferroni correction. Results of the pairwise comparison are presented in Table 18.

Table 18

Post Hoc Duns Pairwise Comparisons for Significant Kruskal-Wallis Tests

IV	DV	Pairwise Comparison	*z*	Adjusted *p*
Feedback from Supervisors	Commitment	Moderate-Low	21.48	.007**

		High-Low	10.29	.258
		Moderate-High	-11.19	.428
Supervisor Interactions	Congruence	Low-High	-17.06	.017*
		Low-Moderate	-9.52	.449
		Moderate-High	-7.54	.921
Informal Training	Controversy with Civility	High-Low	17.98	.023*
		Moderate-Low	8.78	.573
		High-Moderate	9.20	.579
Idea Experimentation	Controversy with Civility	Moderate-Low	17.24	.045*
		High-Low	12.04	.131
		Moderate-High	5.20	1.000
Idea Experimentation	Change	Moderate-Low	16.92	.054
		High-Low	12.11	.119
		Moderate-High	4.81	1.000
Idea Experimentation	Consciousness of Self	High-Low	14.17	.047*
		Moderate-Low	17.38	.052
		Moderate-High	3.21	1.000
Training Provider Scale	Collaboration	Low-High	-16.26	.028*
		Moderate-High	-17.78	.052
		Moderate-Low	1.52	1.000
Feedback from Supervisors	Change	High-Low	14.14	.042*
		Moderate-Low	12.50	.222
		High-Moderate	1.64	1.000

Note. $N = 81$. Bonferroni correction applied to all pairwise comparisons.

* $p < .05$. **p < .01

The Change subscale finding for idea experimentation showed an omnibus effect but no significant pairwise differences after correction, indicating that the overall group distribution differed but no single pair of groups was sufficiently distinct to survive conservative correction. Across all seven significant pairwise comparisons work experiences showed a consistent directional trend where higher or moderate frequency groups scored higher SRLS-R2 subscales than low frequency groups. These patterns suggest that even moderate levels of experience to

these workplace experiences provide a statistically significant advantage over lower levels of engagement. A summary of significant pairwise differences is presented in Table 19.

Table 19

Summary of Significant Pairwise Differences

IV	DV	Significant Pairwise Comparison	Direction	Interpretation
Supervisor Interactions	Congruence	Low vs. High	High > Low	High frequency of informal interactions with supervisors resulted in higher Congruence than low frequencies.
Training Provider Scale	Collaboration	Low vs. High	High > Low	High frequency of *Training Provider* experiences resulted in higher Collaboration than low frequencies.
Feedback from Supervisors	Commitment	Moderate vs. Low	Moderate > Low	Moderate frequency of receiving feedback from supervisors resulted in higher Commitment than low frequencies.
Feedback from Supervisors	Change	High vs. Low	High > Low	High frequency of receiving feedback from supervisors resulted in higher Readiness for Change than low frequencies.
Idea Experimentation	Consciousness of Self	High vs. Low	High > Low	High frequency of idea experimentation resulted in higher Consciousness of Self than low frequencies.
Idea Experimentation	Controversy w/ Civility	Moderate vs. Low	Moderate > Low	Moderate frequency of idea experimentation resulted in higher Controversy with Civility than low frequencies.
Informal Training	Controversy w/ Civility	High vs. Low	High > Low	High frequency of informal training experiences resulted in higher Controversy with Civility than low frequencies.

To assess whether RQ2 findings were influenced by the outlier case identified in RQ1 (Case #1), Kruskal-Wallis tests were re-run excluding this participant ($N = 80$). Comparison of the results for the two samples is presented in Table 20. All eight significant subscale findings remained statistically significant after excluding the influential case. Notably, two effects strengthened after outlier exclusion: Collaboration predicted by *Training Provider* scale ($p = .041$ to $.026$) and Consciousness of Self predicted by idea experimentation ($p = .037$ to $.017$).

Table 20

Sensitivity Analysis Comparison of Kruskal Wallis Original (N = 81) and Outlier-Excluded (N = 80).

IV	DV	Original Sample			Outlier Excluded Sample		
		H	Adj. *p*	ε²	*H*	Adj. *p*	ε²
Supervisor Interactions	Congruence	9.077	.011*	.113	6.325	.042*	.080
Training Provider	Collaboration	6.397	.041*	.080	7.321	.026*	.093
Feedback from Supervisors	Commitment	9.741	.008*	.122	8.222	.016*	.104
Feedback from Supervisors	Change	6.243	.044*	.078	6.224	.045*	.079
Idea Experimentation	Consciousness of Self	6.61	.037*	.083	8.177	.017*	.104
Idea Experimentation	Controversy w/ Civility	7.267	.026*	.091	7.065	.029*	.089
Idea Experimentation	Change	7.093	.029*	.089	6.524	.038*	.083
Informal Training	Controversy w/ Civility	8.469	.014*	.106	7.213	.027*	.091

Note. Original $N = 81$; Outlier excluded $n = 80$. $\varepsilon^2 = H/(N-1)$. All effect sizes are medium (.06–.14).

* $p > .05$

As with the original analysis with inclusive of outlier scores, a post hoc Dunn's (1964) test pairwise comparison with Bonferroni corrected significance levels was conducted for the sensitivity analysis. By comparing whether there was any chance in significant pairings, it was possible to determine whether the outlier case was impacting scores. Results of this test are presented in Table 21.

Table 21

Sensitivity Analysis Pairwise Comparisons for Significant Kruskal-Wallis Tests

IV	DV	Pairwise Comparison	*z*	Adj. *p*
Supervisor Interactions	Congruence	Low-High	-15.87	.044*
		Low-Moderate	-8.43	.538
Training Provider Scale	Collaboration	Low-High	-16.06	.037*
		Moderate-High	-17.18	.062
		Moderate-Low	1.11	1.000
Feedback from Supervisors	Commitment	Moderate-Low	19.65	.017*
		High-Low	9.25	.338
		Moderate-High	-10.4	.525
Feedback from Supervisors	Change	High-Low	13.53	.064
		Moderate-Low	11.66	.311
		High-Moderate	1.87	1.000
Idea Experimentation	Consciousness of Self	High-Low	13.57	.065
		Moderate-Low	16.8	.066
		Moderate-High	-3.23	1.000
Idea Experimentation	Controversy with Civility	Moderate-Low	16.62	.070
		High-Low	11.66	.144
		Moderate-High	-4.96	1.000
Idea Experimentation	Change	Moderate-Low	15.97	.088
		High-Low	11.24	.170
		Moderate-High	-4.73	1.000
Informal Training	Controversy with Civility	High-Low	16.58	.022*
		Moderate-Low	7.45	.732
		High-Moderate	9.13	.603

Note. Bonferroni correction applied to all pairwise comparisons.

$N = 80$ (excluding Case #1 identified as outlier in RQ1).

*$p > .05$

To assess the robustness of the findings, a sensitivity analysis was performed by removing one influential outlier and re-calculating all primary tests. While the Kruskal-Wallis omnibus tests remained statistically significant across all leadership outcomes, the post-hoc Dunn's tests demonstrated varied stability. Specifically, four of the seven previously significant pairwise comparisons remained robust. However, three pairwise comparisons (feedback from

supervisors and Change, idea experimentation and Consciousness of Self, idea experimentation and Controversy with Civility) that were marginally significant in the original analysis (p = .042–.047) became non-significant ($p > .05$) once the outlier was removed. Comparison of the results of both the original and sensitivity post hoc Dunn's tests are presented in Table 22.

Table 22

Pairwise Comparison Summary: Original (N = 81) vs. Sensitivity (N = 80)

IV	DV	Original Significant Pairwise Group	Original Adjusted p	Sensitivity Adjusted p
Supervisor Interactions	Congruence	Low-High	.017*	.044*
Training Provider Scale	Collaboration	Low-High	.028*	.037*
Feedback from Supervisors	Commitment	Moderate-Low	.007*	.017*
Feedback from Supervisors	Change	High-Low	.042*	.064
Idea Experimentation	Consciousness of Self	High-Low	.047*	.065
Idea Experimentation	Controversy w/ Civility	Moderate-Low	.045*	.070
Informal Training	Controversy w/ Civility	High-Low	.023*	.022*

*$p > .05$

The analysis of this research question showed significant differences across nine leadership outcomes. A series of Kruskal Wallis H tests revealed that workplace experience frequency significantly impacted eight of the nine leadership outcomes, with overall effect sizes falling in the medium range (ε^2 from .078–.122). Post hoc comparisons using Dunn's test with a Bonferroni correction clarified the nature of these differences. First, increased frequency of engagement with supervisors (feedback from supervisors and supervisor interactions) was associated with higher scores in Commitment, Change, and Congruence. The moderate frequency group scored significantly higher on Commitment than the low group (p = .007. The high frequency group scored significantly higher than the low group (p = .017). Second, idea

experimentation was significantly associated with Controversy with Civility, Change, and Consciousness of Self showing significant improvement in scores (p = .045) between the moderate and low Frequency groups for Controversy with Civility and between High and Low Frequency Groups for Consciousness of Self (p = .047). Third, there is evidence of threshold effects where moderate frequencies improved scores compared to low frequencies between idea experimentation and Controversy with Civility and feedback from supervisors and Commitment where there was no evidence of significant improvement of scores from Moderate to High or Low to High. Fourth, sensitivity analysis confirmed that while four of these findings are robust, three pairwise comparisons were sensitive to extreme scores.

Analysis of Research Question 3

Research Question three examined whether workplace experiences and socially responsible leadership capacity differed across on-campus employment locations. Originally MANOVA was proposed to explore the combined effect of work experiences and leadership outcomes on location, but all workplace experiences and multiple SRLS-R2 subscales violated the assumptions of normality required for MANOVA (Field, 2018). The Kruskal-Wallis test was selected as a non-parametric alternative robust to violations of the assumption of normality (Field, 2018). The original nine workplace locations were collapsed into three categories due to small cell sizes lacking statistical power. Categories were driven by grouping academic and non-academic functions together resulting in the following categories: academic (academic schools/departments, academic support services, libraries; n = 32), student development/non-academic (student life/student affairs, recreation services/fitness center, residential Life, athletics departments, dining halls/food services; n = 29), and other (n = 20). Results of the Kruskal-Wallis tests were non-significant. A supplemental Mann-Whitney U test to compare Academic

and student development/non-academic locations excluded the uninterpretable and heterogeneous other category.

Kruskal-Wallis tests were conducted for the primary analysis comparing all three workplace location groups ($N = 81$) for Leadership Capacity and the 11 workplace experiences. No statistically significant relationships were detected, and effect sizes were small (ε^2 ranged from .011–.059). *H* statistics for the 11 workplace experiences ranged from 0.02 to 4.48, with all *p* values exceeding the .05 threshold. See Table 23 for the summary of results.

Table 23

Kruskal-Wallis H Tests Comparing Overall Leadership Capacity and Workplace Experiences Across Three Location Groups

Variable	*H*	*p*	ε^2
Leadership Capacity	3.07	.216	.038
Training Provider Scale	4.48	.106	.056
Supervisor Interactions	2.89	.236	.036
Feedback from Supervisors	1.67	.434	.021
Idea Experimentation	1.45	.484	.018
Informal Training	1.23	.541	.015
Formal Training	0.98	.613	.012
Peer Observation	0.87	.647	.011
Feedback from Peers	0.76	.684	.010
Intuitive Decision Making	0.54	.763	.007
Reflection	0.32	.852	.004
Course Congruence	0.02	.992	< .001

Note. $N = 81$.

No findings reached statistical significance ($p < .05$).

Kruskal-Wallis tests comparing workplace location to the SRLS-R2 subscales revealed no statistically significant differences. *H* statistics ranged from 0.89 to 4.73 with all results remaining non-significant ($p = .094$–.641). See Table 24 for summary of the results.

Table 24

Kruskal-Wallis H Tests Comparing SRLS Subscales Across Three Location Groups

Variable	*H*	*p*	ε^2
Common Purpose	4.73	.094	.059
Collaboration	3.21	.201	.040
Change	2.87	.238	.036
Controversy with Civility	2.54	.281	.032
Consciousness of Self	1.98	.372	.025
Congruence	1.45	.484	.018
Commitment	1.12	.571	.014
Citizenship	0.89	.641	.011

Note. $N = 81$.

No findings reached statistical significance ($p < .05$).

Mann-Whitney U tests were conducted as a supplementary analysis excluding the uninterpretable other category. Mann-Whitney U test results are presented in Table 25 and results for the SRLS-R2 subscales are presented in Table 26.

Table 25

Mann-Whitney U Tests Comparing Overall Leadership Capacity and Workplace Experiences Between Academic and Student Development/Auxiliary Locations

Variable	Academic		Student Dev/Aux		*U*	*z*	*p*	*r*
	Mdn	*n*	*Mdn*	*n*				
Training Provider Scale	2.50	32	3.25	29	309.5	-2.24	.025*	.29
Leadership Capacity	4.03	32	4.12	29	351.0	-1.68	.092	.22
Supervisor Interactions	2.50	32	3.00	29	387.5	-1.12	.263	.14
Feedback from Supervisors	3.00	32	3.00	29	412.0	-0.78	.436	.10
Idea Experimentation	3.00	32	3.00	29	435.5	-0.45	.653	.06
Informal Training	3.00	32	3.00	29	441.0	-0.38	.704	.05
Formal Training	2.00	32	2.00	29	448.5	-0.28	.780	.04
Peer Observation	4.00	32	4.00	29	456.0	-0.17	.865	.02
Feedback from Peers	3.00	32	3.00	29	458.5	-0.14	.889	.02
Intuitive Decision Making	4.00	32	4.00	29	461.0	-0.10	.920	.01
Reflection	4.00	32	4.00	29	463.0	-0.08	.936	.01

Course Congruence	3.00	32	3.00	29	464.5	-0.06	.952	.01

Note. N = 61. Effect size $r = z/\sqrt{N}$.

*$p < .05$.

Table 26

Mann-Whitney U Tests Comparing SRLS Subscales Between Academic and Student Development/Auxiliary Locations

Variable	Academic		Student Dev/Aux		*U*	*z*	*p*	*r*
	Mdn	*n*	*Mdn*	*n*				
Common Purpose	4.00	32	4.20	29	313.0	-2.19	.028*	.28
Controversy with Civility	3.80	32	4.00	29	365.5	-1.60	.109	.20
Change	3.60	32	3.80	29	371.0	-1.56	.118	.20
Collaboration	4.13	32	4.25	29	376.5	-1.52	.128	.19
Consciousness of Self	3.67	32	3.83	29	398.0	-1.21	.226	.16
Congruence	4.20	32	4.40	29	415.5.	-0.97	.332	.12
Commitment	4.00	32	4.20	29	428.0	-0.79	.430	.10
Citizenship	4.17	32	4.33	29	445.0	-0.55	.582	.07

Note. $N = 61$. Effect size $r = z/\sqrt{N}$.

* $p < .05$.

Two comparisons were found to be statistically significant. First, students employed in student development/non-academic locations reported significantly higher frequency of serving as a *Training Provider* to their peers ($Mdn = 3.25$, $n = 29$) compared to students in academic locations *(*$Mdn = 2.50$, $n = 32$), $U = 309.5$, $z = -2.24$, $p = .025$, $r = .29$. This represents a small effect size. In addition, students employed in student development/non-academic locations demonstrated significantly higher Common Purpose scores ($Mdn = 4.20$, $n = 29$) compared to students in academic locations ($Mdn = 4.00$, $n = 32$), $U = 313.0$, $z = -2.19$, $p = .028$, $r = .28$. This represents a small effect size.

Overall, while the initial three-group comparison yielded no significant differences, the focused supplemental analysis revealed that student employees in student development/non-academic roles engaged in significantly more peer-training and evidenced a higher degree of Common Purpose than students who worked in academic roles. This suggests that some on-campus locations may offer more specialized leadership growth opportunities, despite broadly similar scores for Leadership Capacity across the sample.

Chapter Summary

This chapter presented the results of a multi-stage quantitative analysis exploring the relationships between workplace experiences and leadership capacity among undergraduate student employees ($N = 81$). RQ1 regression analysis indicated that when considered collectively (forced entry multiple regression) workplace experiences do not significantly predict Leadership Capacity of its subscales. Subsequent bivariate analyses revealed ten statistically significant relations. Informal supervisor interactions emerged as a consistent positive predictor of five leadership outcomes (Leadership Capacity, Congruence, Collaboration, Citizenship), while idea experimentation demonstrated a negative association with outcomes (Consciousness of Self, Change). Sensitivity analysis confirmed that eight of ten bivariate relationships were robust to the removal of an influential outlier.

Kruskal-Wallis tests in RQ2 showed significant differences in eight leadership outcomes based on the frequency of specific workplace experiences with all finding demonstrating medium effect sizes. Post hoc Dunn's test clarified these differences revealing that increased engagement with supervisors generally led to higher scores in Commitment, Change, and Congruence, while idea experimentation predicted gains in Controversy with Civility and Consciousness of Self.

Notably, threshold effects were observed where moderate frequency provided significant improvements over low frequency, but further gains were not detected at high-frequency levels.

Finally, in RQ3, group comparisons by workplace location (academic, student development/non-academic, and other) were conducted. While omnibus Kruskal-Wallis tests showed no significant differences across the three locations, supplemental Mann-Whitney U tests comparing academic employment locations to student development/non-academic locations revealed two significant findings. Students in student development/non-academic jobs reported significantly higher frequencies of providing training to peers and demonstrated significantly higher scores for Common Purpose.

Collectively these findings suggest that while the full range of workplace experiences may not serve as a collective predicator of Leadership Capacity, specific interpersonal interactions and the context of employment play a significant role in shaping the leadership development of student employees. These results provide the empirical basis for the theoretical and practical implications discussed in Chapter 5.

Chapter V

Discussion

This chapter explores the findings and conclusions of the research project, as well as recommendations for future research and limitations. Employers increasingly expect recent college graduates to possess workplace-ready leadership skills (Gray, 2025; NACE, 2019, 2020, 2021, 2023), yet there is a gap between these expectations and the demonstrated abilities of new hires. While scholars have identified on-campus student employment as a potential incubator for leadership development, empirical research has yielded inconsistent and sometimes contradictory results. Specifically, previous studies found either no significant relationship or a negative relationship between the general condition of working on-campus and leadership development outcomes (Lewis, 2017, 2019, 2020; Salisbury et al., 2012). However, evidence suggests that the strength and direction of these relationships vary by employment location, leading to Lewis' (2020) hypothesis that specific types and frequencies of workplace experiences may account for this variance.

The purpose of this study was to address this gap in the literature by exploring the relationship between 19 identified on-campus student employment experiences and student employees' leadership capacity. Grounded in the Social Change Model of Leadership, this study used the Socially Responsible Leadership Scale (SRLS-R2) to measure student employee's leadership capacity. Examining which specific activities best support leadership development, this quasi-experimental quantitative research used a cross-sectional design to investigate three primary research questions:

RQ1: What is the relationship, if any, between the frequency of 19 on-campus workplace experiences and socially responsible leadership capacity amongst student employees?

RQ2: To what degree, if any, is there variation in socially responsible leadership capacity amongst student employees with different frequencies of each of the 19 workplace experiences?

RQ3: To what degree, if any, are there differences in frequencies of workplace experiences and socially responsible leadership capacity between identified on-campus employment locations?

Data were collected by surveying a sample of student employees ($N = 81$) from multiple on-campus student employment locations at three universities. Due to the non-normal distribution of scores and the presence of influential outliers, non-parametric approaches were used. The analysis included bootstrapped simple regressions to identify specific predictors, Kruskal-Wallis H tests to examine frequency-based group differences, and Mann-Whitney U tests to explore variations between employment locations. By focusing on specific workplace experiences rather than the condition of being employed, this study sought to inform the intentional design of student work to better align the leadership outcomes of undergraduate student employment experiences with the needs of prospective post-graduation employers.

Major Findings

The primary goal of this study was to examine how specific workplace experiences and employment locations influence the leadership development of undergraduate student employees. The analysis yielded four major findings:

The Critical Role of Supervisors

The most consistent finding across all modes of analysis was the positive influence of informal supervisor interactions. In the regression analysis, supervisor interactions emerged as

the only consistent positive predictor for overall leadership capacity and the subscales of Congruence, Collaboration, and Citizenship. Group comparisons further supported this, showing that students with high-frequency supervisor interactions reported significantly higher Congruence scores than those in the low-frequency group.

Threshold Effects in Leadership Development

The study identified a non-linear relationship between experience frequency and leadership growth for some leadership outcomes, characterized as a threshold effect. For two subscales, Commitment and Controversy with Civility, the most significant gains occurred when moving from low to moderate frequencies of experience. Increasing frequency from moderate to high did not yield additional significant improvements, suggesting that there may be an optimal amount of engagement beyond which leadership gains stabilize.

The Complexity of Experimentation

Contrary to initial expectations, experimentation and informal training demonstrated negative predictive relationships with Change and Consciousness of Self. However, the group comparison tests showed that moderate levels of experimentation, compared to low levels, were associated with developing Controversy with Civility. This suggests that while moderate experimentation is developmentally useful, unrestricted or unsupported experimentation may impede a student employee's leadership development.

The Impact of Employment Location

While overall leadership capacity was relatively uniform across employment locations, the supplemental analysis revealed significant differences in the Common Purpose subscale. Students employed in student development/non-academic locations reported significantly higher Common Purpose scores and a higher frequency of providing training, feedback, and supervision

(represented by the composite *Training Provider* scale) to their peers than those in academic departments. This indicates that certain employment environments may be better structured to foster collective leadership values and peer-to-peer learning.

Discussion

The findings of this study offer a nuanced perspective on how the student work environment functions as a developmental space. By moving beyond a dichotomous working versus non-working variable used in previous studies (Lewis, 2007, 2010; Salisbury et al., 2012), this research identifies specific elements of the student employment experience that contribute to socially responsible leadership capacity.

The Role of Supervisor Interactions and Feedback

The findings confirm prior research highlighting the importance of informal supervisor interactions and feedback from supervisors with leadership development (Eraut, 2007; Kuh, 2018; Lewis, 2007, 2010; McClellan et al., 2018; Milton & Meadee, 2018). The consistent positive relationship between supervisor interactions and socially responsible leadership outcomes (specifically Leadership Capacity, Congruence, Collaboration, and Citizenship) aligns with the theoretical importance of interactions with more knowledgeable others in the workplace (Eraut, 2007) and more specifically, in the context of student employment (Kuh, 2018; McClellan et al., 2018). These results support the findings of Milton and Meadee (2018), who identified interactions with supervisors as a key catalyst for leadership growth, but diverge from Lewis' (2007, 2010) finding that more frequent informal interaction was not associated with leadership development. One possible explanation for this is the closer conceptual alignment with Milton and Meadee (2018). Both this study and Milton and Meadee's (2018) study shared the theoretical framework of SCM leadership, where Lewis' study was not aligned with a

specific theory of leadership. Furthermore, the observation that moderate levels of feedback from supervisors resulted in significant gains in Commitment over low levels reinforces the principle that regular feedback and critique support strong leadership learning outcomes. This would seem to affirm the Lewis' (2007, 2010) finding that feedback from supervisors was a significant component of student employees' leadership development but diverged in the nuanced finding in this study that high frequency of feedback was not associated with further increases in leadership development. Taken together these findings suggest that the combination of informal and formal interpersonal exchanges with supervisors provided the social and cultural dimensions necessary to foster leadership development within a workplace setting.

Negative Associations and Threshold Effects

One of the more complex findings was the negative predictive relationship between idea experimentation and subscales such as Change and Consciousness of Self in the regression models. While Lewis (2007, 2010) previously found positive correlations between idea experimentation and leadership development, the current findings suggest a more complicated dynamic. However, the threshold effect identified in the group comparisons showed that moderate levels of experimentation were superior to low levels for developing Controversy with Civility. This suggests that while some degree of finding new ways of doing things is essential for learning from unanticipated challenges, there may be an optimal level of autonomy beyond which the lack of formal guidance becomes counterproductive. Unrestricted experimentation, if conducted without sufficient supportive structure, may lead to role ambiguity or cognitive dissonance, potentially impeding a student's sense of leadership clarity.

Similarly, the negative associations found for and feedback from supervisors with Change and informal training and Controversy with Civility in the regression analysis seems to

contradict the analysis in RQ2 where in both instances, the categorical analysis revealed a significant positive difference between low and high frequency groups for Change and Controversy with Civility. Lack of variance or declines in scores for these leadership outcomes in the low and moderate groups may have obscured the positive scores associated with the higher frequency group. This suggests that the effect of these workplace experiences was not linear. Rather than being cumulative, there may be a threshold at which frequency of feedback and informal training begins to affect leadership outcomes.

Divergence from Previous Research

While this study confirmed several relationships identified in the preliminary work of Lewis (2007, 2010), there were notable areas where expected relationships were not found. Specifically, six variables supported by the literature did not emerge as significant predictors of socially responsible leadership outcomes in this analysis. These include observation of peers, which is theorized as a foundational feature of student employment (McClellan et al., 2018; Perna, 2010) and has been empirically linked to the growth of leadership capacity (Carlisle, 2015; Dorman, 2020; Marshall, 2020; Marshall & Guthrie, 2024). Similarly, intuitive decision making is theoretically rooted in the integration of workplace knowledge (Eraut, 2000) and has empirical associations with leadership learning (Lewis, 2007, 2010). Reflection is also situated as a critical process for experiential learning (Silver et al., 2023; Kolb, 1984; Eraut, 2000) and has empirical support for its role in leadership development (Halper et al., 2020; Hansen, 2019; Hansen & Hoag, 2018; Lewis, 2007, 2010; Lewis & Contreras, 2009; Rocco & Beatty, 2023; Marshall & Guthrie, 2024). Course congruence was theorized as an element of informal workplace learning (Eraut, 2000, 2007) and corresponds empirically with greater leadership development (Hansen & Hoag, 2018; Lewis, 2007, 2010; Mestre & LeCrone, 2015; Pascarella &

Terenzini, 2005; Pierard et al., 2022). Formal training is defined theoretically as a structured and intentional learning process (Eraut, 2000; Scrogham & McGuire, 2009) and has been empirically linked to the development of job skills and leadership capacity (Carlisle, 2015; Dorman, 2020; Lewis, 2007, 2010; Marshall & Guthrie, 2024). Finally, feedback from peers supports learning (Eraut, 2007; Kuh, 2008, 2018) and has been empirically associated with leadership development (Lewis, 2007, 2010). The lack of significant findings for these variables represents a divergence from both established theoretical frameworks and previous empirical research.

This divergence could be attributed to the specific leadership framework and measurement used in this study. For example, Lewis' (2007, 2010) study used a general leadership self-report, this analysis employed the Socially Responsible Leadership Scale (SRLS-R2), a psychometrically validated instrument designed to measure the specific values of the Social Change Model (NCLP, 2024). While clearly it is possible that these experiences can contribute to broad perceptions of leadership skill acquisition, the results of this study suggest that for this specific sample, the frequency of these processes were insufficient to predict significant differences in the specific values-based constructs that are the hallmark of SCM leadership development (HERI, 1996) without more intentional facilitation.

Omitted Variables

A significant portion of the intended analysis was constrained by a lack of variance in respondent experiences for five specific variables. Collaboration is theoretically supported as a tool for enhancing learning (Eraut, 2004, 2007; Kuh, 2008) and has been empirically linked to socially responsible leadership and skill acquisition (Daniel, 2020; Kilgo et al., 2015; Lewis, 2007, 2010). Task repetition is theorized to help employees develop a holistic understanding of their roles (Eraut, 2000; Lewis, 2007) and empirical evidence suggests it supports student

workplace learning (Carlisle, 2015; Lewis, 2007, 2010). Problem solving is identified theoretically as a factor that promotes student learning (Eraut, 2007; Kuh, 2008) and empirical findings consistently suggest it enhances leadership development (Carlisle, 2015; Dorman, 2020; Hansen, 2019; Hansen & Hoag, 2018; Lewis, 2007, 2010; Marshall & Guthrie, 2024). Interacting with different identities is theorized as a high-impact experience (Kuh, 2008, 2018) and empirical research indicates it enhances leadership capacity through better social skills and situational awareness (Marshall & Guthrie, 2024). Finally, using adaptable approaches is theoretically tied to learning through diverse styles of interaction (Kuh, 2008) and has been empirically found to enhance student leadership skills (Carlisle, 2015).

In this sample, low frequency levels for variables such as collaboration, problem-solving, and task repetition were near-universal, with 74% to 78% of respondents reporting identical frequency values. Similarly, different identities and adaptable approaches demonstrated severe ceiling effects, with 75% of respondents reporting the highest possible frequency of exposure. Due to this lack of variance, these variables were omitted from the regression models and subsequent analysis. However, their exclusion suggests that these experiences function as standard environmental features of the student workplace at the research sites rather than distinct drivers of Leadership Capacity or subscales.

Contextual Influence of Workplace Location

The finding that students in non-academic/student development locations reported higher Common Purpose scores and a greater frequency of peer training than those in academic departments suggests that employment context matters. This supports the assertion by Lewis (2020) that variability in leadership capacity can partially be explained by the different types of experiences offered across on-campus locations. Student development roles, for example, may be

more intentionally structured to foster collaborative processes and shared responsibility, which are core tenets of the Social Change Model (HERI, 1996).

Student Employment as High impact Practice

While student employment has traditionally been viewed as a transactional activity, more recently, it has been argued that it can function as a high impact practice (McClellan et al., 2018). The results of this study provide evidence that it can be designed to function as a high impact practice. Kuh (2008) defined high impact practices as educational approaches that demand significant time and effort, sustained engagement, facilitate substantive interaction with faculty and peers, and provide frequent opportunities for reflection. The findings regarding supervisor interactions and feedback substantiate these requirements. Substantive interaction with a more knowledgeable other is a hallmark of high impact practices, and the positive relationship found between supervisor engagement and leadership capacity suggests that these workplace relationships mirror the mentorship seen in other high impact activities.

The threshold effects identified in this study also suggest that, as with high impact practices (Kuh, 2008, 2018), more frequent, sustained engagement (evidence of threshold effects) with experiences such as feedback from supervisors and informal training as necessary for leadership growth. For an experience to be high impact, it must challenge the student to apply their learning in new and complex contexts through interactions with diverse peers, which we know to be a nearly universal feature of the workplaces in this study, and shared purposes (Kuh, 2008). The gains in Controversy with Civility through moderate levels of idea experimentation indicate that the workplace serves as a laboratory for navigating real-world challenges. When student employment locations incorporate peer training and collaboration, they can satisfy the requirement of substantive interaction with diverse peers and shared purposes.

However, the transition of student employment from a routine job to a high impact practice is not automatic. The literature emphasizes that these benefits accrue only when the experience is intentionally structured with feedback and reflection (Kuh, 2008). This study's findings imply that while the potential for high impact learning exists in the on-campus workplace, it is the quality of the workplace context and the supervisory relationship that determines whether these leadership gains might occur.

Limitations

Elements of this research design limit the generalizability of the findings. These are categorized into methodological, instrumental, and contextual limitations.

Methodological Limitations

The primary methodological limitation is the statistical power of the analysis. With a final sample size of $N = 81$, the forced-entry multiple regression models used in the first stage of analysis were underpowered due to the inclusion of 11 independent variables. As the number of predictors increases relative to the sample size, the ability to detect unique predictive effects declines (Field, 2018), which likely contributed to the non-significant results observed across all nine leadership outcomes. An additional methodological constraint involved the reduction of independent variables from the 19 originally identified in the literature to the 11 used in the final analysis. While the eliminated experiences are theoretically and empirically linked to workplace learning and/or leadership development, their removal was necessary to protect the statistical power and interpretability of regression results given the sample size ($N = 81$) (Field, 2018).

Additional constraints arose from the distribution of the data and the necessary modifications made during analysis. The observed clustering of scores and potential ceiling effects may have limited the range of responses, making it difficult to differentiate between high-

performing groups. Furthermore, collapsing the workplace frequency categories into low, moderate, and high groups resulted in a loss of sensitivity that might have obscured more nuanced relationships. Similar issues occurred when collapsing workplace locations into three categories; while this was practically driven by small cell sizes, the resulting groups remained difficult to compare due to the inclusion of the other category. This category was provided as a response option in the original survey instrument to ensure all student roles were captured, but this limited sensitivity since other was heterogeneous and uninterpretable, offering little meaningful data for comparison.

Moreover, the necessary use of non-parametric techniques limited the ability to explore complex interaction effects between variables. The analysis was also influenced by the presence of an influential outlier; as revealed by the sensitivity analysis, certain relationships between supervisor interactions and leadership outcomes were sensitive to extreme scores. Finally, while data were collected from three separate universities, one institution (MAU) was significantly overrepresented in the final sample. This imbalance may skew results toward the specific culture or student demographics of that single site, rather than providing a balanced multi-institutional perspective.

Instrumental Limitations

Instrumental limitations relate to both the reliability and the scope of the measurement tools, and practicality of relying on self-reports. Although the SRLS-R2 demonstrated excellent overall internal consistency ($\alpha = .95$), the Commitment ($\alpha = .66$) and Controversy with Civility ($\alpha = .59$) subscales performed below commonly accepted thresholds. These lower coefficients suggest a level of item heterogeneity that may have attenuated the observed relationships for these specific constructs.

Additionally, two key leadership constructs were omitted from the study, including leadership self-efficacy and motivation to lead. Leadership self-efficacy is an individual's belief in their capacity to assume leadership roles and serves as a significant predictor of leadership capacity (Hannah et al., 2008). Furthermore, leadership motivation is a critical determinant of commitment and persistence in the leadership process (Chan & Drasgow, 2001). Existing research suggests a recursive relationship where leadership motivation may mediate the relationship between leadership self-efficacy and leadership capacity (Correia-Harker, 2016). Scales to measure these constructs were not included due to the financial barriers of licensing and the practical need to manage the length of an already 98-item instrument. Maintaining control of the number of variables was a practical choice to protect statistical power, but it meant that these predictors and mediators of leadership capacity were not captured in the current analysis.

Additionally, this study relied solely on student self-reported leadership competencies, which introduces the possibility of social desirability bias in the responses (Posner, 2012). Triangulating these findings with supervisor assessments was considered impracticable given the initial outreach to 1,630 students across three universities and the priority of maintaining strict participant anonymity.

Contextual Limitations

The scope of this study is also limited by the exclusion of broader student experiences that the literature suggests are influential to development. While research has identified a relationship between leadership outcomes and the combination of demographics, pre-collegiate experiences, and environmental factors, these were not fully accounted for in the current design (Buschlen & Dvorak, 2011; Campbell et al., 2012; Dugan & Komives, 2010). Specifically, the

omission of pre-college leadership experiences and concurrent leadership roles, such as participation in student organizations or formal leadership development programs, makes it difficult to isolate the workplace as the sole driver of leadership development (Campbell et al., 2012; Early, 2014; Martin, 2013). Since these factors could not be controlled for, there may be significant influences on leadership capacity stemming from a student's previous history or concurrent campus engagement that were not captured, which limits the ability to generalize these findings on the influence of workplace experiences.

Recommendations Future Research

The findings of this study offer a pathway for both practitioners and researchers to better leverage the developmental potential of the student workplace. For campus employers, the results highlight that student employment should be treated as an intentional leadership laboratory rather than just a source of labor. However, the effectiveness of this laboratory is rooted in the initial selection and placement of students, a stage where current literature is silent. While hiring criteria might fluctuate between intentional talent or skill-matching and a purely operational focus on shift coverage, practitioners must recognize that supervisors serve as the primary mechanism for development, as argued by Burnside et al. (2019). Consequently, providing supervisors with discrete guidance and tools for intentional candidate selection is a critical prerequisite for fostering leadership growth. Supervisors should prioritize high-quality, informal interactions and structured feedback loops, as these were the most consistent drivers of leadership values like Congruence and Commitment. Because this study identified specific threshold effects, practitioners should recognize that more engagement is not always better; rather, moving students from low to moderate levels of experience often provides the most significant leadership growth. To address the unexpected negative associations with idea

experimentation, supervisors must provide a scaffolded environment where students feel safe to try new ideas without losing role clarity. Furthermore, academic departments should consider adopting the peer-training and collaborative structures found in student development and auxiliary locations to foster a stronger sense of common purpose among their employees.

Future research should build on these results by addressing the methodological constraints encountered in this study. A primary recommendation is to use a significantly larger, multi-institutional sample to achieve the statistical power necessary to detect collective effects in complex regression models. Increasing the sample size would allow scholars to follow the recommendations of Field (2018) to ensure that the number of participants supports the number of predictors being tested, while also allowing for the inclusion of previously omitted covariates related to student leadership and campus engagement. This could be achieved by incorporating the workplace experience variables into national studies of leadership development, such as the Multi-institutional Survey of Leadership, which uses a proprietary shorter and psychometrically validated version of the SRLS (MSL, n.d.). Alternatively, institutions may wish to adapt this study as an assessment tool for their student employment programs and work together to share consistent data collection methods to allow for the pooling of data for analysis of a larger sample.

While this study used the categories of workplace location provided by Burnside et al. (2019), to manage dimensionality and maintain practical distinctions, future studies might explore the categories derived from Lewis' (2017) text mining analysis to determine if those groupings reveal different patterns in leadership growth. While variables like task repetition and adaptable approaches functioned as constants within the current sample, a broader study across varied employment locations might reveal location-specific differences. Examining a wider

range of workplaces would allow for a comparative analysis to see if these experiences remain standard features of student employment or if they emerge as distinct drivers of leadership capacity in other settings.

Scholars should also consider longitudinal designs to track students from the point of hire through graduation to determine if leadership gains are sustained or if they plateau. Finally, researchers should incorporate licensed scales for additional constructs such as leadership self-efficacy and motivation to lead. Including these variables in a larger study would allow for testing how these internal psychological drivers mediate or moderate the relationship between specific workplace experiences and socially responsible leadership capacity, building a more nuanced understanding of the student employee experience.

Summary and Conclusion

This study was designed to address the gap between employer expectations for leadership skills and the perceived leadership skills of undergraduate student employees. By shifting the focus from the mere condition of being employed to the specific frequencies of identified workplace experiences, the analysis sought to clarify how student work serves as an environment for leadership learning. The findings indicate that while the collective breadth of workplace experiences may not serve as a singular predictor of leadership capacity, specific interpersonal interactions and workplace contexts play a significant role in shaping developmental outcomes.

The results highlighted the critical role of supervisor engagement. Informal supervisor interactions emerged as the most consistent driver of socially responsible leadership values, particularly Congruence, Collaboration, and Citizenship. Additionally, the identification of threshold effects suggests that leadership growth is not always linear. Moderate levels of feedback and experimentation often provide more substantial gains than low levels, while high

frequency engagement may lead to a plateau. These findings challenge the assumption that more is always better and suggest that purposeful, supported engagement is necessary to maximize the return on investment for student employees.

The data also revealed that the workplace context influences the frequency of experiences and specific leadership values. For example, students in Student Development and Auxiliary locations reported higher Common Purpose scores and more opportunities for peer-to-peer training. While the findings support the idea that student employment can be designed as a learning experience, it is important to note that it only functions as a high impact practice when it is intentionally structured. High impact practices require significant time and effort, substantive interaction, and opportunities for reflection (Kuh, 2008). The results of this study suggest that the supervisory relationship and the workplace environment are the primary high impact elements in student employment that drive leadership development in the current sample.

While methodological constraints like a small sample size and the necessity of non-parametric techniques limit the generalizability of these results, they provide a foundation for future research. By integrating constructs like leadership self-efficacy and utilizing larger, multi-institutional samples, future scholars can further refine these models. Ultimately, this study suggests that when campus employers intentionally structure supervisory relationships and workplace roles, on-campus employment can be transformed from a transactional activity into a meaningful learning experience that helps prepare students for the leadership demands of the modern workforce.

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Appendix A:

Permission to Adapt Survey from Jonathan Lewis

Re: Request for Permission to Adapt Survey Instrument for Dissertation Research

From Jonathan Lewis <[redacted]>
Date Mon 9/16/2024 10:03 AM
To Andrew G Welaish <[redacted]>
Cc John D Lairsey <[redacted]>

Delivered From External Sender

Hi Andrew,

Good morning! It's nice to hear from you. You are more than welcome to adapt the survey instrument as you've described. As student employment and learning outcomes has long been an area of interest for me, I would certainly be interested in reading your dissertation once it is completed. Best of luck with your study!

Warm regards,
Jonathan

On Sat, Sep 14, 2024 at 4:07 PM Andrew G Welaish <[redacted]> wrote:

> Dear Dr. Lewis,
>
> I am a doctoral student at Valdosta State University, completing a dissertation in Leadership under the supervision of Dr. John Lairsey. I am writing to request written permission to adapt the survey instrument from your master's thesis *Learning While Earning: Student Employment and Learning Outcomes* for my research study.
>
> My study is inspired by your 2020 article in the *Journal of College Student Development*, which encouraged future research on the relationship between student employees' workplace experiences and leadership outcomes. I intend to adapt the items you developed to gauge the frequency of workplace experiences (published on page 95 of your master's thesis). Additional items will be drawn from the literature on student employment to build a better understanding of which workplace experiences might influence leadership capacity. Leadership capacity will be measured using the Socially Responsible Leadership Scale R2. I will conduct item testing with a small group of student employees to establish validity and reliability before administering the full survey. The full survey will be distributed later this year to student employees at two or three universities via email, and data will be collected using Qualtrics
>
> I have attached a copy of my survey instrument I hope to use for item testing. The items adapted from your survey can be found under question 1. You will see that in some instances I have reworded items or expanded them into multiple questions. I also changed the response scale to include 5 categories for consistent response scaling with the SRLS R2.
>
> In addition to adapting your survey items, I seek permission to reproduce the adapted survey items in my dissertation appendix. The dissertation will be published in the Valdosta State University Institutional Repository (https://vtext.valdosta.edu) and deposited in the ProQuest Dissertations & Theses database.

I would like to use the adapted instrument under the following conditions:

- I will use the adapted items solely for my research study and will not use or sell them for any other purposes.
- I will include a statement of attribution on all copies of the instrument and in my completed dissertation. If you have a specific statement of attribution that you would like for me to include, please provide it in your response.
- At your request, I will send a copy of my research study to you upon completion of the study and/or provide a hyperlink to the final manuscript.

If you do not control the copyright for these materials, I would appreciate any information you can provide concerning the person or organization I should contact.

If these conditions are acceptable, please indicate so by replying to me through e-mail at [redacted].

Sincerely,

Andrew Welaish

--

Jonathan Lewis, Ph.D. (he/him)
Senior Director of Research
uAspire
[redacted] | uaspire.org
[redacted] Eastern time)

Appendix B:

SRLS-R2 Research License Communication

Re: Request for Research License for the SRLS-R2

From [redacted] >
on behalf of
National Clearinghouse for Leadership Programs <nclp@umd.edu>
Date Tue 2/25/2025 9:27 AM
To Andrew G Welaish [redacted]
Cc John D Lairsey [redacted]

Delivered From External Sender

Hello, Andrew.

Thank you for sending this along and for your patience as we reviewed. We are happy to support your project with a research license for the SRLS-R2. I believe you have already received and reviewed our pre-license guidebook (linked here again, just in case). Please respond to this email indicating that you agree to the usage terms outlined in the guidebook (also listed below for reference). Once you confirm your agreement, we will send a copy of the guidebook that includes all scales/items and further guidance for incorporating into your survey.

All the best,
Melissa

*****

Those who have been approved to use the SRLS-R2 via a research license are not required to pay a fee for usage. The NCLP does, however, required that you adhere to the below usage requirements:

1. **Secure Permission from NCLP**: If you have not already, please reach out to us at nclp@umd.edu to share about your intended use of the SRLS-R2 and re
2. **For Your Usage Only:** The SRLS-R2 is intellectual property owned by the NCLP and authorized for use only with NCLP approval. Upon receiving the scales
3. **For Usage in English Only.** For reliability and validity reasons, the SRLS-R2 is licensed for usage in the English language only. Concerns or questions rega
4. **IRB Approval**: You must obtain IRB approval through your institution before using the scales and administering your survey instrument.
5. **Collect Demographic Data:** Basic demographic variables should be included in your survey. While other factors in your study may affect choice and wordin
6. **Properly Cite NCLP:** You are asked to properly credit NCLP and the SRLS both in your thesis/dissertation and in any publications that may result from your
7. **Release Data to NCLP:** Upon completion of the study, the raw data should be provided to the NCLP free of charge upon NCLP's request. Data shared with I

National Clearinghouse for Leadership Programs (NCLP)
Connectors, Conveners, & Collaborators in Leadership Education
nclp.umd.edu | nclp@umd.edu
Melissa L. Rocco, PhD | Faculty Director
Courtney Holder, MS | Faculty Associate
Grace Peterson, MEd | Program Associate

Socially Responsible Leadership Scale (SRLS)
srls.umd.edu | srls@umd.edu

On Thu, Feb 6, 2025 at 11:00 PM Andrew G Welaish < [redacted] > wrote:

> **Good Evening,**
>
> **My name is Andrew Welaish and I am a doctoral candidate at Valdosta State University. I am writing to request a research license for the use of the Socially Responsible Leadership Scale – Revised Version Two (SRLS-R2) instrument in my dissertation research. My research project examines the relationship between undergraduate student employees' workplace experiences and leadership development. The attached license request outlines my project in more detail.**
>
> **My research supervisor is:**
>
> **Dr. John Lairsey**
> **Director, Ed.D. Leadership**
> **Valdosta State University**
> [redacted]
>
> **Please let me know if I can provide any additional information that would be helpful in your decision-making process. Thank you for taking the time to consider this request.**
>
> **Best Regards,**
>
> **Andrew Welaish**
> **Doctoral Candidate**
> **Valdosta State University**

Appendix C:

IRB Approval and Letters of Cooperation

Institutional Review Board (IRB)
for the Protection of Human Research Participants

PROTOCOL EXEMPTION REPORT

Protocol Number: 04635-2025

Responsible Researcher(s): Andrew Welaish

Supervising Faculty: Dr. John Lairsey

Dissertation Research Member: Dr. Kathy Nobles

Project Title: *Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity.*

Institutional Review Board Determination:

This research protocol is **exempt** from Institutional Review Board (IRB) oversight under 45 CFR 46.101(b) of the federal regulations, **category 2**. If the nature of the research changes such that exemption criteria no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before continuing your research study.

Comments:

- *Data collection is authorized to begin at the following locations: [redacted] (08.08.2025).*
- *IRB protocol number (IRB-**04635-2025**) must be included at the end of consent statements, correspondence, recruitment documents, etc.*
- *Upon completion of the research study all data (e.g. data, pseudonym/email lists, transcripts, etc.) must be securely maintained (e.g. locked file cabinet, password protected computer, etc.) and accessible only by the researcher for a **minimum of 3 years**. At the end of the required time, collected data must be permanently destroyed.*

☒ ***Proposed modifications must be submitted to the IRB Administrator at tmwright@valdosta.edu for review and approval before implementation is permitted.***

Elizabeth W. Olphie *08.08.2025*

Elizabeth W. Olphie, IRB Administrator Date

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-259-5045.

Revised: 06.02.16

[redacted] OFFICE OF SPONSORED RESEARCH

TO: Andrew Welaish and Valdosta IRB

FROM: [redacted]

DATE: 06/16/2025

SUBJECT: Site Approval Letter

To whom it may concern:

This letter acknowledges that I have received and reviewed a request by Andrew Wekaish to conduct a research study entitled "Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity" at [redacted] and I approve of this research to be conducted at our university.

[redacted] agrees to the following, as requested:

Requested Information:

- Upon IRB approval, [redacted] will assist in the administration of a survey to of all Louisiana State University Shreveport active undergraduate student employees' or, if possible, provide a list names and email addresses and permission to use that data to conduct a survey as described.

Anticipated Dates: September 15, 2025 through September 29, 2025

Number of Participants:

- Approximately 170[redacted] undergraduate student employees (estimated based on January 2025 data obtained from [redacted]).

When the researcher receives approval for his research project from Valdosta's Institutional Review Board, I agree to provide access for the approved research study. LSUS participates in SmartIRB and is happy to faciltitate this research using the SmartIRB platform or a reliance agreement.

Sincerely,

[redacted]

Assistant Vice Chancellor for Sponsored Research

[redacted]

[redacted]

June 23, 2025

Institutional Review Board
c/o Sponsored Programs and Research Administration
Valdosta State University
Converse Building, Suite 3100
1500 N. Patterson St.
Valdosta, GA. 31698

Letter of Cooperation re: Andrew G Welaish, Investigator, "Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity"

To Whom It May Concern,

Based on our reading of the attached "Dissertation Project Overview for Letter of Cooperation" I and one of the Co-Chairs of the [redacted] Institutional Review Board (IRB) understand the investigator's aims and proposed study design regarding the target population, level of risk to subjects, and application of the findings of the study and have no concerns about the proposed survey being implemented at [redacted].

Prior to approving commencement of the study with [redacted] students, the [redacted] IRB will require copies of the investigator's protocol, informed consent and any advertising materials as approved by the Valdosta State University IRB, and a copy of the Valdosta State University IRB's Letter of Determination approving the study.

Please do not hesitate to contact me at [redacted] with any questions or requests for information regarding this matter.

Sincerely,

[redacted]
Institutional Official and
Associate Vice President for Research, Sponsored Programs, and Grants

[redacted]

Appendix D:

Survey Instrument

Note: The Socially Responsible Leadership Scale had been redacted. To obtain a copy of the scale contact the National Clearinghouse for Leadership Programs: nclp@umd.edu

Undergraduate Student Employment and Leadership Development

CONSENT INFORMATION

You are being asked to participate in a survey research project entitled "Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity" which is being conducted by Andrew Welaish, a doctoral candidate at Valdosta State University. The purpose of this study is to explore how workplace experiences influence student employees' leadership capacity. Your participation will contribute significantly to our understanding of how student employees' workplace experiences influence leadership development.

There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life. The survey should take approximately 15 minutes to complete. This survey is anonymous. No one, including the researcher, will be able to associate your responses with your identity. Your participation is voluntary. You may choose not to take the survey, to stop responding at any time, or to skip any questions that you do not want to answer.

Participants must be at least 18 years of age to participate in this study. Your completion of the survey serves as your voluntary agreement to participate in this research project and your certification that you are 18 or older. You may print a copy of this statement for your records.

Questions regarding the purpose or procedures of the research should be directed to Andrew Welaish at agwelaish@valdosta.edu.This study has been conducted in accordance with Federal regulations. The IRB, a university committee established by Federal law, is responsible for protecting the rights and welfare of research participants. If you have concerns or questions about your rights as a research participant, you may contact the IRB Administrator at 229-253-2947 or irb@valdosta.edu.

DEFINITION

A student employee is defined as a student enrolled at a college or university who works in a part-time on-campus job in exchange for pay.

WORKPLACE EXPERIENCES

Employee Experiences

The following question has been adapted with permission from:

Lewis, J. (2007). *Learning while earning: Student employment and learning outcomes* [Unpublished master's thesis]. Northwestern University

While working at your job as a student employee how frequently did you…	**Never**	**Rarely**	**Occasionally**	**Sometimes**	**Often**
Participate in formal training for specific tasks					
Receive informal/incidental training for specific tasks					
Observe coworkers performing job tasks					
Collaborate with coworkers					
Receive feedback from other student employees					
Receive feedback from your supervisor(s)					
Interact informally with your supervisor(s)					
Repeat the same task multiple times					
Problem solve					
Try new ways to complete a job task or responsibility					
Make decisions without checking with a supervisor					
Reflect about your job					
Relate job tasks or experiences to what you are learning in your classes					

Supervision

While working at your job as a student employee how frequently did you…	**Never**	**Rarely**	**Occasionally**	**Sometimes**	**Often**
Coordinate or assign work to other student employees					
Provide feedback to other student employees					
Provide formal training to other student employees					
Provide informal/incidental training to other student employees					

Interactions with Others

While working at your job as a student employee how frequently did you…	**Never**	**Rarely**	**Occasionally**	**Sometimes**	**Often**

Interact with others whose identity is different than your own					
Adapt your approach to interacting with others to improve communication					

LEADERSHIP CAPACITY

The next section of the survey is comprised of the Socially Responsible Leadership Scale-R2, licensed for research by the National Clearinghouse for Leadership Programs. It has been validated for assessing college students' leadership development.

Please indicate your agreement or disagreement with the following items by choosing the answer that most closely represents your opinion about that statement. (Select one response for each.)

For statements that refer to a group, think of the most effective, functional group of which you have been a part. This might be a formal organization or an informal study group. For consistency, use the same group in all your responses.

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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WORKPLACE VARIABLES

1. Select the location that best represents where you work in your on-campus job:

- Student Life/Student Affairs
- Recreation Services/Fitness Center
- Residential Life
- Academic Schools/Departments
- Athletics Departments
- Dining Halls/Food Services
- Academic Support Services
- Libraries
- Other

2. How many semesters have you worked (including summer as one semester)?

- Less than 2 semesters
- 2 to 3 semesters
- 3 to 4 semesters
- 4 or more semesters

3. What is the average number of hours you work at your on-campus job?

- Less than 10 hours
- 10 to 20 hours
- More than 20 but less than 30 hours
- 30 Hours or more

4. Do you work at an off-campus job in addition to your on-campus job?

- Yes
- No

DEMOGRAPHICS

1. How old are you?
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65+ years old

2. Are you Spanish, Hispanic, or Latino or none of these?
- Yes
- None of these
- Prefer not to say

3. Choose one or more races that you consider yourself to be:
- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Other _____
- Prefer not to say

4. How do you describe yourself?
- Male
- Female
- Non-binary / third gender
- Prefer to self-describe _____
- Prefer not to say

5. Which of the following best describes your sexual orientation?
- Heterosexual (straight)
- Homosexual (gay)
- Bisexual
- Other _____
- Prefer not to say

6. Do you live...
- On-campus
- Off Campus

7. What is your class level?

- First Year Student (0-29 credits earned)
- Second Year Student (30-59 credits earned)
- Third Year Student (60-89 credits earned)
- Fourth Year Student (90 or more credits earned)
- Graduate Student (master's or doctoral)

Appendix E:

Survey Invitation and Reminder Correspondence

Initial Invitation Email

Subject: Participants Needed: Student Employees and Leadership

Greetings!

You are invited to participate in a research study titled "Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity," which is being conducted by Andrew Welaish from Valdosta University under the supervision of Dr. John Lairsey.

Purpose
The purpose of this study is to explore how workplace experiences influence student employees' leadership capacity. This research will contribute to our understanding of how on-campus employment experiences impact leadership development among undergraduate students.

What to Expect

- The study involves completing a survey that will take approximately 15 minutes.
- Questions will focus on your workplace experiences and leadership development.
- Participation is completely voluntary.
- You may choose to skip any questions or stop at any time.

How to Participate

Click the following link to begin the survey: [Qualtrics link]

Confidentiality and Data Security

Your responses will remain confidential and anonymous. All data will be securely stored, and no one, including the researcher, will be able to associate your responses with your identity.

Eligibility

- Must be at least 18 years old.
- Must be currently employed as an undergraduate student employee at [UNIVERSITY NAME].

Questions or Concerns

If you have any questions about this research study, please contact:

- Andrew Welaish at agwelaish@valdosta.edu
- Dr. John Lairsey at jdlairsey@valdosta.edu

This study has been approved by the [University] Institutional Review Board (IRB) for the Protection of Human Research Participants. If you have concerns or questions about your rights

as a research participant, you may contact: [IRB OFFICE NAME] [irbemail@email.edu], [phone number]

[or insert university-required IRB statement]

Best regards,

Andrew Welaish
Doctoral Candidate
Department of Leadership, Technology, and Workforce Development
Valdosta State University

5-Day Follow-Up Email

Subject: Gentle Reminder: Your Input on Student Employment & Leadership Research

Hello,

I hope this message finds you well. About 5 days ago, you received an invitation to participate in my research study on "Exploring the Relationship between Undergraduate Student Employees' Workplace Experiences and Leadership Capacity." If you've already completed the survey, thank you sincerely for your contribution! If not, I wanted to remind you that your perspective as a student employee is incredibly valuable. Your responses will directly help me understand how on-campus employment experiences support students' leadership development.

The survey takes approximately 15 minutes to complete, and your responses remain completely anonymous and confidential.

Survey Link: [Qualtrics link]

Your participation could help shape future student employment opportunities, making them more meaningful and beneficial for professional growth.

Thank you for considering this request.

Best regards,

Andrew Welaish
Doctoral Candidate
Department of Leadership, Technology, and Workforce Development
Valdosta State University

10-Day Follow-Up Email

Subject: Your Voice Matters: Student Employment Research Reminder

Hello,

I'm reaching out regarding the research study on student employment and leadership development. With 5 days remaining to complete the survey, I wanted to emphasize how important your specific input is to this research. As someone currently working on-campus, your experiences provide essential insights that could help improve future student employment opportunities. Every survey response strengthens our ability to make recommendations that benefit future student employees.

The survey takes about 15 minutes to complete. Remember, your responses remain completely anonymous and confidential, and participation is entirely voluntary.

Survey Link: [Qualtrics link]

Thank you for considering sharing your valuable experience.

Sincerely,

Andrew Welaish
Doctoral Candidate
Department of Leadership, Technology, and Workforce Development
Valdosta State University

Final 2-Day Reminder

Subject: FINAL OPPORTUNITY: Student Employment & Leadership Survey Closes in 48 Hours

Hello,

This is a final reminder that our research survey on student employment and leadership development will be closing in just 48 hours.

Your input is important! Your experiences as a student employee offer valuable insights that could help improve future student employment opportunities. Ensuring adequate representation from current student employees like yourself will strengthen the validity of our findings.

Survey Link: [Qualtrics link]

Final Deadline: [Insert specific date/time]

If you've been meaning to participate, I genuinely hope you'll consider taking these few minutes to respond before the survey closes. Every response matters. Remember, your responses remain completely anonymous and confidential.

Thank you for considering this final request. Your perspective is truly valued.

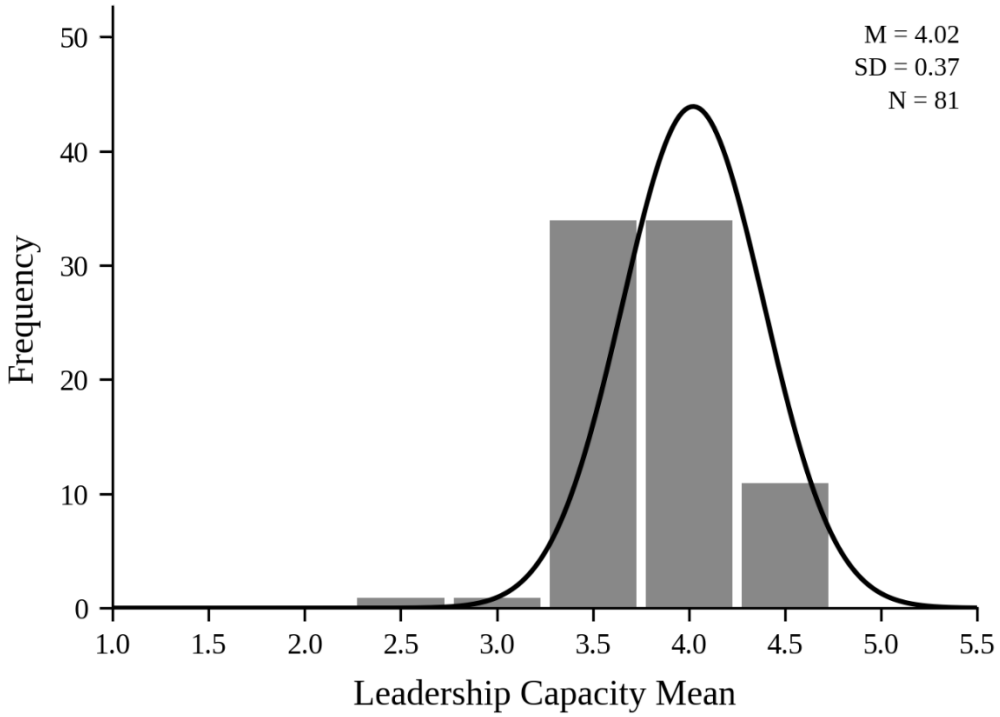
With appreciation,

Andrew Welaish
Doctoral Candidate
Department of Leadership, Technology, and Workforce Development
Valdosta State University

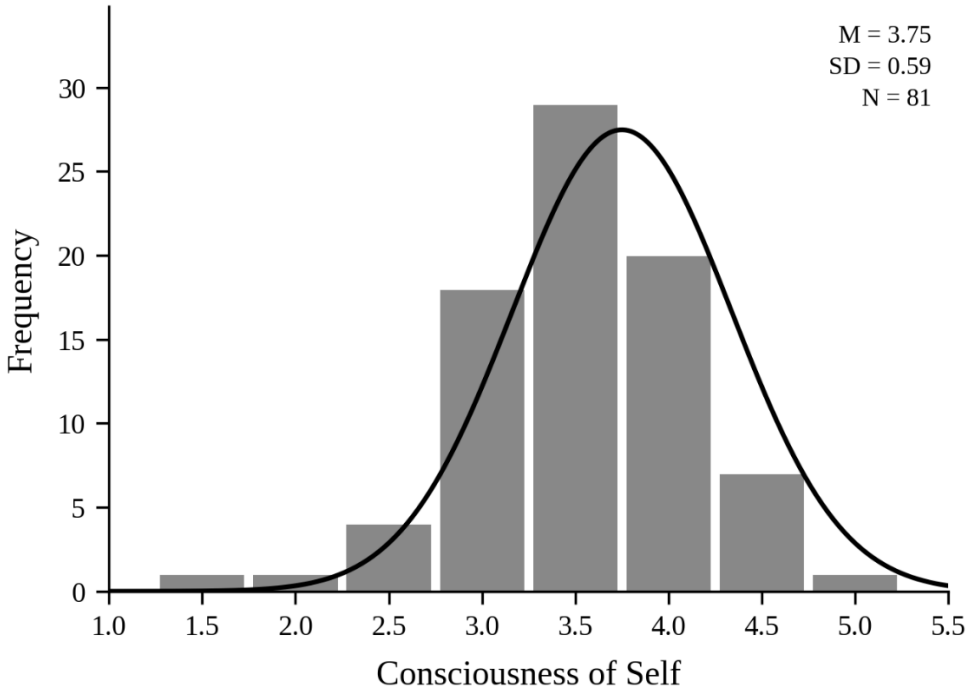
Appendix F:

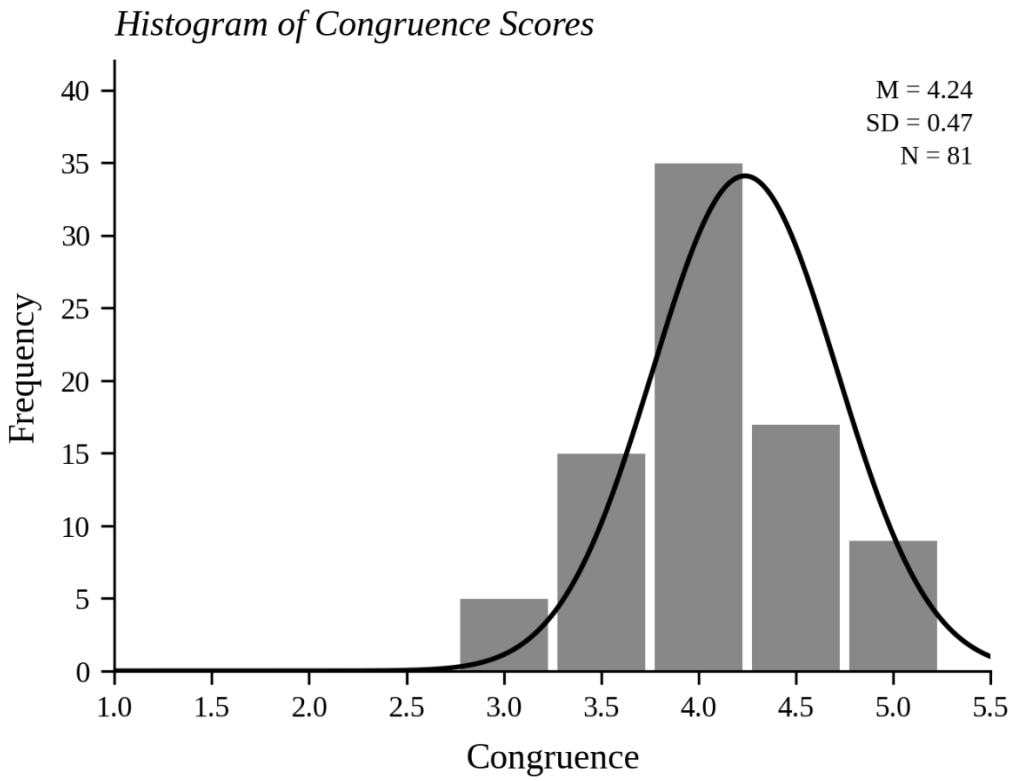
Histograms for SRLS-R2 Subscales

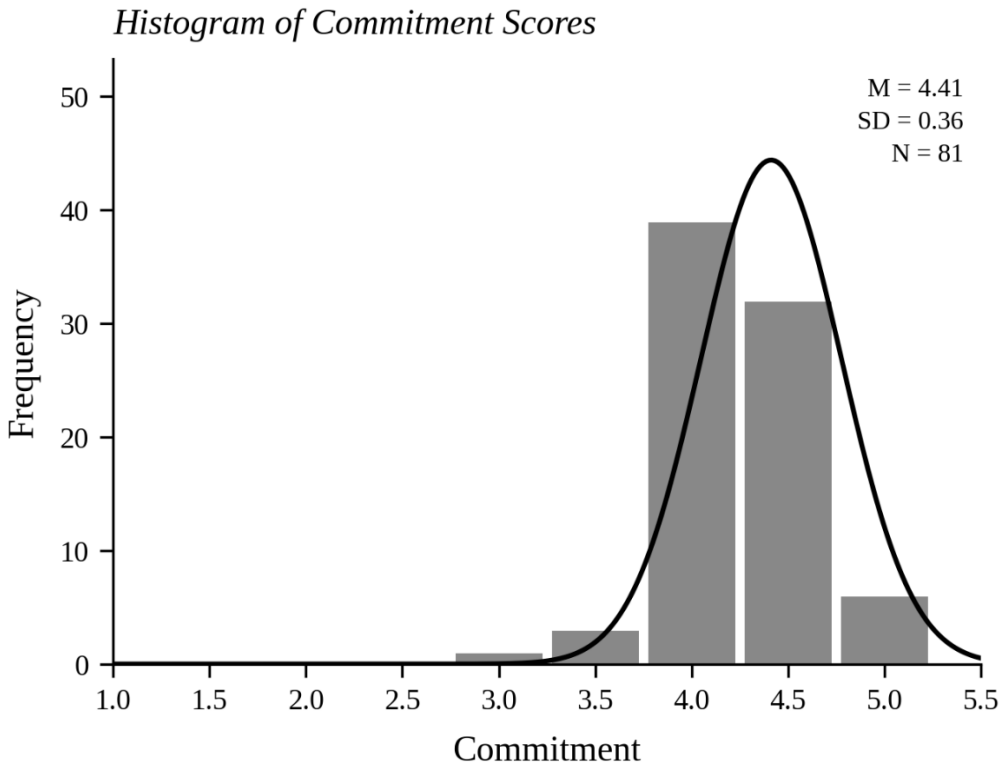
Histogram of Leadership Capacity Mean Scores



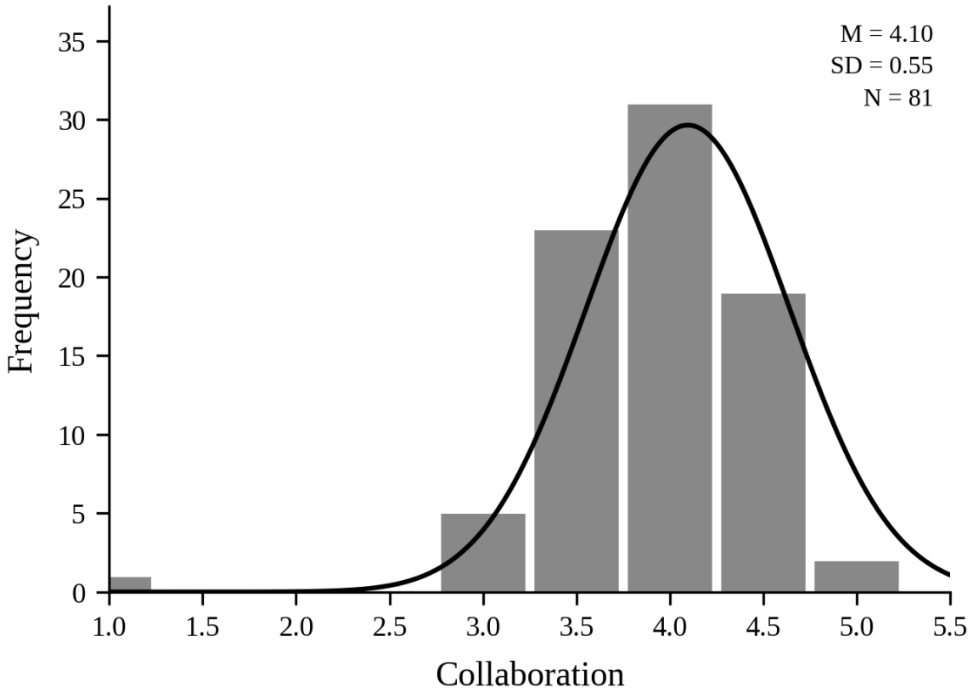
Histogram of Consciousness of Self Scores



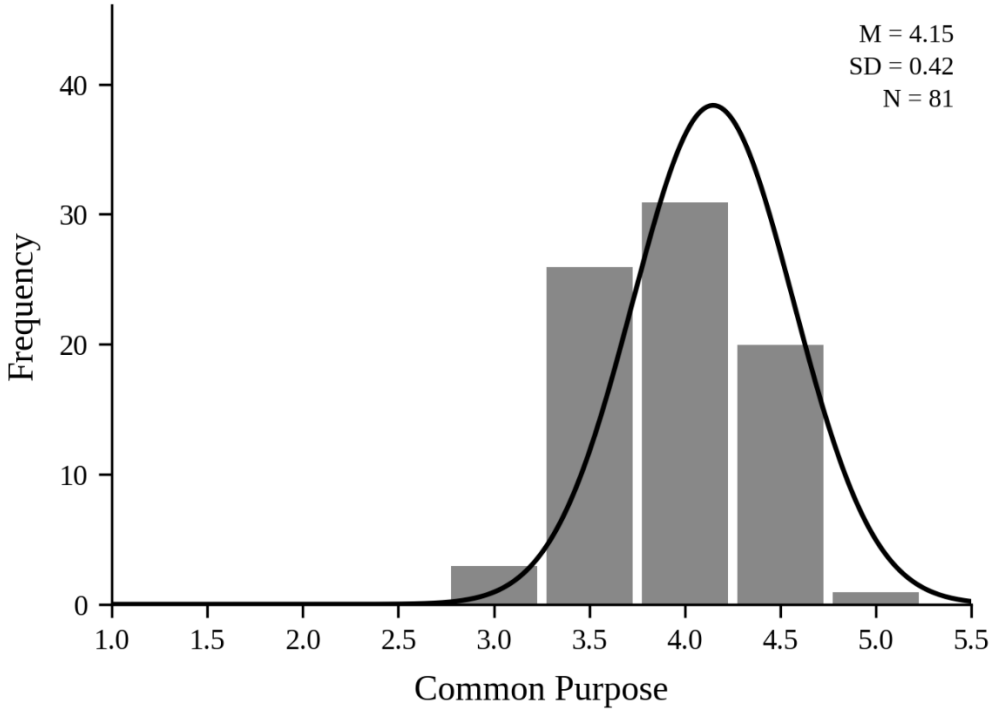

Histogram of Congruence Scores
M = 4.24
SD = 0.47
N = 81
Frequency
Congruence
0
5
10
15
20
25
30
35
40
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5


Histogram of Commitment Scores
M = 4.41
SD = 0.36
N = 81
Frequency
Commitment
0
10
20
30
40
50
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5

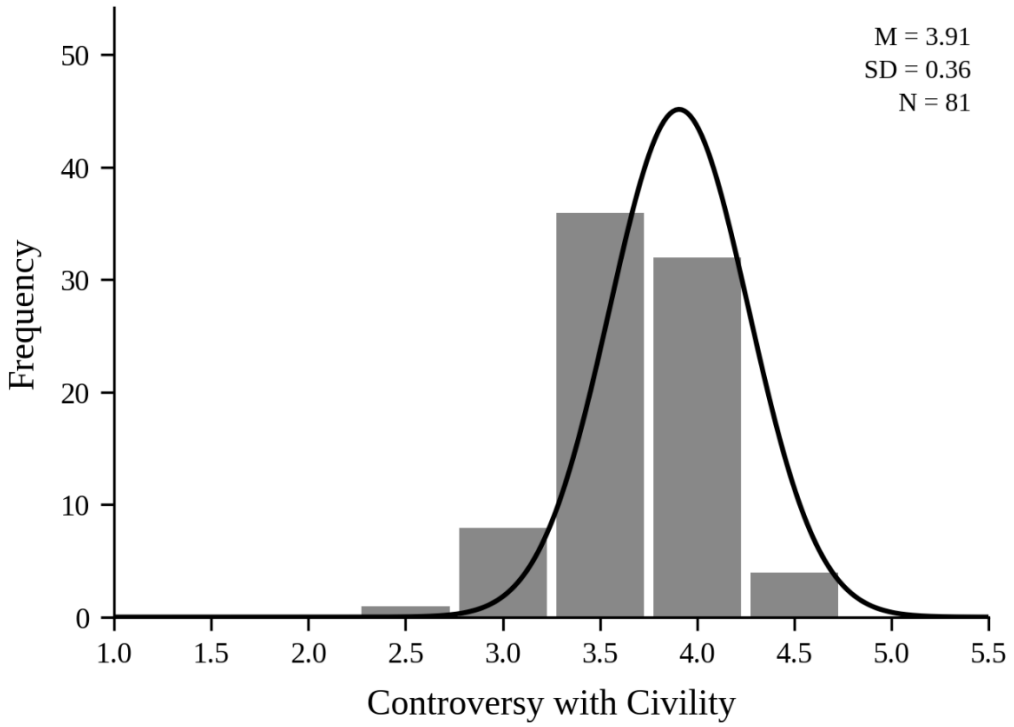
Histogram of Collaboration Scores



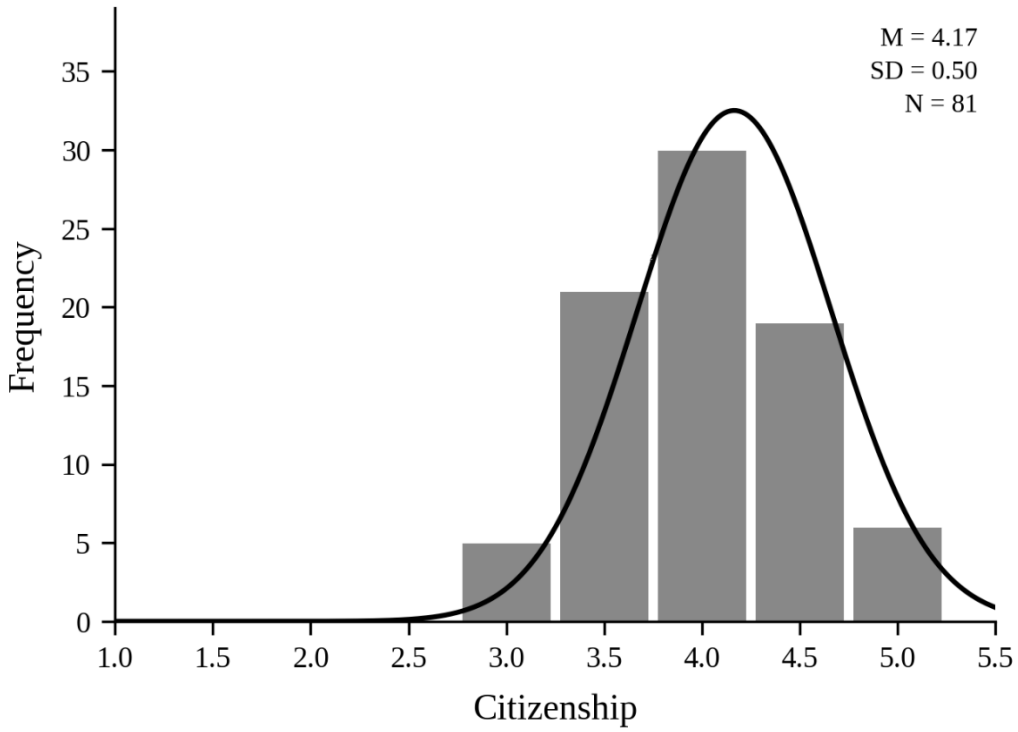
Histogram of Common Purpose Scores

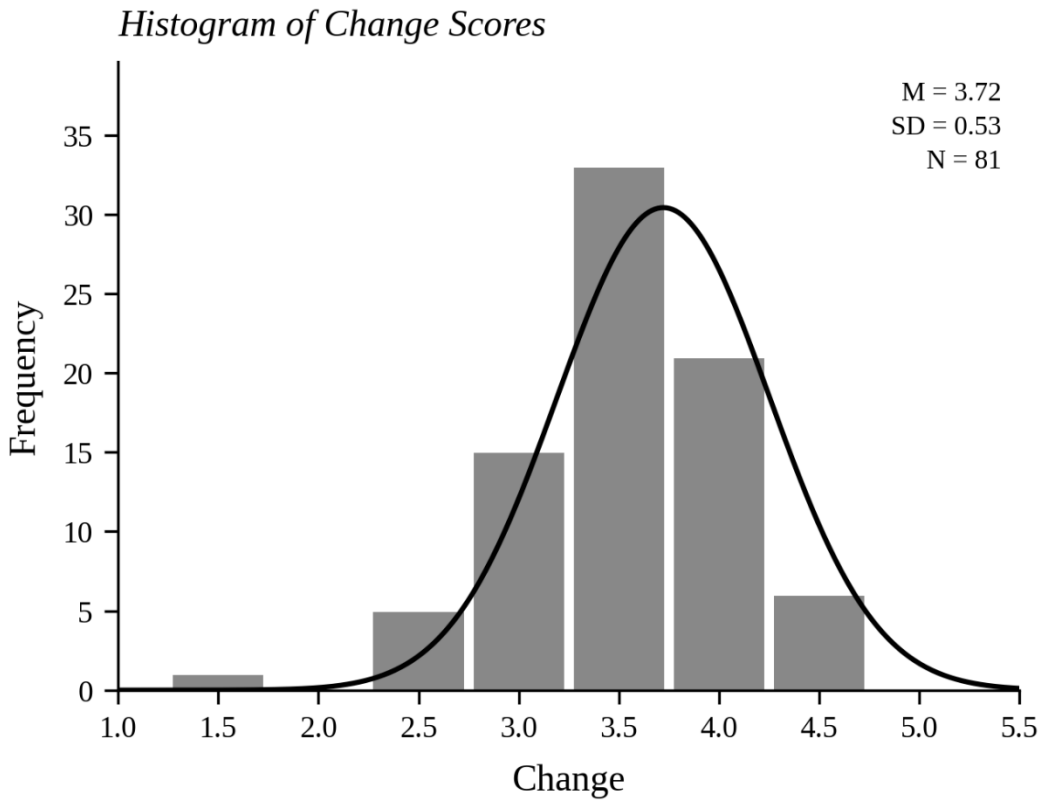


Histogram of Controversy with Civility Scores



Histogram of Citizenship Scores

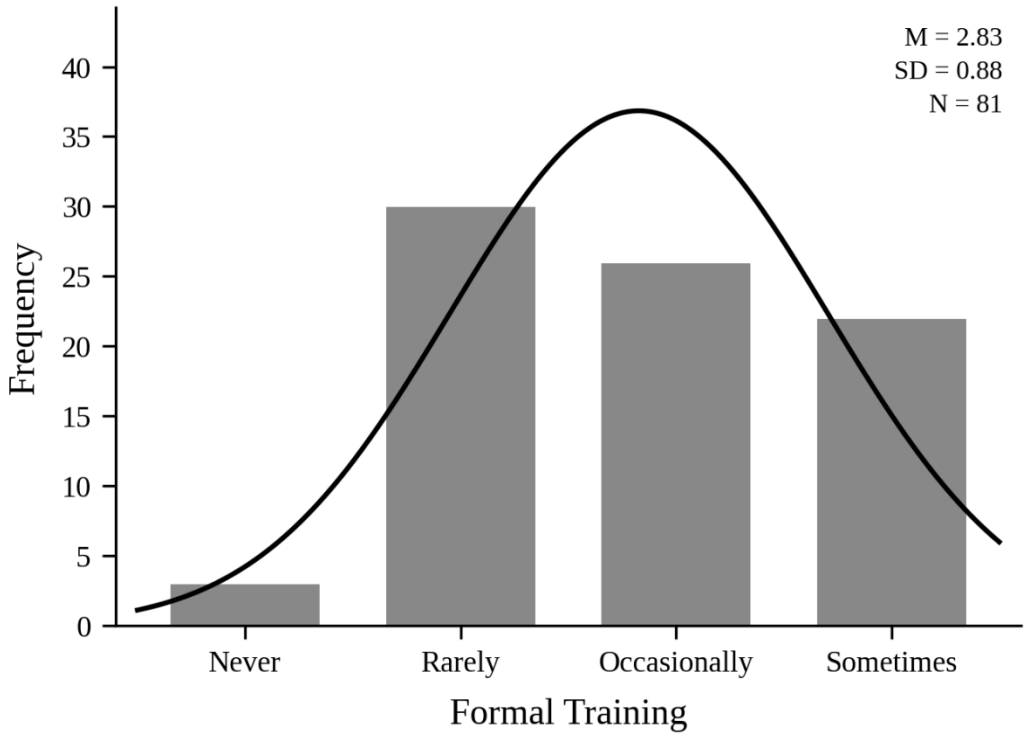



Histogram of Change Scores
M = 3.72
SD = 0.53
N = 81
Frequency
0
5
10
15
20
25
30
35
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
Change

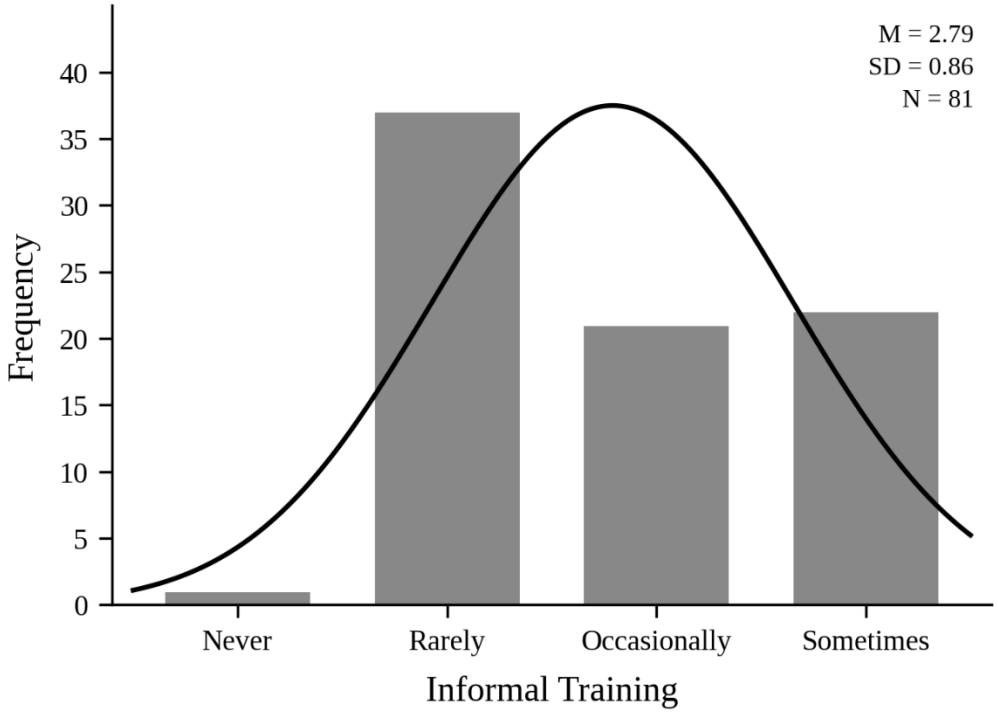
Appendix G:

Histograms for Workplace Experience Variables

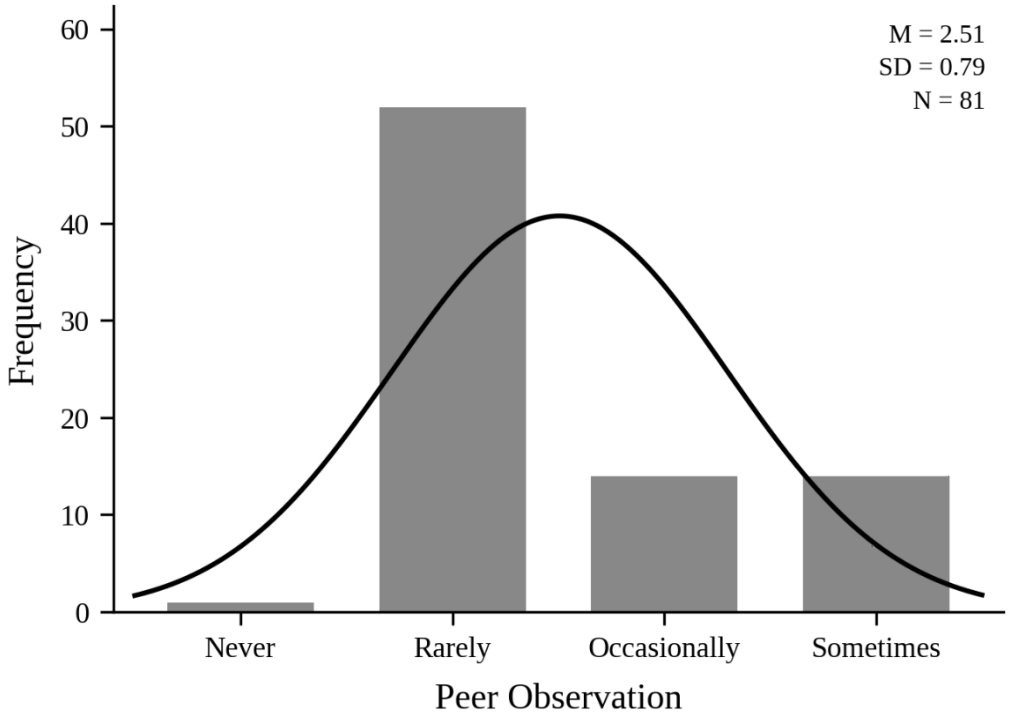
Histogram of Formal Training Responses



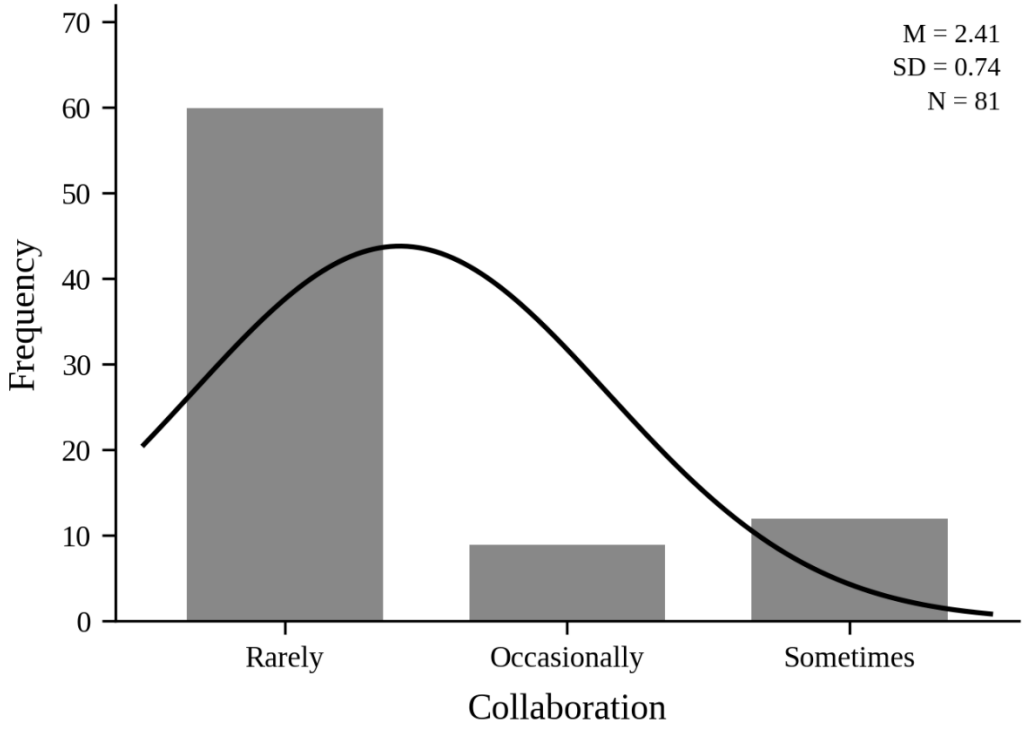
Histogram of Informal Training Responses



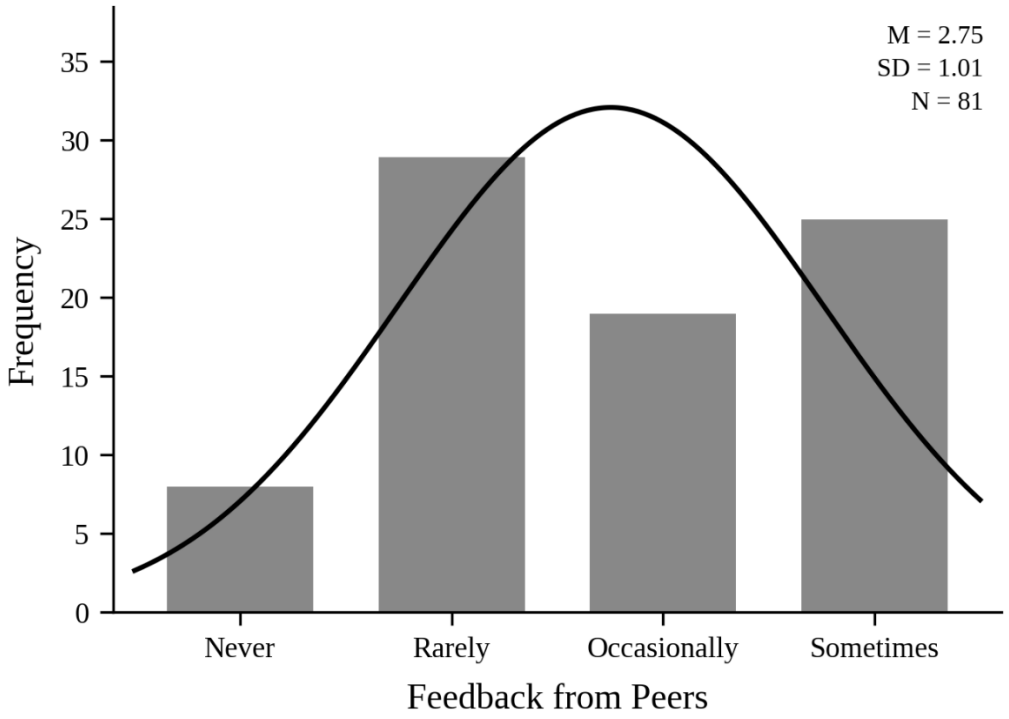
Histogram of Peer Observation Responses



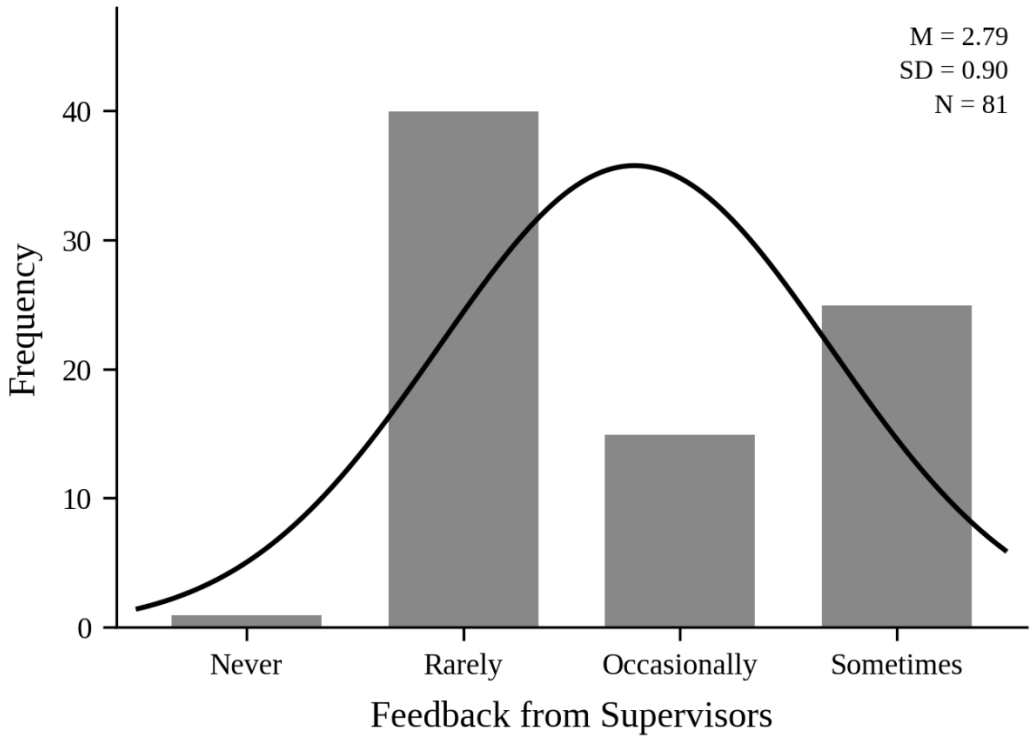
Histogram of Collaboration Responses



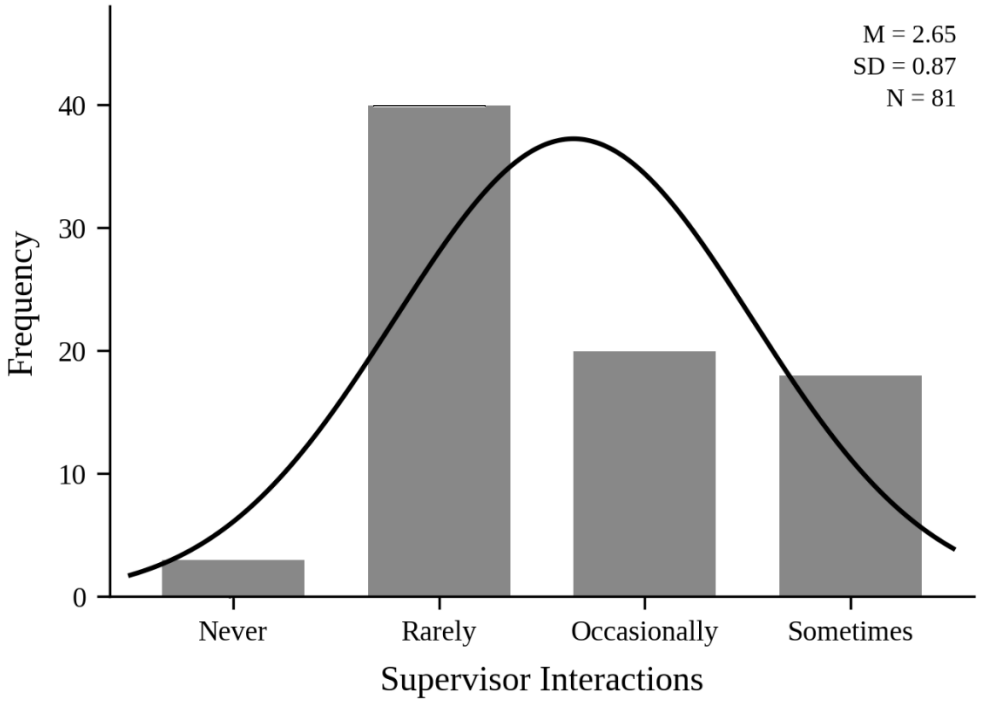
Histogram of Feedback from Peers Responses



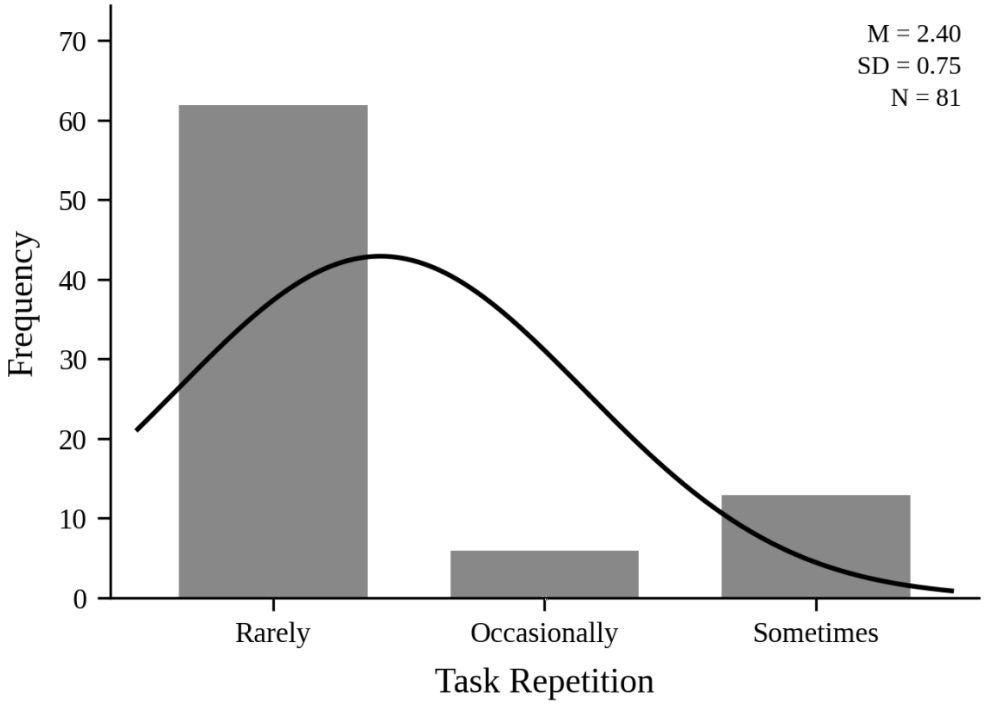
Histogram of Feedback from Supervisors Responses



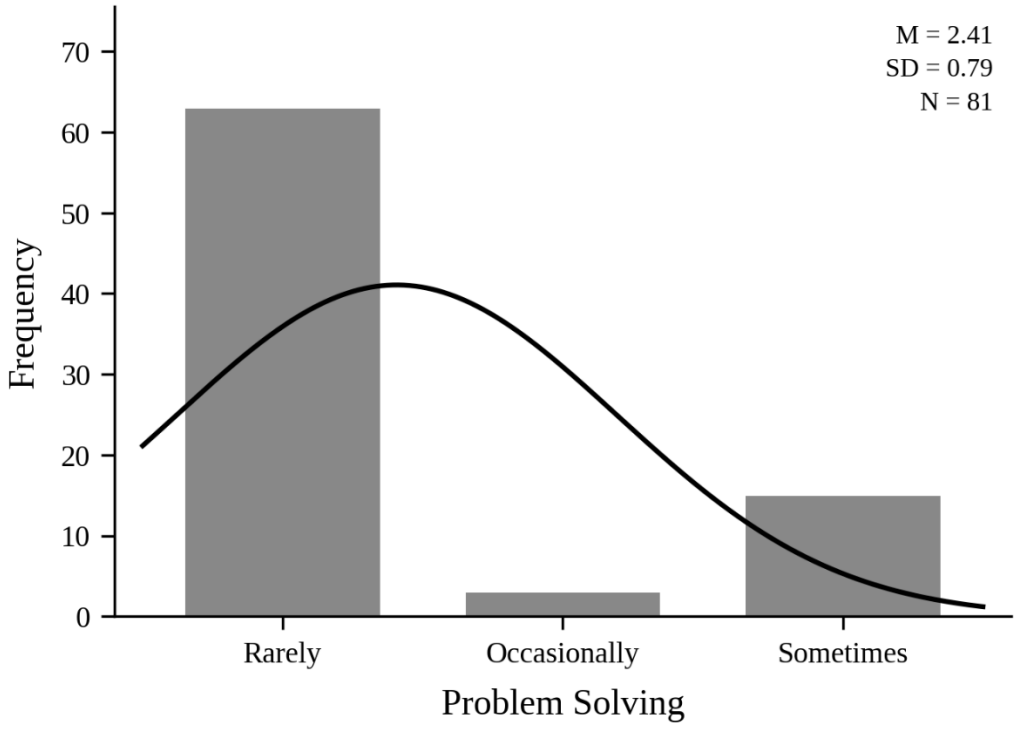
Histogram of Supervisor Interactions Responses



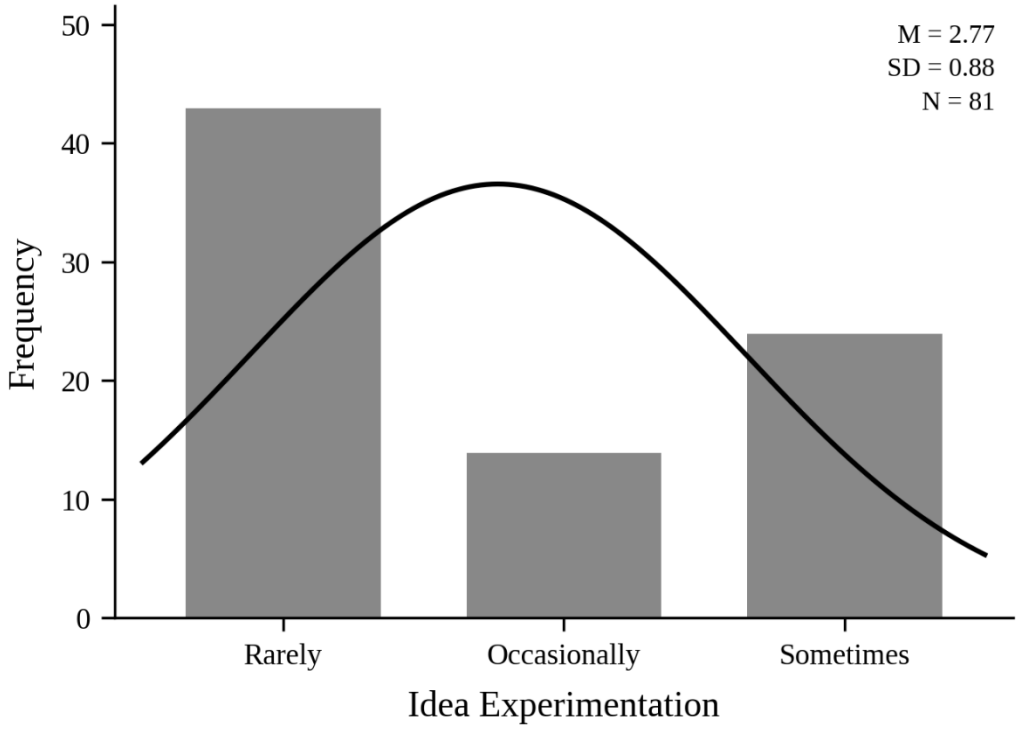
Histogram of Task Repetition Responses



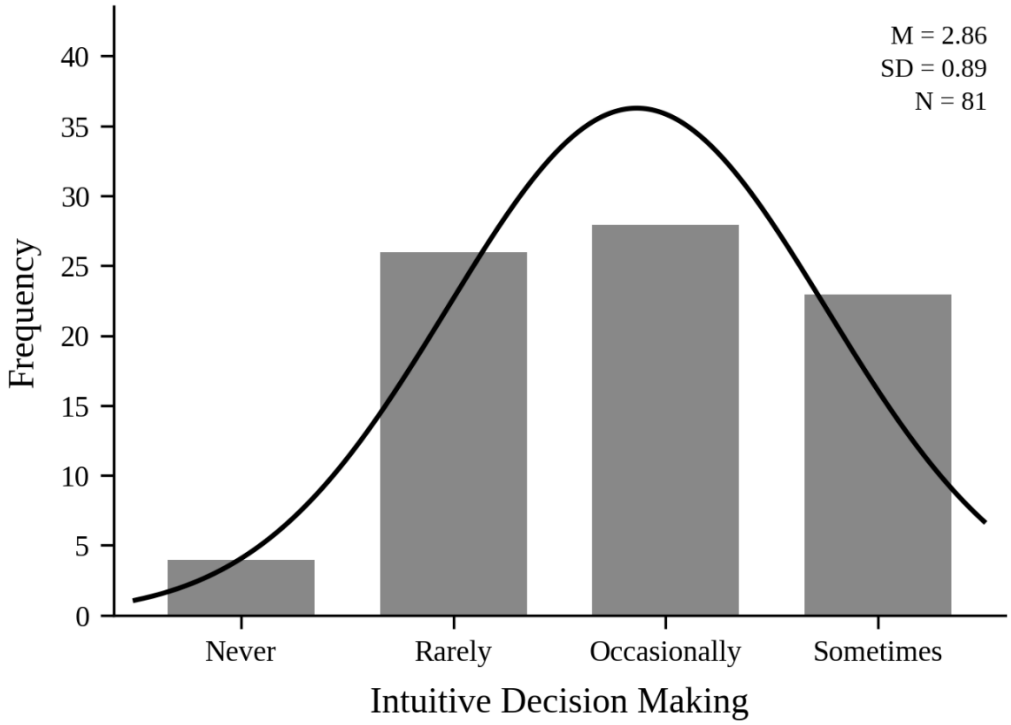
Histogram of Problem Solving Responses



Histogram of Idea Experimentation Responses

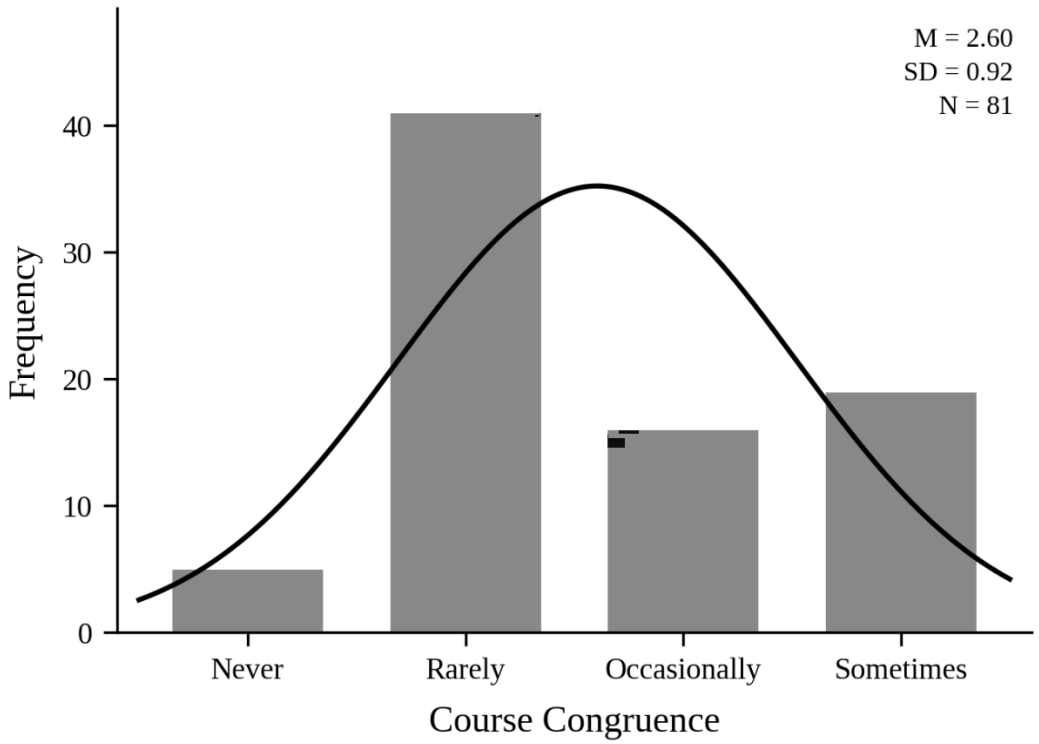


Histogram of Intuitive Decision Making Responses

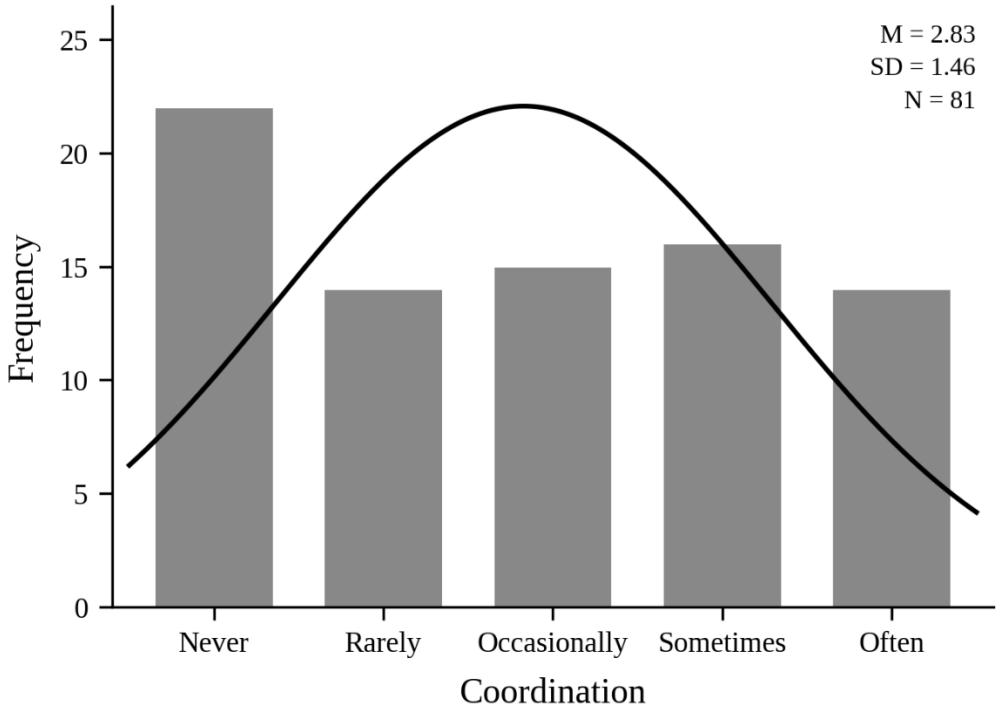


Histogram of Reflection Responses

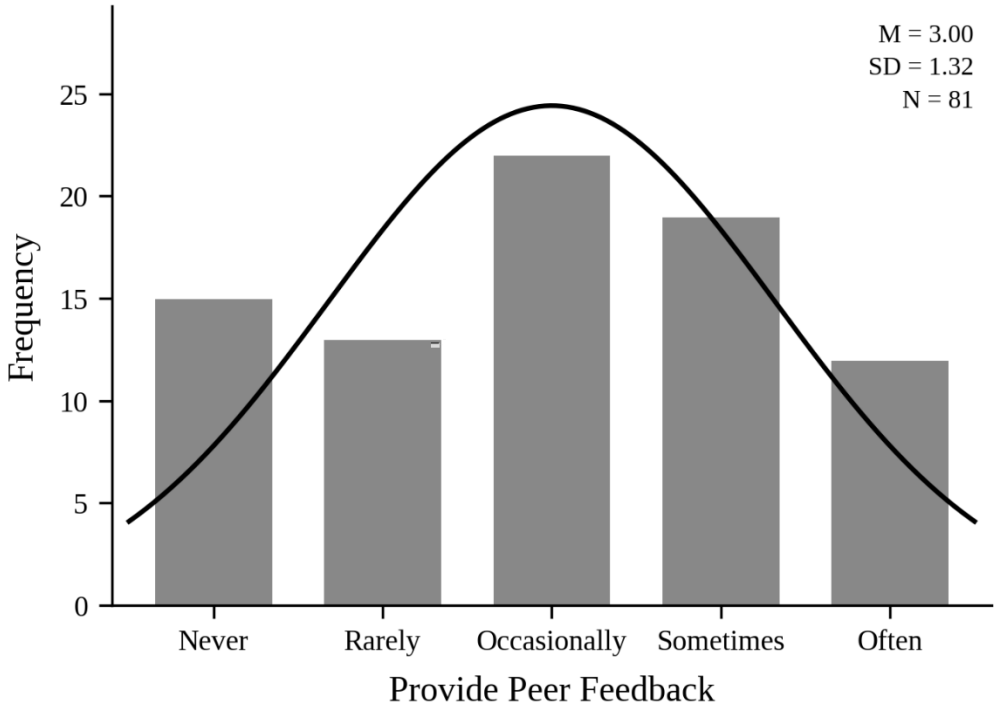
Histogram of Course Congruence Responses



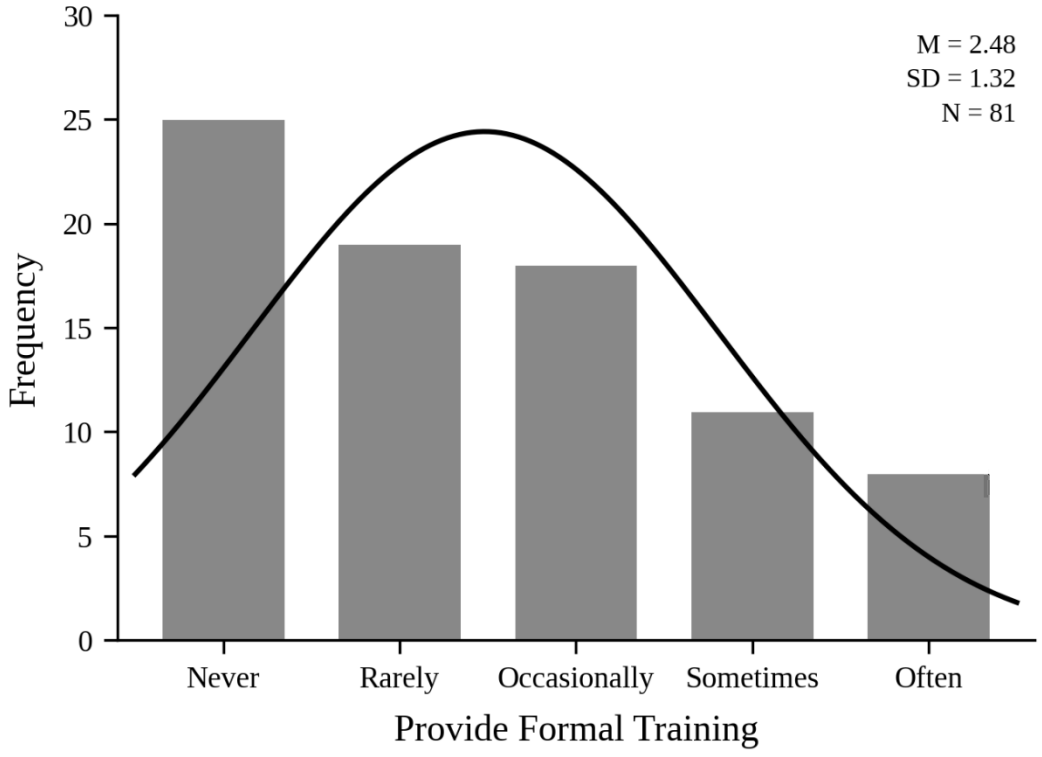
Histogram of Coordination Responses



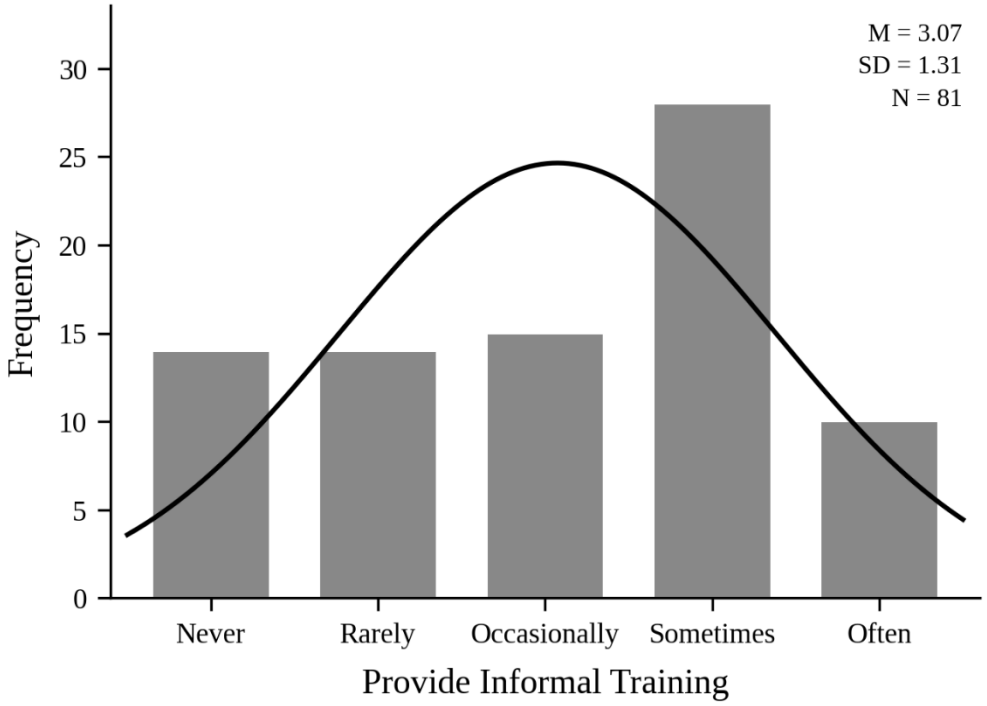
Histogram of Provide Peer Feedback Responses



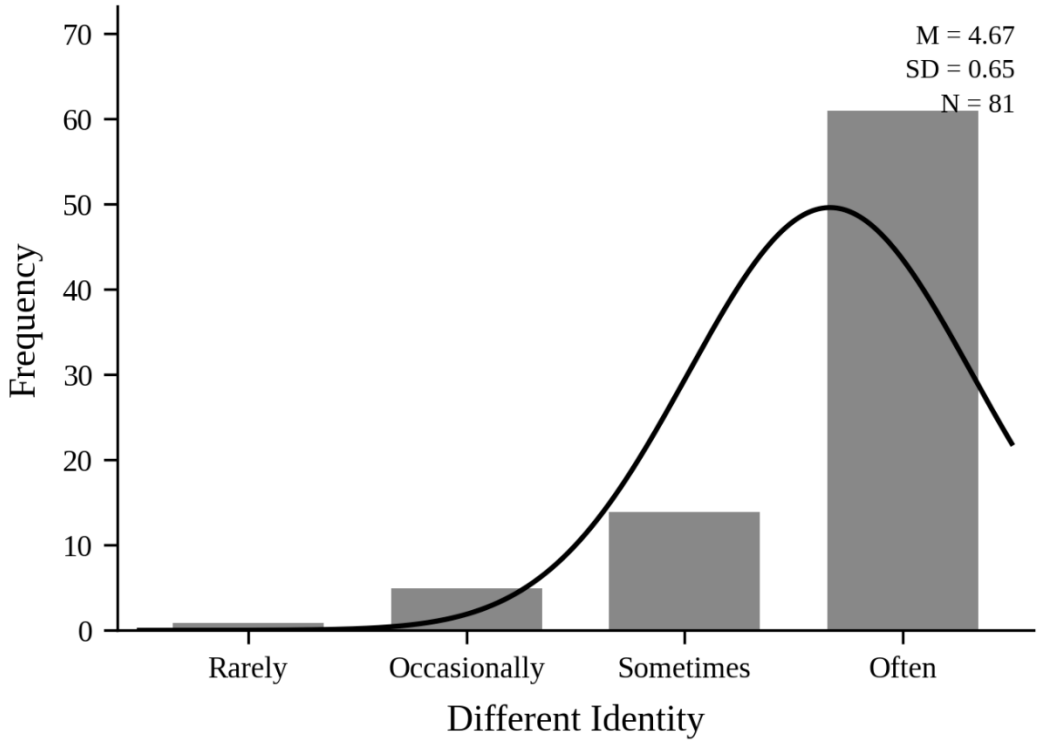
Histogram of Provide Formal Training Responses

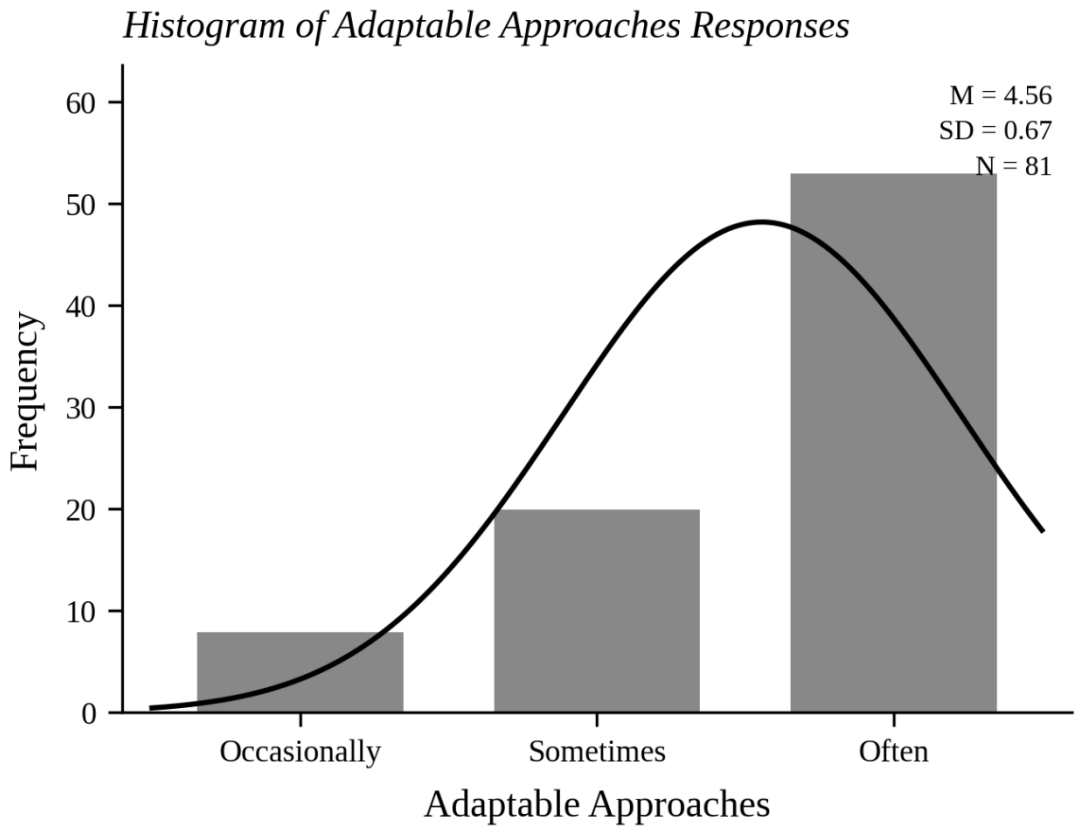


Histogram of Provide Informal Training Responses



Histogram of Different Identity Responses




Histogram of Adaptable Approaches Responses
M = 4.56
SD = 0.67
N = 81
Frequency
60
50
40
30
20
10
0
Occasionally
Sometimes
Often
Adaptable Approaches