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PERSISTENCE, AND SUCCESS AT AN OPEN ENROLLMENT
CAMPUS**

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THE IMPACT OF A WRITING CENTER ON RETENTION, PERSISTENCE, AND
SUCCESS AT AN OPEN ENROLLMENT CAMPUS

A dissertation submitted in partial fulfillment
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ABSTRACT

THE IMPACT OF A WRITING CENTER ON RETENTION, PERSISTENCE, AND SUCCESS AT AN OPEN ENROLLMENT CAMPUS

Aisha M. Williams

College writing center practices differ greatly from the types of conventional writing instruction students and faculty are used to in classrooms. While conventional college lectures typically lead to a summative assessment in the form of grades based on students' performance on high-stakes assignments, writing centers are seen as tutoring centers where students can receive more personalized attention in the form of formative assessment practices and a process oriented approach to instruction prior to receiving summative evaluations from lecturers. This study measured whether or not there was a relationship between writing center visits and student outcomes as they related to retention rates as measured by the number of students who remained active or completed throughout the study, student persistence rates as measured by credits earned, and student success as measured by cumulative GPAs. This study contributes greatly to existing literature because of the unique "at-risk" student population sampled and the study's unique research design, a multiple hierarchical regression.

The study's participants consisted of 180 students who utilized writing center services at a small open-enrollment college on an urban commuter campus in the northeast, hereby referred to as UCC, a pseudonym. Data were collected

using a proprietary database that captured student data via their student ID cards, which students used to access the writing center and other academic resource centers on campus.

A hierarchical multiple regression research design was chosen because the model measured the relationships of groups of tiered or nested predictor variables that could have impacted student success both on and off campus, such as a student's participation in other academic support programs or the type of major they chose, or the amount of credits they had earned. This method facilitated the examination of variables separate from the effects of other plausible factors. This research study's findings indicated that there was a significant relationship between student outcomes, writing center visits when grouped by class (freshman, sophomore...), and other tiered or nested variables. However, the number of times students visited the writing center did not have a significant effect when all students were considered.

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CHAPTER 1

Introduction

Since the early 1970s writing centers have become a ubiquitous fixture on college campuses in the United States. Jones (2001) has stated that college writing centers have become a “movement” and “enjoyed astounding momentum, its core theoretical assumption—that writing is a fluid learning process, which takes place in an active social context- has received widespread adoption within academia and is rapidly supplanting the traditional ‘product’ approach to composition teaching practice” (p. 3).

There are now, and always have been, questions regarding whether students who utilize college writing centers for one-on-one tutoring, small group tutoring, and/or workshops, improve their writing skills. Research on writing center assessment has shown that writing centers may be beneficial in increasing the grades of struggling students. When this research study was conducted, writing centers were under increased pressure to provide more comprehensive data to regional and national accreditation bodies to prove they are an integral part of improving student outcomes via slowing attrition rates, boosting retention rates, and improving students’ GPAs. There was also a shift in how educators referred to college students who faced social and/or economic challenges. The state of California approved a bill to remove references referring to “at-risk” youth, the types of students focused on within this study, and replace those references with the term “at-promise” youth in the state’s Education Code and Penal Code (Samuels, 2020, p. 6). The term “at-promise” was popularized by Dr. Victor Rios, Dean of Social Sciences and Professor of Sociology at the University of California, Santa

Barbara almost a decade prior with his book *Punished: Policing the Lives of Black and Latino Boys*.

Assessing college writing centers was still considered a daunting undertaking when this research study was conducted, especially since many administrators and faculty members are unsure of what centers do and what role(s) they serve on college and university campuses. Writing center professionals were usually in a perpetual state of anxiety when it comes to showing how their departments impact student outcomes. In fact, Neal Lerner (2003), Professor of English at Northeastern University in Boston, MA, where he taught courses on writing, literacy, teaching/tutoring writing, and creative nonfiction, stated that, “Two words that haunt writing center professionals are ‘research’ and ‘assessment’. The first is too often held out as something others do to us, something we do not have time for, or something that is lacking in our field. The second is tied to our financial and institutional futures—if we cannot assess how well we are doing whatever it is we are supposed to be doing, we are surely doomed,” (p. 58).

A substantial number of peer reviewed articles have been published over the last decade or so on writing centers, but there is a gap in the existing literature as it relates to assessment. Bell (2012) has stated that assessment of both direct outcomes in terms of student writing, as well as indirect outcomes in terms of impact on overall student achievement is important to showing the efficacy of college writing centers (p. 8). College writing centers, as academic support service departments, must be able to show their impact on students’ academic outcomes. Even regional and national accreditation bodies want to know the types of academic support services being offered on college campuses and how they may (or may not) improve student outcomes (p. 8).

In reviewing the existing body of research on writing center assessment, it is clear that there was one recommendation given to all writing centers in America's colleges and universities whether or not they were large or small and whether or not they were designated as research institutions or teaching institutions: Writing centers needed to make assessment a priority in order to prove their worth to administrators and in order to improve programming efforts for students.

Writing centers needed to be able to prove via comprehensive reporting that one-on-one tutoring sessions improved students' writing abilities. If writing centers could not do this, their value would drop precipitously, and colleges and then universities would stop funding them. As institutions of higher learning continuously battle the ever-changing standards of regional and sometimes national accreditation boards, writing centers must show that not only are they in compliance, but that there is a need for their existence. Bell (2012) stated:

As writing centers mature, they demand more reliable and valid information; as senior administrators face tougher budget decisions in the face of more skilled lobbying, they look for more trustworthy data. Interpretation: Someone must interpret the raw data, and writing centers should take the initiative in evaluation, so that the most knowledgeable and understanding people do the interpretation” (p. 8).

Bell said that such evaluations were useless unless they spark action and improve the amount of funding allocated to college writing centers across the country. Evaluations should inform decisions that writing center administrators use to develop impactful programming for students and faculty. For example, assessments could be used to work

with English faculty to develop comprehensive writing workshops and even writing labs that could be linked to first year writing courses for freshman and transfer students. Assessments could also be used to construct professional development activities for adjunct faculty across all disciplines that help to provide coaching on the teaching of undergraduate level academic writing.

Purpose of the Study

The purpose of this research study was to investigate if there was a relationship between a college writing center's one-on-one tutoring services, workshops, and professional development activities and positive student outcomes as they related to overall GPAs, persistence rates, and retention. The study investigated the writing center at a small urban community college in the northeast (hereafter known as UCC), an open enrollment undergraduate institution, classified as a Predominantly Black Institution (PBI) that is a part of a larger university system. The study tracked the aforementioned outcomes over the course of three years (six semesters) from the fall of 2015 through the fall of 2018.

The site of this present study was a community college in a large urban center, serving students from economically challenged families and communities. According to the UCC University Snapshot, (AY 2017-2018), over 68% of UCC's students received financial aid of some kind. Many of the students were first in their family to attend college. Along with pursuing their education, students were often juggling jobs and family responsibilities. A high percentage were from minority communities, with Black students representing over 82% of the student population.

This research study was conducted during the fall 2015- spring 2018 academic school years, at a time when writing center directors across the country were being pushed to provide empirical data to prove their efficacy. Even though tutoring services, such as the services offered in college writing centers tended to be standard offerings at undergraduate colleges at that point in time, there was a lack of literature in the field based on empirically designed research studies that showed whether or not they have an impact on students' academic outcomes. Researchers Culver and Fry (2015) have stated that most of the literature available on college writing centers relies “.exclusively on the correlational, qualitative, or other similarly limiting methodologies that make it difficult to glean insight into the casual impact that tutoring may have on student success (p. 16).”

Although a portion of the present study was also correlational, it did investigate the relationship between the formative assessment practices and process oriented approach of writing center tutoring (both directive and non-directive and in both one-on one and in group workshop settings) on improving student outcomes as they related to GPAs, persistence rates, and retention. This study also explored writing center pedagogy “best practices” as they related to the aforementioned student outcomes on a single predominantly Black urban campus that served “at-risk” predominantly Black students; over 65% of whom are women. This study, therefore, aimed to be more empirical in nature than most contemporary writing center research studies.

Theoretical/Conceptual Framework

The theoretical framework used to formulate and govern this study was that the formative assessment and process-oriented approaches that have driven writing center practices in undergraduate institutions, impacts student outcomes, especially in “at-risk”

student populations. Joe Law and Christina Murphy (1997), researchers in the field since the 1980s, have stated on numerous occasions that college writing centers are an integral part of academic interventions for undergraduate students because they provide students with formative assessment and the process oriented approach that those students could not receive from instructors in typical college classroom settings.

Writing Process Oriented Approach Theory

The Little Brown Handbook's 14th Edition (2018) stated that the writing process consists of the following basic phases; planning, drafting, revising, and editing. These phases are essential components of college writing center tutoring services. Students utilize college writing centers for assistance with the various phases of the writing process because instructors, unless they are English instructors, usually do not teach the various phases of the writing process and how students can approach them, prior to issuing students writing assignments. Some students; therefore, may struggle with writing assignments from the planning stages to completion unless they receive assistance in the form of formative assessment from tutors and tutors showing students how to approach the different phases of the writing process as they work together to craft drafts of assignments from planning stages (start) to finish.

During the planning stages of the writing process, students are encouraged to brainstorm, find sources for their essays/research papers and to participate in pre-writing techniques, such as freewriting and mapping/clustering. According to the frontrunners of writing process theory, Flower and Hayes (1986), "A review of research on the structure of writing processes shows that writing is goal directed, that goals are hierarchically organized, and that writers use 3 major processes—planning, sentence

generation, and revision. The planning process is outlined in terms of the representation of knowledge, the source of the writing plan, and the use of strategic knowledge,” (p. 1107).

During the drafting stages, students are encouraged to complete an outline and first draft of their academic essay or research paper. Students are then encouraged to revise and edit their work based on the suggestions of their lecturers and/or their peers. Throughout the writing process, students are guided with the knowledge that writing is rewriting and that first drafts should never be submitted as a final draft unless the student has run out of time and must meet a deadline (p. 1107). Undergraduate college writing centers typically assist students with each phase of the writing process.

Robinson (2009), Professor of English at CUNY York College, has stated that it was the grammar, mechanics, spelling, and other basics of writing that encouraged students to visit her writing center regularly, but that as they continued coming to her center, they moved from focusing on the basics to a more “holistic approach” to the writing process and moved from “extrinsic to intrinsic” motivation. She further posited that the tutoring services that students received from college writing centers would not make students dependent on tutors for help with writing projects, but would instead, over time, help students to learn to think independently, increase their comprehension skills, analytical skills, and overall open up their minds in ways that would be beneficial to their learning processes.

“We see that while there is definitely a tension in the status of the writing center as a site of both discovery and remediation, we can sometimes use the latter to get to the former,” (Robinson, 2009, p.72).

Robinson (2009) also said that the rise of the Writing Across the Curriculum (WAC) program at York contributed to the rise in students seeking to utilize her writing center for assignments across all disciplines except English, the subject writing centers were established to serve initially. Her descriptive analysis indicated that the writing center served the broader population of students in writing-intensive classes who were not necessarily receiving any formalized writing instruction and felt the need for support in writing to meet class expectations.

Writing centers also provide students with a space to improve upon their “rhetorical awareness” according to Griffin et al. (2019), as presented in an article titled *Rhetorical Awareness of Student Writers at an HBCU (Historically Black Colleges and Universities): A study of Reflective Responses in the Writing Center*. Rhetorical awareness refers to a student’s ability to understand what he/she hopes to achieve during a session with a tutor in a writing center. The authors created a scale to measure students’ ability to understand their audience, the purpose of specific writing assignments, and the genre of their writing when presenting their work to writing center personnel.

“Understanding how students develop rhetorical awareness and authority has become increasingly important among growing digital communities with diverse audiences, genres, and modes of interaction. Meaningful conversations—with people whom we may never meet in person and who may come from backgrounds vastly different from our own—require particular habits of mind: the willingness and ability to listen, to reflect, and to empathize as well as a willingness to embrace uncertainty. For composition instructors and

tutors of writing, this new learning environment requires a shift in pedagogy from teaching students to write correctly toward increasing their rhetorical awareness (Griffin et al., 2019, p. 2)”.

In addition to rhetorical awareness, the literature reviewed for the present research study showed that writing centers at HBCUs and PBIs such as UCC, help expose “at-risk” students to the importance of “linguistic flexibility” and “code switching”. According to Jackson et al. (2019) many students who attend HBCUs and PBIs do not understand the concepts of “code-switching” or “code-meshing” and as such are more likely to use colloquialisms and vernacular English in both formal and informal discussions. The researchers believe that it is up to HBCUs and PBIs to teach these students especially how to communicate effectively in a more formal manner via academic writing (p.189). While Black students who attend PWIs are more likely to have been exposed to the currency of being able to speak and write in grammatically correct English, studies show that students who attend HSBCUs and PBIs are not and as such, tend to struggle with English fluency verbally and in their writing. According to Jackson et al. (2019) writing centers and the unthreatening formative assessment and process-oriented approaches used by writing center personnel therefore help students increase their rhetorical awareness, thereby improving students’ writing proficiency, modes of self-expression, and communication skills (p.189).

Writing centers can therefore be spaces where students can find reprieve from the rigid summative assessment practices that they are used to where they are given grades on high-stakes essays, exams, and research papers a few times each semester. Students do not get the chance to go back to a paper that they received a poor

grade on, get assistance with how to organize that paper and make it more coherent, get feedback throughout the revision process from their instructor, and then resubmit the assignment for a better grade. In a college writing center; however, students can receive such formative assessments of “works in progress” from the start of the writing process- the brainstorming and planning phases- to the completion stage of the process- after numerous revisions have been made before finally submitting assignments to their instructors for summative assessment.

Law and Murphy (1997) have stated, “The almost century-long history of writing centers attests to an inquiry-based, individualized pedagogy directed toward the primary aims of formative assessment in providing process-oriented commentary that offers direction, guidance, and analytical critique to emerging writers,” (p. 106). This means that the process-oriented strategies offered within undergraduate writing centers could have an impact on student outcomes as centers could act as a bridge between a tutor’s formative assessment and a lecturer’s summative assessment practices. Students who opt out of tutoring, especially at-risk students- defined as students who are most likely to drop out of college- may not do as well as students who receive the academic intervention that writing center tutoring provides.

As writing center theory and practice are known to rely on formative assessment practices instead of summative practices, it is important to acknowledge whether or not formative assessment and the process-oriented approach used by writing center tutors have an impact on student outcomes as they relate to student retention, student success and student persistence. This study is especially important because not much has been published in the field that relates directly to whether or not writing centers impact student

outcomes because of their unique approaches to tutoring practices. The writing center theory of formative assessment and its process-oriented approach is elaborated on in Chapter 2.

Significance of the Study

When this study was conducted, college persistence and completion continued to be topics of interest nationwide, particularly at public open enrollment institutions such as UCC, where students can enroll with minimal qualifications the way they can at all other community colleges in the state. The benefits of attending an open enrollment institution such as UCC instead of a community college, is that students are given the opportunity to complete both two-year Associate's degree programs and four-year Bachelor's degree programs. At community colleges in UCC's state, students can only enroll in and complete two-year Associate's degree programs and other certificate programs, but not four-year degree programs.

Data from the National Center for Education Statistics (NCES) indicated that between 2010 and 2017, the overall six-year graduation rate for full-time, first-time degree seeking undergraduate students enrolled in bachelor's degree programs throughout the country increased from 58% to 60%. At public institutions during this period, the same demographic saw graduation rates increase from 56% to 60%. While the positive change may be attributed to many factors, it is important to investigate which academic supports within post-secondary institutions contribute to the improvement, and therefore merit continued funding.

The present study focuses on a sample of students particularly vulnerable to academic struggle and drop-out as reported in the Digest of Educational Statistics

(NCES, 2019). National organizations have continued to support equity and access, as evidenced in the Association of American Colleges and Universities (AAC&U) statement on diversity. According to its website, the AAC&U hopes to inform and inspire the next generation of leaders in post-secondary institutions to “.advance equity, inclusion, and social justice through higher levels of personal and social responsibility” (AAC&U, 2019).

This study was significant because it examined the role of academic intervention in the form of writing tutoring; both one-on-one and in the form of group workshops on student outcomes at UCC, a relatively small urban undergraduate college, designated as a PBI. Due to being an open enrollment institution, UCC’s student population was especially unique because the entire student body was deemed “at-risk” and therefore unlikely to graduate from college. The average full-time (FTE) enrollment of academic year 2017-2018 was 5139.8. Over seventy-two percent of the students enrolled at UCC attended full-time in the fall of 2017. Approximately 72% of all enrollment at the college was female and the average age of students was 23 years. Sixty-nine percent of all students enrolled at the college were American citizens, with the vast number of foreign-born students being Jamaican (23.5%) followed by Haitians (15.3%), Guyanese (13.1%), and Trinidadians (10.1%). It should be noted that even among the college’s American born students, the vast majority of said students were first generation Americans. Even though UCC offered bachelor’s degree programs, it also provided remediation to students in the form of developmental courses, most of which were not credit bearing, and it offered students associate degree programs.

According to the NCES (2019), retention rates show how many first-time college freshmen return to the same institution the following fall. That figure is important because it gives insight into the type(s) of student an institution typically accepts and/or gives insight regarding the institution itself. Recent NCES data showed that for first-time, full-time degree-seeking undergraduate students who enrolled in 4-year degree-granting institutions in fall 2016, the retention rate was 81 percent. “Retention rates were highest at the most selective institutions (i.e., those with acceptance rates of less than 25 percent), for public and private nonprofit institutions. At public 4-year institutions overall, the retention rate was 81 percent. At the least selective public institutions (i.e., those with an open admissions policy), the retention rate was 62 percent, and at the most selective public institutions (i.e., those with acceptance rates of less than 25 percent), the retention rate was 96 percent. Similarly, the retention rate for private nonprofit 4-year institutions overall was 81 percent, ranging from 66 percent at institutions with an open admissions policy to 96 percent at institutions with acceptance rates of less than 25 percent. The retention rate for private for-profit 4-year institutions overall was 54 percent,” (NCES, 2019).

Throughout the academic years of 2015-2018, UCC administration was focused on improving the retention rate of its unique student population, especially due to its open-enrollment status. The Fall 2016 to Fall 2017 retention rate for degree-seeking students was 62.1%; the Fall 2017 to Fall 2018 retention rate was 75.2%. The college’s retention rate rose significantly since the inception of its Writing Center in the winter of 2013, rising by over 13% in the year following to the current rate.

By classification, the Fall 2016 to Fall 2017 retention rate for freshman was 56%; for sophomore students, 69.4%; juniors, 72.9%, and senior students, 78%. By admission type, the Fall 2016 to fall 2017 retention rate for first-time freshman was 58.9%; the transfer retention rate was 49.9%. The continuing student retention rate from Fall 2016 to Fall 2017 was 72.2%. The readmitted student retention rate was 48.4% (UCC, 2018).

Student outcomes as they related to overall GPAs were also examined in this research study. According to UCC's Office of Institutional Assessment, most students had cumulative GPAs between 2.0 and 2.5. This study highlighted the needs of a unique population, who at other institutions would be considered unlikely to succeed due to issues related to systemic racism, socioeconomic status, low or average high school GPAs, and low or average undergraduate level GPAs. These students would also be considered least likely to graduate.

In 2010, the NCES released data that only 23% of Black first-time, full-time degree seeking undergraduate students completed Associate's degree programs within two years whereas 32% of White first-time, full-time degree seeking undergraduate students enrolled in similar programs graduated within two years. Statistics regarding the six year graduation rate for full-time students who began seeking a bachelor's degree at 4-year degree-granting institutions in fall 2010 was highest for Asian students (74 percent), followed by White students (64 percent), students of two or more races (60 percent), Hispanic students (54 percent), Pacific Islander students (51 percent), Black students (40 percent), and American Indian/Alaska Native students (39 percent). In comparison, the 4-year graduation rates for first-time, full-time

undergraduate students was 50 percent or less for each racial/ethnic group. (U.S. Department of Education. Institute of Education Sciences, NCES, 2019).

Although there has been a great deal of writing center research available that has discussed the issues that writing center directors face as they develop programs for students who are significantly more disadvantaged than the average college student, most of the research that has been conducted has been in the form of literature reviews and theoretical articles that are not empirical. This research study aimed to provide a bit more empirical data than what has been offered in the past and what is currently being offered on college writing centers, especially centers that cater to such a unique student population.

Connection to Social Justice

Academic support departments such as writing centers are spaces where “at-risk” students can work with other students (peer tutors) and professional writing consultants (professional tutors and faculty) on improving their understanding of how mastering the techniques of the established canon, can help them achieve their academic goals. This study addressed the learning needs of students at-risk for academic failure and drop-out, with consequent economic and social outcomes.

Research Questions

This study focused on the following research questions:

- Is there a relationship between writing center attendance/participation and Student Retention, as defined by continued enrollment from the time of admission (each semester- not just fall to fall) when university and personal variables have been considered?

- Is there a relationship between writing center attendance/participation and Student Persistence, as defined by the number of credits earned, when university and personal variables have been considered?
- Is there a relationship between writing center attendance/participation and Student Success, as defined by the cumulative GPA of their last semester of study, when university and personal variables have been considered?

Hypotheses

1. H_{01} Student Retention, as defined by continued enrollment from the time of admission, will be related to:
 - a. Number of writing center visits;
 - b. University status-related variables of college GPA, class status (freshman, sophomore, junior, senior), matriculation status (full-time, part-time), admission status (initial, transfer), major (arts, sciences, business, education, other professional);
 - c. Student variables of English proficiency (fluent, ELL), high school GPA, gender (male, female, other), and college generation (first-in-family, parents with college degree).
2. H_{02} Student Persistence, as defined by the number of credits earned, will be related to:
 - a. Number of writing center visits;

- b. University status-related variables of college GPA, class status (freshman, sophomore, junior, senior), matriculation status (full-time, part-time), admission status (initial, transfer), major (arts, sciences, business, education, other professional);
- c. Student variables of English proficiency (fluent, ELL), high school GPA, gender (male, female, other), and college generation (first-in-family, parents with college degree).

3. H₀₃ Student Success, as defined by the cumulative GPA of their last semester of study, will be related to:

- a. Number of writing center visits;
- b. University status-related variables of college GPA, class status (freshman, sophomore, junior, senior), matriculation status (full-time, part-time), admission status (initial, transfer), major (arts, sciences, business, education, other professional);
- c. Student variables of English proficiency (fluent, ELL), high school GPA, gender (male, female, other), and college generation (first-in-family, parents with college degree)

Definition of Terms

The following definitions relevant to the present study are extracted from the Glossary of Education Reform by Great Schools Partnership.

Overall GPA: Overall grade point average earned by a student during the entirety of their college course taking, measured on the current 4.0 point scale (American standard)

Persistence Rates: The number of college credits earned by students.

Retention: Continued student enrollment from one semester to the next.

Attrition: Student attrition is the reduction in numbers of students attending courses as time goes by, also known as drop-out rate.

At-Risk Student: The term at-risk is often used to describe students or groups of students who are considered to have a higher probability of failing academically or dropping out of school. The term may be applied to students who face circumstances that could jeopardize their ability to complete school, such as homelessness, incarceration, teenage pregnancy, serious health issues, domestic violence, transiency (as in the case of migrant-worker families), or other conditions, or it may refer to learning disabilities, low test scores, disciplinary problems, grade retention, or other learning-related factors that could adversely affect the educational performance and attainment of some students.

Open Enrollment- Enrollment regardless of formal qualifications or credentials

Predominantly White Institution (PWI)- term used to describe post-secondary institutions where Whites make up more than 50% of the student population.

First Generation- term used to define a student whose parent(s) or guardian did not complete a four-year undergraduate degree program in the U.S. or its equivalent abroad.

CHAPTER 2

Review of Related Research

This chapter will discuss the theory of the writing process as it applies to adult learners who are undergraduate level college students. It will discuss the writing process as it relates to “at-risk” students being provided with remedial writing assistance in college courses and in college tutoring centers. It will also focus on the theoretical framework that informed the present study: formative assessment and the process-oriented approach as defined by Law and Murphy (1997), Bell and Frost (2012), and other notable scholars within the field of writing center pedagogy. Following that will be a summary of relevant literature on writing center outcomes, with a focus on those studies that use quantifiable measures of benefits to students or overall efficacy. The chapter concludes with a summary that provides context for the research questions to be investigated.

Theoretical Framework

Formative Assessment and the Process-Oriented Approach at Writing Centers

The theoretical framework which guided this study is formative assessment and the process-oriented approach as defined by Law and Murphy (1997) and others within the field of writing center research. The present research investigates whether or not there is a relationship between that approach, which is used to tutor students in UCC’s writing center and typical of most college writing centers throughout the country, and student academic outcomes.

Bloom, Hastings, and Madus (1971) introduced the concepts of formative vs. summative evaluations of students’ academic writing on college campuses in the

Handbook on Formative and Summative Evaluation of Student Learning. Bloom et al. (1971) promoted the idea that it was the kind of formative evaluation and process-oriented approach found in college writing centers that was more beneficial to student learning outcomes than the summative approach students received from lecturers in the classroom. According to Law and Murphy (1997), these were considered to be revolutionary ideas because “...writing center practitioners were taking a vigorous part in the revolution, helping students evaluate and improve their writing as it was taking place,” throughout all stages of the writing process (p. 107).

During the 1990s, the schism between formative assessment and summative assessment grew due to the emphasis on social constructionism in the fields of composition. Law and Murphy (1997) stated that social constructionism “...focused on the individual’s role within discourse communities. In the social constructionist paradigms for writing center tutorials, formative assessment became a means for analyzing the role of the individual in discourse communities- both as an actor/agent within those worlds and as an individual consciousness shaped by their influences” (p. 107).

Prior to this social constructionism movement, lecturer and tutor were considered complementary roles and writing center programs considered as providing additional support to lecturers. Both roles, lecturer and tutor, sought to improve student outcomes, and neither was seen as more influential than the other when it came to aiding in the improvement of student outcomes. However, that symbiotic relationship between writing centers and faculty started to change in the mid to late 1990s when a second wave of social constructivism was launched. Writing centers

then began to take an oppositional stance when it came to the rigid summative assessment practices of lecturers. “As tutors worked with students to comprehend, through formative assessment, their understandings of literacy, student empowerment became a central goal of formative assessment along with the transformative power of writing center reform,” (Law& Murphy, p.107).

The schism between what goes on in the classroom and what goes on in writing centers persists. Bell and Frost (2012) have said that writing centers are sometimes seen as anti-curriculum. In order to test that negative label, they conducted a quantitative assessment of the writing center at their institution. Their study focused on student engagement in a writing center and that relationship to student success. As with the present study at UCC, Bell and Frost (2012) examined persistence and retention as they related to student outcomes and student success. The findings of their study showed that there was a significant relationship between writing center attendance (engagement) and student retention over the course of two years. Their study also found that even though the figures were not as significant as they had initially hoped, students who visited the writing center regularly had better 4- and 5-year graduation rates than students who did not. Bell and Frost stated, “...these findings comport with a U.S. Congressional report, which found that ‘at-risk’ students who receive targeted academic support services persist to degree completion at higher rates than “at-risk” students who do not receive such services,” (p. 24).

Kynard (2008) has suggested that students who are still learning how to “code-switch” and master grammatically correct English in their academic writing are wrongfully penalized by the summative evaluations they receive from their instructors on

high stakes examinations and high stakes writing assignments in ways that they would never be penalized by the formative assessment and process oriented approach they receive in college writing centers. In 2008, Kynard conducted a research study on first-year students in a freshman English course that she taught at a small, public urban university in the North-Eastern United States that served a student body primarily of Black students, similar to the demographic that was analyzed in this dissertation. Student essays written for a high-stakes writing exam at the end of the course, a first-year writing course, were examined. Students needed to pass the exam in order to get a passing grade for the class. Kynard found that the students who were more proficient in grammatically correct English fared better than students who were not proficient in grammatically correct English, even if the latter's content showed more complex thought and critical analysis. This means that even though the latter may have written better papers, they failed the entire course anyway because their "rhetorical styles" did not closely mirror what was expected by their professors and English Department Chairs. Such summative assessment can negatively influence student outcomes (Kynard, 2008, p. 10).

Perhaps those students would have fared better on the high-stakes exam and in the course if they had received academic intervention from their college's writing center. Anderson, et al. (2017) conducted research in conjunction with the Council of Writing Program Administrators (CWPA) and the National Survey for Student Engagement (NSSE), which showed that there was ".a positive relationship between interactive writing processes, meaning-making writing tasks, and clear writing expectations and three measures developed by the NSSE to assess students' participation in deep learning activities: higher order learning, integrative learning, and reflective learning" (Andersen

et al., 2017, p 6). Higher order learning concerns critical thinking skills. Integrative learning concerns students' learning to connect what they are learning in each of their courses. Reflective learning focuses on students' learning to reflect on their learning experiences and understand those experiences in various social contexts, especially their own social context. Reflective learning activities are a part of formative writing center student assessment and subsequent tutoring practices, that have been designed for each student based on that initial assessment. The Anderson et al. (2017) study concluded that quality, well-written, targeted assignments do have a positive impact on students' writing capabilities over time. In addition, the study showed that students believed that as their writing improved, their perceptions of what they learned in college and their personal development improved.

As college writing centers typically focus on helping students with their writing assignments across all disciplines, that study's findings were significant. Writing center directors typically work as members of Writing Across the Curriculum (WAC)/Writing In the Disciplines (WID) committees and they train their staff of tutors/consultants to be able to go over writing assignments in detail with students. Also, writing center directors along with members of English faculty, typically are charged with training contingent faculty to develop writing assignments across all disciplines that can help boost student learning outcomes. Throughout the six semesters analyzed in this research study, UCC's writing center director worked with the English department on WAC/WID initiatives, including initiatives which held workshops for contingent faculty across all disciplines related to fostering more formative types of assessment practices within their classrooms and creating more comprehensive writing assignments for students. Members of faculty

who participated in such professional development programs at WCC then began to change the way the writing center was perceived on campus, thereby changing the culture of their respective departments as they related to their connection to the writing center. They also changed the way students perceived the writing center on campus, all of which may have had an impact on student outcomes.

Roberts (2008) conducted an analysis of a 2005 Two-Year College English Association Research Initiative survey of faculty and staff at two-year college writing programs. The survey explored college program satisfaction as it relates to assessment, technology, and pedagogy, WAC/WID, and teaching conditions. Roberts (2008) stated that comments on the survey regarding professional development mentioned the issues writing center directors have typically faced. “A couple of interesting comments suggested that professional development for the WAC program needed a stronger focus on (teaching) writing to explore, promote learning, and encourage critical thinking: ‘We’ve had CAC/WAC initiatives fizzle without doing much to form a culture of writing. I think it’s because we’ve neglected the theoretical dimensions in favor of practical advice’. Another lamented, ‘Many discipline professors are put off because they think they are supposed to be English teachers.they aren’t told (or taught) how writing activities can enhance instruction’” (p. 147).

Even though writing centers across the country have struggled with the funding to maintain strong WAC/WID programs on their campuses, a 2008 study showed that successful WAC/WID programs are only possible with college writing centers because of their unique formative and process oriented approaches to student learning. Typically,

budget cuts, not performance issues, were mentioned frequently as the reason why many writing centers are cutting programs (Roberts, 2008, p.147)

At UCC, the site for this research study, over 50% of the college's students qualified for New York State Pell grants and almost 40% qualified for TAP. UCC students typically came from poor or working-class backgrounds. Many were first generation Americans (over 30%) and many were first generation college students. This means that the only support they usually received when pursuing their academic goals came in the form of services provided by the college, faculty mentors, academic advisors, and peer tutors in academic support areas such as college writing centers. This research study's focus on UCC aimed to discuss theoretical and empirical research that explains that there may be a relationship between the formative and process oriented tutoring practices used by college writing centers and student outcomes especially among college students who struggle with socioeconomic challenges, bias, and institutional racism the way UCC's unique student population did as they tried to master grammatically correct English and academic writing.

Related Literature

College Writing Centers: Their Roles and Their Communities

Salem (2016) conducted a study which offered a comparative analysis of the types of students who choose to utilize writing centers and their services and students who do not. Even though college writing centers throughout the country typically marketed themselves as being open to all students that not all students take advantage of the types of programs and services that college writing centers offer. According to Salem (2016), there had not been much discourse that related to the characteristics of students who

choose not to utilize college writing centers and there should be. Salem argued that students who believe that writing centers are solely for remediation may be less likely to use them and benefit from their services. Writing centers, therefore, should be seen as spaces for remediation and for regular tutoring, which is not synonymous with remedial tutoring.

In order to understand the reasons behind students choosing to utilize their college's writing center, Salem (2016) studied the academic, attitudinal, and demographic traits of students who visited the writing center at Temple University in Philadelphia, Pennsylvania. She collected and reviewed data on 4204 students who made up the incoming 2009 class at Temple, which like UCC offered four-year degree granting programs. Unlike UCC, Temple's writing center was large and well-funded, but the study was significant, especially as it related to new students at any four-year institution.

One of the variables studied was a question on an incoming student questionnaire/ survey that was given to all students. The question asked students if it was likely that they would use a tutoring service while on campus. According to Salem's study, students' responses to that question showed that many of the students who visit writing centers may be inherently more motivated than the students who do not. Writing center programs and services can benefit these students, but the data gathered on these students should inform the marketing of writing centers to students who may not be inherently motivated to use such tutoring services. (Salem, 2016, p. 155). Students' personal choice to visit the writing center may have been influenced by factors including a student's cultural beliefs about education, familial obligations, familial support and

more, which also impact student outcomes as they related to retention, graduation rates, and persistence, according to Salem (2016).

Such empirical studies on writing centers do have limitations. Was it the writing center that improved student outcomes or were outside variables such as inherent motivation, responsible for improved student outcomes? Salem (2016) used a chi-squared automatic interaction detection (CHAID) data-mining technique to analyze relationships among the variables in her study and to see which variables had the strongest connection to specific student outcomes. The results of the CHAID analysis showed some compelling information in that the students who were most likely to “choose” to utilize the writing center at Temple’s services had characteristics that were similar to those of students who used to be considered “typical remedial” students on campus. Most were women and most were considered minorities. Many were English Language Learners (ELL) students. Salem said they were “.the students who were historically excluded from full access to higher education.who spawned the current wave of writing centers (p. 155).

According to a comprehensive review of literature by Goldrick-Rab (2010), even students who are ill-prepared for academic rigor will enroll at a community college or an open-enrollment college such as UCC. The lack of preparedness for post-secondary education environments can hinder a student’s ability to transition from taking high school courses or remedial non-credit bearing to successfully completing college credit bearing courses. Goldrick-Rab (2010) stated that many of the students who enroll in community colleges, institutions like UCC, are older adults from disadvantaged backgrounds, who often enter higher education with low levels of literacy skills. Nationally, 57% of 2-year institutions rank the academic preparation of their entering

students as fair or poor (Goldrick-Rab, 2010, p. 438). For example, at a community college in Washington state, only 13% of adults who started in ESL programs earned any college credits during the next 5 years, and only 30% of students in Adult Basic Education (ABE) and GED programs transitioned to college-credit courses during that time. Other studies showed that half of all ABE students drop out in less than 10 weeks, and only a small proportion of GED students who earn that credential then go on to college-level coursework (Goldrick-Rab, 2010, p. 447).

Writing Centers as Remediation Spaces

UCC was considered a comprehensive college, so it was expected to provide remediation programs for its entire student population where applicable the way community colleges do. Popular remediation programs included courses and tutoring for math, writing, reading or all three subjects. The student data collected for this research study focused on a segment of the population that could benefit from such interventions, specifically as they related to boosting writing proficiency. For example, bridge courses were offered where students received remediation and credit. Those courses required students to attend several of the writing center's workshops and/or tutorial sessions as a single credit lab. Researchers still debate the efficacy of such programs and the relationship between such programs and college completion. Studies have shown that although students who need remediation do have lower graduation rates than students who do not need remediation, those outcomes may be due to factors outside of remediation coursework, such as socioeconomic factors (Goldrick-Rab, 2010, p. 447).

According to most of the existing literature on undergraduate writing center pedagogy, centers do not provide proofreading, copyediting, or editing services.

Regardless of the campus in which they reside, centers typically seem to provide students with a safe space - a community where students from diverse academic and cultural backgrounds can come together and raise pertinent questions about how writing is taught or not taught by their professors (Geller, Eodice, & Condon, 2006, p.59). Students are used to perfunctory, summative feedback from their professors, but it is unclear how much that feedback helps students to become better writers. Feedback that is purely negative and barely constructive does nothing to help an undergraduate student hone his or her writing skills. Written comments that are typically provided by lecturers such as, incorrect, poor introduction, or weak body may inhibit the type of innate creativity that most students have. It can stunt their academic growth and makes them more anxious when it comes to completing other writing tasks assigned by instructors. It is in the writing center, a judgement free zone, where students can seek solace, refuge, and more constructive criticism from peers who may have taken the same classes before, etc. Gellar, et al. (2006) have argued that this is an important trait of a thriving learning culture. "If we are to create and sustain learning cultures within our writing centers, we will need to consider carefully how we and our tutors frame the work of teaching writing," (p. 59).

Therefore, college writing centers should be mindful of not allowing the type of instruction and feedback that a student receives in the classroom on essay writing assignments, research papers, tests and other high stakes assignments to negatively influence a student's tutoring session. That one-on-one tutoring exchange between student and tutor could have a long-lasting positive impact on a student's academic progress, no matter what stage they are in the writing process and no matter what their

current academic standing is. Just because a student is doing poorly in a writing class does not mean that the student is a poor writer or is not capable of improving his/or her writing skills exponentially, especially when writing centers work directly with faculty on improving the quality of the writing assignments that students encounter on college campuses, according to Goldrick-Rab's (2010) research (p. 448).

“At-risk” college students do poorly on their writing assignments, not solely because they are incapable of completing them successfully, but because often times faculty do not receive enough ongoing professional development about how to teach writing, especially when their discipline is not English. According to Bifuh-Ambe (2013), various approaches have been proven effective in planning, organizing, and delivering effective writing instruction and lecturers should receive regular training on their use in the classroom. These approaches include: “. (a) The National Writing Project model that stresses writing as a recursive process, and encourages instruction in the development of fluency, form, and mechanical accuracy (b) group rather than individual revision conferences; (c) free writing, inquiry, and revision rather than the imitation of models or isolated study of grammar (d) explicit instruction in prewriting strategies (e) specific suggestions and feedback provided to students in response to their writing, in the context of collaborative relationship between teacher and student writers, and (f) scaffolding of informational writing and response to literature (Bifuh-Ambe, 2013, p. 138).

Centers for Learning and Discourse

Scholars in the field have said that there is no “one size fits all” for college writing centers due to the vast differences in how they operate, which depends on location, student demographics, budget, and mission. College writing centers are

intended to be places where “learning culture” is promoted and supported. Students who utilize them learn from the tutors who assist (students) and tutors learn from the students who they assist. This mode of thinking falls in step with Elliot W. Eisner’s *The Kind of Schools We Need* (1998) in that the focus is not only on the process of learning itself, but on how the outcomes of that process can positively impact the lives of individuals in school and after they have completed school.

Writing centers allow college students to become a focal part of writing center research and discourse according to researcher, Thomas Tobin (2010) In addition to offering remedial support to students in need with structured one-on-one sessions, writing centers can provide “.highly skilled writers the opportunity to hone their skills,” (p. 230) and focus on writing as a process in a creative, supportive environment.

Writing center environments are spaces that can become a focal point of college writing across the curriculum (WAC) initiatives. This means that centers could be a place for discourse among faculty, tutors, students, and administrators about all things related to writing. Writing Across the Curriculum (WAC) is a nationwide movement designed to ensure that students have frequent and significant opportunities to write, revise, and discuss their writing in their classes from their freshman year to graduation, whatever their major course of study. According to WAC researchers (McLeod and Soven, 1992) the basic philosophy behind WAC is that WAC programs should be transformative experiences for students, tutors, and lecturers. Good WAC programs should “...introduce students to the conventions of academic discourse in general and to the discourse conventions of particular disciplines. (p. 3).

Writing Across the Curriculum (WAC)

The WAC movement as it exists today, has been around for about four decades, and it has thrived at colleges and universities across the country. WAC programs are characterized by their decentered pedagogy, which veers away from the lecture mode of teaching towards a model of active student engagement. As a result, many WAC programs focus on providing resources, training, and support for faculty who wish to develop the quality and quantity of writing in the courses they teach. WAC programs also tend to collaborate with writing centers because their model of active student engagement is supported by writing center models of formative assessment and process-oriented approaches (McLeod & Soven, 1992, p. 26).

In the anthology compiled by Harris (1992) entitled, *Writing Across the Curriculum: A Guide to Developing Programs*, McLeod and Soven (1992, p.111) posit that writers who learn from tutors benefit from “.readers with whom they can interact as a paper takes shape, skilled coaches who can offer appropriate guidance as the writer moves through the various writing processes, and responders who can offer meaningful response to and evaluation of a final draft,”. Harris, like other scholars in the field, believes that writing centers are meant to be creative, nurturing spaces where students can go to boost their English language proficiency, hone their critical thinking skills, and learn how to become better communicators, both when it comes to oration and when it comes to tackling their writing assignments. In fact, some writing centers see themselves more as “Communication Resource Centers”.

Assessing Writing Center Outcomes and Efficacy

College writing center assessment strategies are important to showing their respective administrations that their existence on campus is vital to boosting student outcomes and therefore student success (Bell & Frost, 2012, p. 23). Writing centers must show that there is a relationship between writing center attendance/visits and lower student attrition, retention, and persistence rates.

It is difficult to generalize the student outcomes from one college writing center to another for several reasons. How can writing center directors identify what changes have taken place-if any- in a students' writing ability? In order to measure gains in students' writing ability, center directors could compare the abilities between experimental and control groups or pre-intervention/post-intervention study designs, but in each instance, the assessments of writing quality improvements would be too subjective. In addition, limitations of conducting such assessments would include the influence of a myriad of other variables, such as the type of writing instruction students receive in their composition classes, students' interest in writing as an act of creative and informative expression, and students' respective self-efficacy; their internal drive to succeed.

Current empirical research studies that focus on Black "at-risk" student populations who have "low-level" college writing skills, aim to show whether or not academic support interventions, such as tutoring services impact student outcomes. For example, researchers Perin, Lauterbach, Raufman, and Kalamkarian (2016) conducted a research study on the predictors of performance regarding "at-risk" or "low-skilled" students' varying ability to effectively summarize source text in a persuasive manner; something students must be able to do in order to move forward throughout post-

secondary educational institutions. Two researcher-designed, 30-min tasks were administered to measure text-based writing. The study's predictors were general reading and writing ability, self-efficacy, and teacher judgments. Both genre-specific and general dependent variables were used. A series of hierarchical regressions modeling participants' writing skills found that writing ability and self-efficacy were predictive of the proportion of functional elements in the persuasive essays, reading ability predicted the proportion of main ideas from source text in the summaries, and teacher judgments were predictive of vocabulary usage. General reading and writing skills predicted written summarization and persuasive writing differently; the data showed relationships between general reading comprehension and text-based summarization on one hand, and between general writing skills and persuasive essay writing on the other (Perin et al., 2016, p. 891).

While writing centers have struggled to come up with more “scientific” and “objective” approaches to assess their efficacy, they also have struggled with figuring out if these new ways of assessing their respective areas should be formative, summative, or a combination of both. Research has shown that producing quantitative summative and/or quantitative formative data has been and will continue to be extremely difficult for writing center directors for a myriad of reasons (Law & Murphy, 1997, p. 106).

Writing centers should be spaces where students can review their papers outside of the confines of their classroom with another set of “fresh eyes”- another viewpoint. Ideally, tutors are important to helping boost student outcomes because tutors “.provide a fresh way of viewing an idea or process that instructors may not be able to reveal in the classroom. They must be skillful in detecting the points of difficulty in the student's

learning and should help him in such a way as to free the student from continued dependence on him” (Law and Murphy, 1997, p. 106).

Reasons that it is difficult for writing centers to assess their efficacy include each student being seen in a center may be on a different grade level or when comparing part-time student outcomes to full-time student outcomes. Also, students’ ages can vary dramatically on a college campus. Age and life experience are variables that can impact how successful a student engages in the tutoring process and over time how that students’ writing progresses.

Conclusion

Researchers have argued that there are many methodological issues that get in the way of writing centers being able to effectively measure their impact on student outcomes in a more quantitative manner. “.an array of methodological issues involved in efforts to assess writing center instructional efficacy, including the problem of constructing study samples from among diverse students who visit learning (or writing) centers on an irregular basis and the difficulty of controlling for the influence of confounding factors in a non-controlled research setting” (Jones, 2001, p. 6).

Writing centers can gauge their effectiveness via student surveys and faculty surveys, in effect focusing more on the opinions given to them through these assessment measures. This type of data is extremely helpful as it can inform whether or not students are happy with the types of services that they receive in centers and whether or not faculty notice an improvement in the quality of the types of assignments their students complete after visiting a center (typically more than once). These assessment measures can also inform how writing center directors create schedules for tutors, establish hours

of operation, plan professional development activities for tutoring staff, and forge collaborative efforts with other departments on campus to develop programming that addresses students' needs. But needs will vary from campus to campus and writing centers are heterogeneous entities. Not one on any single campus is the same as another, which again makes more "formidable" quantitative assessment difficult. Qualitative measures of assessment in the form of interviews and case studies, though time consuming, can also be helpful when it comes to assessing center efficacy.

The Bell and Frost (2012) study advised writing center administrators to conduct routine assessment that not only speaks to externally mandated assessment but also fosters a professional responsibility, requiring us to perform within the same framework of our fellow academic units and to "show that our services are effective through data collection and analysis", (p. 16). The present research study aimed to address that issue by examining if there was a relationship between writing center visits and student outcomes as they related to retention, persistence, and overall GPAs among a unique "at-risk" student population. The study uses quantitative methodology with an adequate sample and combines both data from the writing center as well as student performance to take a comprehensive look at the issue of writing center contribution to student outcomes.

CHAPTER 3

Methods and Procedures

The procedures used to collect and analyze data to address the stated hypotheses are described below. Information on the validity of the research design for the intended purpose is discussed, as well as limitations in design and methodology related to the data and setting.

Research Questions

The present study focused on the following research questions:

1. Is there a relationship between writing center attendance/participation and Student Retention, as defined by continued enrollment from the time of admission (each semester- not just fall to fall) when university and personal variables have been considered?
2. Is there a relationship between writing center attendance/participation and Student Persistence, as defined by the number of credits earned, when university and personal variables have been considered?
3. Is there a relationship between writing center attendance/participation and Student Success, as defined by the cumulative GPA of their last semester of study, when university and personal variables have been considered?

Research Design and Data Analysis

Measuring the efficacy of academic resource departments, such as writing centers is difficult because there can always be other factors that impact a student who utilizes a center's services outside of tutoring. Exploring the relationship between writing center visits and student GPAs alone using a traditional linear regression model, for example

would not take into consideration the hierarchical (tiered) nature of the variables that describe students and the variables that describe institutions within the datasets being used for a department, such as a writing center's assessment.

Rocconi (2013) discussed the challenges involved in relating student outcomes to just one or even two variables when conducting institutional and departmental assessments within colleges and universities. Datasets typically used to assess the academic resource departments located within colleges and universities consist of variables that interact with other variables (in a tiered manner) that can impact student outcomes. For example, students using a writing center may also participate in other extracurricular activities on campus while receiving mentorship from a faculty member. Those other activities and/or mentorship could impact those student outcomes in addition to or in lieu of writing center visits. “.it is common to find analyses with students nested in within academic majors nested within institutions, where the individual, major, and institution, are all the objects of interest and observation,” (p. 440).

The multiple hierarchical regression design used in the present research study investigated each of the three research questions proposed, with each set of variables entered as a block to examine their relationship with the outcome variables. This design was used because its framework suited the program model (UCC's Writing Center) and its relationship to student outcomes while also showing student outcomes relationships to other variables. Multiple hierarchical regression showed that the variables being studied explained a statistically significant amount of variance in the study's three dependent variables (each research question) after accounting for all other variables.

This study was based on data from 2015-2018, therefore it was *ex post facto*. The relationship between student outcomes and UCC Writing Center visits was examined when university status-related (freshman, sophomore, junior, senior) and student-related (retention, persistence, and success) variables were incorporated into the model.

Table 1.

Outcome Variables Included in the Present Study.

Variable	Levels
Student retention	Number of semesters of enrollment since admissions, divided by the year in school (freshmen = 2, sophomores = 4, juniors = 6, seniors = 8).
Student Persistence	Number of credits earned overall.
Student Success	The cumulative GPA at the end of their last semester of study, including all credit-bearing courses taken.

Reliability and Validity of the Research Design

Kirk (2013) defines linear regression as an analysis that assesses whether one or more predictor variables explains the dependent (criterion) variable (p. 233). For example, a writing center researcher may want to test the efficacy of a particular workshop (independent variable) led by tutors on student outcomes (dependent variable) in one particular course section. The independent variable (workshop) could be changed by the experimenter- topics taught could be manipulated for example- and those changes, whether implemented or not, could impact the dependent variables (student outcomes). However, the testing method mentioned above does not take into account the other factors that may influence student outcomes in a class, such as gender, class, or other variables that could influence student performance in the course outcomes being measured.

This research study accounted for that issue with its research design; a multiple hierarchical regression model that was run to test if the addition of student major, class, ESL status, gender, and SI program enrollment in blocks in SPSS, improved the prediction of the relationship between retention, persistence, and student success and writing center visits.

A hierarchical regression differs from a typical linear regression because more independent variables are added as controls to the research model in blocks to test their relationship to the predictor/dependent variable(s). For this research study, the independent variables added were included in the analysis because they too may have affected student outcomes in addition to writing center visits. For example, a student's classification as Freshman or Sophomore could have influenced student outcomes, along with writing center visits. Those relationships are examined later in this study.

To run the multiple hierarchical regression test for this study, 180 student cases were examined per independent variable. This met the requirement of examining more than 20 student cases per independent variable for the research study. Five other important metrics were met to conduct this study's regression model based on the rules of standard linear regression models:

1. Scatter plot graphs were used to check for outliers, to make sure that none of the data analyzed was too distant in relationship from each other.
2. Histogram charts were examined to test multivariate normality.

Multivariate normality means that the data pulled for this study was normally distributed.

3. There was little to no multicollinearity in the data, meaning that none of the independent variables presented were too highly correlated with each other.
4. A scatterplot of residuals was used to test for autocorrelations. None were found. A Durbin-Watson test was also used, and that test also found that the residuals were not linearly auto-correlated.
5. Homoscedasticity was tested by viewing scatterplot charts and all points were about the same distance from the line on the graph on all three of the hierarchical regressions run.

Setting

The college that was the site of the present study, UCC (pseudonym), was classified as a comprehensive public college, which means that even though it was a four-year undergraduate college, it was an open enrollment institution. It offered students remediation in the form of developmental courses and support services the way two-year community typically colleges did. The main challenge for tutors who worked in the writing center at UCC was that the students they encountered were overwhelmingly under-prepared for the levels of academic rigor they encountered in their classes. The students came from backgrounds where they were the first in their families to attend college and as such, may not have had adequate role models or support for success in higher education. For example, they may have lacked effective study habits and time-management skills because they never learned those skills from parents or in school and those study habits are important factors that can influence student outcomes.

Students at UCC were entitled to one hour of tutoring each day with one tutor where they were exposed to formative assessment practices and the process-oriented approach to student learning practices designed to help students with their writing assignments. Tutors provided additional supports if students self-identified as having special needs. The Writing Center at UCC was not intended to be there solely for editing or proof-reading written assignments from other courses. The center was known as a place where students could go to become better writers and more thoughtful thinkers. College students should learn to understand their own process of writing, so that they can in turn become better writers, according to researcher, Thomas Tobin (2010, p. 230). Students at UCC were encouraged to do that as well as to learn to think critically and to analyze and edit their own content.

The Sample and Participants

The student population being sampled were “at-risk” students who were full-time and part-time matriculated students at UCC. The sample used consisted of three different cohorts of 60 students. Each cohort of 60 was randomly pulled from one of the three academic years analyzed. Altogether 180 students were examined over the course of six semesters: three academic school years.

The dataset (180 students) who visited the writing center and utilized either its one-on-one tutoring services and/or its group workshops was examined to see if there was a relationship between writing center visits on student outcomes as they related to persistence, retention, and student success. Those students’ outcomes were compared to the college’s general student population, which typically numbers about 4500 to 6000 students each semester. The writing center served about 400-600 students each semester.

This study examined whether or not there was a relationship between writing center visits and the aforementioned student outcomes.

Instruments and Variables Measured

The three student outcome measures that were the focus of this study were student retention (continued enrollment), student persistence (number of credits earned), and student success (cumulative GPA). The variables were extracted from the Learning Management System (LMS) of the college. Operational definitions of those dependent variables were provided earlier in this chapter.

The first of the three multiple hierarchical regressions run, examined the relationship between student retention and the number of times students visited the writing center, their overall GPAs (six consecutive semesters), majors, class, ESL status, gender, and supplementary instruction program enrolled in (ASAP, SEEK, PBI, EDGE). Model 1 within the regression examined the relationship between student retention and writing center visits and student GPAs semesters 1-6. Model 2 examined the relationship between student retention, writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.). Model 3 examined the relationship between student retention, writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.), ESL status, and gender. Model 4 examined the relationship between student retention, writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.), ESL status, gender, and supplementary instruction program students were enrolled in on campus.

The second hierarchical regression run for this study, examined the relationship between student persistence and the number of times students visited the writing center,

their overall GPAs (six consecutive semesters), majors, class, ESL status, gender, and supplementary instruction program enrolled in (ASAP, SEEK, PBI, EDGE). Model 1 within the regression examined the relationship between student persistence and writing center visits and student GPAs semesters 1-6. Model 2 examined the relationship between student persistence, writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.). Model 3 examined the relationship between student persistence, writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.), ESL status, and gender. Model 4 examined the relationship between student persistence, writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.), ESL status, gender, and supplementary instruction program students were enrolled in on campus.

The third and final hierarchical regression run , examined the relationship between student success (cumulative GPAs) and the number of times students visited the writing center, their overall GPAs (six consecutive semesters), majors, class, ESL status, gender, and supplementary instruction program enrolled in (ASAP, SEEK, PBI, EDGE). Model 1 within the regression examined the relationship between student success (cumulative GPAs) and writing center visits and student GPAs semesters 1-6. Model 2 examined the relationship between student success (cumulative GPAs), writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.). Model 3 examined the relationship between student success (cumulative GPAs), writing center visits, student GPAs semesters 1-6, major, and classification (freshman, sophomore.), ESL status, and gender. Model 4 examined the relationship between student success (cumulative GPAs), writing center visits, student GPAs semesters 1-6, major, and

classification (freshman, sophomore.), ESL status, gender, and supplementary instruction program students were enrolled in on campus.

The data for the predictor/independent variables examined were extracted from the LMS, and included (a) English proficiency (fluent, ELL), gender (male, female, other), and; (b) College status-related variables of college GPA, class status (freshman, sophomore, junior, senior), , major (arts, sciences, business, education, other professional), and supplemental programs enrolled in (PBI, ASAP, SEEK, EDGE). The number of writing center visits were determined from data recorded in GradesFirst, which was a tutor tracking system that had been integrated within the college LMS.

Procedures and Interventions

The Writing Center acted as a hub for student centric writing across the curriculum (WAC) initiatives, ran over 70 workshops related to grammar, mechanics, research, writing, and more every semester. Typically, the center held three to four workshops per week. All workshops were developed and facilitated by the center's WAC Fellows, senior tutors, and college librarians. The center also offered one-on-one tutoring assistance to students who needed assistance with all aspects of the writing process regardless of their respective courses of study. All programs and services were coordinated by the center's director and college assistants in conjunction with partnerships with the Mass Communications Department, the English Department, and First Year Programs.

The workshops and individual assistance were designed to provide students with the remedial assistance they needed to become adept at college writing, so that they could successfully complete all their courses.

An array of data was collected to track the effectiveness of instructional strategies used in workshops, the effectiveness of one-on-one tutoring, and the overall impact that the center’s programs had on student outcomes as they related to student persistence, GPAs, and retention. The data was also used to inform the center’s operating budget. As such, data tracked included how many workshops ran each semester, attendance, and the specific courses that students were seeking assistance for in the center. All students who participated in the workshops were tracked to assess the Writing Center’s role in retention, raising GPAs, and boosting writing proficiencies.

Table 2.

Workshops Offered by UCC’s Writing Center

Adobe	Analyzing Art & Music	Analyzing Music	Annotated Bibliographies	ASAP Art
ASAP Music	Avoiding Plagiarism	Common Grammar Errors	Constructing the Academic Essay	Critical Thinking and Analysis
Deconstruction of Essay Questions	Evaluating Sources for Research	Evaluating Websites and Other Sources	Excel	Finding & Using E Books
Grammar Bootcamp	Graphic Design 101	Writing About Harmony-Music	Infographics	Infographics Visual Literacy
Intro to Adobe Creative Suite	Intro to PowerPoint	Organizing the Essay	Persuasive Writing	Citing Sources APA
Paraphrasing, Summarizing, and Quoting	Parts of Speech	Punctuation	PowerPoint I	PowerPoint II

Personal Statement	Research for Oral Presentations	Research Methods in Music and Art	RefWorks & Write N Cite for Chicago Style	RefWorks and Other Citation Managers I
RefWorks and Other Citation Managers II	Research Strategies for Music and Art	Writing is Revising	Sentence Structure	Strong Conclusions
Thesis Statements and Introductory Paragraphs	Weebly	Writing the Academic Essay	Writing the Literary Critique	

Note: These were the workshops offered in addition to one-on-one tutoring sessions by UCC's writing center during the three years analyzed in this study.

Data Collection Procedures

The procedure for data collection were as follows:

1. Students chosen for the study were selected from the UCC student Learning Management System (LMS) and matched with writing center attendance to identify groups who did or did not visit the writing center for one-on-one assistance and/or workshops.
2. Students' overall GPAs, persistence rates, GPAs, and retention rates were obtained from the LMS along with the relevant predictor variables, which were extracted into a separate data file with personal identifiers removed.
3. Three hierarchical multiple regression analyses were conducted to see the impact of the predictor variables on the three outcome measures of student

retention, persistence, and success, including a comparison between students who did or did not access the writing center.

Limitations of the Study

Janice Neulib (as cited in Jones, 2001, p. 6) and other researchers in the field have discussed the methodological issues involved in efforts to assess writing center efficacy, including collecting data samples from the diverse group of students, who visit college writing centers and perhaps other tutoring centers on campus on an irregular basis. There is also the difficulty of controlling for the influence of confounding factors in a non-controlled research setting, such as a college writing center, which can be messy, loud, on some days and sterile and quiet on other days. These issues and more have made college level writing ability as it relates to writing center intervention, difficult to assess. Improvements in writing ability, therefore, have been extremely difficult to measure.

Threats to Statistical Conclusion Validity

The following threats to statistical conclusion validity apply to this research study:

1. Low statistical power due to samples being taken from different student populations each semester
2. Low reliability of treatment implementation due to non-standardized procedures, limited monitoring of implementation, and multiple implementers/tutors

3. Random irrelevancies in the experimental setting due to uncontrollable environmental factors, which included noise, capacity, and issues related to temperature which could have impacted the tutoring process

In order to minimize these threats, the researcher ensured that a large sample size was collected- all students who utilized the center's services were included in the sample size instead of testing a smaller group, such as students of one particular class (freshman, sophomore, junior, senior) or students taking one class. The second thing that the researcher did was to increase the risk of making a Type I error -- increase the chance that a relationship would be found when it is not there. This was done statistically by raising the alpha level. For instance, instead of using a 0.05 significance level, 0.10 was used as the cutoff point. Finally, the effect size was increased. Since the effect size is a ratio of the signal of the relationship to the noise in the context, there were two broad strategies here. There was a focus on how often students visited the writing center because that may have been related to the quality of the service students felt that received from the writing center to improve the study's reliability.

Reliability was also improved by reducing situational distractions in the measurement contexts. For example, even though different tutors may have led different workshops, the workshop content was standardized. In addition, mandatory professional development activities were held each semester to further ensure that the research study was implemented well.

Threats to Internal Validity

1. Implementation variation due to different tutors/workshop facilitators working with different students and/or student groups.

2. Subject Characteristics could impact outcomes. Students' feelings during one-on-one tutoring sessions and/or workshops could have had an impact on their responsiveness to the instruction. The students who utilized the center's services could have been more motivated to succeed than students who did not utilize the center's services. The former may have sought out assistance in addition to the center's services that were unknown. Some students may have had additional learning difficulties such as undisclosed ELL issues that hindered their ability to absorb as much of the information being presented to them in tutoring sessions and/or workshop sessions. Also, even if they could absorb the information being presented, students with ELL issues may have absorbed the information slowly.
3. History is an issue as this study took place over the course of six semesters. In principle, the longer a study takes place, the more likely that history's effects may become a threat to internal validity.
4. Long term maturation effects may have also been an issue. Some of the students who regularly utilized the center over the course of each semester analyzed may have become better educated during that period outside of the writing center's treatment/intervention, which could have impacted outcomes.
5. The author of this dissertation's role as both researcher and writing center director could also have impacted internal validity

Threats to External Validity

1. School Setting – UCC was a PBI and a comprehensive. Most of its students were designated “at-risk” because of its designations.

2. Selection – All students who utilized the center’s services were selected for the study, but many students who visited the writing center “self-selected”. They were outliers because they actively sought out ways to improve their grades. Students who used the center, therefore, were highly motivated and may have participated in other activities outside of the center that helped to boost their academic outcomes.
3. Finally, when it came to the ecological threat to validity, interaction among treatments, the treatments were administered singly, but the data pulled was analyzed separately to improve validity. For example, student outcomes were compared across the board for students who utilized the center’s tutoring services and then for the students who attended workshops, etc.

Conclusion

It is important to reiterate the significance of the design used for this research study. Multiple hierarchical analyses allowed the writing center’s relationship (whether or not there was a relationship) to student outcomes to be analyzed alongside other variables to show whether or not even when those variables were added to each of the three models (research questions) within the design, that there was still a relationship between writing center visits and student outcomes or not as those outcomes related to retention, persistence, and student success. It helped the researcher to see if there was a relationship between institutional effects and writing center visits on student outcomes. According to literature on multiple hierarchical regression, the regular use of such models could be beneficial to writing center research. Rocconi has stated that hierarchical

regression models are a way to glean more substantiated findings that can be added to literature related to student outcomes (Rocconi, 2013, p. 457).

CHAPTER 4

Results

This chapter discusses the validity of the research design used and summarizes the findings from the data analysis. It interprets and explains the data gleaned from the student sample of those who visited the writing center and utilized either its one-on-one tutoring services and/or its group workshops over the course of three consecutive years: six semesters. This study aimed to see if there was a relationship between writing center visits and other predictor variables and student outcomes as they related to persistence, retention, and student success, using a linear regression design.

Specifically, a multiple (3) hierarchical linear regression design was employed and run in SPSS as follows:

I. Dependent Variable: Retention

Model 1 Predictor (Independent) Variables:

- (a) number of Writing Center visits
- (b) student GPA (6 semesters)

Model 2 Additional Predictors: Student University Variables

- (c) Class level (Freshman, Sophomore, Junior, Senior)
- (d) Major (Science, Business, Liberal Arts, Education)

Model 3 Additional Predictors: Student Personal Variables

- (e) Gender (male, female)
- (f) ELL status

Model 4 Additional Predictors: Student Learning Variable

- (g) Participation in learning support programs (ASAP, SEEK, PBI, EDGE, NONE)

II. Dependent Variable: Student Persistence

Model 1 Predictor (Independent) Variables:

- (a) number of Writing Center visits
- (b) student GPA (6 semesters)

Model 2 Additional Predictors: Student University Variables

- (c) Class level (Freshman, Sophomore, Junior, Senior)
- (d) Major (Science, Business, Liberal Arts, Education)

Model 3 Additional Predictors: Student Personal Variables

- (e) Gender (male, female)
- (f) ELL status

Model 4 Additional Predictors: Student Learning Variable

- (g) Participation in learning support programs (ASAP, SEEK, PBI, EDGE, NONE)

III. Dependent Variable: Student Success (Cumulative GPAs)

Model 1 Predictor (Independent) Variables:

- (a) number of Writing Center visits
- (b) student GPA (6 semesters)

Model 2 Additional Predictors: Student University Variables

- (c) Class level (Freshman, Sophomore, Junior, Senior)
- (d) Major (Science, Business, Liberal Arts, Education)

Model 3 Additional Predictors: Student Personal Variables

- (e) Gender (male, female)
- (f) ELL status

Model 4 Additional Predictors: Student Learning Variable

(g) Participation in learning support programs (ASAP, SEEK, PBI, EDGE, NONE)

Testing Design Validity and Interpreting Results

Hypothesis 1: Student Retention and Writing Center Visits

By looking at the changes in R^2 in each of the four models presented within each of the three hierarchical regressions run, changes in F can be observed. A significant F -change means that the predictor/independent variables added to each of the models respectively, improved the prediction of the relationships between those independent/predictor variables and the dependent variable.

Model Fit and Prediction Power- Student Retention

When conducting this analysis, it was important to ensure the “model fit”. Fitting a model to data means choosing the statistical model that predicts values as close as possible to the ones observed in the student sample being observed. The following analysis illustrates the relationship between the model(s) and the data used in the hierarchical regressions run.

The first of the three hierarchical regressions run examined the relationship between predictor variables and retention. When viewing model summaries in SPSS output, Model 1 showed an R^2 of 0.258, that was statistically significant at $F = 7.638, p = .000$. This indicates that almost 26% of the variance in student retention was predicted by these variables. Each of the subsequent models presented within this hierarchical regression on retention showed increases in R^2 , which means that the predictions of the relationships examined in each subsequent model or tier were improved. The predictions of the

relationships between writing center visits and semester GPAs improved when major and class were added to the prediction of Retention (Model 2) and led to a small and non-significant increase in R^2 of .042, $F(6, 148) = 1.469, p = .193$. The addition of ESL status and gender to the prediction of Retention (Model 3) led to a statistically significant increase in R^2 of .027, $F(2, 146) = 2.966, p = .055$. The addition of supplementary instruction programs to the prediction of Retention (Model 4) led to a small and non-significant increase R^2 of .023, $F(4, 142) = 1.270, p = .285$ as reported in Table 3.

Table 3.

Changes in R^2 and F: Prediction Power of Retention Models

Models	Change in R^2	F Change	Dif 1 (Regression)	Dif 2 (Residual)	Sig. F- Change
1. Semester (Term) GPAs, Writing Center Visits,	.258	7.638	7	154	.000*
2. Semester (Term) GPAs, Writing Center Visits, Major (School), Class	.042*	.801	6	148	.193
3. Predictors: Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender	.027*	1.469	2	146	.055*
4. Predictors: Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender, Supplementary Instruction Program	.023*	2.966	4	142	.285

**A significant F-change, a p-value less than .05 (< .05), means that the predictor/independent variables added to each of the models respectively, improved the prediction of the relationships between those independent/predictor variables and the dependent variable.*

This means that the addition of the predictor variable blocks/tiers in models 2-4, improved the validity of the prediction of the relationship between the dependent variable, retention and the predictor variables/blocks added. However, upon further evaluation of the ANOVA, it is noted that Writing Center visits was not a significant predictor $B = -.002$ (Table 4) of student retention in the initial or subsequent models.

Each hierarchical regression model is a standard multiple regression with predictor variables that have been entered into the model. Therefore, each of the four models within the ANOVA can be evaluated as to whether it statistically significantly predicts the dependent variable, which in the first instance being examined, is retention. See the Retention ANOVA Table (4)

The only evidence of multicollinearity, when predictors are highly correlated, was between semester GPAs (range $r = .576$ to $r = .976$). However, this was considered to be as expected, given the relative stability of student performance during college years. All other predictors had a lower than .40 correlation. A bell curve was viewed on a histogram to show the assumption of normality, which was needed to proceed with the report in SPSS. This means the distribution of the means of the data studied was normal. There was a presence of autocorrelation, as assessed by a Durbin-Watson statistic of 2.303. This could be explained by the relationship between the GPA values across 6 semesters. There was homoscedasticity, as assessed by visual inspection of a scatterplot graph. Examining homoscedasticity ensured that all the variables measured had the same distribution shape for variance. There was a linear relationship proven between the dependent variable (retention) and the independent variables analyzed. It was assessed by visually inspecting plots on a graph. This increased the validity of the predictions being made.

After analyzing model summaries in SPSS output to see if prediction power was improved, each model was evaluated to see if it statistically predicted the dependent variable, retention. This was done by analyzing ANOVA output in SPSS. Model 4 of the ANOVA are highlighted in Table 4. The full model of semester (term) GPAs, writing center visits, major (school), ESL status, and supplementary instruction program to predict retention (Model 4) was statistically significant, R^2 of .350, $F(19, 142) = 4.025$, $p < .001$, adjusted $R^2 = .263$.

Table 4.

Retention ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.618	7	.945	7.63	.000 ^b
	Residual	19.061	15	.124		
	Total	25.679	16			
2	Regression	7.689	13	.591	4.86	.000 ^c
	Residual	17.990	14	.122		
	Total	25.679	16			
3	Regression	8.392	15	.559	4.72	.000 ^d
	Residual	17.287	14	.118		
	Total	25.679	16			
4	Regression	8.989	19	.473	4.02	.000 ^e
	Residual	16.690	14	.118		
	Total	25.679	16			

- a. *Dependent Variable: Retention*
 - b. *Predictors: (Constant), Semester (Term) GPAs, Writing Center Visits,*
 - c. *Predictors: (Constant), Semester (Term) GPAs, Writing Center Visits, Major (School), Class*
 - d. *Predictors: (Constant), (Constant), Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender*
 - e. *Predictors: Predictors: (Constant), (Constant), Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender, Supplementary Instruction Program*
-

Interpreting Coefficients- Retention Model

After interpreting the model fit, the differences between the models, and the statistical significance of the models, the coefficients of the regression model were analyzed. In regression analysis, p -values and coefficients work together to tell which relationships in the model are statistically significant and the nature of those relationships. The coefficients show the relationship between each predictor variable presented and the dependent variable. As with the reporting of the model summaries and the ANOVA, the last model of the regression is the most important one to analyze when examining coefficients. Positive coefficients indicate that as the value of the independent variable increases, the mean of the dependent variable also tends to increase. Negative coefficients indicate that as the independent variable increases, the dependent variable tends to decrease. It is important to note that the coefficient value signifies how much the mean of the dependent variable changes given a one-unit shift in the predictor variable(s) while holding other variables in the model constant. Holding the other variables constant is crucial because it allows for the assessment of the effect of each variable in isolation from the others.

In the first of the three hierarchical regressions run, the relationship between retention and several predictor variables was examined. Interestingly, the number of

writing center visits coefficient was -2.287. Initially, this figure seemed significant because it showed that the more often students visited the writing center, especially if they visited the center two or more times, the more likely they were to continue their studies and/or graduate from UCC. Retention was coded in SPSS as active/graduated student = 0, discontinued student = 1. However, the *p*-value for writing center visits is 0.995, greater than alpha level of 0.05, which indicates that the number of visits was not statistically significant. In effect, the number of times students visited the writing center (in general for all students in the sample), as those visits related to student retention was not statistically significant in this instance. Also, even though writing center visits had the highest coefficient, those visits did not have statistically significant relationships with the other predictor variables presented, which were Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender, and Supplementary Instruction Programs.

It is interesting to note that even though the relationship between the number of times a student visited the writing center and retention was not statistically significant, there was a statistically significant relationship between semester 3 GPAs, semester 4 GPAs, and semester 5 GPAs and retention in all 4 models in the first of the three hierarchical regressions run for this research study. There were also significant relationships between gender (women) and retention in models 3 and 4 of the first regression run, which corroborated with institutional data released by UCC showing that female students who visited the writing center more often were more likely to remain at UCC and graduate than male students who did the same.

Table 5.

Hierarchical Multiple Regression Predicting Retention from the Number of Writing Center Visits, GPAs (six consecutive semesters), Major, Class, ESL Status, Gender, and Supplementary Instruction Program

Variable	Model 1		Model 2		Model 3		Model 4	
	B	Std. β	B	Std. β	B	Std. β	B	Std. β
Constant	1.078		.815		.669		.640	
Writing Center visits	-.002	-.04	-.002	-.036	-.002	-.036	-2.287	.000
GPA Semester 1	.030	.047	.015	.022	.043	.066	.064	.099
GPA Semester 2	-.039	-.054	.004	.005	-.023	-.031	-.003	-.004
GPA Semester 3	-.312	-.428*	-.323	-.443*	-.350	-.480*	-.394	-.540*
GPA Semester 4	.517	.776*	.542	.814*	.543	.816*	.559	.838*
GPA Semester 5	.124	.192	.129	.199	.105	.163	.052	.080
GPA Semester 6	-.618	-.979**	-.619	-.981*	-.550	-.871*	-.494	-.782*
Liberal Arts SSHT Education			-.117	-.060	-.111	-.057	-.092	-.047
Business			.113	.115	.089	.090	.067	.068
Freshman			.174	.214	.141	.172	.161	.205
Sophomore			.029	.032	-.001	-.001	.042	.046
Junior			.045	.033	-.016	-.012	.009	.007
Senior								
ESL Status					.099	.090	.108	.098
Gender					.159	.171*	.143	.154*
ASAP							-.136	-.159
SEEK							-.051	-.041
PBI							.029	.023
EDGE							-.198	-.067
R squared	.258		.299		.327		.350	
F	7.638		4.866		4.725		4.025	
Change in R squared	.258		.042		.027		.023	
Change in F	7.638		1.469		2.966		1.270	

Note: "*" denotes significance at $p < .05$; "**" denotes significance at $p < .01$.

Hypothesis 2: Student Persistence and Writing Center Visits

Model Fit and Prediction Power- Student Persistence

The second hierarchical regression was run in SPSS to see if the addition of major, class, ESL status, gender, and supplementary instruction showed whether or not there was a significant relationship between writing center visits and student persistence in addition to there being relationships between the other predictor variables measured and student persistence over the course of six consecutive semesters. See Table 5 for full details on this regression model.

The addition of major and class to the prediction of student persistence (Model 2) led to the following change in R^2 of .470, $F(6, 148) = 50.583, p = .000$. The change in R^2 was not significant here, so prediction power was not improved. However, the addition of ESL status and gender to the prediction of student persistence (Model 3) led to a statistically significant increase in .002, $F(6, 148) = .735, p = .481$. The addition of supplementary instruction programs to the prediction of student persistence (Model 4) led to a statistically significant increase in R^2 of .003, $F(4, 142) = .401, p = .801$. This showed an improvement in prediction power and the validity of the regression because when examining the changes in R^2 , a p -value less than .05 ($< .05$) adds statistically to prediction improvement. A bell curve was viewed visually to show the assumption of normality, which was needed to proceed with the report in SPSS. This means the distribution of the means of the data studied was normal.

Table 6.

Changes in R² and F: Prediction Power of Persistence Models

Models	Change in R ²	F Change	Dif 1 (Regression)	Dif 2 (Residual)	Sig. F- Change
1. Semester (Term) GPAs, Writing Center Visits,	.301	9.490	7	154	.000*
2. Semester (Term) GPAs, Writing Center Visits, Major (School), Class	.070	50.583	6	148	.000*
3 Predictors: Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender	.002*	.735	2	146	.481
4 Predictors: Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender, Supplementary Instruction Program	.003*	.401	4	142	.808

* When examining the changes in R², a p-value less than .05 (< .05) adds statistically to prediction improvement

*A significant F-change, a p-value less than .05 (< .05), means that the predictor/independent variables added to each of the models respectively, improved the prediction of the relationships between those independent/predictor variables and the dependent variable.

There was independence of residuals, as assessed by a Durbin-Watson test, 2.303. That means that autocorrelation was proven. There was homoscedasticity, as assessed by visual inspection of a scatterplot graph. Examining homoscedasticity ensured that all the variables measured had homogeneity (the same) of variance, which showed that the variables had equal or similar statistical differences. This showed that all variables may

have had an equally similar impact on student persistence. There was a linear relationship proven between the dependent variable (persistence) and the independent variables analyzed. It was assessed by visually inspecting plots on a graph. The regression model was proven to be statistically valid and prediction power had been improved with the addition of predictor variables by model 4.

After analyzing model summaries in SPSS output to see if prediction power was improved, each model was evaluated to see if it statistically predicted the dependent variable, persistence (credits earned). This was done by analyzing ANOVA output in SPSS. Model 4 of the ANOVA are highlighted in table 7. The full model (model 4) of semester (term) GPAs, writing center visits, major (school), ESL status, and supplementary instruction program to predict persistence was statistically significant, R^2 of .776, $F(19, 142) = 25.862$, $p = .001$, adjusted $R^2 = .746$. Upon analyzing coefficients, a relationship between the semester 6 GPAs of students who visited the writing center and higher persistence rates could be seen. A relationship could also be seen between persistence rates and writing center visits by all classes, including freshmen (see table 8.).

Table 7.

Persistence ANOVA

		Sum of				
Model		Squares	df	Mean Square	F	Sig.
1	Regression	58252.498	7	8321.785	9.490	.000 ^b
	Residual	135044.279	154	876.911		
	Total	193296.778	161			

2	Regression	149029.787	13	11463.830	38.328	.000 ^c
	Residual	44266.991	148	299.101		
	Total	193296.778	161			
3	Regression	149471.262	15	9964.751	33.196	.000 ^d
	Residual	43825.516	146	300.175		
	Total	193296.778	161			
4	Regression	149960.998	19	7892.684	25.862	.000 ^e
	Residual	43335.780	142	305.182		
	Total	193296.778	161			

a. Dependent Variable: Persistence/Credits Earned

b. Predictors: (Constant), Semester (Term) GPAs, Writing Center Visits,

c. Predictors: Semester (Term) GPAs, Writing Center Visits, Major (School), Class

d. Predictors:(Constant), Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender

e. Predictors: (Constant), (Constant), Semester (Term) GPAs, Writing Center Visits, Major (School), Class, ESL Status, Gender, Supplementary Instruction Program

Table 8.

Hierarchical Multiple Regression Predicting Persistence from the Number of Writing Center Visits, GPAs (six consecutive semesters), Major, Class, ESL Status, Gender, and Supplementary Instruction Program

Variable	Model 1		Model 2		Model 3		Model 4	
	B	Std. β	B	Std. β	B	Std. β	B	Std. β
Constant	-4.282		97.088		95.328		93.464	
Writing Center visits	-.160	-.034	-.097	-.021	-.091	-.019	-.093	-.020
GPA Semester 1	-4.322	-.077	.436	.008	.496	.009	.079	.001
GPA Semester 2	3.422	.055	-5.28	-.083	-5.473	-.087	-5.212	-.083
GPA Semester 3	11.742	.186	-11.150	.176	10.658	.169	11.699	.185
GPA Semester 4	-11.114	-.193	11.150	-.131	10.658	-.140	-8.902	-.154
GPA Semester 5	-29.56	-.464	-22.204	-.397	-22.285	-.398	-22.207	-.395
GPA Semester 6	55.581	1.015**	40.253	.735**	41.278	.753**	41.555	.759**
Liberal Arts SSHT			-.609	-.008	-1.224	-.017	-.831	-.011
Education Business			1.335	-.008	1.095	.006	.865	.005
Freshman			-1.835	-.021	-1.92	-.022	-1.651	-.019
Sophomore			-83.216	-1.174**	-84.468	-1.192**	-83.205	-1.174*
Junior			-45.631	-.570	-46.749	-.584**	-46.398	-.579*
Senior			-26.625	-.230	-27.601	-.238**	-27.314	-.236*
ESL Status					4.637	.048	4.896	.051
Gender					-.380	-.005	-.086	-.001
ASAP							-1.029	-.014
SEEK							.099	.001
PBI							-5.562	-.052
EDGE							-5.238	-.020
R squared	.301		.771		.773		.776	

F	9.490	38.328	33.196	25.862
Change in R squared	.301	.470	.002	.003
Change in F	9.490	50.583	.735	.401

Note: “*” denotes significance at $p < .05$; “***” denotes significance at $p < .01$.

Hypothesis 3: Student Success and Writing Center Visits

The third hierarchical regression was run to determine if the addition of major, class, ESL status, gender, and supplementary instruction obtained via social welfare programs on campus, improved the prediction of student success -as defined by the cumulative GPA of students’ last semester of study- over and above writing center visits and GPAs (six consecutive semesters) alone. See Table 9. for full details on prediction power for student success. The full model of the number of writing center visits, GPAs (six consecutive semesters), major, class, ESL status, gender, and supplementary instruction program to predict student success (Model 4) had a change in R^2 of .057, $F(4, 164) = 3.129, p = .016$.

The addition of major and class to the prediction of student success (Model 2) led to a slight increase in R^2 of .131, $F(6, 170) = 4.383, p = .000$. The addition of ESL status and gender to the prediction of student success (Model 3) led to a slight increase in R^2 of .052, $F(2, 168) = 5.434, p = .005$. The addition of supplementary instruction programs to the prediction of student success (Model 4) led to a slight R^2 increase of .057, $F(4, 164) = 3.129, p = .016$. These R^2 increases were not statistically significant, so they did not increase prediction power in the third regression run, however the validity of the research design was still proven to be stable. A bell curve was viewed to show the assumption of normality, which was needed to proceed with the report in SPSS.

Table 9.

Changes in R² and F: Prediction Power of Student Success Models

Models	Change in R ²	F Change	Dif 1 (Regression)	Dif 2 (Residual)	Sig. F-Change
1. Writing Center Visits	.019*	3.409	1	176	.067
2. Semester (Term) GPAs, Major (School), Class	.131	4.383	6	170	.000*
3. Predictors: (Semester) (Term) GPAs, Major (School), Class, ESL Status, Gender	.052*	5.434	2	168	.005*
4. Predictors: (Semester) (Term) GPAs, Major (School), Class, ESL Status, Gender, Supplementary Instruction Program	.057	3.129	4	164	.016*

* When examining the changes in R², a p-value less than .05 (< .05), adds statistically to prediction improvement

*A significant F-change, a p-value less than .05 (< .05), means that the predictor/independent variables added to each of the models respectively, improved the prediction of the relationships between those independent/predictor variables and the dependent variable.

The distribution of the means of the data studied was normal. There was independence of residuals, as assessed by a Durbin-Watson test, 1.827. That means that autocorrelation was proven. There was homoscedasticity, as assessed by visual inspection of a scatterplot graph. Examining homoscedasticity ensured that all the variables measured had homogeneity (the same) of variance, which showed that the variables had equal or similar statistical differences. This showed that all predictor variables may have

had an equally similar impact on student success. There was a linear relationship proven between the dependent variable (student success) and the independent variables analyzed. It was assessed by visually inspecting plots on a graph. The regression model was proven to be statistically valid and prediction power had been improved with the addition of predictor variables by model 4.

After analyzing model summaries in SPSS output to see if prediction power was improved, each model was evaluated to see if it statistically predicted the dependent variable, student success (cumulative GPAs). This was done by analyzing ANOVA output in SPSS. Model 4 of the ANOVA are highlighted in table 10. The full model (Model 4) of semester (term) GPAs, writing center visits, major (school), ESL status, and supplementary instruction program to predict student success (Model 4) was statistically significant with an R^2 of .259, $F(13, 164) = 4.401$, $p = .001$, adjusted $R^2 = .746$. Upon reviewing coefficients in model 4 of this regression, significant relationships could be seen between freshmen who visited the writing center, women who visited the writing center, enrollment in the supplementary instruction program ASAP, and positive student success outcomes.

Table 10.

Student Success ANOVA^a

		Sum of				
Model		Squares	df	Mean Square	F	Sig.
1	Regression	1.533	1	1.533	3.409	.067 ^b
	Residual	79.166	176	.450		
	Total	80.699	177			

2	Regression	12.139	7	1.734	4.300	.000 ^c
	Residual	68.559	170	.403		
	Total	80.699	177			
3	Regression	16.305	9	1.812	4.727	.000 ^d
	Residual	64.393	168	.383		
	Total	80.699	177			
4	Regression	20.871	13	1.605	4.401	.000 ^e
	Residual	59.828	164	.365		
	Total	80.699	177			

a. Dependent Variable: Cum GPA Last Semester Studied

b. Predictors: (Constant), Writing Center Visits

c. Predictors: (Constant), Writing Center Visits, Major (School), Class,

d. Predictors: (Constant), Writing Center Visits, Major (School), Class, ESL Status, Gender

e. Predictors: Writing Center Visits, Major (School), Class, ESL Status, Gender, Supplementary Instruction Program

Table 11.

Hierarchical Multiple Regression Predicting Student Success from the Number of Writing Center Visits, major, class, ESL status, gender, and supplementary instruction program

	Model 1		Model 2		Model 3		Model 4	
Variable	B	Std. β	B	Std. β	B	Std. β	B	Std. β
Constant	2.780		3.177		3.315		3.237	
Writing Center visits	.013	.138	.011	.121	.011	.115	.009	.091
Liberal Arts			-.144	-.102	-.154	-.109	-.128	-.091
SSHT								
Education			.121	.035	.093	.027	.067	.019
Business			-.051	-.030	-.008	-.005	.045	.027
Freshman			-.511	-.367*	-.428	-.307	-.543	-.389*
Sophomore			-.030	-.019	-.025	.016	-.070	-.044
Junior			-.039	-.017	.072	.032	.083	.036

Senior				
ESL Status			-.143	-.074
Gender			-.360	-.232*
ASAP				.325
SEEK				.258
PBI				.362
EDGE				-.125
R squared	.019	.150	.202	.259
F	3.409	4.300	4.727	4.401
Change in R squared	.019	.150	.019	.003
Change in F	3.409	4.383	5.434	3.129

Note: "" denotes significance at $p < .05$; "***" denotes significance at $p < .01$.*

Conclusion

This research study's sample consisted of 180 college students who visited their campus writing center at least once. The study's findings showed that there was no statistically significant relationship between the number of times those students visited the writing center and other predictor variables analyzed, such as semester GPAs and major. There was also no statistically significant relationship between the number of times students visited the writing center and student outcomes as they related to retention, persistence, and student success. However, there were statistically significant (*) relationships observed in all three of the hierarchical regressions run.

When it came to retention, coefficients in model 4, the full model, showed statistically significant relationships between positive retention outcomes and student GPAs during semesters 3 (-.540), 4 (.838), and 6 (-.782). There was also a relationship shown between the number of women visiting the writing center going up and positive retention rates for all students (.154), though it is important to keep in mind that the majority of UCC's students are women. There were relationships seen between positive student persistence outcomes and an uptick in semester 6 GPAs (.759). There was also a

strong relationship between freshman (1.174) visiting the writing center more often and a rise in credit accumulation (student persistence). Other statistically significant relationships, though not as strong, were observed in the relationships between sophomores (-.579), and juniors (-.236) visiting the center more often and a rise in student persistence. This showed a correlation between a rise in juniors and seniors using the center and a decline in the mean of persistence rates. Finally, when it came to student success (cum GPA), there were relationships observed between freshman (-.389), women (-.224), and ASAP students (.220) and student success.

CHAPTER 5

Discussion

The purpose of this study was to examine whether or not there was a relationship between the number of times students at an urban comprehensive college in the Northeast visited their campus writing center, other tiered/nested student data, and student outcomes as they related to retention, persistence, and student success.

Specifically, the questions asked were:

- Is there a relationship between writing center attendance/participation and Student Retention, as defined by continued enrollment from the time of admission (each semester- not just fall to fall) when university and personal variables have been considered?
- Is there a relationship between writing center attendance/participation and Student Persistence, as defined by the number of credits earned, when university and personal variables have been considered?
- Is there a relationship between writing center attendance/participation and Student Success, as defined by the cumulative GPA of their last semester of study, when university and personal variables have been considered?

This chapter includes a discussion of major findings, and future research possibilities as they relate to the literature on college writing centers, formative assessment and the process-oriented approach, and at-risk students on urban undergraduate college campuses. Also included is a discussion on connections to this study and theories on the efficacy of writing center programs and services and student

persistence, student success, and student retention. The chapter concludes with a discussion of the limitations of this study, areas for future research, and a summary.

Findings and Implications

The study concluded that there was no statistical significance in the relationship between the number of times all students visited the writing center and those student outcomes. However, the study's findings did show that there were several other important relationships that were statistically significant and worthy of further research:

1. There were statistically significant relationships between semester 3 GPAs, semester 4 GPAs, and semester 5 GPAs and retention in all 4 models in the first of the three hierarchical regressions run for this research study. There were also significant relationships between women who visited the writing center more than once and student retention in models 3 and 4 of the first regression run.
2. A relationship between the semester 6 GPAs of students who visited the writing center and higher persistence rates could be seen. A relationship could also be seen between persistence rates and writing center visits by all classes, including freshmen (see table 8).
3. Significant relationships could be seen between freshmen who visited the writing center, women who visited the writing center, enrollment in the supplementary instruction program ASAP, and student success outcomes.

Whereas many writing center administrators struggle to prove that there is a relationship between what writing centers do on campus and student outcomes, the

study's findings did show that such correlations do exist and some of them are positive. This study, for example, showed statistically significant relationships between the end of term GPAs of the student sample going up and positive student outcomes, especially as they related to retention and persistence. Therefore, while higher achieving students benefit from the additional support of the Writing Center, there should be more of an effort to urge "at-risk" students to utilize the programs and services that college writing centers offer.

College writing centers across the country differ greatly based on their location, funding, student demographics and more. Getting students inside of them; however, is an issue that most writing center researchers would agree is a common one. that students often see writing centers as spaces for people who need remediation and therefore tend to cast a negative light on them. Researcher, Jackie Grutsch McKinney (2013) has said, "the remedial label is so despised that students will avoid tutoring so as not to be seen as deficient, stupid, or ill-fit for academic work," (p. 67).

McKinney (2013), argues that writing centers have transformed into spaces that force students to confront their inadequacies in a manner that blames their lack of preparedness for post-secondary academic rigor on themselves instead of on the schools and teachers that failed them prior to their entry into undergraduate-level programs. "One by one students come into the center (in droves) to confess strikingly similar admissions of inadequacy conferred on them by instructor comments. Most telling are instructors who send entire classes to the center- 'None of them know what they are doing' - rather than coming to an equally viable conclusion that the instructor has not taught them sufficiently what they need to do," (p. 69).

Previous studies have shown that there is a relationship between the type(s) of formative assessments and process oriented tutoring practices that students receive from writing centers and student retention, student success, and student persistence. However, apart from the 2012 Bell and Frost research study, most of the literature on writing centers has been qualitative not quantitative. This quantitative study adds to the literature that supports the theory that there is a relationship between the types of strategies that writing centers use to assist students and positive student outcomes as they relate to retention, persistence, and student success.

Relationship Between Results and Prior Research

Participants in this study who utilized writing center services tended to have similar characteristics to the sample included in the Salem (2016) study mentioned in chapter 2. Salem said that not all students take advantage of college writing centers. She stated that students who utilize college writing centers intend to seek tutoring services prior to enrolling in colleges. This presumes that these students are highly motivated in general in addition to other common characteristics. Salem said that students who visit writing centers tend to be the type of student who would have been labeled as “remedial” and who would have been considered “disadvantaged”. These are the traits of “at-risk” students, the participants of this research study.

Further, according to Goldrick-Rab (2010) at risk students also tend to be older. Their age may factor into their being motivated to utilize college writing centers. These students are typically seeing a college degree as a means to an end. They must obtain a degree to improve their current circumstances or for some other concrete reason and are highly motivated though they may need remediation. The present study indicates that

activities, available programs, and outreach should be directed to non-traditional as well as traditional students.

Most of the participants of this study who utilized writing center services at UCC were women, visited the center more than once, were not ESL students, were enrolled in ASAP, majored in STEM, and had graduated from high school or received a GED prior to UCC entry. This was noteworthy because it spoke to other variables that characterized the types of students on UCC's campus who used the writing center.

It is difficult to assess the relationships between positive student outcomes and the practices of academic resource areas, such as writing centers due to the likelihood of dependence between nested or tiered subjects (Vaughn, et.al., 2014, p. 564). In this research study for example, freshman students could be compared to sophomore students as they related to writing center visits and student outcomes because a multiple hierarchical regression was conducted. This research study did connect to other research on writing centers as it added to the literature related to what writing centers do, how what they do is different from what is done in the classroom, and how they can be helpful in boosting student outcomes. Also, the type of research design used to complete this study was unique in that it was quantitative.

This study showed that the formative, process-oriented strategies offered within undergraduate writing centers do relate to student outcomes of higher achieving students, and as such, more attention should be paid to their roles on college campuses. College writing centers can act as a bridge linking a tutor's formative assessment and process oriented practices to a lecturer's summative and invariably more final assessment of a

student's work at the end of each semester to foster student achievement, especially among at-risk student populations.

Limitations of the Study

There were no threats to statistical conclusion validity due to adequate sample size, reliability of data sources, and use of appropriate test statistics. However, factors that threatened internal validity were:

- **Maturation:** over the course of three years participants may have changed dramatically and so could their life circumstances, which could have had an impact on their GPAs and persistence rates
- **Attrition:** UCC has a poor retention rate and several of the students in the sample dropped out before the end of the three years analyzed.

Factors that threatened external validity were:

- **Sample Demographics:** the study focused on a sample of 180 students on one predominantly Black, small college campus in the northeast
- **Sample Features:** the types of students likely to utilize the UCC writing center, may have been more motivated than other students in the sample prior to enrolling in college

Implications for Future Practice

Colleges and universities with “at-risk” undergraduate students should invest in not only supporting writing centers but conducting research on their efficacy in supporting student retention, persistence, and success. While it may be argued that writing centers assist students in improving their overall GPAs, and therefore that they do

positively impact student outcomes, more empirical data that investigates this assumption needs to be gathered. This may be in the form of research studies that evaluate student writing at writing centers and/or in first year writing courses at the beginning of each semester, periodically evaluating that student work throughout the semester in writing centers and/or in those classrooms, and by observing if there is a correlation between writing center practices and assessments and final course grades.

Funding for college writing centers should adequately support and train writing center tutoring staff, support staff, and administrators. It should also support the marketing and development of programs, workshops and seminars that link writing centers to other departments on campus for collaborative initiatives designed to foster student achievement. The funding should also support online writing centers. Research has shown that they can extend the reach of a traditional brick and mortar writing center's program offerings while providing students with more flexible ways to pursue their academic goals (Martinez & Olsen, 2015, p. 183).

Implications for Future Research

Other researchers may find it difficult to nearly impossible to have a random sample population for both treatment and control groups, especially in the areas of higher education administration. Vaughn, Lalonde, and Jenkins-Guarnieri (2014) published a study that discussed how researchers could address these concerns via developing methodologies that can be used in post-secondary educational institutions that are quasi-experiments , not true experiments “.where randomization is not feasible and dependence between subjects is a concern,” (p. 565). The Vaughn et al. (2014) study used a hierarchical propensity score matching method to test the efficacy of a First-Year

Seminar (FYS) course on student outcomes as they related to first-semester GPAs, good academic standing, and student persistence in comparison to second semester outcomes. Students who took the FYS course's outcomes were compared to the outcomes of students who did not take the course. Randomization was not possible, especially because it would be unethical for students who were interested in the course to be stopped from taking the course. "Furthermore, due to the variations in instruction and the possible similarities due to organizing sections based on major, it is also likely that dependence on subjects could be a major concern". The study allowed, ".researchers to form matched control groups and conduct analyses using a quasi-experimental design. Although propensity code matching is not is not itself novel, current users commonly limit propensity score matching to student level variables or stratification of the matching progress," (Vaughn et al, 2014, p. 565). Future studies can focus on such quasi-experimental models to minimize errors when it comes to their analyses.

Future research studies could also focus on identifying new and/or unique variables to further examine college writing's relationship to student learning. According to a research study published by Paul Anderson, Chris M. Anson, Robert Goneya and Charles Payne in *Research in the Teaching of English Journal* (2015) titled *The Contributions of Writing to Learning and Development: Results from a Large-Scale Multi-institutional Study*. Current research shows mixed results when it comes to the analysis of writing's relationship to student learning and this is an opportunity for writing center directors to add to the existing literature with empirical studies. Currently there is a dearth of empirical based research related to writing centers in this vein. The Anderson et al. (2015) study argued that the reason for the mixed results of newer quasi-experimental

studies are that some pedagogically sound interventions may simply be more effective than others. For example, when analyzing student outcomes in a FYS course, one may want to research who are teaching said courses, how students feel about taking said courses, in addition to looking at the summative student outcomes in said courses such as GPAs or persistence rates.

The Anderson et al. (2015) study yielded responses from over 29,634 first-year students and 41,802 seniors, was conducted in conjunction with the Council of Writing Program Administrators (CWPA) and the National Survey of Student Engagement (NSSE). It has been said that the study pin-pointed and measured what were then considered new variables for analyzing writing's relationship to students' learning and development. Eighty CWPA members from eighty four-year undergraduate level post-secondary institutions developed 27 best practices for undergraduate level college writing success and used them to answer three research questions regarding “.Interactive Writing Processes, Meaning-Making Writing Tasks, and Clear Writing Expectations.” A hierarchical regression model was used and it indicated that, “.the positive impact of writing beyond learning course material to include Personal and Social Development. Although correlational, the Anderson et al. (2015) study can provide guidance to instructors, institutions, and other stakeholders because of the nature of the questions associated with the effective writing constructs,” (p.199). Future research could delve deeper into such topics while further improving upon experimental and quasi experimental hierarchical regression models.

Conclusion

Writing centers are not necessarily seen as high value departments on college campuses. Bell and Frost (2012) argued that their value would drop even more if they were unable to prove regularly via empirical data that they may have an influence on positive student outcomes. As post-secondary institutions battle the ever-changing standards of regional and sometimes national accreditation boards, writing centers must show not only that they are in compliance, but that there is a need for their existence. This can and should be done with empirical research studies that analyze the relationships between academic resource centers, such as writing centers, other departments on college campuses, other personal and impersonal student predictor variables, and how they relate, if at all, to student outcomes. Not only could such research studies shine a light on formative assessment and process-oriented approach models typically used to tutor students in college writing centers throughout the U.S., but such research could also be instrumental in helping writing centers boost their respective profiles on college campuses. Thereby continuing to highlight the importance of implementing effective writing programs on campuses, supporting effective writing tutoring services on campuses, and helping colleges and universities to identify unique ways to foster fruitful inter-departmental relationships between writing centers and other academic support service areas on campuses.

Some writing center workers have stated that centers should resist such attempts at normalization and that they should remain areas where being “iconoclastic” and “subversive” on campus continue. Unfortunately, that has led to the proliferation of the negative stereotyping about the types of people who manage college writing centers and

the types of tutors and other employees who work at writing centers. On many undergraduate campuses, writing centers still hover way outside of their respective institution's radar instead of being considered a strong visible presence. Unfortunately, if writing centers are not seen as an integral and collaborative part of an institution's framework, centers risk being considered a non-essential area on campus. Typically, this has led to center directors constantly having to fight for space, funding, equipment, supplies and often their own existence. As such, strengthening the methodologies utilized to assess the efficacy of writing centers is imperative.

Future writing center research could also highlight how writing centers have been connecting to their institutions in increasingly meaningful ways to show that even though they do not follow the tenets of traditional summative instructional models, that they may be able to help students improve not only their writing over time, but also their rhetorical awareness, verbal communication skills, and critical thinking skills over time. Future writing center research could also show that centers can collaborate successfully with other departments to develop WAC/WID professional development programs and/or writing groups for faculty, tutors, and other college/university personnel.

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