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The Relationship between the High-Impact Practice of Communication-Intensive Courses and Undergraduate Degree Completion at a Research University (RU/VH)

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**THE RELATIONSHIP BETWEEN THE HIGH-IMPACT PRACTICE OF
COMMUNICATION-INTENSIVE COURSES AND UNDERGRADUATE
DEGREE COMPLETION AT A RESEARCH UNIVERSITY (RU/VH)**

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Agricultural and Extension
Education and Evaluation

by

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To Dr. Lillian Bridwell-Bowles: Your success in establishing communication-intensive courses has advanced teaching and learning, and transformed our campus culture. You created an innovative framework that ensures writing remains a solid foundation, while the importance of multimodality is respected within the disciplines and is rooted in students' development as communicators and thinkers. On behalf of our students, faculty, and those who employ our graduates, thank you for being “hip” before HIPs were hip!

To Dr. Michael Burnette: Thank you for continuing to push students like me to mine the wealth of data within our institution, and to see it through unbiased eyes. The time you invest in emerging scholars promotes learning of high-quality research practices, while also producing meaningful business intelligence for higher education. Cheers to fostering an organizational culture of evidence-based decision making!

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
LIST OF TABLES	v
ABSTRACT	viii
CHAPTER 1. INTRODUCTION	1
Background	1
Rationale.....	3
Research Questions and Objectives	12
Significance of Study	16
CHAPTER 2. LITERATURE REVIEW	17
Institutional Effectiveness: From Quality Learning to Graduation.....	17
HIPs and Student Success	20
HIP: Writing-Intensive Courses.....	25
Communication-Intensive Learning in the Disciplines: The Underlying HIP.....	28
CHAPTER 3. METHODS	32
Research Objectives	32
Design.....	36
Population and Sampling	37
Instrumentation and Data Collection.....	37
Analysis.....	40
CHAPTER 4. RESULTS	43
Objective 1	43
Objective 2	48
Objective 3	54
Objective 4	60
Objective 5	66
Objective 6	79
Chapter 5. SUMMARY	86
Research Objectives	86
Summary of Methodology	89
Summary of Findings	91
Conclusions, Implications, and Recommendations.....	97
REFERENCES	109
APPENDIX. INSTITUTIONAL REVIEW BOARD APPROVAL.....	116
VITA.....	117

LIST OF TABLES

Table 1. Race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	44
Table 2. Age of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	45
Table 3. ACT scores of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	47
Table 4. Number of Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	49
Table 5. Academic level of Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	50
Table 6. Mode emphasis of Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	51
Table 7. Mode emphasis occurrence within single- or dual-mode Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	52
Table 8. Time to degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years.....	53
Table 9. Curriculum of study at time of degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years	54
Table 10. Race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed three or more Communication-Intensive (C-I) courses.....	56
Table 11. ACT scores of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed three or more Communication-Intensive (C-I) courses.....	58
Table 12. Time to degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed three or more Communication-Intensive (C-I) courses, and graduated within six years.....	59
Table 13. Curriculum of study at time of degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed three or more Communication-Intensive (C-I) courses, and graduated within six years.....	60

Table 14. Race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed no Communication-Intensive (C-I) courses	62
Table 15. ACT scores of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed no Communication-Intensive (C-I) courses.....	64
Table 16. Time to degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed no Communication-Intensive (C-I) courses, and graduated within six years.....	65
Table 17. Curriculum of study at time of degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed no Communication-Intensive (C-I) courses, and graduated within six years	66
Table 18. Communication-Intensive (C-I) course completion status by race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	68
Table 19. Comparison of Communication-Intensive (C-I) course completion status by selected races of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	69
Table 20. Comparison of Communication-Intensive (C-I) course completion status by whether or not the student was a first-generation college student for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	71
Table 21. Comparison of Communication-Intensive (C-I) course completion status by whether or not the student received a federal Pell grant for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	72
Table 22. Comparison of Communication-Intensive (C-I) course completion status by high school GPA for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	73
Table 23. Comparison of Communication-Intensive (C-I) course completion status by ACT scores for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	74
Table 24. Comparison of Communication-Intensive (C-I) course completion status by whether or not the student graduated in six years or less for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	75
Table 25. Comparison of time to degree by Communication-Intensive (C-I) course completion status for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years.....	76

Table 26. Comparison of Communication-Intensive (C-I) course completion status by overall GPA upon degree completion for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	77
Table 27. Comparison of degree category by Communication-Intensive (C-I) course completion status for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years.....	78
Table 28. Summary of binary logistic regression analysis of degree completion for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	81
Table 29. Classification results for degree completion within six years	84
Table 30. Binary logistic regression analysis of degree completion for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States	85
Table 31. Summary of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States.....	96

ABSTRACT

With a critical public lens on quality student learning inclusive of 21st century communication skills, and organizational effectiveness à la retention and graduation rates, all amidst budget constraints and increasing enrollments, postsecondary institutions must adopt practices that are both efficient and effective. This study examined the educational practice of Communication-Intensive (C-I) courses and its influence on the institutional outcome of undergraduate degree completion at a large, public research university.

In this longitudinal study, the researcher applied a quantitative ex post facto research design to analyze six years of official university data on undergraduates who entered the selected university as freshman in fall 2012 (N = 5,602). Following the MAX-MIN-CON principle (Kerlinger, 1986), students who completed three or more C-I courses (n = 1,029) were compared to those who completed no C-I courses (n = 2,717). Of the undergraduates who completed three or more C-I courses, 92.0% graduated in six years or less, while only 41.6% of those who completed no C-I courses graduated within six years.

Binary logistic regression analysis resulted in a substantively meaningful model for predicting degree completion with 70.9% of the cases correctly classified (n = 3,468). C-I course completion status (no C-I courses, three or more C-I courses) was found to be the strongest predictor of degree completion. Other variables that statistically contributed to the model were high school GPA, ACT English sub-score, first-generation status, Pell grant status, and gender.

To accredit its courses as C-I, the studied institution applies criteria aligned with the principles of High-Impact Practices (HIPs) (Kuh, O'Donnell, & Reed, 2013). The finding that C-I courses are positively correlated with degree completion affirms that C-I courses are operating as a HIP at this university.

This is the first known empirical research involving an institution-wide quantitative assessment of C-I courses as a HIP in relation to graduation rates. The methodology applied in this study should be used as a framework for other institutions exploring the efficacy of Writing-, Speaking-, or Communication-Intensive courses, and for future investigations of similar curriculum-based pedagogies such as service-learning and research-intensive courses, in relation to graduation rates.

CHAPTER 1. INTRODUCTION

Background

In recent years, graduation rates have been the singular outcome garnering the most attention with regard to assessing organizational effectiveness within higher education. Retention and persistence are, of course, precursors to graduation, and post-graduation activity is often folded into the interconnected debate on student and organizational success, though the latter is the least consistently tracked data point. The amount of time it takes a student to complete their degree is another metric receiving great attention given the implications of educational cost and student debt. In an effort to increase institutional accountability and transparency, the U.S. Department of Education began collecting graduation data in 1996. These data are publically available as one of many sources discerning students can use in selecting a college. Perhaps more significant, however, is the movement to align public funding with these data in states such as Louisiana. Collectively, these factors have put a spotlight on graduation rates, and as a result, universities across the U.S. are striving to better understand the specific factors that influence undergraduate degree completion.

The impact of student engagement on student learning, retention, and graduation rates has been well-researched, though engagement programs are often highly contextual to the institution and typically involve voluntary student participation. Parallel to these conversations is that of overall educational quality. With the ever-expanding global marketplace and the growing complexity of today's business landscape, emphasis on transferrable skills has been magnified. Employers continuously describe recent college graduates—across all majors and fields—as underprepared, and emphasize the need for graduates who can think critically and communicate effectively.

Universities are employing a myriad of pedagogies and practices to increase the quality and quantity of students they graduate, though during the past decade, the greatest focus has been on the eleven High-Impact Practices (HIPs) outlined by the American Association of Colleges and Universities (AAC&U). HIPs are described as a “contemporary framework for student success” (Kuh, 2008, p. 13) that promotes deep learning of knowledge and development of skills required of 21st century “work, life, and citizenship” (National Leadership Council for Liberal Education America's Promise, 2007, p. 2). Writing-Intensive courses is one of the eleven HIPs, and communication skills building is inherent in this and the other ten Practices, especially learning communities, collaborative assignments, undergraduate research, global learning, service learning, internships, capstone courses, and e-portfolios.

Writing-intensive pedagogy emerged in the 1960's and has long been recognized as an effective method for advancing students' writing skills while also deepening learning of course content. Now formally recognized as a HIP, research suggests Writing-Intensive (W-I) courses contribute to retention and graduation, though they were not originally developed for this purpose. The increasing importance of communication skills in today's globalized marketplace has led some universities to apply the best practices of writing-intensive pedagogy to broader forms of communication, including speaking, visual, and technological, to enable Communication-Intensive (C-I) courses.

With a critical public lens on quality student learning inclusive of 21st century communication skills, and institutional effectiveness à la retention and graduation rates, all amidst budget constraints and increasing enrollments, higher education institutions must adopt educational practices that are both efficient and effective. This study examined the educational practice of Communication-Intensive courses at a large, public research university-very high

research activity (RU/VH) in the Southern United States, and its influence on the institutional outcome of degree completion.

Rationale

A college degree is important

American society places significant value on the college degree and the data continue to demonstrate the importance of this ideology. The 2016 U.S. Bureau of Labor Statistics reported that employees with undergraduate degrees earn an average of \$12,800 more per year than workers without a degree. The Georgetown University Center on Education and the Workforce estimates this to equate to approximately \$1 million more in lifetime earnings for the worker with a bachelor's degree (U.S. Department of Education, 2015).

The societal economics of the college graduate goes far beyond individual earnings. For example, the *It's Not Just The Money* report generated by the Lumina Foundation documents a variety of implications for those with a bachelor's degree, including a lower probability of being incarcerated, and a reduced rate of physical disability in which independent living is difficult (Trostel, 2015). Additionally, a 2016 study published by the *Journal of Health Economics* documents the potential for decreased mortality in college graduates (Buckles, Hagemann, Malamud, Morrill, & Wozniak, 2016). The 2016 College Board's *Education Pays* study reported that 23% more college-educated adults committed to volunteer service than those without bachelor's degrees (Ma, Pender, & Welch, 2016).

Employment informs a healthy economy and productive society. As such, the prediction by the Georgetown Public Policy Institute that 35% of all job openings in 2020 will require a bachelor's degree is notable for institutions of higher education (Carnevale, Smith, & Strohl, 2013).

Need for improved communication skills among college graduates

The findings of the 2016 *Workforce-Skills Preparedness Report* regarding the skill deficit of recent graduates in the areas of written and oral communication is parallel to other studies, but perhaps the most notable aspect here is that some managers are beginning to characterize communication as “hard skills” (PayScale Inc., 2016b). Dan Schawbel, Research Director at Future Workplace sums up the importance of communication skills in this statement: “Graduates need strong communication and problem-solving skills if they want to interview well and succeed in the workplace because effective writing, speaking, and critical thinking enables you to accomplish business goals and get ahead...No working day will be complete without writing an email or tackling a new challenge, so the sooner you develop these skills, the more employable you will become” (PayScale Inc., 2016a)

In a 2013 study sponsored by the American Association of Colleges and Universities (AAC&U), 93% of employers agreed “a candidate’s demonstrated capacity to think critically, communicate clearly, and solve complex problems is more important than their undergraduate major” (Hart Research Associates, 2013). In the 2016 National Association of Colleges and Employers (NACE) *Job Outlook Survey*, communication skills dominated the top five attributes employers sought on a candidate's resume. Seventy percent of employers placed a high priority on candidates’ written communication skills, ranking third to leadership (80.1%) and ability to work in teams (78.9%) respectively. Sixty-nine percent reported reviewing resumes for evidence of verbal communication skills, while 58.4% noted interpersonal communication (relating well to others) as a key skill (National Association of Colleges and Employers, 2016).

Addressing the undergraduate curriculum gap to advance students’ communication skills

The attempt of American universities to address communication skill deficits dates back to the 1970’s with the rise of Writing Across the Curriculum (WAC) programs. WAC’s

theoretical roots are based in British research, though its movement within the U.S. was spurred by political, social, and pedagogical factors surrounding the nature of college students' writing abilities (International Network of WAC Programs, 2014; Russell, 2002). By 1987, 48% of the 1,113 reporting postsecondary institutions indicated having some form of WAC program established at their university (Thaiss & Porter, 2010). Today, WAC is “one of the longest running educational reform movements in higher education in the U.S.” (International Network of WAC Programs, 2014, p. 1). In its 2014 update of *WAC Principles and Practices*, the WAC community asserted that writing proficiency is enabled when college writing instruction is integrated into and throughout the discipline, affirming the efficacy of Writing In the Disciplines (WID) initiatives (International Network of WAC Programs, 2014).

One of the leading calls for higher education transformation came from Boyer Commission on Educating Undergraduates in the Research University (1998) when it released its report, *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. Included in its ten recommendations was the need to “link communication skills and coursework,” recognizing the value of WAC/WID pedagogy (p. 24). Acknowledgement of the importance of collegiate writing instruction by employers, college administrators, and prospective students alike was publicly demonstrated in 2003 when the *U.S. News and World Report: Best Colleges* began recognizing institutions employing eight high-impact academic programs, one of which was “writing in the disciplines.”

Despite the long history of WAC/WID pedagogy and its acceptance within American universities, research suggests there is still much work to be done. In 2007, Hart Research Associates surveyed recent graduates and employers on behalf of AAC&U. The report, *How Should Colleges Prepare Students to Succeed in Today's Global Economy?*, revealed new

graduates and employers alike believe communication skills training should be an integral part of the college curriculum (Hart Research Associates, 2006). The competencies ranked as most important by employers and new graduates were team collaboration and oral and written skills.

In 2008, Kuh documented a collection of ten effective teaching and learning practices which have been widely adopted and are commonly referred to as *HIPs* (High-Impact Practices) by university educators. The HIPs somewhat parallel the recommendations of the 1998 Boyer Report, and like those initiatives, have communication embedded throughout (e.g., writing and team collaboration within first-year experiences, presentations and portfolios in capstone courses). Additionally, one of the ten documented HIPs is “writing-intensive courses” (Kuh, 2008).

As a foundational communication skill, writing has found itself front and center in conversations surrounding higher education; however, many teachers, researchers, university administrators, students, and employers have embraced the broader implications surrounding the modern day, multimodal communication skills gap. For example, the Boyer Report (1998) called for research universities to focus on communication more holistically: “Every university graduate should understand that no idea is fully formed until it can be communicated, and that the organization required for writing and speaking is part of the thought process that enables one to understand material fully. Dissemination of results is an essential and integral part of the research process, which means that training in research cannot be considered complete without training in effective communication. Skills of analysis, clear explanation of complicated materials, brevity, and lucidity should be the hallmarks of communication in every course” (p. 24). Dannels (2001) makes a case for leveraging WAC/WID pedagogy to advance oral communication skills. Williams (2001) further documents the notion of expanding beyond

writing: “To be literate in the twenty-first century means possessing the skills necessary to effectively construct, and comfortably navigate, multiplicity; to manipulate and critique information, representations, knowledge, and arguments in multiple media from a wide range of sources; and to use multiple expressive technologies including those offered by print, visual, and digital tools” (p. 22). Bridwell-Bowles, Powell, and Choplin (2009) make a case for emphasizing multimodal communication inclusive of writing, speaking, visual, and technological.

In 2009, the AAC&U member survey reported that the majority of American colleges and universities (80%) were working to realign undergraduate learning outcomes to better meet the needs of the 21st century workplace, which included the intentional integration of written and oral communication skills. Despite these efforts, AAC&U’s own commissioned studies continue to reveal that employers believe new graduates need broader, higher-level communication skills. In the 2013 AAC&U study *It Takes More Than a Major: Employer Priorities for College Learning and Student Success*, employers rated the level of emphasis they believe needs to be placed on student learning outcomes. Collectively, communication competencies ranked highest, with 80% stating more emphasis is needed on written and oral communication, and 67% of employers believed more emphasis is needed on teamwork/collaboration skills.

Empirical research surrounding HIPs is emerging, though the practices of first-year seminars, learning communities, service learning, undergraduate research, and capstone experiences have received more attention than others (Finley & McNair, 2013). Most studies focus on the link between HIPs and student engagement, with few empirical investigations of the longitudinal connections between HIPs and institutional effectiveness in terms of degree completion.

Writing-intensive (W-I) teaching and learning emerged in the 1960's as an effective means for improving students' writing skills and deepening content learning (Russell, 2002). While W-I pedagogy has become somewhat of a mainstay throughout higher education, it is important to note that it did not originally emerge as a tool for retention and graduation. The principal goal of this research project was to explore the efficacy of one of the lesser analyzed HIPs, Writing-Intensive courses, and its influence on graduation rates. As a HIP, Writing-Intensive courses are defined as experiences that “emphasize writing at all levels and across the curriculum...[and]...encourage students to produce and revise various forms of writing for different audiences and disciplines” (Kuh, O'Donnell, & Schneider, 2017).

Institutional effectiveness and student success

Once rigorous curricula are in place, attention is directed to student persistence and successful matriculation through baccalaureate programs. While precise definitions of institutional effectiveness are often localized, student retention, graduation rate, and post-graduation employment are the three most widely used indicators of organizational success among U.S. colleges and universities. State and federal organizations, including the National Center for Educational Statistics (NCES), regularly document retention and graduation rates in an effort to increase institutional accountability. While it is now common place for universities to track these indicators, some leaders within higher education maintain the importance of traditional student achievement measures such as grade point average, while others continue to grapple with the complexity of “one-size-fits-all” compliance and accountability indicators, particularly in today's landscape where enrollment patterns of students vary and pathways are not always direct or consistent (Cook & Pullaro, 2010).

The AAC&U report, *America's Promise: College Learning for the New Global Century* (2007), acknowledged the need for standardized accountability measurements of degree

attainment, but encouraged educational institutions to also evaluate “whether students who have placed their hopes for the future in higher education are actually achieving the kind of learning they need for a complex and volatile world” (National Leadership Council for Liberal Education America's Promise, p. 1). This report documented what is today a nationally-accepted set of “essential learning outcomes,” including the “intellectual and practical skills” of written and oral communication “practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance” (National Leadership Council for Liberal Education America's Promise, p. 3).

Institutional effectiveness and student success are—and should be—inextricably linked. Beyond data standardization and collection challenges are the broader concerns facing the genuine meaning of student success. The most direct summary of this notion is perhaps authored by a university admissions dean who held the most popular tweet during the 2014 *University Business* live Twitter chat: “Student success is not measured in months or years, but lifetimes” (Ezarik, December 2014). Furthermore is the growing need to most effectively deploy institutional resources in a manner that drives meaningful results. In a foreword, National Center for Higher Education Management Systems’ Peter Ewell wrote: “Simply investing more money does not appear to produce more or better outcomes. Improved student learning will occur only if such investments are directed and intentional” (Wellman, 2010, p. 4). Paralleled is the concern that the right programs are supported and directed at the students who will most benefit from them: “Many more educators understand the need to move from ‘boutique’ programs that provide the kinds of high-impact practices for selected students to new curricular pathways that provide multiple, scaffolded encounters with high-impact practices for all students” (Kuh et al., 2013, p. vi).

The role of communication-intensive courses in institutional effectiveness and student success

The positive effects of engaged teaching and active student involvement on learning and degree persistence has been thoroughly researched and are well-documented within the literature ("Center for Postsecondary Success," 2018; Chickering & Gamson, 1991; National Institute of Education, 1984; "National Survey of Student Engagement," 2018; Pascarella & Terenzini, 2005; Tinto, 1993). Hu (2011) asserted, "Student persistence has almost become synonymous with student success; and student engagement is considered the pathway to success in college" (p. 97).

In *Making the Most of College: Students Speak Their Minds*, Light (2001) documented 1,600 student interviews and further reinforced studies about teaching and learning efficacy particularly as it relates to communication-intensive pedagogy. Among other strategies, Light points directly to Writing-Intensive courses and underscores many of the foundational WAC/WID principles surrounding engagement and active learning (smaller class sizes, low-stakes learning activities, iterative feedback, contextualized/connected learning). Bok (2006) outlined similar recommendations and support for communication-intensive teaching and learning, asserting "all undergraduates need to develop the capacity to communicate well with various audiences" (p. 67). Tsang (2012) wrote, "Deficiencies in communication skills may significantly impede student engagement and retention, academic performance and work-readiness upon graduation" (p. 203).

At a large, public research university-very high research activity (RU/VH) in the Southern United States, undergraduate students have access to Communication-Intensive courses (C-I) within the disciplines. To be accredited by this university as a C-I course, faculty must meet specific criteria which are rooted in WAC/WID best practices and endorsed by the

University's Faculty Senate. The University's C-I course certification requirements include the following:

- Engage students in use of informal communication for learning and formal communication for sharing ideas publicly.
- Teach and assess proper communication techniques throughout the course.
- Emphasize at least two of four communication modes: writing, speaking, visual, technological.
- Focus on genres and audiences appropriate to the discipline, field, or profession.
- Use iterative feedback to advance communication skills.
- Allocate at least 40% of the course grade to communication-based work.
- Uphold ethical and professional standards for all course activities.

At the studied institution, students self-elect into C-I courses just as they do any college course; however, if courses within a student's required course pathway are certified as C-I, then students may find themselves in C-I courses by "required default." This University began accrediting C-I undergraduate courses during the fall 2005 semester and its faculty now offer an average of 275 C-I course sections across the curriculum impacting an average of 5,500 undergraduates each semester.

This study used six years of official university records on undergraduates who entered the RU/VH in fall 2012 to examine the differences between students who completed three or more C-I courses, and those who did not complete any C-I courses. While small-scale case studies have documented the efficacy of C-I pedagogy on deep learning, no known research has been published regarding the relationship of C-I courses and undergraduate degree completion.

Research Questions and Objectives

The purpose of this study was to identify the differences between undergraduate students who participate in Communication-Intensive courses and those who do not. Using six years of longitudinal data on a singular cohort of undergraduates at a large, public university-very high research activity (RU/VH) in the Southern United States, this study examined the relationships between select student characteristics, Communication-Intensive courses, and degree completion. The following questions guided this research design:

1. Are students who participate in C-I courses different from students who do not participate in C-I courses?
2. Is participation in C-I courses related to undergraduate degree completion?

To address these questions, the following research objectives were constructed:

1. Describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following personal demographics and pre-college academic characteristics:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score

2. Describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following collegiate academic activities through spring 2018:
 - a. Number of Communication-Intensive (C-I) courses completed (0, 1, 2, ≥ 3)
 - b. Academic level of C-I courses completed (1000, 2000, 3000, 4000, 5000)
 - c. Mode emphasis of C-I courses completed (written, spoken, visual, technological)
 - d. Graduation status: Whether or not the student graduated within six years
 - e. Time to degree in years ($\leq 4, 5, 6$ years)
 - f. Overall GPA upon degree completion
 - g. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

3. Describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more Communication-Intensive (C-I) courses on the following variables:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years ($\leq 4, 5, 6$ years)

- k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
4. Describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed no Communication-Intensive (C-I) courses on the following variables:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years (\leq 4, 5, 6 years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
5. Compare undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more C-I courses to those who completed no C-I courses on the following variables:
 - a. Gender

- b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years (\leq 4, 5, 6 years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
6. Determine if a model exists that significantly increases the researcher's ability to correctly classify students at a RU/VH in the Southern U.S. on degree completion status (graduated within six years) from the following measures:
- a. Gender
 - b. Race
 - c. Whether or not the student was a first-generation college student
 - d. Whether or not the student was a Pell grant recipient
 - e. High school GPA
 - f. ACT scores: Composite and English sub-score
 - g. C-I course completion status (no C-I courses, three or more C-I courses)

Significance of Study

Measures surrounding college graduation define success for individual students as well as their postsecondary institutions. As such, we must continue to understand the practices and contexts that increase degree completion rates. The efficacy of Communication-Intensive (C-I) courses as a deep learning strategy is well documented, however, there is no known published research informing the direct relationship between C-I courses and degree completion.

The first research question of this study allows for better understanding of the contexts in which students do and do not engage in C-I courses. Locally, this data can inform institutional conversations surrounding student access to C-I courses across disciplines and demographics, revealing opportunities for improving access. More broadly, this study contributes to the emerging literature on where, when, and how HIPs are implemented at scale.

The second research question sought to understand the relationship between C-I courses and graduation rates. Its results provide empirical evidence for the studied institution, and for practitioners at similar institutions looking to introduce or scale-up C-I courses as a High-Impact Practice.

Irrespective of this study's results is its contribution as the first institution-wide quantitative assessment of C-I courses and degree completion. The methodology applied in this study can be used as a framework for other institutions exploring the efficacy of writing- or communication-intensive courses, and for future investigations of similar co-curricular pedagogies such as service-learning and research-intensive courses. Beyond the studied institution, this research responds to the call from the HIPs community for more empirical studies on the direct influence of HIPs on graduation rates (Martin, 2017).

CHAPTER 2. LITERATURE REVIEW

Institutional Effectiveness: From Quality Learning to Graduation

Conversations surrounding postsecondary educational quality, cost, and accessibility are amplified by the reliance on the college degree to ensure personal success and a healthy economy. Parallel is the dialogue of defining success for students and institutions in a manner that balances these interconnected factors within today's complex landscape of higher education. Despite being a multifaceted metric in itself, graduation rate is the singular outcome that has garnered the most attention during the past decade with regard to institutional effectiveness. Cook and Pullaro (2010) noted: "It is clear in nearly every conversation about higher education accountability that graduation rates are increasingly viewed as a critical, if not the critical measure of both student and institutional success" (p. 2). Retention and persistence are, of course, precursors to graduation, and post-graduation activity is often folded into the debate on "success," though it is the data point least consistently tracked by postsecondary institutions. The amount of time it takes a student to complete the degree is another metric receiving great attention given its implications on educational cost in relation to student debt (National Commission on Higher Education Attainment, 2013).

In an effort to increase institutional accountability and transparency, the Department of Education began collecting graduation data in 1996 via its research arm, the Institute of Education Sciences (IES). While it is now common for higher education institutions of all types to track these data, postsecondary education as a collective body continues to grapple with "one-size-fits-all" compliance and accountability indicators as enrollment patterns of students can vary and pathways are not always consistent (Cook & Pullaro, 2010). Nonetheless,

graduation rates and time to degree have become the primary performance measures in higher education, and in some instances graduation metrics are centric to funding allocations.

Historically, colleges have linked enrollment to funding, resulting in somewhat improved accessibility, though arguably at the risk of lowering graduation rates when the “race to enroll” was not properly aligned with college readiness programming. The transition to linking institutional funding to graduation signals that enrollment is only valid to the extent that students earn a degree in a timely fashion. Time-to-degree has become a success indicator for both the institution and the student. “A college degree is generally worthwhile, but the private value of the investment is a declining function of time-to-graduation” (Lobo & Burke-Smalley, 2018, p. 78). Within the Southeastern Conference (SEC), Louisiana, Arkansas, Florida, Oklahoma, Missouri, and Tennessee have shifted their state funding models for two- and four-year institutions to align with graduation rates (National Conference of State Legislatures, 2015). This shift, however, comes with its own implications and raises concerns such as whether the “race to graduate” results in lower-quality education, and by extension, lower-quality graduates, and if it actually fosters inaccessibility in the sense that underprepared students are less recruited for fear they will lower timely completion rates (Astin, 2005).

Some scholars suggest improved educational quality is the answer, not the barrier, to increasing graduation rates, and that quality learning is directly related to engagement. “Student persistence has almost become synonymous with student success; and student engagement is considered the pathway to success in college” (Hu, 2011, p. 97). There have been several hallmark publications on undergraduate retention (Astin, 1992; Pascarella & Terenzini, 2005; Tinto, 1993), though empirical evidence on the efficacy of specific educational practices across contexts in relation to degree completion is still emerging (Hu, 2011). In a 2011 study, Hu builds

on Tinto's theoretical perspective (1975; 1987; 1993) which differentiates between social and academic engagement. Hu (2011) found positive relationships between persistence and social engagement, and negative relationships between persistence and higher academic engagement, suggesting caution when lumping these two forms of engagement together to ascertain institutional quality in terms of student retention and persistence.

Student demographics of race, socioeconomic status, and college readiness have played a significant role in research related to student success, and by extension, institutional success. When using graduation rates as a comparison metric across institutions, Astin (2005) argued "variation among institutions in their degree completion rates is most significantly attributable to differences in their entering student bodies," and that the real question is a descriptive one: "What is it about certain institutions that enable them to engage or retain their students at higher-than-expected levels?" (p. 16). Such philosophies have led *U.S. News & World Report* to adjust their algorithms for the *Best Colleges* rankings: "The predicted graduation rate is an attempt to capture how well a college is able to support students so they are able to graduate with a degree and find where students succeed beyond what their test scores and other key factors might otherwise predict" (Flanigan, 2014).

In a 2017 study, Yue & Fu tracked data on 12,000 entering freshman over twelve years and found "pre-college characteristics only explain a small portion of the total variance in graduation and time to degree," and that academic performance (choice of major, credit hour enrollment, and GPA) was the primary factor affecting graduation and time to degree (p. 186). Attewell, Heil, and Reisel (2011) noted that while there is consensus that graduation rates vary with demographics, there is little causal research directly linking gaps to race, socioeconomic status, and academic preparedness, though these characteristics are often described as

interrelated. Their longitudinal study found that no single pre-college demographic was correlated with persistence, though some factors had greater influence in certain institutions. In two-year colleges, financial aid was positively related to graduation, while in four-year colleges, academic preparation was the strongest determinant.

Growing support for High-Impact Practices (HIPs) across all institution types is, in part, due to the promise that HIPs promote improved learning and retention, and mitigate factors affecting students classified as underrepresented minorities, first-generation, and low-income, in addition to those with lower ACT scores (Finley & McNair, 2013; Kuh et al., 2013). HIPs emerged from studies on student engagement, persistence, and completion rates, and the Documented Effective Educational Practices (DEEP, 2005) that supported these outcomes across demographic groups (Baer & Duin, 2014). While HIPs are becoming more prevalent, there is still a call for greater transformation in how institutions address graduation rates: “College degree completion rates are considered to be among the most important indicators of institutional quality. If this is indeed the case, we should see a culture of student success permeate the institution... This requires new expectations... and a deep culture of data and analytics” (Baer & Duin, 2014, p. 34).

HIPs and Student Success

Throughout the mid-1990’s, national discussions focused on the purpose, quality, and access to postsecondary education. While many of the questions and reports produced by public, private, and governmental agencies contained differing viewpoints, common threads exist within their recommendations. The Association of American Colleges and Universities (AAC&U), a collation of more than 1,300 colleges and universities of all types and sizes, has arguably been one of the most active organizations in researching and streamlining these common elements into

application tools for higher education practitioners. In 2007, the National Leadership Council for Liberal Education and Americas Promise (LEAP)—an advocacy division of AAC&U—outlined a series of practices intended to elevate student learning and success within college and beyond (2015), many of which reflect the recommendations described in earlier hallmark higher education improvement publications (Boyer Commission on Educating Undergraduates in the Research University, 1998; Chickering & Gamson, 1987; Pascarella & Terenzini, 2005). Termed formally as High-Impact Educational Practices and commonly referred to as *HIPs*, these practices are perhaps the most prevalent of current undergraduate reform initiatives and “advocacy for these practices is widespread” (Johnson & Stage, 2018, p. 25). HIPs are linked to the AAC&U suite of recommendations and application tools, which includes the Essential Learning Outcomes (ELOs, established by LEAP), Degree Qualifications Profile (DQP, supported in collaboration with the Lumina Foundation), and the Valid Assessment of Learning in Undergraduate Education (VALUE, supported in collaboration with the Fund for the Improvement of Post-Secondary Education).

Drawing on longitudinal trend data from the National Survey of Student Engagement (NSSE), Kuh (2008) identified ten practices positively associated with student learning and retention, and in 2017, an eleventh practice was added (Kuh, Gambino, Ludvik, & O’Donnell, 2018). The eleven HIPs are endorsed by AAC&U and include: *First-Year Experiences*; *Common Intellectual Experiences*; *Learning Communities*; *Writing-Intensive Courses*; *Collaborative Assignments and Projects*; *Undergraduate Research*; *Diversity/Global Learning*; *Service Learning and Community-Based Learning*; *Internships*; *Capstone Courses and Projects*; and *e-Portfolios* (Kuh, 2008; Kuh et al., 2017). HIPs are described as a “contemporary framework for student success” (Kuh, 2008, p. 13) that promotes deep learning of knowledge and

development of skills required of 21st century “work, life, and citizenship” (National Leadership Council for Liberal Education America's Promise, 2007, p. 2). The practices share several traits that result in “substantial educational benefits” (Kuh, 2008, p. 1), including: demanding considerable time, effort, and high-quality performance; facilitating and integrating learning beyond the classroom; requiring meaningful faculty-student interactions; encouraging collaboration, reflection, and interactions with diverse groups; and providing frequent, substantive feedback (Kuh et al., 2013).

The efficacy of HIPs is rooted in student engagement, which has long been documented as a predictor in student persistence and retention at universities of all types (Milem & Berger, 1997). Kuh (2008) suggests the Practices have the most impact when students experience two or more, and that their effect is greater on underserved students. To a large extent, HIPs are a toolbox to actionize Tinto’s 1975 Student Integration Model which maps the social and academic systems that affect student persistence. As Sweat, Jones, Han, and Wolfgram (2013) explained: “One way to understand the success of High-Impact Practices is that they work to the extent that they engage students, thereby fostering a greater commitment to one’s educational goals” (p. 3). Still, with regards to persistence, much remains unknown as their influence has been most commonly evaluated as individual practices at singular institutions, and most of these studies have primarily occurred at smaller colleges (Brownell & Swaner, 2009; Kilgo, Ezell Sheets, & Pascarella, 2014; Sweat et al., 2013). Some practices, such as undergraduate research and service learning, have been more frequently researched in the context of HIPs as contributors to engagement, retention and graduation, compared to the number of studies on writing-intensive courses, internships, and capstone courses (Brownell & Swaner, 2010). Scholars acknowledge there is still much research to be done on outcomes among students of color, low-income

students, and first-generation students (Brownell & Swaner, 2010; Kilgo et al., 2014), and the most recent call has been for studies with an emphasis beyond retention that explore the cumulative effects on college completion and post-graduation success (Johnson & Stage, 2018).

The latest collection of HIPs research has focused on evaluating large student populations at institutional and multi-institutional levels by correlating institutional data with self-reported student responses collected via the National Survey of Student Engagement (NSSE). For example, Kilgo et al. (2014) leveraged data from the Wabash National Study of Liberal Arts Education and NSSE to estimate the effects of select HIPs on learning outcomes for approximately 900 matched student records and responses primarily consisting of students from liberal arts colleges. Miller, Rocconi, and Dumford (2018) reviewed over 31,000 NSSE responses collected from seniors across 126 institutions to assess the influence of various HIPs on career plans and early job attainment. Studies based on NSSE data such as these have repeatedly found positive relationships between HIPs and student engagement, though some note a significant response bias of NSSE (Porter, 2012), and Johnson and Stage (2018) caution that rarely are these studies “published independently from AAC&U” (p. 8).

Beyond engagement metrics, Johnson and Stage (2018) analyzed the graduation rates of 101 institutions as reported by the U.S. Department of Education’s Integrated Postsecondary Education Data System (IPEDS) in relationship HIPs, and the degree to which they occurred at the corresponding institution as self-reported by their academic officers. “This study did not question whether participation in high-impact practices led to greater student engagement; however, results indicated that engagement experienced from these practices alone was not necessarily an indicator of likely college completion or shorter time to degree at large public institutions” (p. 24).

A critical limitation of all HIP research continues to be the variability in quality of HIPs across, and within institutions (Kuh et al., 2017). How HIPs are designed and delivered differ by institution, making it difficult to generalize outcomes and their efficacy; yet, this inconsistency is simultaneously a requirement in that HIPs must be modified for local contexts to be effective (Kuh et al., 2017; Kuh et al., 2013). Organizations such as The College System of Tennessee, Indiana University Purdue University of Indianapolis, California State University System Office, and Texas A&M University have adopted HIP taxonomies that explicitly define the Practices, assigning depth and clarity to their meaning and enabling more systematic assessment. Failure to have such taxonomies in place can make it difficult to assess the effects of HIPs within and across institutions (McMahan, 2015).

A 2016 whitepaper released by Virginia Commonwealth University (VCU) documented their approach to a “systematic institutional assessment model” to evaluate the influence of HIPs on undergraduate success (Pelco & Baab, p. 2). In this pilot study, VCU specifically studied service-learning and a living-learning program because, at VCU, these two particular HIPs had clearly defined parameters that enabled identification of student participation and related data (Pelco & Baab, 2016, p. 4). VCU correlated qualitative and quantitative data and found that these two HIPs were reaching underrepresented VCU students, and that retention and graduation rates were higher among participating students. In this ongoing pilot, VCU established a benchmark score of participating students’ “apprentice-level functioning on a direct assessment of civic mindedness” and they intend to re-test students for comparison at the end of year four (Pelco & Baab, 2016, p. 17). In a similar initiative, California State University Fullerton (CSUF) published a case study on evaluating HIPs at CSUF in relationship to GPA, time to degree, and persistence. Using longitudinal data and control groups, they found some HIPs to be significant predictors

(freshman programs, academic residential programs), while others had little or no effect (service-learning) (McMahan, 2015). As with many context-specific studies, it is difficult to generalize these results beyond the individual campus, though these studies provide a greater contribution to the literature in terms of potentially replicable HIP assessment frameworks.

Like most emergent research, current studies surrounding HIPs are limited in scope and methodology, affecting their practical relevance to broader contexts (Brownell & Swaner, 2009). This criticism of the literature is not surprising given the multitude of compounding, conditional factors influencing longitudinal student success (Pascarella & Terenzini, 2005); the customization required to effectively embed HIPs within campus cultures; and variances among how these practices are applied at the curricular and course levels (Kuh et al., 2017). At institutions where HIPs have been systematically implemented, empirical research has revealed positive effects of the Practices on multiple student success indicators (Brownell & Swaner, 2010; Kilgo et al., 2014).

HIP: Writing-Intensive Courses

The attempt of American universities to address writing skills deficits dates back centuries, though is often marked formally with the 1970's rise of Writing Across the Curriculum (WAC) programs (McLeod & Sovern, 2007). Scholars engaged in the early years of WAC often make reference to the era of "Jonny can't write," originally the title of a 1975 *Newsweek* article turned catch-phrase for the public's recognition of diminishing writing skills of new graduates (McLeod & Sovern, 2007; Sheils). As Russell (2002) documented, WAC's theoretical roots are based in British research, though its movement within the U.S. was spurred by political, social, and pedagogical factors surrounding the nature of college students' writing abilities. By 1987, 38% of the 1,113 reporting postsecondary institutions indicated having "some

form of WAC programming” (Thaiss & Porter, 2010, p. 535). Today, WAC scholars describe it as “one of the longest running educational reform movements in higher education in the U.S.”(International Network of WAC Programs, 2014). The most recent Writing Across the Curriculum / Writing In the Disciplines (WAC/WID) Mapping Project documented that 51% of the responding U.S. institutions (n = 1,126) have a WAC/WID program and 11% said they have “plans to begin a program” (Thaiss & Porter, 2010, p. 541).

Because much of its efficacy is highly dependent on the university’s context and culture, WAC has historically been defined as a movement with loose descriptive criteria (Townsend, 2001). Condon and Rutz (2012) referred to it as a “widespread pedagogical phenomenon that does not possess a single, identifiable structure; instead, it varies in its development and its manifestation from campus to campus (p. 358). Still, the WAC community has outlined a collective set of programming principles and best practices (International Network of WAC Programs, 2014). Similarly are the loosely held commonalities among Writing-Intensive (W-I) courses across intuitions; however, the WAC/WID community has established a set of best practices which includes recommendations for quantity and frequency of writing; instruction, feedback and iterative writing processes; level of writing competency reflected in the final course grade; and connections between writing activities and course learning outcomes, with the latter being the most distinctive component (Farris & Smith, 1992). Nationally, the combination of individual faculty teaching preferences, disciplinary differences, and institutional contexts has resulted in flexible definitions that maintain the spirit of quality writing-intensive pedagogy (Condon & Rutz, 2012; Townsend, 2001).

Most broadly, Writing Across the Curriculum (WAC) is a philosophy for the teaching and learning of writing beyond the freshman year, and its formalization over the years has made

WAC a driving force of Writing-Intensive (W-I) courses and an influencer of curricula surrounding writing across, and within, the disciplines (Townsend, 2001). Thaiss and Porter (2010) suggest “the W-I course is considered a common, if not essential, component of the definition of WAC” (p. 550). In 2003, *U.S. News and World Report* began tracking the existence of W-I courses within institutions as part of its college ranking algorithm (U.S. News and World Report, 2009).

The usefulness of writing-intensive instruction in advancing students’ writing skills is intuitively obvious, but other effects have been associated with W-I activities. For example, some scholars have argued that writing-intensive activities are inextricably linked to skills of evaluation, reasoning, and analysis, and as such, W-I courses serve to advance higher-order cognition (McLeod, 1989). “Properly engaged—that is, designed and supported effectively by the instructor—writing becomes evidence of critical thinking on the part of students” (Hanstedt, 2012, p. 50). The most frequently studied topic surrounding writing-intensive instruction is its connection to deep learning of disciplinary content, often referred to as the practice of writing to learn (Anderson, Anson, Gonyea, & Paine, 2016; Klein, 1999; McLeod, Miraglia, Soven, & Thaiss, 2001; Thaiss & Porter, 2010; Townsend, 2001). Of broadest influence were three large higher education studies that correlated increased writing with improved learning (Arum & Roksa, 2011; Astin, 1992; Light, 2001). Other smaller experimental studies have challenged the extent to which writing impacts learning, extending debates about the precise quantity and quality of writing activities necessary to significantly advance learning (Ackerman, 1993; Ochsner & Fowler, 2004; Schumacher & Nash, 1991).

Writing-Intensive (W-I) courses were not explicitly developed to increase student engagement, pacify employer demands for improved writing skills, or to address institutional

retention and degree completion challenges, though many are now pointing toward these drivers when justifying the need for W-I pedagogy in the college classroom. By 2007, more than one million students from nearly 1,200 four-year institutions had participated in the National Survey of Student Engagement (NSSE) (Indiana University Center for Postsecondary Research 2009). Through freshman and senior student surveys containing questions about curricular and co-curricular activities, NSSE serves to evaluate student engagement as an indicator of collegiate quality ("National Survey of Student Engagement," 2018). Included in NSSE are questions about how, when, and where students engaged in writing assignments. High levels of writing activity were positively correlated with students' perceived engagement, ultimately leading to writing-intensive courses being recognized as one of the original ten documented Practices that increase overall engagement, learning, and ultimately, completion rates (Kuh, 2008). In 2015, a large, multi-institutional study used NSSE to test additional constructs, finding that writing's influence on undergraduates extends beyond content learning into "personal and social development" (Anderson, Anson, Gonyea, & Paine, 2015). For more than 90 years, scholars have explored the relationship between writing and learning, and within the past decade, writing-intensive pedagogy has gained new momentum as a robust pedagogy that, when properly applied, advances learning and contributes to college completion and post-graduation success (Anderson et al., 2015).

Communication-Intensive Learning in the Disciplines: The Underlying HIP

Some scholars have made the case to expand Writing Across the Curriculum / Writing In the Disciplines (WAC/WID) programming to be inclusive of oral communication (Dannels, 2001; Williams, 2001), visual communication (Bridwell-Bowles et al., 2009; Williams, 2001), and technological communication (Bridwell-Bowles et al., 2009). "To be literate in the

twenty-first century means possessing the skills necessary to effectively construct and comfortably navigate multiplicity; to manipulate and critique information, representations, knowledge, and arguments in multiple media from a wide range of sources; and to use multiple expressive technologies including those offered by print, visual, and digital tools” (Williams, 2001, p. 22). Dannels (2001) has written about the expansion of WAC/WID pedagogy into Communication across the Curriculum (CAC/CxC) models, though she noted there are minimal publications focused on the emerging and increasing CAC/CID activities within postsecondary education (p. 146). Condon and Rutz (2012) noted that as “the boundaries between ‘writing’ and other communicative activities soften and blur, . . . faculty experiment with assignments featuring visual and audio elements such as posters, embedded video/audio clips, handmade book-like artifacts, and graphic or cartoon-based story boards” (p. 374). Bridwell-Bowles et al. (2009) asserted: “We can debate whether we are primarily in a print-based culture, an aural/oral culture, or a visual culture, but there is no arguing with the fact of multimodality” (p. 3).

In addition to Writing-Intensive (W-I) courses explicitly being one of the now eleven HIPs, writing and other forms of communication—oral, visual, digital, and interpersonal—are threaded throughout the HIP descriptions. First-year experiences are defined as those that “place a strong emphasis on critical inquiry, frequent writing, information literacy, and collaborative learning”; common intellectual experiences, learning communities, collaborative projects, diversity/global learning, service learning, and internships all require various levels of interpersonal communication; undergraduate research and e-Portfolios contain an inherent component of being able to articulate knowledge connections; and capstone projects are described as “a research paper, a performance, a portfolio, or an exhibit of artwork” (Kuh, 2008). By definition, some of the Practices occur at a specific point in the student lifecycle (e.g.,

First-year experience, Capstone projects), while others are described as singular instances occurring within the college experience not limited by a specific timeframe (e.g., service-learning, internships). Unique to the HIP of Writing-Intensive Courses is the element of “repeated practice” occurring “at all levels of instruction and across the curriculum” (Kuh, 2008). Most recently, the original author of HIPs identified an underlying theme of communication within the Practices: “HIPs typically put students in situations that require them to communicate and work effectively with peers and others in real time” (Kuh et al., 2018, p. 11). A special collection of papers published by *Across the Disciplines* (2016) focused on the intersections of HIPs and writing-intensive activities, though the editors noted a lack of submissions surrounding two of the HIPs: internships and global learning (Boquet & Lerner).

While WAC/CAC scholars seldom write explicitly about connections between student persistence and writing/communication-intensive pedagogy, when it is embedded within the disciplines, it has a compounding effect. Dannels (2001) asserted: “As students engage in disciplinary activities such as oral communication, they become socialized into that discipline” (p. 152). Such activity can be categorized as a direct function of student engagement which drives student persistence. Rubin and Morreale (1996) noted several empirical studies that directly link communication competencies with academic success, and Yook (2012) proposes that communication activities promote self-efficacy which is positively correlated with student persistence. Communication-Intensive (C-I) pedagogy within the context of disciplinary courses perhaps embodies the very essence of HIPs in relation to the trifecta of learning, engagement, and retention: “When done well, the HIP experience creates conditions whereby all students, including those from historically underrepresented groups, are seen, heard, and impelled to

engage, because the nature of a HIP obliges them to be actively involved (Kuh et al., 2017, p. 12).

Beyond the need for more research on HIPs is the call for intentionally embedding these educational practices in a manner that aligns with student-centric institutional objectives.

“Emphasizing high-impact practices is only part of the solution. The next step is to create clear connections between intended learning outcomes and specific high-impact practices. As we connect goals and practices, we can construct more ‘purposeful pathways’ for students and more ‘intentional institutions’ in which all units work together to ensure that all students achieve the outcomes they need and deserve” (Kuh, 2008, p. 7).

CHAPTER 3. METHODS

While often small in scale, many of the High-Impact Practices (HIPs) endorsed by the American Association of Colleges and Universities (AAC&U) are common-place in today's universities. HIPs such as first-year experiences and service-learning have been more widely analyzed than others, and still, many of the current studies focus on smaller universities or community college environments. Most large-scale studies have primarily investigated the effects of HIPs in the form of student perceptions via the National Survey on Student Engagement (NSSE), or quantitatively in terms of student retention in first and second years. Uniquely contributing to the literature, this empirical study explored the relationship between the high-impact practice of Communication-Intensive (C-I) courses and the institutional outcome of undergraduate degree completion at a large, public research university-very high research activity (RU/VH) in the Southern United States. The following questions guided this research design:

1. Are students who participate in C-I courses different from students who do not participate in C-I courses?
2. Is participation in C-I courses related to undergraduate degree completion?

Research Objectives

To investigate the influence of participation in Communication-Intensive courses (independent variable) and selected academic and personal demographic characteristics on degree completion (dependent variable) among undergraduate students at a large, public university-very high research activity (RU/VH) in the Southern region of the United States, the following research objectives were constructed:

1. Describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following personal demographics and pre-college academic characteristics:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score

2. Describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following collegiate academic activities through spring 2018:
 - a. Number of Communication-Intensive (C-I) courses completed (0, 1, 2, \geq 3)
 - b. Academic level of C-I courses completed (1000, 2000, 3000, 4000, 5000)
 - c. Mode emphasis of C-I courses completed (written, spoken, visual, technological)
 - d. Graduation status: Whether or not the student graduated within six years
 - e. Time to degree in years (\leq 4, 5, 6 years)
 - f. Overall GPA upon degree completion
 - g. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

3. Describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more Communication-Intensive (C-I) courses on the following variables:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years (\leq 4, 5, 6 years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

4. Describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed no Communication-Intensive (C-I) courses on the following variables:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident

- e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years ($\leq 4, 5, 6$ years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
5. Compare undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more C-I courses to those who completed no C-I courses on the following variables:
- a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years ($\leq 4, 5, 6$ years)
 - k. Overall GPA upon degree completion

1. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
6. Determine if a model exists that significantly increases the researcher's ability to correctly classify students at a RU/VH in the Southern U.S. on degree completion status (graduated within six years) from the following measures:
 - a. Gender
 - b. Race
 - c. Whether or not the student was a first-generation college student
 - d. Whether or not the student was a Pell grant recipient
 - e. High school GPA
 - f. ACT scores: Composite and English sub-score
 - g. C-I course completion status (no C-I courses, three or more C-I courses)

Design

Using a quantitative ex post facto research design, this study identified differences between students who completed three or more Communication-Intensive (C-I) courses and those who completed no C-I courses, and examined the relationships among student characteristics, C-I participation, and degree completion. The design included admission, financial aid, and academic data most often cited within literature in relation to High-Impact Practices (HIPs), time to degree, and degree completion, and most commonly tracked by postsecondary institutions. For this study, the University's Office of the Registrar downloaded six years of longitudinal matched data for all students in the cohort and provided electronic data files to the researcher. Throughout the study, data remained confidential and secure on university-managed computers.

Population and Sampling

The target population for this study was undergraduate students who enrolled in a large, public research university-very high research activity (RU/VH) in the Southern U.S. The accessible population was all undergraduates who entered as freshman in the fall 2012 semester at the selected RU/VH (N=5,602). The sample consisted of 100% of the defined accessible population.

Because the overall goal of this study was to determine if a relationship exists between C-I courses and degree completion, Kerlinger's (1986) MAX-MIN-CON principle was applied and two distinct groups of students were investigated: (1) those who completed three or more C-I courses, and (2) those who did not complete any C-I courses. The reasoning was such that if C-I course participation and degree completion are associated, this approach would maximize the probability of finding this association if one did exist.

Instrumentation and Data Collection

With approval from the Institutional Review Board (IRB), the researcher designed a computerized recording form to collect and store data. The variables included were those that have been cited within the literature surrounding High-Impact Practices (HIPs), time to degree, and degree completion, and those that are commonly tracked by postsecondary institutions. Additional information on the specific variables is denoted in the following section with asterisks (*). The researcher submitted a formal data request to the University Registrar along with documentation of IRB approval. For the purposes of this study, the following official student-level data was provided by the Registrar in collaboration with the institution's financial aid office.

Personal demographics (fall 2012)

1. Gender (male, female)
2. Race (White, Black/African American, Hispanic, Asian, Multiracial, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander)
3. Age *Age was calculated based on date of birth as of August 1, 2012 and used to categorize students as traditional (\leq age 24) or non-traditional (\geq age 25) as defined by NCES (National Center for Education Statistics, 2018).
4. Residency as measured by whether the student was an in-state or out-of-state resident
5. Whether or not the student was a first-generation college student
6. Financial status as measured by whether or not the student received a federal Pell grant

Pre-college academic characteristics (fall 2012)

7. High school GPA
8. ACT composite score and ACT English sub-score

Communication-Intensive (C-I) course activity across six years (fall 2012 through spring 2018)

9. Number of Communication-Intensive (C-I) courses completed *C-I courses are approved at the institutional level and only tagged within student records when courses meet specific University guidelines which are consistent across disciplines and modes. Total number of C-I courses completed was calculated to segment students into groups of those who have completed no C-I courses, and those who have completed three or more C-I courses.
10. Academic level of C-I courses completed *Course number was used to categorize courses as 1000-, 2000-, 3000-, 4000-, or 5000-level.

11. Mode emphasis of C-I courses completed (written, spoken, visual, technological, W-S, W-V, W-T, S-V, S-T, V-T) *Three-hour credit C-I courses are designated with two modes in any combination; one-hour credit C-I courses are designated with one mode.

Degree status and characteristics (through spring 2018)

12. Graduation status: Whether or not the student graduated within six years
13. Time to degree in years ($\leq 4, 5, 6$ years) *Time to degree was calculated based on time elapsed between fall 2012 enrollment and date of degree earned/completed
14. Overall GPA upon degree completion
15. Curriculum of study at time of degree completion *Based on degree home college, the researcher classified students as Humanities, Social Sciences, or STEM. The category of *Humanities* consisted of students who graduated from this institution's colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts. Those within the category of *Social Sciences* graduated from the institution's colleges of Business, Human Sciences and Education, and Mass Communication. The third category, *STEM*, consisted of students who graduated from the institution's colleges of Agriculture, Coast and Environment, Engineering, and Science.

Upon receipt of the data, it was downloaded into a file which served as the research instrument. In accordance with the Institutional Review Board's approval for Exemption from Institutional Oversight, prior to conducting any analyses, unique identifiers were assigned to each student record to maintain matched sets while eliminating personal university identifiers. Data was cleaned and imported into SPSS, yielding a single longitudinal record for each student.

Analysis

Data was analyzed to accomplish each of the established research objectives. Objectives one, two, three, and four employed descriptive statistics. The first objectives described the cohort of undergraduates who entered the RU/VH in fall 2012 on personal demographics and pre-college academic characteristics (Objective 1), and on collegiate academic activities through spring 2018 (Objective 2). Objective 3 described students within the cohort who completed three or more C-I courses, and Objective 4 described those who completed no C-I courses. For variables measured on a categorical scale (nominal and ordinal), frequencies and percentages were presented. These variables included:

- a. Gender (male, female)
- b. Race (White, Black/African American, Hispanic, Asian, Multiracial, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander)
- c. Age status upon entry (traditional \leq age 24, non-traditional \geq age 25)
- d. Residency status (in-state or out-of-state)
- e. First-generation college student (yes, no)
- f. Pell grant recipient (yes, no)
- g. Number of C-I courses completed (0, 1, 2, \geq 3)
- h. Academic level of C-I courses completed (1000, 2000, 3000, 4000, 5000)
- i. Mode emphasis of C-I courses completed (W, S, V, T, W-S, W-V, W-T, S-V, S-T, V-T)
- j. Graduation status (graduated within six years, not graduated within six years)
- k. Time to degree in years (\leq 4, 5, 6 years)

1. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

For variables measured on a continuous scale, means and standard deviations were presented, along with minimum and maximum values. These variables included:

- a. Age as of August 1, 2012
- b. High school GPA
- c. ACT composite score and ACT English sub-score
- d. Overall GPA upon degree completion

Objective 5 compared students within the cohort who completed three or more C-I courses to those who completed no C-I courses. For variables measured on a categorical scale, the chi-square test of independence was used to determine if the groups are different. These categorical variables included:

- a. Gender (male, female)
- b. Race (White, Black/African American, Hispanic, Asian, Multiracial, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander)
- c. Age status upon entry (traditional \leq age 24, non-traditional \geq age 25)
- d. Residency status (in-state or out-of-state)
- e. First-generation college student (yes, no)
- f. Pell grant recipient (yes, no)
- g. Graduation status (graduated within six years, not graduated within six years)
- h. Time to degree in years (\leq 4, 5, 6 years)
- i. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

For variables measured on a continuous scale, the independent t-test was used to compare groups. The continuous variables included:

- a. Age as of August 1, 2012
- b. High school GPA
- c. ACT composite score and ACT English sub-score
- d. Overall GPA upon degree completion

Objective 6 sought to determine if a model existed that significantly increased the researcher's ability to correctly classify undergraduates on their six-year (or less) degree completion status at a RU/VH in the Southern U.S. Binary logistic regression was used for analysis in which degree completion within six years was the dependent variable (graduated within six years, not graduated within six years), and the independent variables were:

- a. Gender (male, female)
- b. Race (White, Black/African American, Hispanic, Asian, Multiracial, American Indian/Alaskan Native, Native Hawaiian/Other Pacific Islander)
- c. First-generation college student (yes, no)
- d. Pell grant recipient (yes, no)
- e. High school GPA
- f. ACT composite score and English sub-score
- g. C-I course completion status (no C-I courses, three or more C-I courses)

CHAPTER 4. RESULTS

The primary purpose of this study was to determine the influence of participation in Communication-Intensive courses (independent variable) and selected personal and academic characteristics on degree completion (dependent variables) among undergraduate students at a research university-very high research activity (RU/VH) in the Southern region of the United States.

The target population of this study was undergraduate students enrolled at a RU/VH in the Southern U.S. To conduct this study, the researcher identified the accessible population as all undergraduates who entered as freshman in the fall 2012 semester at the selected RU/VH. The Registrar of the studied institution provided the researcher with official university records consisting of six years of longitudinal matched data on this cohort, which included 5,602 students. This sample consisted of 100% of the defined accessible population. Results of this study are presented by objective.

Objective 1

The first objective of this study was to describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following personal demographics and pre-college academic characteristics:

- a. Gender
- b. Race
- c. Age status: Traditional or non-traditional age
- d. Residency status: In-state or out-of-state resident
- e. Whether or not the student was a first-generation college student
- f. Whether or not the student was a Pell grant recipient

- g. High school GPA
- h. ACT scores: Composite and English sub-score

There were 5,602 students in the studied cohort. The following sections report the results for each variable within this objective.

Gender

The first variable on which students were described was gender. Of the 5,602 students who entered the university in fall 2012 as freshman, 52.9% (n = 2,961) identified as female and 47.1% (n = 2,641) identified as male.

Race

This cohort was also described on the variable of race. Of the 5,602 students, 74.0% (n = 4,143) identified as White and 12.7% (n = 712) identified as Black/African American. The third largest group identified as Hispanic (6.5%, n = 363). Four students (0.1%) did not provide information on their race. Results on race are reported in Table 1.

Table 1. Race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Race	n	%
White	4,143	74.0%
Black/African American	712	12.7%
Hispanic	363	6.5%
Asian	206	3.7%
Multiracial	153	2.7%
American Indian/Alaskan Native	17	0.3%
Native Hawaiian/Other Pacific Islander	4	0.1%
Total ^a	5,598	100.0%

^a There were 4 students within the cohort who did not provide information about their race.

Age status: Traditional or non-traditional

To be able to describe the freshman who entered in fall 2012 on their age, the researcher first used date of birth to calculate students' age as of August 1, 2012. Ages within the cohort ranged from 16 to 26, and the mean age was 17.9 (SD = 0.45) of the cohort (see Table 2).

The researcher then categorized students as traditional or non-traditional using the standards set by the National Center for Education Statistics (NCES). NCES defines traditional-aged students as equal to or younger than age 24, and non-traditional aged students as equal to or older than age 25. Of the 5,602 students who entered the university in fall 2012 as freshman, only one student was non-traditional. The other 5,601 (99.98%) students were traditional-aged according to NCES standards.

Table 2. Age of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Age as of August 1, 2012 ^a	n	%
16	5	0.1%
17	736	13.1%
18	4,570	81.6%
19	279	5.0%
20	6	0.1%
21	4	0.1%
22	1	0.0%
26	1	0.0%
Total	5,602	100.0%

^a Mean age was 17.9 (SD = 0.45).

Residency status: In-state or out-of-state

Another variable on which students were described was residency. Of the 5,602 students, the university classified 81.5% (n = 4,564) as in-state residents and 18.5% (n = 1,038) of the students as out-of-state residents.

Whether or not the student was a first-generation college student

Students were also described on whether or not they were a first-generation college student. Of the 5,602 students who entered as freshman in fall 2012, 23.5% (n = 1,316) were officially classified as first-generation by the university and 76.5% (n = 4,286) were classified as not first-generation.

Whether or not the student was a Pell grant recipient

To describe the financial need status of the cohort of students who entered the RU/VH as freshman in fall 2012, the variable of whether or not a student received a federal Pell grant was used. Of the 5,602 students, 23.1% (n = 1,295) received a federal Pell grant, while 76.9% (n = 4,307) did not receive Pell funding.

High school GPA

High school GPA was also used to describe students who entered as freshman in the fall 2012. There were 353 students (6.3%) for which high school GPAs were missing in the University's dataset. The mean overall high school GPA was 3.39 (SD = 0.39) for the cohort. The high school GPAs ranged from a low of 1.95 to a high of 4.00.

ACT scores: Composite and English sub-score

Because this study focused on communication-intensive courses, the ACT English sub-score was used in addition to the ACT Composite score to describe this cohort. The studied institution requires a minimum ACT Composite score of 22 and a minimum English sub-score of 18; however, the university employs holistic review and admission officers make exceptions based on factors such as choice of degree program, rank in class, credit in advanced placement or honors courses, rigor of the high school curriculum, and grade trends.

The mean ACT Composite score of the cohort was 25.30 (SD = 3.39) and the mean ACT English sub-score was 26.35 (SD = 4.35). There were two students in the cohort for which ACT scores were missing in the University's dataset.

When ACT scores were examined using the institution's ACT score range categories for admission and scholarship eligibility, the largest group of students were in the 24-27 score category for both the ACT Composite (n = 2,150, 38.4%) and the English sub-score (n = 1,913, 34.2%). Complete data for these measures are presented in Table 3.

Table 3. ACT scores of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

ACT Score Categories	ACT Composite	ACT English Sub-score
	n %	n %
10-17	9 0.2%	26 0.5%
18-21	696 12.4%	728 13.0%
22-23	1,235 22.1%	838 15.0%
24-27	2,150 38.4%	1,913 34.2%
28-32	1,380 24.6%	1,482 26.5%
33-36	130 2.3%	613 10.9%
Total ^a	5,600 100.0%	5,600 100.0%
M	25.30 ^b	26.35 ^c
SD	3.39	4.35

^a There were 2 students within the cohort for which ACT scores were missing.

^b Composite scores ranged from 15 to 36.

^c English sub-scores ranged from 10 to 36.

Objective 2

The second objective of this study was to describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following collegiate academic activities through spring 2018:

- a. Number of Communication-Intensive (C-I) courses completed
- b. Academic level of C-I courses completed
- c. Mode emphasis of C-I courses completed
- d. Graduation status: Whether or not the student graduated within six years
- e. Time to degree in years
- f. Overall GPA upon degree completion
- g. Curriculum of study at time of degree completion

There were 5,602 total students in the studied cohort. The following sections report the results for each of the variables within this objective.

Communication-Intensive (C-I) course completion

At the studied institution, C-I courses are officially assessed and accredited by Communication across the Curriculum (CxC), a unit within the University's Office of Academic Affairs. Of the 5,602 students who entered the RU/VH in fall 2012 as freshman, 48.5% (n = 2,717) completed no C-I courses; 21.9% (n = 1,224) completed one C-I course; 11.3% (n = 632) completed two C-I courses; and 18.4% (n = 1,029) completed three or more C-I courses. Collectively, students within this cohort completed a total of 7,410 C-I courses between fall 2012 and spring 2018. Information regarding C-I courses completed is reported in Table 4.

Table 4. Number of Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Number of C-I courses ^a	n	%
0	2,717	48.5%
1	1,224	21.8%
2	632	11.3%
3	345	6.2%
4	210	3.7%
5	162	2.9%
6	122	2.2%
7	90	1.6%
8	57	1.0%
9	24	0.4%
10	12	0.2%
11	6	0.1%
17	1	0.0%
Total ^b	5,602	100.0%

Note: Collectively, students (n = 2,885) completed a total of 7,410 C-I courses.

^a Mean number of C-I courses completed was 1.3 (SD = 1.94).

^b Within the cohort (n = 5,602), 2,885 (51.5%) students completed one or more C-I courses.

Academic level of C-I courses completed

At the studied institution, Communication-Intensive (C-I) courses are available at all course levels within the undergraduate curriculum. According to the institution's general catalog, 1000-level courses are those primarily for freshman undergraduate students. Courses coded at the 2000-level are intended for undergraduates at the sophomore level or above. The courses designated at the 3000-level are for undergraduates at the junior- and senior-level who have completed 60 or more credit hours. Courses listed at the 4000-level are also for undergraduates at the junior- and senior-level who have completed 60 or more credit hours, and for students in graduate and professional schools and colleges. Courses designated at the 5000-level are for

undergraduate students in professional or graduate preparation programs such as architecture, pre-law, and pre-veterinary medicine, and often require specific advanced prerequisites.

Of the 5,602 students who entered a RU/VH in the South in fall 2012 as freshman, 51.5% (n = 2,885) completed one or more Communication-Intensive courses. These students collectively completed a total of 7,410 C-I courses. Of these C-I courses, 37.9% (n = 2,807) were at the 4000-level and 32.0% (n = 2,374) of the courses were at the 2000-level. These data are reported in Table 5.

Table 5. Academic level of Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Course Level	C-I Courses n	C-I Courses %
1000	740	10.0%
2000	2,374	32.0%
3000	1,461	19.7%
4000	2,807	37.9%
5000	28	0.4%
Total	7,410	100.0%

Note: Within the cohort (n = 5,602), 2,885 (51.5%) students completed one or more C-I courses. Collectively, these students (n = 2,885) completed a total of 7,410 C-I courses.

Mode emphasis of C-I courses completed

The studied institution accredits Communication-Intensive (C-I) courses across its curriculum using the following mode categories: writing, speaking, visual, and technological. Three-credit hour C-I courses (or higher) are required to have a dual-mode emphasis, while courses below three credit hours (one or two credit hour courses) are restricted to a single-mode emphasis. The students within the cohort who completed one or more C-I courses (n = 2,885,

51.5%) collectively participated in 7,410 C-I courses. There were 186 (2.5%) university student course records for which the mode information was missing.

Of the 7,224 C-I courses for which the mode emphasis was recorded, 88.0% (n = 6,359) were accredited with dual-mode emphases, while 12.0% (n = 865) were single-mode. The most common type of C-I course completed by this cohort were those certified as dual-mode in writing- and speaking-intensive (n = 3,449, 47.7%). This information is presented in Table 6.

Table 6. Mode emphasis of Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Mode Emphasis	C-I Courses n	C-I Courses %
Writing-Speaking	3,449	47.7%
Visual-Technological	1,024	14.2%
Writing-Technological	602	8.3%
Writing-Visual	495	6.9%
Writing	459	6.4%
Speaking-Visual	420	5.8%
Speaking-Technological	369	5.1%
Speaking	298	4.1%
Tech	69	1.0%
Visual	39	0.5%
Total ^a	7,224	100.0%

Note: Within the cohort (n = 5,602), 2,885 (51.5%) students completed one or more C-I courses.

^a There were 186 course records for which the mode emphasis was not reported.

C-I courses that were either single-mode writing-intensive or were dual mode with writing as one of its modes constituted 36.9% (n = 5,005), while C-I courses that were either single-mode speaking-intensive or were dual-mode with speaking as one if its modes constituted 33.4% (n = 4,536). This information is presented in Table 7.

Table 7. Mode emphasis occurrence within single- or dual-mode Communication-Intensive (C-I) courses completed by students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Emphasis occurrence within single- or dual-mode C-I courses	C-I Courses n	C-I Courses %
Writing	5,005	36.9%
Speaking	4,536	33.4%
Visual	2,064	15.2%
Technological	1,978	14.6%

Note: Within the cohort (n = 5,602), 2,885 (51.5%) students completed one or more C-I course. Collectively, these students (n = 2,885) completed a total of 7,410 C-I courses in which 88.0% (n = 6,359) were dual-mode emphasis, and 12.0% (n = 865) were single-mode.

^a There were 186 course records for which the mode emphasis was not reported.

Graduation status

The cohort was also described on whether or not students graduated within six years. Of the 5,602 students who entered in fall 2012 as freshman, 64.0% (n = 3,587) graduated in six years or less, and 36.0% (n = 2,015) did not graduate from the studied institution within six years (as of spring 2018).

Time to degree

Of the students within the cohort who graduated (n = 3,587), the majority (n = 2,754, 76.8%) graduated in four years or less. Data regarding time to degree are reported in Table 8.

Table 8. Time to degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years

Years to complete degree	n	%
2	5	0.1%
3	272	7.6%
4	2,477	69.1%
5	720	20.1%
6	113	3.2%
Total ^a	3,587	100.0%

^a There were 2,015 students within the cohort (36.0%) who did not graduate from the studied institution within six years.

Overall GPA upon degree completion

The students within the cohort who graduated from the studied institution within six years (n = 3,587) were also described on the variable of overall grade point average (GPA) at time of degree completion. There were 50 students (1.4%) for which the degree GPA was missing in the University's dataset. The mean overall GPA for degree completers within the cohort was 3.17 (SD = 0.45), and the GPAs ranged from a low of 2.00 to a high of 4.10.

Curriculum of study at time of degree completion

To describe degree completers on curriculum of study, the researcher categorized the students' home college at time of degree into three curricular groups. The category of *Humanities* consists of students who graduated from this institution's colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts. Those within the category of *Social Sciences* graduated from the institution's colleges of Business, Human Sciences and Education, and Mass Communication. The third category, *STEM*, consists of students who graduated from the institution's colleges of Agriculture, Coast and Environment, Engineering, and Science.

Of the students within the cohort who graduated from the studied institution within six years (n = 3,587), 40.9% (n = 1,467) were in a Social Sciences curriculum, 35.2% (n = 1,263) were in a STEM curriculum, and 23.9% (n = 857) were in a Humanities curriculum. This data is presented in Table 9.

Table 9. Curriculum of study at time of degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years

Degree college by curricular category	n	%
Humanities		
Art and Design	105	2.9%
Humanities and Social Sciences	702	19.6%
Music and Dramatic Arts	50	1.4%
Social Sciences		
Business	680	19.0%
Human Sciences and Education	585	16.3%
Mass Communication	202	5.6%
STEM		
Agriculture	222	6.2%
Coast and Environment	14	0.4%
Engineering	591	16.5%
Science	436	12.2%
Total	3,587	100.0%

Objective 3

The third objective of this study was to describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more Communication-Intensive (C-I) courses on the following variables:

- a. Gender
- b. Race
- c. Age status: Traditional or non-traditional

- d. Residency status: In-state or out-of-state resident
- e. Whether or not the student was a first-generation college student
- f. Whether or not the student was a Pell grant recipient
- g. High school GPA
- h. ACT scores: Composite and English sub-score
- i. Graduation status: Whether or not the student graduated in six years
- j. Time to degree in years
- k. Overall GPA upon degree completion
- l. Curriculum of study at time of degree completion

There were 1,029 students who met the criteria of this objective. The following sections report the results for each of these variables.

Gender

Gender was the first variable used to describe students who entered a RU/VH in the South in fall 2012 as freshman and completed three or more Communication-Intensive (C-I) courses (n = 1,029). Of these students, 51.6% (n = 531) identified as female and 48.4% (n= 498) identified as male.

Race

Another variable on which these students were described was race. Of the 1,029 students who completed three or more C-I courses, the majority (n = 789, 76.7%) identified as White. Results on race are reported in Table 10.

Table 10. Race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed three or more Communication-Intensive (C-I) courses

Race	n	%
White	789	76.7%
Black/African American	86	8.4%
Hispanic	80	7.8%
Asian	40	3.9%
Multiracial	31	3.0%
American Indian/Alaskan Native	3	0.3%
Total	1,029	100.0%

Age status: Traditional or non-traditional

To be able to describe the freshman who entered in fall 2012 on their age, the researcher first used date of birth to calculate students' age as of August 1, 2012. Ages of students who completed three or more C-I courses ranged from 17 to 22, and the mean age was 17.9 (SD = 0.44).

The National Center for Education Statistics (NCES) considers students equal to or younger than age 24 *traditional*, and students equal to or older than age 25 *non-traditional*. All of the students who entered the university in fall 2012 as freshman and completed three or more C-I courses were traditional aged (n = 1,029, 100.0%).

Residency status: In-state or out-of-state

Students who completed three or more C-I courses were also described by residency. Of the 1,029 students, the majority were in-state residents (80.1%, n = 824). Out-of-state students comprised 19.9% (n = 205) of this group.

Whether or not the student was a first-generation college student

Of the 1,029 students who entered as freshman in fall 2012 and completed three or more C-I courses, 19.1% (n = 196) were first-generation students, while 81.0% (n = 833) were not first-generation students.

Whether or not the student was a Pell grant recipient

To describe the financial need status of students who completed three or more C-I courses (n = 1,029), the variable of whether or not a student received a federal Pell grant was used. Of the 1,029 students, 18.4% (n = 189) received a federal Pell grant, while 81.6% (n = 840) did not receive Pell funding.

High school GPA

High school grade point average (GPA) was also used to describe students who completed three or more C-I courses (n = 1,029). There were 57 students within this group (5.5%) for which high school GPAs were missing in the University's dataset. The mean high school GPA for students who completed three or more C-I courses was 3.49 (SD = 0.36). These GPAs ranged from a low of 2.29 to a high of 4.00.

ACT scores: Composite and English sub-score

Because this study focused on Communication-Intensive courses, the ACT English sub-score was used in addition to the ACT Composite score to describe students who completed three or more C-I courses (n = 1,029). Their mean ACT Composite score was 26.51 (SD = 3.55), and their mean ACT English sub-score was 27.76 (SD = 4.44). When their ACT scores were examined using the institution's ACT score range categories for admission and scholarship eligibility, the largest group of students were in the 28-32 score category for both the ACT Composite (n = 437, 42.5%) and the English sub-score (n = 336, 32.7%). Data for these measures are presented in Table 11.

Table 11. ACT scores of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed three or more Communication-Intensive (C-I) courses

ACT Score Categories	ACT Composite	ACT English Sub-score
	n %	n %
10-17	0 0.0%	1 0.1%
18-21	77 7.5%	21 7.9%
22-23	163 15.8%	113 11.0%
24-27	295 28.7%	311 30.2%
28-32	437 42.5%	336 32.7%
33-36	57 5.5%	187 18.2%
Total	1,029 100.0%	1,029 100.0%
M	26.51 ^a	27.76 ^b
SD	3.55	4.44

^a Composite scores ranged from 19 to 35.

^b English sub-scores ranged from 14 to 36.

Graduation status

Of the 1,029 students who entered as freshman in fall 2012 and completed three or more C-I courses, 92.0% (n = 947) graduated in six years or less, and 8.0% (n = 82) did not graduate from the studied institution within six years.

Time to degree

Of the students who completed three or more C-I courses and who graduated within six years (n = 947), two-thirds (n = 643, 67.9%) graduated in four years or less. Data regarding time to degree for students who completed no C-I courses are reported in Table 12.

Table 12. Time to degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed three or more Communication-Intensive (C-I) courses, and graduated within six years

Years to complete degree	n	%
3	62	6.6%
4	581	61.4%
5	257	27.1%
6	47	5.0%
Total	947	100.0%

Overall GPA upon degree completion

The students who completed three or more C-I courses and graduated from the studied institution within six years (n = 947) were also described on the variable of overall grade point average (GPA) at time of degree completion. There were six students within this group (0.6%) for which the degree GPA was missing in the University’s dataset. The overall GPA for graduates who completed three or more C-I courses ranged from a low of 2.05 to a high of 4.07 and the mean was 3.23 (SD = 0.43).

Curriculum of study at time of degree completion

To describe degree completers on curriculum of study, the researcher categorized the students’ home college at time of degree into three curricular groups. The category of *Humanities* consists of students who graduated from this institution’s colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts. Those within the category of *Social Sciences* graduated from the institution’s colleges of Business, Human Sciences and Education, and Mass Communication. The third category, *STEM*, consists of students who graduated from the institution’s colleges of Agriculture, Coast and Environment, Engineering, and Science.

Of the students who completed three or more courses and graduated from the studied institution within six years (n = 947), 47.8% (n = 453) earned a bachelor's degree in a STEM curriculum. Those who earned a bachelors in a Social Sciences curriculum comprised 29.1% (n = 276) of the group, and those who earned a degree in a Humanities curriculum constituted 23.0% (n = 218) of the group. This data is presented in Table 13.

Table 13. Curriculum of study at time of degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed three or more Communication-Intensive (C-I) courses, and graduated within six years

Degree college by curricular category	n	%
Humanities		
Art and Design	99	10.5%
Humanities and Social Sciences	90	9.5%
Music and Dramatic Arts	29	3.1%
Social Sciences		
Business	54	5.7%
Human Sciences and Education	48	5.1%
Mass Communication	174	18.4%
STEM		
Agriculture	46	4.9%
Coast and Environment	11	1.2%
Engineering	280	29.6%
Science	116	12.2%
Total	947	100.0%

Objective 4

The fourth objective of this study was to describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed no Communication-Intensive (C-I) courses on the following variables:

- a. Gender
- b. Race

- c. Age status: Traditional or non-traditional
- d. Residency status: In-state or out-of-state resident
- e. Whether or not the student was a first-generation college student
- f. Whether or not the student was a Pell grant recipient
- g. High school GPA
- h. ACT scores: Composite and English sub-score
- i. Graduation status: Whether or not the student graduated in six years
- j. Time to degree in years
- k. Overall GPA upon degree completion
- l. Curriculum of study at time of degree completion

There were 2,717 students who met the criteria of this objective. The following sections report the results for each of these variables.

Gender

Gender was the first variable used to describe students who entered a RU/VH in the South in fall 2012 as freshman and completed no Communication-Intensive (C-I) courses (n = 2,717). Of these students, 54.4% (n = 1,478) identified as female and 45.6% (n = 1,239) identified as male.

Race

Another variable on which these students were described was race. Of the 2,717 students who completed no C-I courses, the majority (70.8%, n = 1,921) identified as White. The second largest group of students identified as Black/African American (16.1%, n = 436). Results on race are reported in Table 14.

Table 14. Race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed no Communication-Intensive (C-I) courses

Race	n	%
White	1,921	70.8%
Black/African American	436	16.1%
Hispanic	170	6.3%
Asian	89	3.3%
Multiracial	87	3.2%
American Indian/Alaskan Native	8	0.3%
Native Hawaiian/Other Pacific Islander	3	0.1%
Total ^a	2,714	100.0%

^a There were 3 students within this group who did not provide information about their race.

Age status: Traditional or non-traditional

To be able to describe the freshman who entered in fall 2012 on their age, the researcher first used date of birth to calculate students' age as of August 1, 2012. Ages of students who completed no C-I courses ranged from 16 to 26, and the mean age was 17.9 (SD = 0.47).

The National Center for Education Statistics (NCES) considers students equal to or younger than age 24 *traditional*, and students equal to or older than age 25 *non-traditional*. Of the students who entered the university in fall 2012 as freshman and completed no C-I courses (n = 2,717), only one student was non-traditional aged.

Residency status: In-state or out-of-state

Students who completed no C-I courses were also described by residency. Of the 2,717 students, the majority were in-state residents (81.5%, n = 2,215). Out-of-state students comprised 18.5% (n = 502) of this group.

Whether or not the student was a first-generation college student

Of the 2,717 students who entered as freshman in fall 2012 and completed no C-I courses, 26.8% (n = 728) were first-generation college students, while 73.2% (n = 1,989) were not first-generation students.

Whether or not the student was a Pell grant recipient

To describe the financial need status of students who completed no C-I courses (n = 2,717), the variable of whether or not a student received a federal Pell grant was used. Of the 2,717 students, 26.8% (n = 729) received a federal Pell grant. Those who did not receive Pell constituted 73.2% (n = 1,988) of this group.

High school GPA

High school grade point average (GPA) was also used to describe students who completed no C-I courses (n = 2,717). There were 205 students within this group (7.5%) for which high school GPAs were missing in the University's dataset. The mean high school GPA for students who did not complete any C-I courses was 3.31 (SD = 0.39). Their GPAs ranged from a low of 1.95 to a high of 4.00.

ACT scores: Composite and English sub-score

Because this study focused on Communication-Intensive courses, the ACT English sub-score was used in addition to the ACT Composite score to describe students who did not complete any C-I courses (n = 2,717). There were two students in this group (0.1%) for which the ACT Composite and English sub-scores were missing in the University's dataset.

The mean ACT Composite score was 24.49 (SD = 3.12), and the mean ACT English sub-score was 25.42 (SD = 4.09). When ACT scores were examined using the institution's ACT score range categories for admission and scholarship eligibility, the largest group of students

were in the 24-27 score category for both the ACT Composite (n = 1,064, 39.3%) and the English sub-score (n = 1,005, 37.0%). These data are presented in Table 15.

Table 15. ACT scores of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and completed no Communication-Intensive (C-I) courses

ACT Score Categories	ACT Composite	ACT English Sub-score
	n %	n %
10-17	0 0.0%	17 0.6%
18-21	457 16.8%	545 16.7%
22-23	709 26.1%	472 17.4%
24-27	1,064 39.2%	1,005 37.0%
28-32	458 16.9%	598 22.0%
33-36	27 1.0%	169 6.2%
Total ^a	2,715 100.0%	2,715 100.0%
M	24.49 ^b	25.42 ^c
SD	3.12	4.09

^a There were 2 students for which ACT scores were missing.

^b Composite scores ranged from 15 to 35.

^c English sub-scores ranged from 10 to 36.

Graduation status

Of the 2,717 students who entered as freshman in fall 2012 and completed no C-I courses, 41.6% (n = 1,131) graduated in six years or less, and 58.4% (n = 1,586) did not graduate from the studied institution as of spring 2018.

Time to degree

Of the students who did not take any C-I courses and graduated within six years (n = 1,131), the majority (n = 918, 81.2%) graduated in four years or less. Information regarding time to degree for students who completed no C-I courses is reported in Table 16.

Table 16. Time to degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed no Communication-Intensive (C-I) courses, and graduated within six years

Years to complete degree	n	%
2	4	0.4%
3	100	8.8%
4	814	72.0%
5	193	17.1%
6	20	1.8%
Total	1,131	100.0%

Overall GPA upon degree completion

The students who did not complete any C-I courses and graduated from the studied institution within six years (n = 1,131) were also described on the variable of overall grade point average (GPA) at time of degree completion. There were 27 students within this group (2.4%) for which degree GPA was missing in the University’s dataset. The overall GPA for degree completers who did not take any C-I courses ranged from a low of 2.00 to a high of 4.08 and the mean was 3.10 (SD = 0.45).

Curriculum of study at time of degree completion

To describe degree completers on curriculum of study, the researcher categorized the students’ home college at time of degree into three curricular groups. The category of *Humanities* consists of students who graduated from this institution’s colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts. Those within the category of *Social Sciences* graduated from the institution’s colleges of Business, Human Sciences and Education, and Mass Communication. The third category, *STEM*, consists of students who graduated from the institution’s colleges of Agriculture, Coast and Environment, Engineering, and Science.

Of the students who completed no C-I courses and graduated from the studied institution with six years (n = 1,131), 46.6% (n = 527) earned a bachelor's degree in a Social Sciences curriculum. Those who earned a bachelors in a Humanities curriculum comprised 30.8% (n = 348) of the group, and those who earned a degree in a STEM curriculum constituted 22.6% (n = 256) of the group. This data is presented in Table 17.

Table 17. Curriculum of study at time of degree for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States, completed no Communication-Intensive (C-I) courses, and graduated within six years

Degree college by curricular category	n	%
Humanities		
Art and Design	0	0.0%
Humanities and Social Sciences	338	29.9%
Music and Dramatic Arts	10	0.9%
Social Sciences		
Business	234	20.7%
Human Sciences and Education	291	25.7%
Mass Communication	2	0.2%
STEM		
Agriculture	128	11.3%
Coast and Environment	0	0.0%
Engineering	69	6.1%
Science	59	5.2%
Total	1,131	100.0%

Objective 5

The fifth objective of this study was to compare undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more C-I courses to those who completed no C-I courses on the following variables:

- a. Gender
- b. Race

- c. Age status: Traditional or non-traditional
- d. Residency status: In-state or out-of-state resident
- e. Whether or not the student was a first-generation college student
- f. Whether or not the student was a Pell grant recipient
- g. High school GPA
- h. ACT scores: Composite and English sub-score
- i. Graduation status: Whether or not the student graduated in six years
- j. Time to degree in years
- k. Overall GPA upon degree completion
- l. Curriculum of study at time of degree completion

There were 3,746 students who met the criteria of this objective. The following sections report the results for each of these variables.

Gender

To determine if students' gender (male or female) was related to C-I course completion status (no C-I courses, three or more C-I courses), the chi-square test of independence was used. Results of the chi-square test were not significant, indicating that gender was independent of C-I course completion status ($\chi^2 (1, N = 3,746) = 2.3, p = .126$).

Race

The chi-square test of independence was used to assess if students' race and C-I course completion status (no C-I courses, three or more C-I courses) were related. Results of race frequencies by course completion status are reported in Table 18. In analyzing the frequencies, the researcher determined that the number of students who identified as American Indian/Alaskan Native (n = 11), Native Hawaiian/Other Pacific Islander (n = 3), or who did not

indicate their race (n = 3) were so few that these 17 students should be eliminated from the chi-square analysis.

Table 18. Communication-Intensive (C-I) course completion status by race of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Race		White	Black/ African Amer.	Hispanic	Asian	Multi- racial	Amer. Indian/ Alaskan Native	Native Hawaiian or Other Pacific Islander	Total ^a
No C-I Courses Completed	n	1921	436	170	89	87	8	3	2,714
	%	70.8%	16.1%	6.3%	3.3%	3.2%	0.3%	0.1%	100.0%
Three or More C-I Courses Completed	n	789	86	80	40	31	3	0	1,029
	%	76.7%	8.4%	7.8%	3.9%	3.0%	0.3%	0.0%	100.0%
Total ^a	n	2,710	522	250	129	118	11	3	3,743
	%	72.4%	13.9%	6.7%	3.4%	3.2%	0.3%	0.1%	100.0%

^a There were 3 students within this group who did not provide information about their race.

When the race groups of White, Black/African American, Hispanic, Asian, and Multiracial were tested for independence from the variable C-I course completion status (no C-I courses, three or more C-I courses), the resulting chi-square value was statistically significant, indicating that C-I course completion status and race were not independent ($\chi^2 (4, N = 3,729) = 38.8, p < .001$).

The majority of students who identified as Black/African American completed no C-I courses (83.5%) as compared with Black/African American students who completed three or more C-I courses (16.5%), representing the greatest deviation from the overall percentages of all groups. Students who identified as Hispanic, Asian, and White were most likely to complete

three or more C-I courses (32.0%, 31.0%, 29.1%) compared to the overall percentage (27.5%).

These results are presented in Table 19.

Table 19. Comparison of Communication-Intensive (C-I) course completion status by selected races of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

Race		White	Black/ African American	Hispanic	Asian	Multiracial	Total
No C-I Courses Completed	n	1,921	436	170	89	87	2,703
	% ^a	70.9%	83.5%	68.0%	69.0%	73.7%	72.5%
	% ^b	51.5%	11.7%	4.6%	2.4%	2.3%	72.5%
Three or More C-I Courses Completed	n	789	86	80	40	31	1,026
	% ^a	29.1%	16.5%	32.0%	31.0%	26.3%	27.5%
	% ^b	21.2%	2.3%	2.1%	1.1%	0.8%	27.5%
Total	n	2,710	522	250	129	118	3,729
	% ^a	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% ^b	72.7%	14.0%	6.7%	3.5%	3.2%	100.0%

Note: $\chi^2(4, N = 3,729) = 38.8, p < .001$

^a Percent within race classification.

^b Percent of total.

Age status: Traditional or non-traditional

The independent t-test procedure was used to determine if a difference existed in age for students who completed no C-I courses and those who completed three or more C-I courses. The resulting t-test was not significant ($t(3,744) = 0.7, p = .944$).

The National Center for Education Statistics (NCES) classifies students equal to or younger than age 24 as *traditional*, and students equal to or older than age 25 are classified as *non-traditional*. The chi-square test of independence was used to determine if the students' age status (traditional or non-traditional) was related to C-I course completion status (no C-I courses,

three or more C-I courses). The resulting chi-square value was not significant, indicating age status was independent of C-I course completion status ($\chi^2 (1, N = 3,746) = 0.4, p = .538$).

Residency status: In-state or out-of-state

The chi-square test of independence was used to determine if the students' residency status (in-state or out-of-state) was related to C-I course completion status (no C-I courses, three or more C-I courses). The resulting chi-square value was not significant, indicating residency status was independent of C-I course completion status ($\chi^2 (1, N = 3,746) = 1.0, p = .313$).

Whether or not the student was a first-generation college student

When the variable, whether or not a student was a first-generation college student, was tested for independence from the variable of C-I course completion status, a statistically significant chi-square result was yielded, meaning the variables were not independent ($\chi^2 (1, N = 3,746) = 24.1, p < .001$). The nature of association between the variables is such that a higher percentage of first-generation college students completed no C-I courses (78.8%, $n = 728$), whereas a higher percentage of students who were not first-generation completed three or more C-I courses (29.5%, $n = 833$). These data are presented in Table 20.

Table 20. Comparison of Communication-Intensive (C-I) course completion status by whether or not the student was a first-generation college student for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

		First-Generation College Student	Not a First-Generation College Student	Total
No C-I courses completed	n	728	1,989	2,717
	% ^a	78.8%	70.5%	72.5%
	% ^b	19.4%	53.1%	72.5%
Three or more C-I courses completed	n	196	833	1,029
	% ^a	21.2%	29.5%	27.5%
	% ^b	5.2%	22.2%	27.5%
Total	n	924	2,822	3,746
	% ^a	100.0%	100.0%	100.0%
	% ^b	24.7%	75.3%	100.0%

Note: $\chi^2 (1, N = 3,746) = 24.1, p < .001$

^a Percent within first-generation classification.

^b Percent of total.

Whether or not the student was a Pell grant recipient

When the variable, whether or not a student received the federal Pell grant, was tested for independence from the variable C-I course completion status (no C-I courses, three or more C-I courses), a statistically significant chi-square result was yielded, indicating the variables were not independent ($\chi^2 (1, N = 3,746) = 28.9, p < .001$). The association was such that students who received Pell funding were more likely to complete no C-I courses (79.4%, $n = 729$), while students who did not received Pell were more likely to complete three or more C-I courses (29.7%, $n = 840$). These results are presented in Table 21.

Table 21. Comparison of Communication-Intensive (C-I) course completion status by whether or not the student received a federal Pell grant for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

		Pell Grant Recipient	Not a Pell Grant Recipient	Total
No C-I courses completed	n	729	1,988	2,717
	% ^a	79.4%	70.3%	72.5%
	% ^b	19.5%	53.1%	72.5%
Three or more C-I courses completed	n	189	840	1,029
	% ^a	20.6%	29.7%	27.5%
	% ^b	5.0%	22.4%	27.5%
Total	n	918	2,828	3,746
	% ^a	100.0%	100.0%	100.0%
	% ^b	24.5%	75.5%	100.0%

Note: $\chi^2 (1, N = 3,746) = 28.9, p < .001$

^a Percent within Pell recipient classification.

^b Percent of total.

High school GPA

The independent t-test procedure was used to determine if a difference existed in high school grade point average (GPA) for students who completed no C-I courses and those who completed three or more C-I courses. There were 262 student records within the compare groups (9.5%) for which high school GPAs were missing. Of the missing records, 7.5% (n = 205) were from the group of students who completed no C-I courses, and 5.5% (n = 57) were from the group of students who completed three or more C-I courses.

The resulting t-test was statistically significant ($t(3,482) = 12.7, p < .001$). Students who completed three or more C-I courses (n = 972) had higher high school GPAs (M = 3.49, SD = 0.36) in comparison to their peers who completed no C-I courses (n = 2,512, M = 3.31, SD = 0.39). These results are presented in Table 22.

Table 22. Comparison of Communication-Intensive (C-I) course completion status by high school GPA for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

	n	M	SD	t	df
No C-I courses completed	2,512 ^a	3.31 ^c	0.39	12.7	3,482
Three or more C-I courses completed	972 ^b	3.49 ^d	0.36		

Note: $t(3,482) = 12.7, p < .001$

^a There were 205 student records for which high school GPAs were missing.

^b There were 57 student records for which high school GPAs were missing.

^c Range was 1.95 to 4.00.

^d Range was 2.29 to 4.00.

ACT scores: Composite and English sub-score

The independent t-test procedure was used to determine if a difference existed in ACT scores for students who completed no C-I courses and students who completed three or more C-I courses. Both the ACT Composite score and the ACT English sub-score resulted in a statistically significant difference between the groups ($t(3,742) = 17.0, p < .001$; $t(3,742) = 15.3, p < .001$). Students who completed three or more C-I courses ($n = 1,029$) had higher ACT Composite scores ($M = 26.51, SD = 3.55$) and higher ACT English sub-scores ($M = 27.76, SD = 4.44$) in comparison to their peers who completed no C-I courses. These results are presented in Table 23.

Table 23. Comparison of Communication-Intensive (C-I) course completion status by ACT scores for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

		ACT Composite Score	ACT English Sub-score
No C-I courses completed	n ^a	2,715	2,715
	M	24.79 ^b	25.42 ^d
	SD	3.12	4.09
Three or more C-I courses completed	n	1,029	1,029
	M	26.51 ^c	27.76 ^e
	SD	3.55	4.44
	t	17.0	15.3
	df	3,742	3,742

Note: $t(3,742) = 17.1, p < .001$; $t(3,742) = 15.3, p < .001$

^a There were 2 students within the group of students who completed no C-I courses for which ACT scores were missing.

^b Composite scores ranged from 15 to 35.

^c Composite scores ranged from 19 to 35.

^d Sub-scores ranged from 10 to 36.

^e Sub-scores ranged from 14 to 36.

Graduation status

When the variable, whether or not the student graduated within six years, was tested for independence from the variable of C-I course completion status, a the resulting chi-square value was significant, indicating these variables are associated ($\chi^2(1, N = 3,746) = 767.7, p < .001$). The nature of the relationship is such that a higher percentage of students who completed no C-I courses did not graduate within six years (58.4%, $n = 1,586$), whereas a higher percentage of students who completed three or more C-I courses graduated in six years or less (92.0%, $n = 947$). These data are presented in Table 24.

Table 24. Comparison of Communication-Intensive (C-I) course completion status by whether or not the student graduated in six years or less for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

		No C-I courses completed	Three or more C-I courses completed	Total
Did not graduate in six years or less	n	1,586	82	1,668
	% ^a	58.4%	8.0%	44.5%
	% ^b	42.3%	2.2%	44.5%
Graduated in six years or less	n	1,131	947	2,078
	% ^a	41.6%	92.0%	55.5%
	% ^b	30.2%	25.3%	55.5%
Total	n	2,717	1,029	3,746
	% ^a	100.0%	100.0%	100.0%
	% ^b	72.5%	27.5%	100.0%

Note: $\chi^2 (1, N = 3,746) = 767.7, p < .001$

^a Percent within C-I course completion status classification.

^b Percent of total.

Time to degree

The chi-square test of independence was used to determine if a relationship existed between C-I course completion status (no C-I courses, three or more C-I courses) and time to degree. The resulting chi-square value was statistically significant, indicating the variables were not independent ($\chi^2 (4, N = 2,078) = 56.0, p < .001$). The nature of the association was such that a greater proportion of students who completed no C-I courses graduated in four years or less (81.2%, n = 918), whereas a higher proportion of students who completed three or more C-I courses graduated in five or six years (32.1%, n = 304). These results are presented in Table 25.

Table 25. Comparison of time to degree by Communication-Intensive (C-I) course completion status for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years

Time to degree in years		No C-I courses completed	Three or more C-I courses completed	Total
2	n	4	0	4
	% ^a	0.4%	0.0%	0.2%
	% ^b	0.2%	0.0%	0.2%
3	n	100	62	162
	% ^a	8.8%	6.5%	7.8%
	% ^b	4.8%	3.0%	7.8%
4	n	814	581	1,395
	% ^a	72.0%	61.4%	67.1%
	% ^b	39.2%	28.0%	67.1%
5	n	193	257	450
	% ^a	17.1%	27.1%	21.7%
	% ^b	9.3%	12.4%	21.7%
6	n	20	47	67
	% ^a	1.8%	5.0%	3.2%
	% ^b	1.0%	2.3%	3.2%
Total	n	1,131	947	2,078
	% ^a	100.0%	100.0%	100.0%
	% ^b	54.4%	45.6%	100.0%

Note: $\chi^2(4, N = 2,078) = 56.0, p < .001$

^a Percent within C-I course completions status.

^b Percent of total.

Overall GPA upon degree completion

The independent t-test procedure was used to determine if a difference existed in students' overall GPA at the time of degree for students who completed no C-I courses and those who completed three or more C-I courses. There were 27 students within the group of students who completed no C-I courses (2.4%) and six students within the group of students who completed three or more C-I courses (0.6%) for which degree GPA missing in the University's dataset. The resulting t-test for overall GPA was statistically significant, indicating overall GPA at time of degree and C-I course completion status were not independent ($t(2,049) = 6.3, p <$

.001). Students who completed three or more C-I courses and graduated (n = 941) had a higher overall GPA upon degree completion (M = 3.23, SD = 0.43) compared to students who completed no C-I courses (n = 1,110, M = 3.10, SD = 0.45). These data are presented in Table 26.

Table 26. Comparison of Communication-Intensive (C-I) course completion status by overall GPA upon degree completion for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

	n	M	SD	t	df
No C-I courses completed	1,110 ^a	3.10 ^c	0.45	6.3	2,049
Three or more C-I courses completed	941 ^b	3.23 ^d	0.43		

Note: $t(2,049) = 6.3, p < .001$

^a There were 27 students within the group of students who completed no C-I courses for which overall GPA upon degree completion was missing.

^b There were 6 students within the group of students who completed three or more C-I courses for which overall GPA upon degree completion was missing.

^c GPAs ranged from 2.00 to 4.08.

^d GPAs ranged from 2.05 to 4.07.

Curriculum of study at time of degree completion

To describe degree completers on curriculum of study, the researcher categorized the students' home college at time of degree into three curricular groups. The category of *Humanities* consists of students who graduated from this institution's colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts. Those within the category of *Social Sciences* graduated from the institution's colleges of Business, Human Sciences and Education, and Mass Communication. The third category, *STEM*, consists of students who graduated from the institution's colleges of Agriculture, Coast and Environment, Engineering, and Science.

When the variables curriculum upon degree completion and C-I course completion status were tested for independence, the resulting chi-square value was statistically significant, indicating the variables were not independent ($\chi^2 (2, N = 2,078) = 147.9, p < .001$). The relationship was such that a greater proportion of students who completed three or more C-I courses graduated from STEM colleges (47.8%, $n = 453$), whereas a higher proportion of students who completed no C-I courses graduated from Social Sciences colleges (46.6%, $n = 527$). These results are presented in Table 27.

Table 27. Comparison of degree category by Communication-Intensive (C-I) course completion status for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States and graduated within six years

Degree curricular category		No C-I courses completed	Three or more C-I courses completed	Total
Humanities ^c	n	348	218	566
	% ^a	30.8%	23.0%	27.2%
	% ^b	16.7%	10.5%	27.2%
Social Sciences ^d	n	527	276	803
	% ^a	46.6%	29.1%	38.6%
	% ^b	25.4%	13.3%	38.6%
STEM ^e	n	256	453	709
	% ^a	22.6%	47.8%	34.1%
	% ^b	12.3%	21.8%	34.1%
Total	n	1,131	947	2,078
	% ^a	100.0%	100.0%	100.0%
	% ^b	54.4%	45.6%	100.0%

Note: $\chi^2 (2, N = 2,078) = 147.9, p < .001$

^a Percent within C-I course completions status.

^b Percent of total.

^c *Humanities* consists of students who graduated from this institution's colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts.

^d *Social Sciences* consists of students who graduated from this institution's colleges of Business, Human Sciences and Education, and Mass Communication.

^e *STEM* consists of students who graduated from the institution's colleges of Agriculture, Coast and Environment, Engineering, and Science.

Objective 6

The final objective of this study was to determine if a model exists that significantly increases the researcher's ability to correctly classify students at a RU/VH in the Southern U.S. on degree completion status (graduated within six years) from the following measures:

- a. Gender
- b. Race
- c. Whether or not the student was a first-generation college student
- d. Whether or not the student was a Pell grant recipient
- e. High school GPA
- f. ACT scores: Composite and English sub-score
- g. C-I course completion status (no C-I courses, three or more C-I courses)

The overall goal of this study was to determine if a relationship exists between C-I courses and degree completion. Applying Kerlinger's (1986) MAX-MIN-CON principle, two distinct groups of students were investigated: (1) those who completed three or more C-I courses, and (2) those who did not complete any C-I courses. The reasoning was such that if C-I course participation and degree completion are associated, this approach would maximize the probability of finding this association if one did exist.

To predict students' likelihood of graduating within six years, binary logistic regression analysis was used. Covariates included personal demographics (gender, race, first-generation college student status, and Pell grant status) and pre-college academic characteristics (high school GPA, ACT composite score, and ACT English sub-score). The predictor, C-I course completion status, was measured as dichotomous variable (no C-I courses, three or more C-I

courses). Only student records with complete data for all covariates were included in the analysis (n = 3,468, 92.6%).

To control for effects, the independent variables were blocked and entered into the regression analysis in a logical, hierarchical manner. As antecedents, personal demographics were entered first, then pre-college academic characteristics entered second. Since the influence of personal demographics and pre-college academic characteristics on degree persistence are well-represented in the literature, and because they are not the primary independent variable of investigation, these variables were allowed to enter in a stepwise fashion. Variables that did not contribute to the model were dropped at each Step in an effort to create the most parsimonious model. The final block entered was the primary independent variable of investigation, C-I course completion status, so its effects on degree completion could be investigated while personal demographics and pre-college academic characteristics were controlled. A summary of the results is presented in Table 28 and the following sections discuss analyses of each Step.

Table 28. Summary of binary logistic regression analysis of degree completion for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

	Intercept	Step 1	Step 2	Step 3
-2 Log likelihood	4748.59	4618.22	4375.49	3721.92
Omnibus Tests ^a	--	$\chi^2 = 130.4(4)$	$\chi^2 = 373.1(6)$	$\chi^2 = 1026.7(7)$
Nagelkerke R ²	--	.049	.137	.344
Hosmer & Lemeshow	--	$\chi^2 = 6.3(4)$, p = .179	$\chi^2 = 6.2(8)$, p = .621	$\chi^2 = 8.8(8)$, p = .359
% Correct, Not Graduated	0.0%	35.5%	48.8%	74.3%
% Correct, Graduated	100%	79.8%	75.4%	68.2%
Overall % Correct	56.5%	60.6%	63.8%	70.9%

Note: There were 3,746 students within the fall 2012 cohort who completed no C-I courses, or who completed three or more C-I courses. Within this group, there were 278 student records for which data for one or more of the independent variables was missing. As such, there were 3,468 students (92.6%) used in the regression analysis.

^a p < .001

Step 1

The antecedent measures were blocked in first and allowed to enter stepwise. These included the following personal demographic variables:

- a. Gender (male, female)
- b. Race-White (White, non-White)
- c. Race-African American (African American, non-African American)
- d. Race-Asian (Asian, non-Asian)
- e. Race-Hispanic (Hispanic, non-Hispanic)
- f. Race-Multiracial (Multiracial, non-Multiracial)
- g. First generation status (first-generation college student, not first-generation)

h. Pell grant status (Pell grant recipient, not Pell recipient)

Of the eight covariates entered into the first block, only four were significant contributors to the model, including gender, race-African American, first-generation status, and Pell grant status (χ^2 (4, N = 3,468) = 130.4, $p < .001$). Of these personal demographics, Pell grant status was the strongest predictor of degree completion with a Wald statistic of 30.13. The Hosmer and Lemeshow Test was non-significant (χ^2 (4, N = 3,468) = 6.3, $p = .179$) in this initial model, indicating there was no difference between the actual and predicted models. In other words, the model fits the data.

Students' personal demographics explained 4.9% of the variance (Nagelkerke $R^2 = .049$) and the -2 Log likelihood value decreased by 130.37 from the intercept-only model, demonstrating a slight improvement in predicting whether or not a student graduated. Overall, 60.6% of the cases were correctly classified, and the model did better at correctly predicting students who did graduate (79.8%) than predicting students who did not graduate (35.5%).

Step 2

Next, pre-college academic variables were blocked into the analysis and allowed to enter stepwise. These variables included:

- a. High school GPA
- b. ACT composite score
- c. ACT English sub-score

Of these three covariates, only two were significant contributors to the model, including high school GPA and ACT English sub-score (χ^2 (6, N = 3,468) = 373.1, $p < .001$). Of these pre-college academic characteristics, high school GPA was the strongest predictor of degree completion with a Wald statistic of 144.06. The Hosmer and Lemeshow Test was non-significant (χ^2 (8, N = 3,468) = 6.2, $p = .621$), indicating the model is a good fit.

The addition of students' pre-college characteristics to the model decreased the -2 Log likelihood value by 242.74 and increased the explanatory power (Nagelkerke $R^2 = .137$), demonstrating that the combination of personal demographics and pre-college characteristics (Step 2) better predict graduation than personal demographics alone (Step 1).

Similar to Step 1, this model was better at correctly predicting those who did graduate (75.4%) compared to predicting non-completers. In Step 2, the model improved slightly in comparison to Step 1 with regards to predicting those who did not graduate (48.8%). Overall, the model correctly classified 63.8% of the cases at Step 2, suggesting a meaningful model.

Step 3

C-I course completion status (no C-I courses completed, three or more C-I courses completed) was entered into the third block so its influence on degree completion could be assessed after personal demographics and pre-college academic characteristics were controlled. In this final Step, Race-African American was not significant ($p = .850$), while the other five covariates were significant contributors to the model, including gender ($p < .001$), first-generation status ($p = .001$), Pell grant status ($p < .001$), high school GPA ($p < .001$), and ACT English sub-score ($p = .011$). When C-I course completion status entered into the model, it was found to be the strongest predictor of degree completion with a Wald statistic of 411.52 ($\chi^2(7, N = 3,468) = 1026.7, p < .001$). As in the previous two Steps, the Hosmer and Lemeshow Test was non-significant ($\chi^2(8, N = 3,468) = 8.8, p = .359$), indicating this model is also a good fit.

The addition of C-I course completion status to the model further decreased the -2 Log likelihood value by 653.56 and increased the explanatory power (Nagelkerke $R^2 = .344$), demonstrating that the model was better in predicting graduation at Step 3 than at Step 1 and Step 2. In the previous two steps, degree completers were more often predicted correctly

compared to non-completers. In the final model, there was a substantial improvement in correctly predicting students who did not graduate (74.3%) and a slight decrease in correctly predicting students who did graduate (68.2%). The overall percentage of correctly classified cases increased significantly to 70.9%, indicating the combination of personal demographics (Step 1), pre-college academic characteristics (Step 2), and C-I course completion status (Step 3) is substantively meaningful in predicting degree completion. Classification results for the final model are presented in Table 29 and summary statistics are presented in Table 30.

Table 29. Classification results for degree completion within six years

Observed	Predicted Did Not Graduate	Predicted Graduated	% Correct
Did Not Graduate	1,121	387	74.3%
Graduated	623	1,337	68.2%
Total ^a	1,744	1,724	70.9%

^a There were 3,468 students included in the analysis.

Table 30. Binary logistic regression analysis of degree completion for students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

	β	S.E.	Wald	df	p	Exp(β)
Gender ^a	-.35	.08	18.65	1	< .001	0.70
Race-African American ^b	.02	.13	0.04	1	.850	1.02
First generation status ^c	.32	.10	11.21	1	.001	1.37
Pell grant status ^d	.49	.10	23.95	1	< .001	1.64
High school GPA	.99	.11	80.45	1	< .001	2.67
ACT English sub-score	.03	.01	6.52	1	.011	1.03
C-I course completion status ^e	.89	.04	411.52	1	< .001	2.43
Constant	-4.73	.41	132.52	1	< .001	0.01

^a Variable was coded as 0 = male, 1 = female.

^b Variable was coded as 0 = not African American, 1 = African American.

^c Variable was coded as 0 = not first generation college student, 1 = first generation college student.

^d Variable was coded as 0 = not Pell grant recipient, 1 = Pell grant recipient.

^e Variable was coded as 0 = no C-I courses completed, 1 = three or more C-I courses completed.

CHAPTER 5. SUMMARY

Research Objectives

The primary purpose of this study was to determine the influence of participation in Communication-Intensive (C-I) courses and selected personal and academic characteristics on undergraduate degree completion at a large, public research university-very high research activity (RU/VH) in the Southern region of the United States. To accomplish this, the following research objectives were constructed:

1. Describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following personal demographics and pre-college academic characteristics:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
2. Describe the fall 2012 cohort of undergraduate students who entered a RU/VH in the Southern U.S. on the following collegiate academic activities through spring 2018:
 - a. Number of Communication-Intensive (C-I) courses completed (0, 1, 2, \geq 3)
 - b. Academic level of C-I courses completed (1000, 2000, 3000, 4000, 5000)
 - c. Mode emphasis of C-I courses completed (written, spoken, visual, technological)

- d. Graduation status: Whether or not the student graduated within six years
 - e. Time to degree in years ($\leq 4, 5, 6$ years)
 - f. Overall GPA upon degree completion
 - g. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
3. Describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more Communication-Intensive (C-I) courses on the following variables:
- a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years ($\leq 4, 5, 6$ years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

4. Describe the undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed no Communication-Intensive (C-I) courses on the following variables:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident
 - e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years (\leq 4, 5, 6 years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)

5. Compare undergraduate students who entered a RU/VH in the Southern U.S. in fall 2012 and completed three or more C-I courses to those who completed no C-I courses on the following variables:
 - a. Gender
 - b. Race
 - c. Age status: Traditional (\leq age 24) or non-traditional age (\geq age 25)
 - d. Residency status: In-state or out-of-state resident

- e. Whether or not the student was a first-generation college student
 - f. Whether or not the student was a Pell grant recipient
 - g. High school GPA
 - h. ACT scores: Composite and English sub-score
 - i. Graduation status: Whether or not the student graduated within six years
 - j. Time to degree in years ($\leq 4, 5, 6$ years)
 - k. Overall GPA upon degree completion
 - l. Curriculum of study at time of degree completion (Humanities, Social Sciences, STEM)
6. Determine if a model exists that significantly increases the researcher's ability to correctly classify students at a large RU/VH in the Southern U.S. on degree completion status (did or did not graduate within six years) from the following measures:
- a. Gender
 - b. Race
 - c. Whether or not the student was a first-generation college student
 - d. Whether or not the student was a Pell grant recipient
 - e. High school GPA
 - f. ACT scores: Composite and English sub-score
 - g. C-I course completion status (no C-I courses, three more C-I courses)

Summary of Methodology

This study employed a quantitative ex post facto research design using six years of longitudinal matched data from official university records. The dataset was provided by the studied institution's Registrar and included admission, financial aid, and academic data. The

variables selected for this study were those that have been cited within literature in relation to High-Impact Practices (HIPs), time to degree, and degree completion, and those that are most commonly tracked by postsecondary institutions.

The target population for this study was undergraduate students who enrolled in a large, public research university-very high research activity (RU/VH) in the Southern U.S. The accessible population was all undergraduates who entered as freshman in the fall 2012 semester at the selected RU/VH (N = 5,602). The sample consisted of 100% of the defined accessible population. Because the overall goal of this study was to determine if a relationship exists between Communication-Intensive (C-I) courses and degree completion, Kerlinger's (1986) MAX-MIN-CON principle was applied and two distinct sub-groups were investigated: (1) those who completed three or more C-I courses (n = 1,029), and (2) those who did not complete any C-I courses (n = 2,717). The reasoning was such that if C-I course participation and degree completion are associated, this approach would maximize the probability of finding this association if one did exist.

Descriptive statistics were applied first to understand the demographic and academic characteristics of the full cohort and the sub-groups (three or more C-I, no C-I). To compare students who completed three or more C-I courses to students who completed no C-I courses, chi-square tests and independent t-tests were conducted. Lastly, binary logistic regression analysis was employed to determine if a model existed to accurately predict whether or not a student would graduate within six years based on selected personal and academic characteristics including C-I course completion status. Only student records with complete data for all of the covariates were included in the regression analysis (n = 3,468, 92.6%).

This research was approved by the Institutional Review Board (IRB) and data remained confidential and secure on university-managed computers throughout the project.

Summary of Findings

This study investigated the relationship between Communication-Intensive (C-I) courses and degree completion at a large, public research university-very high research activity (RU/VH) in the Southern U.S. Students who completed three or more C-I courses ($n = 1,029$) differed from those who did not complete any C-I courses ($n = 2,717$) in several ways. Most notable is the finding that those who completed three or more C-I courses were most likely to graduate within six years (92.0%). With regard to demographics, students who completed three or more C-I courses were predominantly White, and more likely to graduate within STEM disciplines. The following sections detail findings of this study, and a summary of results is presented in Table 31.

Personal Demographics

Gender. Within the fall 2012 cohort ($N = 5,602$), a slightly higher percentage of students were female (52.9%) than male (47.1%). This was also true within the sub-group of students who completed three or more C-I courses (51.6% female) and those who completed no C-I courses (54.4% female). Results of the chi-square test were not significant ($\chi^2(1, N = 3,746) = 2.3, p = .126$).

Race. Nearly three-quarters of students within the cohort identified as White (74.0%). Black/African American was the second largest race group (12.7%), and these students were twice as likely to not complete in any C-I courses (16.1%) as to complete three or more C-I courses (8.4%). White students were almost equally likely to complete three or more C-I courses (76.7%) as they were to complete no C-I courses (70.8%). The race groups of White,

Black/African American, Hispanic, Asian, and Multiracial were included in the test for independence in relation to C-I course completion status. The result was statistically significant ($\chi^2 (4, N = 3,729) = 38.8, p < .001$); however, the race groups of Asian and Multiracial did not contribute to the chi-square value.

Age and Residency. Students were primarily traditional-aged (99.98%), meaning they were 24 years of age or younger, and the majority of students were in-state residents (81.5%). When students who completed no C-I courses were compared to those who completed three or more C-I courses, neither age status ($\chi^2 (1, N = 3,746) = 0.4, p = .538$) nor residency status ($\chi^2 (1, N = 3,746) = 1.0, p = .313$) were significant.

First-generation and Pell grant status. Less than a quarter of the students within the cohort were first-generation college students (23.5%), or recipients of a federal Pell grant (23.1%). Students who were first-generation or Pell recipients were more likely not to complete any C-I courses than to complete three or more C-I courses. In relation to C-I course completion status, both first-generation status ($\chi^2 (1, N = 3,746) = 24.1, p < .001$) and Pell grant status ($\chi^2 (1, N = 3,746) = 28.9, p < .001$) were statistically significant.

Pre-college Academic Characteristics

High School GPA. The mean High School GPA of the fall 2012 cohort ($N = 5,602$) was 3.39 ($SD = 0.39$). Students who completed three or more C-I courses ($n = 972$) had slightly higher high school GPAs ($M = 3.49, SD = 0.36$) in comparison to their peers who completed no C-I courses ($n = 2,512, M = 3.31, SD = 0.39$). The resulting t-test was statistically significant ($t(3,482) = 12.7, p < .001$).

ACT Scores. For the fall 2012 cohort, the mean ACT Composite score was 25.30 ($SD = 3.39$), and the mean ACT English sub-score was 26.35 ($SD = 4.35$). When ACT Composite score and ACT English sub-score were tested for independence on C-I course completion status, both

were statistically significant ($t(3,742) = 17.0, p < .001$; $t(3,742) = 15.3, p < .001$). Students who completed three or more C-I courses ($n = 1,029$) had higher ACT Composite scores ($M = 26.51, SD = 3.55$) and higher ACT English sub-scores ($M = 27.76, SD = 4.44$) in comparison to their peers who completed no C-I courses.

Communication-Intensive (C-I) Course Activity across Six Years

Of the 5,602 students who entered the RU/VH in fall 2012 as freshman, half of the cohort completed at least one C-I course (51.5%, $n = 2,885$). Most of these students completed a single C-I course ($n = 1,224$), while 632 students completed two C-I courses, and 1,029 students completed three or more C-I courses.

Collectively, students in this study completed a total of 7,410 C-I courses, the majority of which were accredited with dual-mode emphases (88.0%). The greatest proportion of C-I courses completed emphasized the modes of writing and speaking (47.7%). When the course mode was analyzed in singularity (having “some” of a mode), 70.3% of C-I courses completed by students within this study involved writing and/or speaking. More than a third of the courses completed were at the 4000-level (37.9%), and 32.0% were at the 2000-level.

Degree Status and Characteristics

Graduation status. Sixty-four percent ($n = 3,587$) of students in the fall 2012 cohort graduated in six years or less. The chi-square test found degree completion and C-I course completion status were related ($\chi^2(1, N = 3,746) = 767.7, p < .001$). Of those who completed three or more courses, 92.0% graduated within six years, whereas of those who completed no C-I courses, 41.6% graduated within six years.

Time to degree. Of the students within the cohort who graduated ($n = 3,587$), 76.8% graduated within four years or less. Time to degree and C-I course completion status were found to be related ($\chi^2(4, N = 2,078) = 56.0, p < .001$). Eighty-one percent ($n = 918$) of students who

completed no C-I courses graduated within four years, while 67.9% of students who completed three or more C-I courses and graduated within four years.

Overall GPA upon degree completion. The mean overall GPA for degree completers within the cohort was 3.17 (SD = 0.45). The independent t-test found overall degree GPA and C-I course completion status were related ($t(2,049) = 6.3, p < .001$). Students who completed three or more C-I courses and graduated ($n = 941$) had slightly higher overall GPAs upon degree completion ($M = 3.23, SD = 0.43$) compared to students who completed no C-I courses ($n = 1,110, M = 3.10, SD = 0.45$).

Degree curriculum. Of the students within the cohort who graduated, 40.9% ($n = 1,467$) were in a Social Sciences curriculum, 35.2% ($n = 1,263$) were in a STEM curriculum, and 23.9% ($n = 857$) were in a Humanities curriculum. The chi-square test indicated degree curriculum and C-I course completion status were related ($\chi^2(2, N = 2,078) = 147.9, p < .001$). A greater proportion of students who completed three or more C-I courses graduated from STEM colleges (47.8%, $n = 453$), whereas a higher proportion of students who completed no C-I courses graduated from Social Sciences colleges (46.6%, $n = 527$).

Model for Predicting Degree Completion

Personal demographics (gender, race, first-generation college student status, and Pell grant status), pre-college academic characteristics (high school GPA, ACT composite score, and ACT English sub-score), and C-I course completion status (no C-I courses completed, three or more C-I courses completed) were entered into a binary logistic regression. Only student records with complete data for all of the covariates were included ($n = 3,468, 92.6\%$).

In the first Step of the regression, the only race category that statistically contributed to the model was Black/African American; however, it did not contribute to the final model ($p = .850$). The five covariates that were significant contributors to the final model included gender (p

< .001), first generation status ($p = .001$), Pell grant status ($p < .001$), high school GPA ($p < .001$), and ACT English sub-score ($p = .011$). To control for personal demographics and pre-college academic characteristics, C-I course completion status was entered into the model at the last Step. Of all the variables, C-I course completion status was found to be the strongest predictor of degree completion with a Wald statistic of 411.52 ($\chi^2 (7, N = 3,468) = 1026.7, p < .001$). The Hosmer and Lemeshow Test indicated this model was a good fit ($\chi^2 (8, N = 3,468) = 8.8, p = .359$).

The addition of C-I course completion status in the final Step substantially increased the explanatory power of the model (Nagelkerke $R^2 = .344$) in comparison to the previous Steps which only included personal demographics (Step 1, Nagelkerke $R^2 = .049$) and pre-college academic characteristics (Step 2, Nagelkerke $R^2 = .137$). The regression resulted in a substantively meaningful model for predicting degree completion with 70.9% of the cases correctly classified.

Table 31. Summary of students who entered as freshman in fall 2012 at a RU/VH in the Southern United States

	Cohort	No C-I Courses	≥ 3 C-I Courses	χ^2 / t (df)	p
N	5,602	2,717	1,029		
Gender				2.3(1)	.126
Female	52.9%	54.4%	51.6%		
Male	47.1%	45.6%	48.4%		
Race				38.8(4)	< .001
White	74.0%	70.8%	76.7%		
Black/African American	12.7%	16.1%	8.4%		
Hispanic	6.5%	6.3%	7.8%		
Asian	3.7%	3.3%	3.9%		
Multiracial	2.7%	3.2%	3.0%		
Other	0.4%	0.3%	0.3%		
Traditional-aged (\leq age 24)	99.98%	99.96%	100%	0.4(1)	.538
In-state Resident	81.5%	81.5%	80.1%	1.02(1)	.313
First-Generation College Student	23.5%	26.8%	19.1%	24.1(1)	< .001
Pell Grant Recipient	23.1%	26.8%	18.4%	28.9(1)	< .001
High School GPA (M)	3.39 ^a	3.31 ^b	3.49 ^c	12.7(3,482)	< .001
ACT Composite Score (M)	25.30 ^d	24.49 ^e	26.51 ^f	17.0(3,742)	< .001
ACT English Sub-score (M)	26.35 ^g	25.42 ^h	27.76 ⁱ	15.3(3,742)	< .001
Graduated within 6 Years	64.0%	41.6%	92.0%	767.7(1)	< .001
Time to Degree				56.0(4)	< .001
\leq 4 years	76.8%	81.2%	67.9%		
5 – 6 years	23.3%	18.9%	32.1%		
Overall GPA at Degree (M)	3.17 ^j	3.10 ^k	3.23 ^l	6.3(2,049)	< .001
Degree Curriculum				147.9(2)	< .001
Humanities ^m	23.9%	30.8%	23.0%		
Social Sciences ⁿ	40.9%	46.6%	29.1%		
STEM ^o	35.2%	22.6%	47.8%		

^a SD = 0.39, Range: 1.95 – 4.00.

^b SD = 0.39, Range: 1.95 – 4.00.

(table notes continued)

(table notes continued)

^c SD = 0.36, Range: 2.29 – 4.00.

^d SD = 3.39, Range: 15 – 36.

^e SD = 3.12, Range: 15 – 35.

^f SD = 3.55, Range: 19 – 35.

^g SD = 4.35, Range: 10 – 36.

^h SD = 4.09, Range: 10 – 36.

ⁱ SD = 4.44, Range: 14 – 36.

^j SD = 0.45, Range: 2.00 – 4.10.

^k SD = 0.45, Range: 2.00 – 4.08.

^l SD = 0.43, Range: 2.05 – 4.07.

^m *Humanities* consists of students who graduated from this institution's colleges of Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts.

ⁿ *Social Sciences* consists of students who graduated from this institution's colleges of Business, Human Sciences and Education, and Mass Communication.

^o *STEM* consists of students who graduated from the institution's colleges of Agriculture, Coast and Environment, Engineering, and Science.

Conclusions, Implications, and Recommendations

Conclusion 1: Degree completion and C-I course participation were positively associated

The proportion of students who graduated within six years was more than double for those who completed three or more C-I courses (92.0%, n = 947) compared to those who completed no C-I courses (41.6%, n = 1,131). Of the students who did not graduate within six years from the studied institution, 95.1% (n = 1,586) had not completed any C-I courses.

State funding and national rankings are largely based on six-year graduation rates, and as a result, degree completion is a priority measure within higher education, and in particular at the studied institution. This University also prides itself on being affordable, consistently citing the low debt with which its students graduate. Four-year graduation rates play into conversations on student debt and as such, the finding is notable that more than two-thirds of students who completed three or more C-I courses and graduated, did so in four years or less (67.9%, n = 643).

The literature has long confirmed writing-intensive (W-I) pedagogy as an effective learning strategy, and more recent scholarship cites W-I courses as a High-Impact Practice (HIP)

that improves student engagement, retention, and graduation rates (Kuh, 2008). Since this University's criteria for accrediting its courses as Communication-Intensive (C-I) aligns directly with the HIP criteria, the positive correlation with graduation affirms that C-I courses are operating as a HIP at this institution.

The reminder that HIPs must be implemented with “consistency, fidelity, and reliability” (Kuh et al., 2017, p. 13) is important to note here. If such results are to be replicated beyond this campus, institutions must take great care to explicitly define the teaching and learning quality expected of courses designated as Communication-Intensive, and put measures in place to ensure consistency in accrediting these courses. When rigorous certification criteria are established and courses are reliably accredited, institutions are then poised to leverage its data in answering strategic questions that directly affect student success, and ultimately organizational effectiveness.

This particular study did not seek to assess the quality of teaching and learning occurring within C-I courses; however, this institution's accreditation criteria for C-I courses mirrors that of HIPs, and a positive relationship exists between C-I courses and graduation. Combined, these factors strongly suggest that, overall, quality teaching matters with respect to institutional effectiveness when defined by graduation rates. HIPs are often human resource-intensive and they can be costly to establish, maintain, and scale. To provide high-quality learning experiences, ensure fiscal responsibility, and ultimately improve student outcomes, it is critical that institutions understand what works for their specific campus culture so they can effectively allocate resources and maximize return on investment. As Wellman (2010) noted: “We have yet to cross the rubicon of connecting the dots between educational practices that promote student learning with the way that funds are used” (p. 3). The studied institution has an infrastructure for

C-I courses that data show is serving it well as a high-impact practice. With graduation rates being a priority for this University, the researcher recommends campus leaders increase its investment in teacher development focused on communication-intensive pedagogy, which will directly serve to increase the number of C-I courses across the curriculum and ultimately contribute to improved graduation rates.

Postsecondary institutions hold a wealth of data, though it is seldom analyzed in a robust fashion or applied as business intelligence. Even less frequent is the use of consistent data analysis of HIPs across institutions to build a healthy body of literature. This study provides a systematic framework to analyze the efficacy of HIPs which should be replicated more frequently across institutions to truly advance the overall scholarship of HIPs. For this institution in particular, the researcher recommends this study be replicated at least every four years to inform C-I programming as it relates to student success and organizational effectiveness.

Conclusion 2: C-I course participation was the strongest predictor of graduation above personal demographics and pre-college academic characteristics

When personal demographics and pre-college characteristics were modeled, whether or not a student graduated was accurately predicted 63.8% of the time; however, the addition of C-I course completion status (no C-I courses, three or more C-I courses) increased the model's predictive ability to 70.9%. C-I course completion status was the most influential predictor of graduation (Wald = 411.52), and high school GPA was the second most significant predictor of graduation (Wald = 80.45). This finding suggests caution in using personal demographics and pre-college academic characteristics in isolation to predict long-term student success, while also supporting the notion that inclusive modeling can help inform institutional decision-making regarding which academic enhancement programs should be scaled up and which programs may be most effective for specific student groups. As Peter Ewell stated: "Simply investing more

money does not appear to produce more or better outcomes. Improved student learning will occur only if such investments are directed and intentional” (Wellman, 2010, p. 4). Most broadly, this finding is relevant as more institutions implement student success predictive modeling to inform admission and academic advising practices.

Of all races, Black/African American was the only race found to be statistically significant in Step 1 of the regression; however, it was not a contributor to the final model. Since the literature suggests Pell grant status, first-generation status, and race are often linked, future studies on the efficacy of C-I courses should explore correlations and interactions among these variables. An informal scan of the studied institution’s trend data suggests it is likely that students within this study who were Pell grant recipients were also first-generation college students, and that the majority of these students were Black/African American. This likelihood could explain why race was not statistically significant in the final model, though Pell and first-generation were. It is possible that the variable Race-Black/African American was masked by the power of the Pell and first-generation status variables in the final model.

Interestingly, ACT English sub-score was found to be a more significant predictor than ACT Composite score. This is notable because most HIP studies incorporate ACT/SAT Composite scores, but few investigate sub-scores. This study included ACT English because of its focus on C-I courses. To continue to generate improved models, the researcher recommends future studies include ACT sub-scores, particularly if the HIP of investigation has the potential to be influenced by a particular sub-score (e.g., ACT Math sub-scores may be relevant when investigating research-intensive STEM courses).

In the final model, the accuracy of predicting those who graduated decreased slightly (75.4% to 68.2%), while the ability to predict students who did not graduate improved

substantially (48.4% to 74.3%). To further enhance this model, the researcher recommends future studies focused on the efficacy of C-I include the variable of last known curriculum of study. Given the emerging research surrounding the interaction of HIPs, the researcher also recommends including variables related to other co-curricular HIP experiences, such as service-learning and research-intensive courses.

Conclusion 3: Students participated primarily in writing- and speaking-intensive courses

Students who completed one or more C-I courses (n = 2,885) engaged primarily in dual-mode courses that emphasized writing and speaking (47.7%). When the modes were isolated (having “some” of a mode), 70.3% of C-I courses involved writing and/or speaking. While Writing-Intensive (W-I) courses have been specifically defined as a High-Impact Practice (HIP), writing and speaking are equally included in the AAC&U Essential Student Learning Outcomes (ELOs), and individual VALUE Rubrics have been established for both writing and speaking. More literature exists on the efficacy of Writing-Intensive courses than on Speaking-Intensive courses; however, in both cases scholars have focused primarily on the impact of Writing- and Speaking-Intensive courses on learning and skills building. This is the first identified study to provide empirical evidence on the influence of dual-mode courses emphasizing both writing and speaking on degree completion. This, combined with the finding that C-I courses are positively correlated with graduation, suggests Speaking-Intensive courses—and perhaps the broader category of Communication-Intensive (C-I) courses—may be equally deserving of formal classification as a HIP, though more research is needed in this area.

While the studied institution supports C-I courses across the curriculum inclusive of writing-, speaking-, visual-, and technological-communication, its general education requirements were recently revised to adopt the AAC&U framework which includes communication outcomes specific only to writing and speaking. This finding supports the

University's decision with regard to existing capacity, as these two modes are the most prevalent within its current curriculum.

Writing and speaking competencies will always be paramount, though there is no denying that visual and digital communication are critical components of today's marketplace regardless of discipline, field, or industry. As this University continues to expand its C-I courses and refine its general education learning outcomes, the administration must consider to what extent its graduates should also be competent visual- and technological-communicators as this study shows these types of C-I courses are not as readily available within the current curriculum. Whether visual and technological communication are combined with each other, or with writing or speaking (e.g., writing and visual), the studied institution is uniquely positioned to potentially produce students who are competent across all four modes given the infrastructure it has for integrated C-I courses across the disciplines. With respect to organizational effectiveness, the researcher recommends the University assemble a faculty team to clarify the expectations of visual and technological communication competencies within undergraduate teaching and learning so that the number of visual and technological Communication-Intensive (C-I) courses offered across the disciplines can be scaled up or down appropriately.

Conclusion 4: STEM graduates were most likely to participate in C-I courses, while Social Science graduates were least likely to participate in C-I courses

Nearly half of STEM graduates (47.8%; Agriculture, Coast and Environment, Engineering, and Science) completed three or more C-I courses, while nearly half of Social Science majors (46.6%; Business, Human Sciences and Education, and Mass Communication) and 30.8% of Humanities majors (Art and Design, Humanities and Social Sciences, and Music and Dramatic Arts) completed no C-I courses. This finding is noteworthy, particularly when examined in the context of Conclusion 3 which demonstrated that most students participated in

courses that were writing- and speaking-intensive. Traditionally, writing- and speaking-intensive courses have been most predominate in the humanities and social sciences, though this was not the case at the studied institution.

Thirteen years ago, this University intentionally created an infrastructure to support C-I courses within the disciplines. Its C-I course certification criteria follows pedagogical best practices for Writing across the Curriculum (WAC), Writing in the Disciplines (WID), and High-Impact Practices (HIPs), and is also aligned with student learning outcomes required of several of the national accreditation bodies governing the University's STEM colleges (e.g., ABET). It is perhaps this factor that makes the higher saturation of C-I courses within STEM not as surprising as one might have imagined, while also suggesting opportunities for other institutions to successfully integrate C-I courses beyond the traditional spaces of humanities and social sciences.

It was outside the scope of this study to investigate the curricular major of students who did not graduate within six years in relationship to C-I course completion status. Such research could be difficult at the studied University since the majority of the colleges are not direct-admit, meaning that curricular major is a dynamic data point. Despite these complexities, the researcher recommends that future studies account for the major of non-completers by exploring the relationship between intended curricular major at last semester enrolled, C-I course participation, and graduation status. The use of robust techniques like structural equation modeling could provide additional insight on the extent to which C-I courses are a mediator of graduation across the disciplines.

Conclusion 5: Underrepresented students were underserved by C-I courses

Students who identified as Black/African American were twice as likely to have not participated in any C-I courses (16.1%) than to have participated in three or more C-I courses

(8.4%). First-generation college students and Pell recipients were also more likely not to participate in C-I courses than to participate in three or more C-I courses. Research surrounding High-Impact Practices (HIPs) suggests underrepresented students benefit most from HIPs, though they are often the students least likely to access HIPs.

In the case of the studied institution, C-I courses are embedded within curricula and students often select courses based on their curricular flowchart and scheduling parameters (day/time offered), as opposed to intentionally seeking out C-I courses. While it is possible that a student opts into a course solely because it is C-I, such instances are atypical. Also, as a curriculum-based HIP, C-I courses do not involve student expenses beyond tuition, which differs from elective HIPs that typically involve additional fees (e.g., transition camps, academic housing communities, study abroad). Logically, these two factors combined suggest that underrepresented students would be equally served by C-I; however, that was not the case. This study confirmed that students who were Black/African American, Pell recipients, or first-generation college students were in fact minority groups at this University, and they were underserved with regards to C-I courses. A possible explanation is that these demographic variables are confounded or correlated with curricular major. If a higher proportion of minority students were social sciences or humanities majors, it reasons that they would be less likely to participate in C-I courses compared to STEM students (see Conclusion 4). The researcher recommends further research be conducted to assess the relationship between race, financial status, first-generation status, and curricular major. The researcher also recommends systematic evaluations be conducted to formally document the extent to which students are self-selecting into or out of C-I courses at the studied institution.

This study affirmed that participation in C-I courses is positively associated with degree completion at this University. Graduation rates are a high priority for the studied institution, and its university trend data indicate its graduation rate for Pell grant recipients is lower than that of non-Pell grant recipients. If future studies find curricular major and Pell status are correlated, this would have significant implications for the studied institution, as well as the HIPs scholarship community at-large. For example, such findings might suggest this University increase the number of C-I courses available to non-STEM students to increase the likelihood of Pell recipients participating in C-I courses as a contributor to degree completion. To fully understand the influence of non-elective HIPs such as C-I on degree completion for underrepresented students, the researcher recommends future studies explore the relationship between race, financial status, and curricular major, and how this influences students' access to, and participation in, HIPs.

Conclusion 6: Overall, students were just as likely to participate in one or more C-I courses as to not participate in any C-I courses

Within the full cohort (n = 5,602), 51.5% completed one or more C-I courses, while 48.5% completed no C-I courses. Of those who completed at least one C-I course (n = 2,885), 42.4% completed a single C-I course, while 21.9% completed two C-I courses, and 35.7% completed three or more C-I courses. To maximize the probability of finding an association between graduation and C-I courses if one did exist (Kerlinger, 1986), two distinct groups of students were compared in this study: those who did not complete any C-I courses, and those who completed three or more C-I courses. The question of whether completing one or two C-I courses has similar influence on graduation as does three or more C-I courses is worthy of investigation. Such data will further inform how the institution can most effectively leverage C-I courses as a HIP.

As discussed in Conclusion 1, C-I course participation and degree completion were highly correlated which stands to reason that the institution would support more students participating in more C-I courses. Because C-I pedagogy is a high-impact teaching and learning practice, rather than instituting a requirement that students complete a specific number of C-I courses, the researcher recommends the University scale up support for faculty to increase the number of C-I courses such that students' course pathways become saturated, and C-I becomes equally embedded throughout the University curriculum. This would require increased teacher development on C-I pedagogy, along with accommodations for faculty who wish to teach their course as C-I but are hindered by large course enrollment sizes or teaching overloads. Training high-quality teaching assistants and assigning them with priority to C-I faculty, capping enrollments on courses in which faculty are willing to teach C-I, and ensuring faculty who are teaching courses as C-I have balanced loads would not only serve to better support faculty teaching their courses as C-I, but also incentivize more to do so. To ensure continued growth of C-I courses across the curriculum, the University should also support faculty research grants related to the scholarship of teaching and learning (SoTL) surrounding C-I pedagogy. While implementing the aforementioned activities will require a nominal investment by the University, it will signal a significant commitment to high-quality undergraduate teaching and learning, and contribute to improved graduation rates.

Since the inception of C-I courses, this institution has maintained that C-I course certification be a voluntary faculty effort. The researcher supports this as a best practice because faculty who are required to use a specific pedagogy may not necessarily be properly trained or fully committed to high-quality implementation. The researcher, however, does not recommend granting stipends for regularly teaching C-I courses as such a practice creates a culture that

suggests high-impact teaching is exceptional rather than expected. In lieu of teaching stipends, the researcher recommends the institution elevate its emphasis on high-impact teaching practices within the tenure and promotion process to reward, and better reflect its commitment to, teaching excellence.

Conclusion 7: C-I course participation did not meaningfully influence degree GPA

Students who completed three or more C-I courses and graduated ($n = 941$) had a slightly higher overall GPA upon degree completion ($M = 3.23$, $SD = 0.43$) compared to students who completed no C-I courses ($n = 1,110$, $M = 3.10$, $SD = 0.45$). While the association between overall degree GPA and C-I course completion status were found to be statistically significant ($t(2,049) = 6.3$, $p < .001$), this result is more a reflection of sample size and holds little practical significance. For students who graduated within six years, whether or not they participated in C-I courses did not meaningfully influence their final grade point average (GPA).

Specifically for the studied institution, this finding is notable because faculty opponents of C-I have expressed concern that students believe participating in C-I courses will negatively impact their GPA and therefore students avoid C-I courses where possible. While there may be a small subset of faculty and students who believe C-I courses could tarnish the GPA, the data indicate this is not the case. The researcher recommends the University use these results to further educate faculty and students on the facts about, and benefits of, C-I courses.

Conclusion 8: Students participated primarily in 2000- and 4000-level C-I courses

Of the 7,410 C-I courses completed by students within this study, 37.9% of the courses were at the 4000-level, 32.0% were at the 2000-level, and 19.7% were at the 3000-level. Only 10.0% of C-I courses completed by students within the cohort were at the 1000-level. This data is of particular significance to the studied institution given the recent changes to the general education requirements involving communication. The new curriculum requires all general

education courses occur at the 1000- or 2000-level, and the expectation is that students will acquire the learning competencies related to writing and speaking (among others) within these courses. While nearly a third of C-I courses currently occur at the 2000-level, this study reveals more C-I courses are needed at the 1000- and 2000-level to sustain the new general education requirements. As such, the researcher recommends concentrated teacher development efforts for general education faculty to support increased written and spoken Communication-Intensive courses at the 1000- and 2000-level.

More broadly, since the majority of capstone courses occur at the 4000-level, this finding suggests a possible association between the HIP of Capstones and Communication-Intensive Courses. The researcher recommends future studies explore the possible interactions of Capstone courses and C-I courses.

This notion also raises interesting questions about the official list of High Impact Practices (HIPs). While the eleven documented HIPs share specific characteristics, they are a mix of classifications, pedagogies, and experiences. As such, it is likely that a singular course or educational experience may involve one or more HIPs. The current literature suggests students benefit most when they experience multiple HIPs throughout college. While this is no doubt logical, a question worthy of investigation is do multiple, single-HIP experiences have the same effect as a singular, multi-HIP experience? For example, is a student who participates in a first-year experience and a junior-level Communication-Intensive course (multiple HIP experiences) just as successful as a student who participates in a sophomore level course that is simultaneously service-learning and communication-intensive (singular, multi-HIP experience)? Research such as this will aid in further unpacking the complexities of HIPs, allowing them to be used more broadly and efficiently as tools for achieving organizational success.

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APPENDIX. INSTITUTIONAL REVIEW BOARD APPROVAL



ACTION ON EXEMPTION APPROVAL REQUEST

TO: Rebecca Burdette
AEEE/CxC

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: May 1, 2018

RE: IRB# E11060

TITLE: The relationship between communication-intensive courses and undergraduate degree completion

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu
lsu.edu/research

New Protocol/Modification/Continuation: New Protocol

Review Date: 4/27/2018

Approved **Disapproved**

Approval Date: 4/30/2018 **Approval Expiration Date:** 4/29/2021

Exemption Category/Paragraph: 4b

Signed Consent Waived?: N/A

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman 

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –

Continuing approval is **CONDITIONAL** on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

* All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at <http://www.lsu.edu/irb>

VITA

After earning a bachelor's degree in mass communication, Rebecca Acosta Burdette began her career in non-profit tourism marketing. She later earned a master's degree and worked within higher education and healthcare as a communication strategist. In 2008, Rebecca returned to higher education as an academic program manager and college instructor. She is a founding board member of the U.S. Wikipedia Education Foundation, and co-founder of TEDx Talks at Louisiana State University. Today, Rebecca serves as the director of Communication across the Curriculum at Louisiana State University and she is a member of the LSU E.J. Ourso College of Business faculty. Beyond her work within higher education, Rebecca volunteers with disaster management groups, serves on various community boards, and is an organizational effectiveness consultant.