A CORRELATIONAL STUDY OF THE RELATIONSHIP BETWEEN HELP-SEEKING BEHAVIOR AND WRITING SELF-EFFICACY

by

Brian Douglas Aunkst

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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APPROVED BY:

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ABSTRACT

A writing center performs the academic support function of developing independent writers as revealed by students' writing self-efficacy—their perceptions of themselves as writers. Despite the apparent link between students' desire to seek assistance from the writing center and their writing self-efficacy, no quantitative study to date has examined this association for online graduate students. This quantitative, correlational study investigated that potential relationship. Participants were online graduate students at a large, regionally accredited, faith-based, non-profit, private university in the southeastern United States with a substantial online student population who received assistance from the online writing center (OWC) multiple times. Writing self-efficacy data from a sample of 257 online graduate students was acquired using the Post-Secondary Writerly Self-Efficacy Scale (PSWSES). A bivariate correlation analysis was performed to evaluate the possible relationship between student help-seeking behavior, as measured by the number of completed OWC draft review requests, and writing self-efficacy. Results revealed no statistically significant linear relationship between the student help-seeking behavior and writing self-efficacy; the variables are statistically independent. The empirical implications of these results include the possible limited application of writing self-efficacy as a measure of writing center effectiveness, as well as the non-linear interaction of self-efficacy and help-seeking behavior. The results also lead to practical implications concerning students who use writing center services multiple times. Further research is needed in the area of student motivation for writing center usage, as well as help-seeking frequency on student writing self-efficacy.

Keywords: online writing center, writing self-efficacy, help-seeking behavior, correlational analysis

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Dedication

Six years ago, I stood on a precipice. I was finishing up my second master's degree and was preparing to start the Ed.D. program. It was a program I was not particularly enthused about starting, especially since I had to begin by taking remedial education courses.

Six years ago, our only son, Andy, also stood on a precipice. Andy was finishing his degree program too and was struggling with finding a job in his new field. This struggle emanated not from a difficult job market, but from within Andy because he was terrified of change. Andy had Asperger's syndrome, and the slightest alteration of his routine caused a major uproar in his life. So, on the night of December 10, 2013, Andy decided to end his life rather than face that horrifying change.

Throughout these last six years, Andy has been my taskmaster and my inspiration, pushing and urging me on when I wanted to give up.

And so, son, it is to you I dedicate this work. I love you, Dad.

Andrew Christian Aunkst
October 24, 1985 – December 10, 2013

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I am deeply indebted to Dr. Simpson's practical experience as director of Liberty University's Online Writing Center. I want to thank you for your excellent cooperation and for all of the opportunities I was given to conduct my research and complete my dissertation. I also wish to thank Dr. Lobaina for allowing me access to the OWC data, which provided the backbone of my study. I would also like to extend my gratitude to the OWC staff and tutors, without whom my work would have no significance.

I would also like to thank my sister, Holly, for her continual prayer support and for reminding me of my parents, whose love and guidance are with me even though they no longer are. Thank you to my daughters Lisa and Lauren for your unwavering belief in your old dad's work and abilities.

Finally, I cannot begin to express my thanks to my precious life's partner, Kim, whose love, support, and sacrifices sustained me when I had nothing left! You have encouraged me with love and understanding. Without you, I could never have reached this academic accomplishment. I love you!

This last word of acknowledgment I have saved for my Lord and Savior, Jesus Christ, through whom all things are possible!

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List of Abbreviations

American College Testing (ACT)

Face-to-face (F2F)

International Writing Center Association (IWCA)

Institutional Review Board (IRB)

Online Writing Center (OWC)

Post-Secondary Writerly Self-Efficacy Scale (PSWSES)

Replicable, aggregable, and data-supported (RAD) research

Scholastic Aptitude Test (SAT)

Statistical Package for the Social Sciences (SPSS)

Zone of Proximal Development (ZPD)

CHAPTER ONE: INTRODUCTION

Overview

Over the past 50 years, the landscape of American post-secondary education has changed dramatically (Boquet, 1999). Technology in the 21st century offers more opportunities for online graduate education, facilitating a global educational marketplace (Martirosyan, Hwang, & Wanjohi, 2015). This online globalization has placed added burden on academic support services, such as writing centers, to help students from broader, more varied backgrounds and abilities become independent scholars (Sabatino & Rafoth, 2012). In achieving this goal, writing centers must guard against producing the opposite effect by enabling student dependency from excessive use (Williams & Takaku, 2011). This chapter examines the background of writing centers in American writing education, as well as their evolving role in student academic success. It presents the problem statement, including the inadequacy of previous research. The purpose of the study is reviewed, as is its significance. Finally, the research question is posed, and applicable definitions are given.

Background

The 1960s-70s open admissions movement in American post-secondary schools attracted vast numbers of poorly prepared students into the higher education system (Boquet, 1999). This sudden influx coincided with a marked increase in the number and use of writing centers nationwide, as writing centers became poised to meet the needs of these particular students (Carino, 1996). More recently, there has been a second inpouring of underprepared writers into America's post-secondary system—this introduction has come from non-native English-speaking students (Martirosyan et al., 2015). Once again, writing centers have been thrown into the breach, enabling these students to become successful academic writers (Sabatino & Rafoth,

2012). While writing centers have existed in their modern form for nearly 50 years, the constituents of an effective writing center are still hotly debated among the academic community as indicated in the extant literature (Enders, 2005; Hoon, 2009; Rosalia, 2013; Winder, Kathpalia, & Koo, 2016).

Most writing center scholars ascribe the origins of the modern writing center to the open admissions programs of late 1960s American post-secondary education and its ensuing need to provide student academic services (Adams & Adams, 1994; Boquet, 1999; Boquet & Lerner, 2008; Carino, 1996, 2003; Jolly, 1984; Pemberton & Kinkead, 2003; Summerfield, 2001; Yahner & Murdick, 1991). Rather than evolving from some well-developed theoretical discourse, writing centers were originally a utilitarian response to an academic need (Hobson, 1994), which means they have continually struggled to be recognized as credible, scholarly entities among their academic peers (Carino, 2001).

Ever searching for a theory to justify their existence, writing centers have mimicked the theories espoused by rhetoric and composition (Burlaga & Costino, 2003). Initially embracing the current-traditional approach to composition (Burnham, 2001), writing centers focused on the product of writing by emphasizing rules, forms, and mechanics (Berlin, 1987). The growing political unrest of the late 1960s led to growing rejection of the rather strict, authoritarian rules associated with current-traditionalism (Hobson, 2008), which introduced the notion of writing as a process, and not a mere product (Murray, 1997). This expressivist perspective encouraged the writer's freedom of expression and highlighted the experience of the writer, rather than the mechanics used to communicate it (Berlin, 1982). Nevertheless, despite its attention to freedom, expressivism still viewed the writing process as a private, unique activity (Burnham, 1998).

By the 1980s, American politics started to embrace the more social character of an emerging global culture, which began to provoke the concept of writing as a social endeavor (Murphy, 1994). Rooted in constructivism, this social constructionist perspective emphasized the meaning of what was being written (Williams, 1998). This approach considers writing a social construct that emanates from shared correspondence and common discussion, setting social constructionism in direct opposition to its predecessor (Berlin, 1987). From this eclectic mixture of theories and philosophies, writing center pedagogy has advanced from an equally diverse amalgamation, including Bandura's (1977a, 1977b, 1997) social (cognitive) learning theory and his idea of self-efficacy, Vygotsky's (1978) social development theory and his zone of proximal development, Wood, Bruner, and Ross's (1976) concept of scaffolding, and Bruffee's (1984, 1993) collaborative learning theory and his perception of peer tutoring.

As writing centers have carried on their mission to assist students in becoming better writers, they have also struggled to meaningfully find a metric for measuring their success in accomplishing this mission. One potential gauge for assessing writer improvement builds on Bandura's (1977a) notion of self-efficacy. Self-efficacy for writing concerns students' perceived confidence in their ability to write independently (Bruning, Dempsey, Kauffman, McKim, & Zumbrunn, 2013). There is significant positive correlation between a student's writing self-efficacy and academic writing performance (r = .375-.404, Bruning et al., 2013; r = .71, Hetthong & Teo, 2013; r = .34, Sanders-Reio, Alexander, Reio, & Newman, 2014). Writing centers provide a forum for improving student writing performance by developing writer self-efficacy. However, there is some question whether repeated writing center use causes student-tutor dependence, thereby reducing student self-efficacy. Recent research has focused on the relationship between writing center use and academic performance (Bielinksa-Kwapiz, 2015;

Bredtmann, Crede, & Otten, 2013) or between self-efficacy and writing performance (Hetthong & Teo, 2013; Sanders-Reio et al., 2014). Little work has been done relating writing center use to writing self-efficacy, especially at the graduate level and in an online context (Bromley, Northway, & Schonberg, 2016).

Problem Statement

Most writing centers have accepted North's (1984) challenge to produce better writers, a process-oriented perspective, rather than simply better writing, a product-oriented viewpoint. Having embraced this emphasis of writing as a process (Murray, 1997), writing centers have been able to improve writing proficiency (Bodnar & Petrucelli, 2016; Johnson, Ott, & Drager, 2015) and writing self-efficacy (Bodnar & Petrucelli, 2016; Sanders-Reio et al., 2014), which, in turn, leads to improved writing proficiency (Bodnar & Petrucelli, 2016; Ragula, 2017). Nonetheless, studies suggest that many students who visit a writing center (nearly 84%) are more concerned with improving the grades on their assignments (product-orientation) than with becoming better writers or in other words—process-orientation (LaClare & Franz, 2013), although the evidence is far from conclusive (Bromley et al., 2016; Winder et al., 2016). This difference in perspectives can put writing centers and their clients at cross-purposes. Many writing center users receive assistance more than once (Carino & Enders, 2001; Huang, 2012), suggesting a continuing need or desire for improved writing proficiency, developed through enhancing writing self-efficacy; however, continued assistance may also indicate the perception of writing centers as merely writing repair shops where students go to have their written assignments fixed (Williams & Takaku, 2011). Research has not investigated any possible correlation between student completed draft review requests to a writing center and improvements in their writing self-efficacy regardless of academic level, type of program, or

mode of delivery. Specifically, the problem is no quantitative studies to date have examined the potential relationship between student help-seeking behavior and writing self-efficacy at the graduate level and in an online environment.

Purpose Statement

The purpose of this quantitative, correlational study was to determine the potential relationship between help-seeking behavior and writing self-efficacy for online graduate students at a large, regionally accredited, faith-based, non-profit, private university in the southeastern United States with a substantial online student population. The independent variable, help-seeking behavior, was generally defined as the number of times the student received assistance from the Online Writing Center (OWC) as reported through the university's SharePoint (2017) data management system. The dependent variable, writing self-efficacy, was generally defined as the student's perceived confidence in his/her own writing ability as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES; Schmidt & Alexander, 2012).

Significance of the Study

Empirical

The empirical significance of this study lies in its potential contribution to ever-changing writing center theory. Further, the results of this study should provide specific data revealing the nature of the relationship between the help-seeking behavior and writing self-efficacy for online graduate students. Several studies have examined the relationship between writing self-efficacy and academic performance and between writing center use and academic success. Jalaluddin, Paramasivam, Husain, and Abu Bakar (2015) reported no significant correlation between writing self-efficacy and writing test scores, and Khojasteh, Shokrpour, and Afrasiabi (2016) described no significant correlation between writing self-efficacy and writing performance. Bodnar and

Petrucelli (2016) related a sizable improvement in students' grades to their writing center visits. Johnson and colleagues (2015) suggested a moderate correlation between students' perceptions of their proficiency and their actual exam scores. Sanders-Reio and colleagues (2014) discovered that students' writing self-efficacy moderately predicted writing performance. Bielinksa-Kwapiz (2015) noted that students who visited the writing center received significantly higher grades on writing assignments than students who did not. However, none of the previous research correlated writing self-efficacy with help-seeking behavior among online graduate students.

Practical

The practical significance of this study is its ability to add to the knowledge and understanding of writing center administrators and practitioners on the potential effect of repeat writing center visits on student writing self-efficacy. This information can be applied to writing center strategies and policies to maximize student writing self-efficacy through using the writing center. For example, it reveals whether student writing self-efficacy plateaus after a number of completed draft review requests to the writing center or whether students stop visiting the writing center when their writing self-efficacy peaks. It also indicates whether, in its striving to fulfill its mission, the writing center actually enables student help-seeking behavior to devolve into dependence.

Research Question

The following research question guides this correlational study:

RQ: What is the potential relationship between online graduate students' help-seeking behavior, as measured by their number of completed writing center draft review requests, and

their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (Schmidt & Alexander, 2012)?

Definitions

Terms pertinent to this study are defined below:

1. *Collaborative Learning* – Building on Vygotsky's social development theory, collaborative learning posits that through the sharing of resources and interacting with other learners, the student learns more completely than if working alone (Bruffee, 1984).
2. *Composition Theory* – Composition theory is a set of principles that describes the nature of writing, the way writing is learned, and the function writing serves (Sánchez, 2005).
3. *Constructivism* – Sometimes used interchangeably with constructionism, constructivism is an epistemological approach to knowledge, which maintains that knowledge is a subjective, relative quantity, and must be constructed by the individual (Schunk, 2012a).
4. *Help-Seeking Behavior* – As the name implies, help-seeking behavior refers to an individual's attempting to procure needed assistance to surmount barriers to learning and promote achievement (Karabenick, 2011).
5. *Peer Tutoring* – Peer tutoring involves using the best pupils to assist in the instruction of pupils of similar age and educational level who possess lesser abilities (Goldschmid & Goldschmid, 1976).
6. *Scaffolding* – Frequently credited to Vygotsky, scaffolding involves the teacher or tutor controlling elements of a task that are initially beyond the capabilities of the student, thereby permitting the task to proceed to successful completion (Wood et al., 1976).
7. *Self- Efficacy* – Self-efficacy is one's personal belief in his or her on capability to perform a specific task (Bandura, 1977a).

8. *Social Constructionism* – Frequently confused with constructivism, social constructionism differs in that it asserts that knowledge must be constructed by social interaction (Bruffee, 1986). Social constructionism spawned the social constructionist writing center theory (Burlaga & Costino, 2003).
9. *Writing Center* – Known by other names, such as writing lab or writing clinic, a writing center typically operates as an independent extension of an educational institution's writing program, providing individual writing assistance to students in need (Harris, 1988).
10. *Writerly Self-Efficacy* – As differentiated from writing self-efficacy, writerly self-efficacy focuses on the cognitive factors writers possess, as opposed to the behavioral expressions of writing (Schmidt & Alexander, 2012). As the goal of writing centers is to create better *writers*, not simply better *writing*, this distinction is crucial; however, as the literature has standardized *writing self-efficacy*, that term will be used throughout this study although the goal remains creating better writers rather than better writing.
11. *Writing Self-Efficacy* – Writing self-efficacy refers to students' confidence in their writing capabilities (Pajares, 2003). Note: see *writerly self-efficacy* for a comparison.
12. *Zero-Proximity Development* – An aspect of social development theory, the concept of zero-proximity development (ZPD) refers to the gap between a child's actual level of cognitive development as measured by problem-solving ability versus his or her potential level of development with adult supervision or collaboration with more proficient peers (Vygotsky, 1978).

CHAPTER TWO: LITERATURE REVIEW

Overview

Writing centers provide a vital source of academic support, especially to online students. Many students who frequent the online writing center return for more than one session (Carino & Enders, 2001). If visiting the writing center multiple times results in student dependency on the writing center or its peer tutors, then the writing center's primary goal of creating better writers is not accomplished (Williams & Takaku, 2011). This literature review examines the theoretical framework for writing centers, including social cognition and social construction, and investigates related literature on the usage of writing centers and student self-efficacy.

Conceptual or Theoretical Framework

The conceptual framework undergirding this correlational study combines the idea of self-efficacy (Bandura, 1977a) with an eclectic writing center theory (Carino, 2001), which itself incorporates elements of composition theory (Berlin, 1982) and collaborative learning (Bruffee, 1993). Self-efficacy, as applied to academic writing, involves students' confidence in their writing skills, in their ability to complete specific writing tasks, and in their capacity to earn a specific grade (Pajares, 2003). Modern composition theory reckons academic writing as a process, rather than an end product (Murray, 1997), and as a social activity, rather than a solitary endeavor (Ede, 1989; Murphy, 1994). This social context for academic writing gives rise to the collaborative learning process espoused by most modern writing centers (Bruffee, 1993) and the peer tutoring practice they use (Bruffee, 1984). As an integrated whole, this theoretical foundation supports the idea that repeated use of the writing center will result in increased writing self-efficacy, which this study tested.

In 1984, frustrated writing center evangelist Stephen North decreed, “The object is to make sure that writers, and not necessarily their texts, are what get changed by instruction. In axiom form it goes like this: Our job is to produce better writers, not better writing” (p. 438). Subsequent attempts to construct a theoretical basis for the writing center demonstrate the stirring effect of North’s call to action. Writing center scholars (Bruffee, 1993; Ede, 1989; Gillam, 1998; Hobson, 1994; Murphy, 1994) have long grappled with fundamental issues, such as the overall purpose of the writing center and the best approach to achieve that purpose. Since North’s injunction, writing center theory has morphed thorough many iterations as practitioners continue to strive for a theory that matches experience. According to Hobson (1994), “Writing center theory has problems keeping up with writing center practice because writing center theory, to a large extent, is not based on the same foundations as the practice it is most often called upon to justify” (p. 2).

Writing Center Theory

Writing centers began as a practical means to achieve an end, rather than as an outgrowth of some theoretical exposition (Yahner & Murdick, 1991). Historical writing center studies tended to offer practical techniques, rather than theoretical investigations (Carino, 2001). Since this pragmatic inception, the writing center community has been playing catch-up, trying to achieve academic credibility by establishing a solid theoretical foundation for the writing center. Recent attempts to formulate an all-inclusive theory that defines writing centers and describes their function have been largely unsuccessful (Carino, 2001). According to Hobson (1994), “Writing center theory grew out of practice because no theory called Writing Center Theory existed” (p. 3).

Composition and rhetoric. Writing center theory is closely intertwined with composition theory, which itself struggles for a theoretical foundation, leaning heavily on rhetorical theory (Burlaga & Costino, 2003). If composition and rhetoric are the stepchildren of academic English, then writing centers are the stepchildren of composition and rhetoric (Kinneavy, 1997). A landmark review of writing pedagogy uncovered a myriad of disjointed studies and a startling absence of theoretical underpinning (Braddock, Lloyd-Jones, & Schoer, 1963). Carino (2001) noted the marginalized status of writing centers in the spectrum of composition studies. Writing center scholarship tends to be aggregated and isolated, rather than discussed alongside other composition and rhetoric topics of research (Boquet & Lerner, 2008). One of the greatest obstacles facing writing center scholars involves the formation of a comprehensive and pertinent theory that will facilitate instruction in the writing center (Murphy, 1994).

Scholars continue to debate the roles and relative importance of the major composition theories and pedagogies; however, most agree that compositional studies evolved from classical rhetoric at Harvard University during the late nineteenth century (Brereton, 1996). From these classical roots came the three-part arrangement (ancestor of the five-paragraph essay) and the four-part arrangement (forerunner of the argumentative essay) still used in composition courses today (Glenn & Goldthwaite, 2014). Their focus was on the essay itself—the written product. At the turn of the century, as positivist epistemology grew in popularity, the current-traditional approach to rhetoric and composition developed and became the dominant theory of twentieth-century American academics (Berlin, 1987).

Current-traditionalism. Also known as the *textbook tradition*, current-traditional theory focused on rote mechanics and standard form (Crowley, 1986). Current-traditional theory was

rules-driven to the extent that its practitioners began by learning the rules before actual writing could take place (Glau, 1998). Like its predecessor, current-traditionalism was an objective theory, solely concerned with the written product, most often the five-paragraph essay (Berlin, 1987). From the scientific underpinnings of its positivist foundation, current-traditional theory emphasized precision of language and correctness of arrangement (Burnham, 2001). The role of the writing center under the current-traditional theory was fairly straightforward: find student errors and ensure they were corrected (Hobson, 1994). Writing teaching and tutoring used directive, "drill-and-skill" instructional methods (Carino, 2001, p. 126). One of current-traditional theory's major shortcomings was its restricted view of writing as simply translating ideas to paper (Crowley, 1986). Current-traditional theory also focused on the smallest elements of writing and viewed writing as a linear progression from words to sentences to paragraphs and so on (Glau, 1998). As America began to rebel against authority and embrace individual freedom and self-expression in the 1960s and 1970s, composition studies began to shift focus to the process of writing and to the individual student doing the writing (Berlin, 1987). Nevertheless, the current-traditional theory was never fully displaced by this new perspective—expressivism (Crowley, 1996).

Expressivism. No development in writing pedagogy has been more influential among the academic composition community than the emphasis of writing as a process (Murray, 1997). Growing from the romantic (humanistic) epistemology that truth is subjective and emanates from within the individual, the expressivist (or expressionist) theory of composition and rhetoric welcomed the individualistic nature of this process orientation (Hobson, 2008). Agency—the idea that humans are free to choose and act (Bandura, 2001)—highlights the expressionists' view

of the writing process in which the objective of writing instruction "is to make sure that writers, and not necessarily their texts, are what get changed" (North, 1984, p. 428).

Process theory of composition depicts writing as consisting of three stages: prewriting, everything done in preparing the first draft; writing, the act of producing the first draft; and rewriting, the iterations of proofreading, editing, and revising to prepare the final written copy (Murray, 1997). Rohman and Wlecke (1964) proposed that the writing process occurs in a smooth, linear fashion, separate from and subsequent to thinking (as cited in Faigley, 1986), existing in a cause and effect relationship (Rohman, 2002). Their proposition was immediately repudiated by Emig (1964), who asserted that composition is a highly recursive process, which is intimately intertwined with thinking (as cited in Faigley, 1986). This opposition inspired research into the concept of writing as a cognitive process (Faigley, 1986; Hyland, 2016). Emig (2002), however, stopped short of proposing a cognitive theory of writing or composition. The most enduring theory emerging from this cognitive research tradition came from Flower and Hayes (1981), who described the writing process as "a set of distinctive thinking processes which writers orchestrate or organize during the act of composing" (p. 366).

Expressivism's antithetical epistemology, as well as its relentless focus on the process of writing, created an oftentimes antagonistic dichotomy with its forerunner, current-traditional theory (Clark, 2003). Form became less important, and meaning became pre-eminent (Brannon & Knoblauch, 1984). "Good writing, for the expressivist, does not reflect the application of rules but that of the writer's free imagination" (Hyland, 2016, p. 13). In addition to changing the emphasis from product to process, as brought about by the expressivism movement, composition educators began to explore writing as a way for individual writers to discover themselves

(Berlin, 1982). Expressivism's strength lies in its foundation on individual experience as articulated in the individual's own words (Burnham, 1998).

Not everyone was a supporter of expressivism. For writing centers, the renunciation of rules-directed writing created an identity crisis as they struggled for theoretical justification (Hobson, 1994). Tutoring became non-directive, as a more minimalist, student-centered approach gained favor in an effort to promote students' cognitive growth (Burlaga & Costino, 2003). According to the minimalist model, the writing tutor is not a proofreader, editor, or collaborator; the writing tutor is a mentor or coach who helps students navigate the writing revision stage and keeps them focused on the process by simplifying the task at hand (Brooks, 1991). Writing teachers and tutors became facilitators instead of authoritarian judges (Barnett, 1989). However, many claimed that expressivism, like its ancestor, had become too regimented and detail-oriented (Tobin, 2001). Additionally, despite its emphasis on the individual writer, expressivism continued to treat writing as an isolated, solitary activity (Burlaga & Costino, 2003; Burnham, 1998). By the 1980s, then, the expressivist view was increasingly criticized and was largely supplanted by social constructionism (Fishman & McCarthy, 1992).

Social constructionism. Social constructionism emerged from the postmodern constructivist epistemology that knowledge is not acquired but is constructed by the learner (Adams, 2007; Donahue, 2012). Constructivism is one of the four major schools of learning theory, initially developed by Piaget and suggesting a learner-centered educational framework (Bates, 2016; Leonard, 2002; Wallace, 2015). Eventually, two main branches of this theory emerged: cognitive constructivism, ascribed to Dewey and advocating active participation of the learner in the knowledge-building process; and social constructivism, credited to Vygotsky and

proposing the need for social interaction to facilitate knowledge construction (Bates, 2016; Leonard, 2002; Wallace, 2015).

While constructionism closely resembles constructivism, causing frequent confusion, there are significant differences between the two (Kafai, 2005). Papert (as cited in Leonard, 2002) espoused the theory of constructionism, allying with Piaget's notion of constructivism and expanding it into pedagogical precepts similar to Bruner's discovery learning (as cited in Leonard, 2002; Wallace, 2015). According to constructionism, knowledge is built through individual and social interaction with minimal instruction, unlike constructivism, which emphasizes the personal and isolated assembly of knowledge (Kafai, 2005; Leonard, 2002).

Also deriving from constructivism, social constructionism stressed the social aspect of constructing knowledge (Dias, 1998), underscoring the role of others and of social interaction in general in that process (Pritchard & Woolard, 2010). Social constructionism contradicted current-traditional theory and expressivism in that it posited that writing is learned in a social context as an outgrowth of mutual communication or collective discourse (Berlin, 1987). Writing was no longer perceived as being skill-based, but as a social practice (Badenhorst, Moloney, Rosales, Dyer, & Ru, 2015; Kamler & Thomson, 2014). According to Murphy (1994), "In the research surrounding rhetoric and composition, social constructionist theory has begun to challenge the writing-as-process model as the dominant paradigm defining writing instruction" (p. 25). Social constructionism offered a paradigm to explain many aspects of writing instruction; however, it did not entirely supplant other theories of rhetoric and composition (Wadden, 1996).

Many modern writing center scholars interpret writing center currently practice through the social constructionist lens, which is perceived to be in direct opposition to writing as a

process (Ede, 1989; Murphy, 1994). Despite the considerable influence of social constructionism, expressionist-influenced pedagogies remain (Fishman & McCarthy, 1992). Opposition arises from the cognitive perception of writing, which describes it as a solitary, highly personal, intrinsic process (Ede, 1989; Murphy, 1994). To social constructionists, such an expressivist view negatively affects the image of writing center work and can factor in its misunderstanding or even rejection (Ede, 1989; Murphy, 1994).

Writing Center Tutoring Pedagogy

Social constructionism's progenitor, constructivism, produced several theories applicable to the pedagogy employed in the modern writing center, including Vygotsky's (1978) social development theory and zone of proximal development, Bandura's (1977a, 1977b, 1997) social learning theory and concept of self-efficacy, Bruffee's (1984, 1993) collaborative learning theory and idea of peer tutoring, and Wood and colleagues' (1976) notion of scaffolding.

Social development theory. Much of the theory of social constructionism, at least as it concerns education, found its basis in the work of Vygotsky (Pritchard & Woolard, 2010), who defined human cognition as a function of the interaction between an individual and society (Langford, 2005); this came to be called his social development theory. While constructivism acknowledged the individual's active role in constructing knowledge (Prawat, 2008), Vygotsky theorized that social interplay was necessary for complete cognitive development (Adams, 2007). According to Vygotsky (1978), "All the higher [cognitive] functions originate as actual relations between human individuals" (p. 57). Vygotsky described the gap between an individual's current level of cognitive development and potential level of development as the zone of proximal development (Ketterer, 2008).

Zone of proximal development. The zone of proximal development (ZPD) was the fundamental pillar in Vygotsky's social development theory (Adams, 2007). While immediately popular in Vygotsky's native Soviet Union, the ZPD began receiving a good deal of attention in the West during the latter part of the twentieth century, as the social nature of learning gained in popularity (Wertsch & Tulviste, 2005). The ZPD enables a student to maximize his or her potential (Leonard, 2002); however, such success can only be accomplished through optimum social interaction (Tudge & Scrimsher, 2002). Vygotsky (1978) identified four stages within the ZPD, ranging from the lower limit of the student's present knowledge to the upper limit of the student's potential achievement, acquired with assistance from qualified advisers (Adams, 2007). Vygotsky's ideas of stages and assisted knowledge acquisition in the ZPD were incorporated by Wood and colleagues (1976) into their work on scaffolding (Ketterer, 2008).

Scaffolding. Scaffolding, another important outcome from Vygotsky's social development theory, is a teaching strategy designed to expand a student's ZPD by providing individualized support, enabling the student to progress from tasks he or she can do independently to tasks he or she can do with assistance (Adams, 2007; Nordlof, 2014). Wood and colleagues (1976) applied to term *scaffolding* to the tutoring process wherein "an adult or 'expert' helps somebody who is less adult or less expert" (p. 89), which is reminiscent of Vygotsky's (1978) ZPD. The term scaffolding, borrowed from the building construction industry, denotes a temporary framework provided by the teacher or tutor, supporting learners as needed until independence is achieved and the support is no longer required (Larkin, 2008). This supportive, social interaction contributes to student cognitive development and sustains student motivation (Nordlof, 2014). The concept of scaffolding has been applied to tutoring in writing

center conferences as a way to build "rapport and solidarity" with students (Mackiewicz & Thompson, 2013, p. 66).

Three broad categories of tutor interaction have been proposed: instruction, cognitive scaffolding, and motivational scaffolding (Mackiewicz & Thompson, 2014). Instruction involves the tutor telling the student what to do; cognitive scaffolding occurs when the tutor allows the student to figure out what to do on his or her own; and motivational scaffolding deals with the tutor providing encouragement (Mackiewicz & Thompson, 2014). Mackiewicz and Thompson (2014) found that nearly one-half of tutor interactions consisted of providing instruction where only one-third used cognitive scaffolding and the remainder employed motivational scaffolding. Scaffolding truly occurs only when the tutor uses either cognitive scaffolding or motivational scaffolding (Nordlof, 2014).

Situated learning. Also elaborating on Vygotsky's social development theory, Lave and Wenger (1991) postulated situated learning, emphasizing the social context in which learning occurs, in contrast to earlier learning theories, which were based on individual cognition (Patel, 2017). Situated learning theory is comprised of three premises: the irrelevance of classroom learning; the relevance of workplace or community learning; and the decidedly social and reciprocal nature of learning, involving collaboration and mentoring (Leonard, 2002). While reflecting the general move from the individual to the social, situated learning acknowledges the close relationship between the two (Lerner, 2009). Students in a situated learning environment are interdependent learners (Orsmond & Perry, 2015), making teaching unnecessary and inadequate (Lerner, 2009). They join the learning community as peripheral participants, eventually becoming full participants as they evolve through the learning process (Patel, 2017). Situated learning formed the basis of the theory of cognitive apprenticeship (Leonard, 2002).

Cognitive apprenticeship. Leaning heavily on the practice of traditional apprenticeship, cognitive apprenticeship assumes that people learn from one another through observation, imitation, and modeling (Collins, Brown, & Newman, 1987), manifesting close similarities to Bandura's (1985) social cognitive theory. As differentiated from conventional classroom learning, apprenticeship targets the learning of skills and construction of knowledge within the social and practical context of their actual use (Collins et al., 1987). The cognitive apprenticeship model is based on four elements: content (problem-solving strategies), method (scaffolded learning), sequence (increasing complexity and diversity), and sociology (collaborative learning; Collins, 2005). Their substantial reliance on writing to provide instruction and to engage students with their peers and the instructor make online learning environments well suited for the application of cognitive apprenticeship (Dennen & Burner, 2009).

Social learning theory. Vygotsky's social development theory also complemented Bandura's (1977b) work on social learning. Social learning theory grew from the perceived crucial role of social interaction in the learning process and emphasized its observational (environmental) characteristics (Pritchard & Woolard, 2010). Bandura (1977b) suggested that most humans learn by observing the behavior of others (models), registering the reactions and consequences of that behavior, and then imitating that behavior to achieve the same results. His theory blended the learning principles of behaviorism and cognitivism, thereby underscoring the social influence on learning (Kretchmar, 2017). This social interaction played a primary role in the development of cognition (Pritchard & Woolard, 2010), which explained Bandura's (1985) updating his original theory and renaming it social cognitive theory. As the primary outcome of this interaction between observer and model, learning occurred if the observer possessed

adequate self-efficacy (Bandura, 1977a). In turn, the learner's self-efficacy could be evaluated by thorough comparison with the behavior and performance of others (Schunk, 2012a).

Self-efficacy. Further expounding on his social (cognitive) learning theory, Bandura (1977a) postulated that self-efficacy affects one's general performance in all circumstances. This cognitive mechanism for behavioral change is based on one's belief or confidence that one can accomplish a particular goal, which creates persistence in one's actions (Bandura, 1977a). As an outgrowth of his social cognitive theory, self-efficacy was built through "experience of mastery" (Bandura, 1977a, p. 191), arising from four experiential sources: "performance accomplishments, vicarious experience, verbal persuasion, and physiological states" (p. 195). Bandura (1993) offered four channels through which perceived self-efficacy changes behavior: "cognitive, motivational, affective, and selection" (p. 118).

For students, belief in their own efficacy contribute to three aspects of their academic development: "their aspirations, level of motivation, and academic accomplishments" (Bandura, 1993, p. 117). For Bandura, self-efficacy differs from self-esteem in that self-esteem is built on thoughts or feelings whereas self-efficacy is built on fact ("Self-efficacy," 2014). High self-efficacy is described by confidence in one's ability to accomplish a goal whereas low self-efficacy is described by uncertainty about accomplishing that goal (Pajares, 1996). Self-efficacy plays a vital role in motivating students to succeed academically (Zimmerman, 2000). The belief in one's ability to accomplish a particular goal actually increases the likelihood that one's behavior will be modified, enabling persistence until the goal is accomplished (Schunk, 2012b). On its own, high self-efficacy does not always result in a successful outcome; neither does low self-efficacy always result in failure (Pajares, 1996). One strategy currently used by writing

centers to improve student writing self-efficacy is based on collaborative learning theory (Bruffee, 1993).

Collaborative learning. Some writing center theorists (Bruffee, 1984, 1993; Hobson, 1994; Murphy, 1994; Roberts, 2004) expounded the concept of collaborative learning through the lens of social constructionism. The most influential collaborative learning theorist, Bruffee (1984), examined the constructivist nature of collaborative learning. Collaborative learning favors the scaffolding approach since it closely mirrored techniques students use outside the classroom (Mackiewicz & Thompson, 2013). Bruffee (1993) understood writing to be a socially motivated process based on constructive discourse, as opposed to the uniquely individual practice proposed by expressionist theory (Ede, 1989; Murphy, 1994). As Bruffee (1999) explained, "To write is to use the writer's socially constructed authority to socially construct the authority of the text being written" (p. 57).

Viewing writing itself as a social, collaborative function is unnatural for a Western culture deeply steeped in the concept of writing as a solitary endeavor (Murphy, 1994). Ede (1989) emphasized the point that as long as writing (and even thinking) are regarded as fundamentally individual, isolated activities, writing centers cannot be seen as anything other than "pedagogical fix-it shops" (p. 7) to help those who are unable to write (or think) on their own. Little early research has been done on collaborative learning in higher education due to educational research's tendency to be dominated by the cognitive (rather than the constructive) view of knowledge (Bruffee, 1993).

Peer tutoring. Concurrent with the emergence of the collaborative learning movement were the contemporary peer tutoring programs, which Bruffee (1984) associated with collaborative learning (Gillam, 1998). The idea of learning via peer tutoring is based on the

social constructivist perspective, which emphasizes the role of social interaction between students in constructing knowledge within their ZPDs (Clarkson & Luca, 2002). Peer tutoring is used to assist struggling students outside of traditional classroom work expectancies (Bruffee, 1984; Vick, Robles-Piña, Martirosyan, & Kite, 2015). Bruffee (1993) examined Vygotsky's ZPD as a method for peer tutors to interact with their student tutees. Although originally believed to be most effective when children are assisted by knowledgeable adults, Vygotsky's theory was readily expanded to include a learner assisted by a more competent peer (Hogan & Tudge, 1999). This facet of collaborative learning can be developed with heterogenous peer tutors, enabling students to complement one another's strengths and weaknesses (Bruffee, 1993).

Bruffee's (1984) influential article pronounced the benefits of collaborative instruction through peer tutoring. These interactions could be held online or face-to-face, conducted at all levels of educational endeavor, and administered formally or informally (Pozzi, Ceregini, Ferlino, & Persico, 2016). In spite of the benefits associated with these methods, Roberts (2004) highlighted that cooperative and collaborative learning techniques are not widely used in higher education. Notwithstanding, peer tutoring is a respected technique, especially in the higher education and lifelong learning contexts (Carino, 2003; Munley, Garvey, & McConnell, 2010; Vick et al., 2015), since it closely mimics situations seen in actual professional activities, thereby giving learners experience in dealing with criticism and providing constructive feedback to others (Anewalt, 2005).

In the context of a writing center, prime examples of collaborative learning are writing center tutoring sessions where students and tutors work together to construct knowledge (Carino, 2003; Fitzgerald, 1994). These sessions certainly qualify as ZPDs, offering spaces to explore and expand students' potential (Carillo, 2017). In peer tutoring, the tutee and tutor learn together

because the session is “a particular social context for conversation, a particular kind of community” (Bruffee, 2008, p. 7). Conversation is “a social constructionist code word to talk about knowledge and teaching and learning” (Trimbur, as cited by Gillam, 1998, p. 43). As North (1984) espoused, talking is essential to the writing center methodology. The positive effects of peer interaction on student motivation and persistence are well-attested (Evans & Moore, 2013). The theoretical foundations of this successful technique include Vygotsky’s ZPD, Lave and Wenger’s situated learning, and Bandura’s self-efficacy (Evans & Moore, 2013; Topping, 1996). However, while this beneficial impact in a face-to-face (F2F) classroom environment is supported by multiple studies, research on online peer tutoring is sparse (Al Chibani, 2014; Denton, 2017; Evans & Moore, 2013).

Modality. In traditional F2F peer tutoring, tutees are located in close proximity to their tutors, interact personally with them, and exchange information directly with them (Snart, 2015). F2F tutoring is synchronous because the tutor-tutee interaction occurs in (or near) real time (Mick & Middlebrook, 2015). According to peer tutoring purists, this bidirectional exchange of information is critical to the underlying social aspect of knowledge construction (Bruffee, 2008). However, supporters of asynchronous, i.e., not real-time, peer tutoring observe that learning occurs in the tutee through the tutor’s feedback (Harris & Pemberton, 2008), and tutors learn by developing their analytical abilities and improving their self-confidence (Hughes, Gillespie, & Kail, 2010). Roscoe and Chi (2008) speculated that tutor learning is an explicit outcome of their participation in the didactic activities fundamental to the tutoring process, such as providing instruction, resolving questions, addressing tutee mistakes.

Because “drop off” tutoring involves no real-time contact or interaction between the tutor and the tutee, it uses an asynchronous mode of delivery: The tutee provides a written draft to be

reviewed, the tutor contributes comments to the tutee's written draft, and the tutee acquires the tutor's written comments (Breuch, 2005). Consequently, many in the writing center community do not consider asynchronous tutoring to be legitimate peer tutoring because the conversational component is absent (Boquet, 1999; Breuch, 2005; Gillespie, 2002; McKinney, 2013; Weeks, 2000). However, as Falchikov (2001) observed, "Peer tutoring is not a unitary concept…[T]he label 'peer tutoring' may be applied to a variety of learning situations and the term encompasses a multitude of different ways of constituting learning pairs" (p. 4).

Setting. In addition to the mode via which tutoring is delivered, the setting in which tutoring takes place also influences the perception of peer tutoring. This distinction evolved when postsecondary institutions began offering educational programs through the internet, and writing centers developed an online component to meet the needs of those students (Harris, 1998; Sewell & Inman, 2000; Topping, 1996). In addition to providing synchronous and asynchronous writing assistance through on-site tutoring sessions, writing centers began offering both modes of writing assistance via an online setting (Mick & Middlebrook, 2015). Vygotsky's ZPD is readily adaptable to the online education environment, as learners can develop at their own pace (Lerch, Bilics, & Colley, 2009).

Synchronous peer tutoring may take place on-site (F2F) or online (chat, instant message, audio-video conferencing, etc.; Harris & Pemberton, 2008; Snart, 2015). While online synchronous peer tutoring has been judged by some as inferior to F2F tutoring (Carlson & Apperson-Williams, 2000; Hewett, 2015; Wolfe & Griffin, 2012), it has several advantages, including improved student collaboration, participation, and motivation (Liang, 2010). Some research suggests that synchronous methodology is more effective than asynchronous (Al

Chibani, 2014; Burns, Cunningham, & Foran-Mulcahy, 2014), yet one study indicates the complementary value of combining both methods (Bucur, 2012).

Similarly, asynchronous peer tutoring may also take place on-site (drop-off) or online (email, computer distribution, etc.; Mick & Middlebrook, 2015). Like on-site drop-off writing tutoring, asynchronous online tutoring has its share of detractors who claim that the absence of interaction is detrimental to peer tutoring activity (Harris, 1998; Russel, 1999). Three categories of criticism have been directed toward asynchronous online tutoring: tutors do most of the work, which is antithetical to collaborative learning; the focus is on improving the writing, not the writer, which opposes North's (1984) dogma; and it is similar to a drop-off service, which fails to engage the student in a dialogical process (Denton, 2017).

While synchronous online tutoring sessions may seem preferable because they closely resemble F2F tutoring (Mick & Middlebrook, 2015), asynchronous sessions offer several advantages (Hewett, 2015), including time, anonymity (Ryan & Zimmerelli, 2016), perceived trust and safety (Harris, 1998), and flexibility (Burns et al., 2014). Supporters of asynchronous online tutoring argue that the very reasons students select online education may also preclude them from pursuing synchronous writing tutoring; hence, offering an asynchronous option is their only viable choice to obtain writing assistance (Beyth-Marom, Saporata, & Caspi, 2005; Denton, 2017). In fact, asynchronous sessions equaled F2F sessions in terms of "learning, quality of solution, solution content, and satisfaction with the solution quality" (Ocker & Yaverbaum, 1999, p. 436), and they were especially beneficial at the graduate level because they enabled tutors to focus on global issues, as well as lower level concerns (Vorhies, 2015). However, asynchronous sessions have resulted in lower student satisfaction than F2F sessions

overall (Ocker & Yaverbaum, 1999). Whatever the setting or modality, the unchanging purpose of peer tutoring from a writing center remains the production of better writers (North, 1984).

Summary

As has been demonstrated above, delineating a coherent writing center theory is not a simple, straightforward task. Multiple, sometimes conflicting epistemologies and philosophies have come together to establish the writing center and guide its development and operation. While constructivism seems to dominate, remnants of current-traditional theory and expressionism are still present and exert powerful influence. Peer tutoring is a predominant approach for higher education writing centers in the 21st century, using scaffolding strategy with the goal of developing students' writing self-efficacy and improving their writing performance. Repeated writing center use should result in student independence as writing self-efficacy peaks and support is no longer needed.

Related Literature

Until recently, most writing center research has been non-empirical, focusing on assessing writing center effectiveness through personal anecdotes (Gofine, 2012) at the expense of "rigorous ethnographies and case studies" (Johanek, 2000, p. 9) and largely ignoring the opportunities for other kinds of research (Lerner, 1997, 2001). Notably, some writing center researchers have argued that since writing centers already engage in observations of students, "the most suitable methodology for [research in writing centers] is some variation on an ethnographic model" (Neuleib & Scharton, 1994, p. 55), although Johanek (2000) questioned that rationale. Writing center leaders have bemoaned the prevalence of poor scholarship within their ranks (Boquet & Lerner, 2008).

In fact, writing center scholarship has demonstrated not only reluctance, but also resistance toward "both empirical research agendas and theoretical perspectives" (Nordlof, 2014, p. 45). In their analysis of International Writing Center Association (IWCA) award-winning articles between 1985 and 2007, Liggett, Jordan, and Price (2011a) discovered that only seven of the 22 articles were based on empirical research. Similarly, Driscoll and Perdue (2012) reviewed 270 articles published by *The Writing Center Journal* between 1980 and 2009 and determined that only 6% involved empirical research. To validate writing center practice, more evidence is needed that meets the "replicable, aggregable, and data-supported (RAD) research" standard (McKinney, 2016, p. 9). Haswell (2005) defined RAD scholarship as "a best effort inquiry into the actualities of a situation, inquiry that is explicitly enough systematicized [sic] in sampling, execution, and analysis to be replicated; exactly enough circumscribed to be extended; and factually enough supported to be verified" (p. 201). Toward that end, Liggett, Jordan, and Price (2011b) developed a roadmap for writing center practitioners to follow to help systematize their research; however, their approach is more qualitative, incorporating pragmatism and narrative inquiry. Justifying the need for continued writing center research, regardless of format, is the ongoing problem of student inability to write at post-secondary and postgraduate levels. The National Commission on Writing in America's Schools and Colleges (2003) called attention to this desperate situation: "American education will never realize its potential as an engine of opportunity and economic growth until a writing revolution puts language and communication in their proper place in the classroom" (p. 3).

Academic Writing Quality: Evidence of a Problem

The open admissions movement in American post-secondary institutions that began in the 1970s saw many poorly prepared students entering higher education (Boquet, 1999), a trend

that has continued to the present day. According to one report, only one-quarter of the students who took the American College Testing (ACT) college readiness exam in 2012 met the benchmark scores for success in post-secondary education (Venezia & Jaeger, 2013). Additionally, fewer than one-half of the students who took the Scholastic Aptitude Test (SAT) in 2013 were prepared to succeed in college (Doubleday, 2013). In fact, the average critical reading scores for college-bound high school seniors taking the SAT have fallen between 1972 and 2015, and their writing scores have steadily declined since 2007—the first year the writing test was implemented (College Board, 2015). The trend in poor writing ability continues as only 27 percent of students in Grade 12 performed at or above proficiency level (U.S. Department of Education, 2012).

In a 2004 survey of nearly 1,500 recent high school graduates, 40% felt unprepared to succeed in the college or work environment—a number that was echoed by faculty and employers (Achieve, 2015). Sadly, despite considerable attempts to improve the American educational system at the federal, state, and local levels, a similar study conducted in 2014 reported no substantial change (Achieve, 2015). While these numbers indicate no measurable improvement over that 10-year span, evidence also reveals absence of any measurable decline (Lunsford & Lunsford, 2008). The status quo remains.

Post-secondary. Writing has been identified as the skill most necessary for academic success, yet it is also the skill in which students are poorest prepared (Conley, 2008). More than one-third of entering college freshman are underprepared for collegiate level academic writing and require support to improve their writing skills (Bodnar & Petrucelli, 2016), including use of a writing center. Lunsford and Lunsford (2008) reviewed 877 papers of freshman writers, finding more than 25 significant errors per paper on average, ranging from improper word choice

(the most common error) to sentence fragments (the least common error). College students continue to struggle with understanding their writing quality is poor (Plakhotnik & Rocco, 2012) although only 11% of college seniors are proficient writers (Abbate-Vaughn, 2007). Further, many students, when confronted with multi-part questions, fail to comprehend that answers require multiple parts or even what answering each part requires (Plakhotnik & Rocco, 2012). Additionally, students fail to understand that their writing must be able to stand on its own—that adequate information must be provided for any reader to understand the writer's message (Plakhotnik & Rocco, 2012). While 65% of college seniors believed that their writing skills were adequate for business, only 27% of potential employers said graduates were well-prepared with that skill (Hart Research Associates, 2015).

Postgraduate. Unfortunately, the problem does not improve for graduate students; it worsens because faculty assume students admitted into graduate programs are already competent academic writers (Collier & Morgan, 2008; Karathanos-Aguilar & Sidman-Taveau, 2016; Snively, Freeman, & Prentice, 2006). Sadly, these lofty expectations are not being met as many graduate students' scholarly writing skills are weak (Cafferella & Barnett, 2000; Harris, 2006). Over one-third of graduate students experienced anxiety when confronted with writing assignments, and nearly one-half found it difficult to express their ideas in writing (Torrance, Thomas, & Robinson, 1992). In addition, the significant differences between writing at the undergraduate and graduate levels adversely affect writing success (Brooks-Giles, Garcia, Kim, Manthey, & Smith, 2015).

A study of faculty who teach graduate information literacy suggested that, throughout the program, graduate students tended to have very little interest in writing for publication and "[saw] themselves neither as competent writers nor as active participants in the scholarly

exchange of their chosen field" (McMillen, Garcia, & Bolin, 2010, p. 428). Only 30% of postgraduate students understood that their theses needed to include a critique of the existing literature on their topic, and even fewer (22%) understood how this literature could inform them about a new direction of research on the topic (Bitchener & Banda, 2007). One writing center reported that two of three doctoral students lacked the skills necessary to conduct a literature review and to analyze and present the reviewed literature to identify the significance of their own dissertations (Switzer & Perdue, 2011). Another study of doctoral students identified multiple writing skill deficiencies among the majority, including deficits in paragraph structure, sentence structure, formatting, word-processing, and academic authorship (Harwell, 2016).

Exacerbating this problem is the notable marginalization or complete absence of instructional programs for writing at the graduate level despite mounting evidence of the obvious need (Brooks-Giles et al., 2015; Garbus, 2005; Goodson, 2016; Rose & McClafferty, 2001; Swales & Feak, 2012). Resistance may be due to a faculty perception that writing instruction at this level should not be needed (Vorhies, 2015), or it may be due to faculty uncertainty or inability (Garbus, 2005). Additionally, assigning responsibility for providing graduate writing support has been problematic (Simpson, 2012). To make matters worse, lack of meaningful faculty feedback further heightens graduate student writing problems (Nelson, Range, & Ross, 2012). Faculty writing support tends to be limited to recommending textbooks to graduate students who are struggling (Craswell & Poore, 2012; Swales & Feak, 2012). The presupposition among students and faculty seems to be that a student's undergraduate writing skills will ultimately transform into those required to generate graduate-level writing (Harris, 2006). One problem with this assumption is its skills-based view of writing—the idea that

writing is a clear-cut, straightforward outcome of thought (Kamler & Thomson, 2014), reflecting the cognitive process theory of writing (Murray, 1997) and ignoring its social aspect (Ede, 1988).

As students progress through their graduate programs, they are transformed from students to professional scholars (Vorhies, 2015); hence, their writing is held to a markedly higher standard than their undergraduate counterparts (Ondrusek, 2012). Writing is a vital part of the life of graduate students since it helps advance their professional and academic growth as they confront a variety of writing tasks as they progress (Alter & Adkins, 2001; Ragula, 2017). As their academic and professional careers move forward, the complexity and demand for their writing multiplies (Nelson et al., 2012; Swales & Feak, 2012). Developing proficiency at writing is intrinsic to graduate coursework, meaning that inadequacy in this area can stymie a graduate student's entry into the profession (Ondrusek, 2012).

Given the obvious need for graduate writing instructional services and the equally apparent lack of available services, the writing center has become one of a few or, most probably, the only resource available, placing it in the unenviable position of filling the gap (Vorhies, 2015). Moreover, as universities continue to find it necessary to curb educational costs, fewer resources are available to offer the personalized feedback necessary to improve student writing skills (Wilson, Provaznik, & Pigeon, 2018). A writing center's resources can become quickly overwhelmed by the many graduate students seeking help (Simpson, 2012). Further, providing graduate writing assistance frequently requires expertise peer tutors lack (Summers, 2016). Until recently, graduate student writing needs have largely been ignored, so clearly, additional research is needed in this area.

Writing and Academic Success

As North (1984) asserted, the writing center's job is to develop better writers even if that does not immediately produce a substantially better written product for the task at hand. Nonetheless, many studies suggest a correlation between writing center visits and academic success (Bielinksa-Kwapiz, 2015; Johnson et al., 2015; Mackiewicz & Thompson, 2013; Thompson, 2006). One issue complicating this evaluation is the subjective nature of academic success. Studies have variously measured academic success as student self-efficacy, improved grades, student confidence, writing performance, and student progression (Jones, 2001). Frequently, success is measured only by a single writing sample or test (Hillocks, 2008).

Self-efficacy has been much studied as a strong predictor of academic success (Fantz, Siller, & Demiranda, 2011). The supposition is that writers make many self-efficacy decisions during the writing experience (Bruning & Kauffman, 2017). Pajares (2003) examined Bandura's theory of self-efficacy, providing three notable methods used to measure students' writing self-efficacy: confidence in their writing skills, confidence in their ability to complete specific writing tasks, and confidence in their ability to earn a specific grade. Pajares and Valiante (1999) suggested a significant independent contribution of writing self-efficacy to writing competence ($N = 742$, $\beta = .190$, $p < .0001$). Higher self-efficacy beliefs in writing among elementary, middle, and high school students ($N = 1{,}266$) were correlated to higher task goals [$F(1,1260) = 88.61$, $p < .0001$], which resulted in greater academic success (Pajares & Cheong, 2003). No significant correlation between the two variables resulted ($\varphi = .316$, $p = .509$) when the writing self-efficacy scale was used to measure self-efficacy, and scores on three writing assignments were used to measure academic success among senior undergraduate English majors in Malaysia (Jalaluddin et al., 2015). A positive correlation between writing self-efficacy and writing test

scores has not always been evident, as demonstrated by a study of Iranian medical students, which revealed no significant correlation ($r = .170$, $p = .197$) between writing self-efficacy as measured by the Writing Self-Efficacy Questionnaire and final exam writing scores (Khojasteh et al., 2016).

In terms of improved grades, undergraduate students with higher grades who visited a writing center at least once experienced significant improvement in their grades (9% mean difference) when compared with their counterparts who did not visit, when controlling for gender (Bielinksa-Kwapiz, 2015). Conversely, undergraduate students with lower grades who visited a writing center at least once experienced no significant improvement in their grades when compared with their counterparts, when controlling for gender (Bielinksa-Kwapiz, 2015). This improvement in writing grades agrees with a previous study (Yeats, Reddy, Wheeler, Senior, & Murray, 2010) in which there was a highly significant positive association between writing center attendance and grades (8% mean difference) among first-year undergraduate students who attended a writing center at least once, regardless of gender. Additionally, writing center visitation had a sizable impact (10%) on student progression, regardless of gender (Yeats et al., 2010)—another measure of academic success.

Additional indicators have been used to evaluate student academic success. Writing apprehension and beliefs about writing have also been correlated with writing performance, as measured by grades on a specially designed assignment (Sanders-Reio et al., 2014). Three instruments were used to examine how students' beliefs about writing, their writing self-efficacy, and their apprehension about writing influenced their academic performance. The participants were undergraduates at a large, public university in south Florida ($N = 738$; Sanders-Reio et al., 2014). Participants' beliefs about writing related to their writing apprehension, self-efficacy, and

performance, and they predicted variance in students' grades [$R = .29$, $F(4,733) = 16.83$, $p < .001$; Sanders-Reio et al., 2014].

Studies have also used the somewhat nebulous term *writing performance* as an indicator of academic success. Unfortunately, there is no consistent instrument for measuring writing performance, yielding study results that cannot easily be generalized. In fact, the methods employed to assess writing are many and varied (Murphy & Yancy, 2009). Two general approaches have been used to assess writing: direct, in which the student generates one or more texts, which are appraised by raters; and indirect, in which the student demonstrates skills associated with writing without actually producing written text (Murphy & Yancy, 2009). Neither method is without its share of critics, and each has its strengths and weaknesses (Murphy & Yancy, 2009).

In a study of Thai third-year English majors, writing self-efficacy was measured by a newly developed Questionnaire for Writing Self-Efficacy, and writing performance was measured using a Paragraph Writing Test, which was modeled after the Test of English for Educational Purposes (TEEP; Hetthong & Teo, 2013). Their results suggest a strong positive relationship ($R = .712$, $p < .001$) between writing self-efficacy and writing performance. Additionally, writing self-efficacy was a strong predictor ($\beta = .712$, $p < .001$) of overall writing performance. A study of Canadian undergraduate nursing students ($N = 132$) examined the relationship between writing self-efficacy, as measured using the Self-Efficacy Scale for Academic Writing (SESAW) and student grades (Mitchell, Harrigan, & McMillan, 2017). The researchers found a significant, albeit small, correlation between writing self-efficacy and student grades on two writing assignments completed immediately following a writing course ($r_{paper} = .24$, $p < .05$; $r_{final} = .25$, $p < .05$). However, they also found this correlation to be

strongly time-dependent as writing self-efficacy measured more distant from completing the writing course showed no significant correlation to student grades (r_{paper} = -.004-.04, $p > .05$; r_{final} = .04-.07, $p > .05$).

Prat-Sala and Redford (2012) discovered that students' academic writing performance was related not only to writing self-efficacy, but also to reading self-efficacy. In their study of first- and second-year undergraduates ($N = 145$), the researchers determined that writing self-efficacy and reading self-efficacy were strongly correlated ($r_{1st\text{-}year} = .781$, $n = 91$, $p < .0001$; $r_{2nd\text{-}year} = .838$, $n = 54$, $p < .0001$) and that both were moderately correlated to student writing performance as measured by student grades on essay-writing assignments: writing self-efficacy ($r_{1st\text{-}year} = .382$, $n = 91$, $p < .001$; $r_{2nd\text{-}year} = .426$, $n = 54$, $p < .001$); reading self-efficacy ($r_{1st\text{-}year} = .304$, $n = 91$, $p = .003$; $r_{2nd\text{-}year} = .294$, $n = 54$, $p = .031$). On the other hand, Duijnhouwer, Prins, and Stokking (2010) determined that student self-efficacy had no effect on academic performance. Finally, in their review of 12 years of research on the relationship between students' self-efficacy and academic performance, Honicke and Broadbent (2016) concluded that the two factors were moderately correlated, further observing the need for additional research to "establish causality and uncover the complex interaction between academic self-efficacy, performance, and motivational and cognitive variables that impact it" (p. 63) .

Effectiveness of Writing Centers

Various attempts have been made to measure the relative effectiveness of writing centers, other than improved student academic success—one measure is elevated student confidence, which, while closely related to self-efficacy, is not identical to it (Lavelle, 2009; Pajares, 2003). However, like most writing center research, studies on writing center assessment have involved surveys and focus groups, but empirical studies "have been mostly absent from the literature

since the mid-1980's [sic]" (Gofine, 2012, p. 43). One mixed methods study using exit surveys (N = 2,270) and focus groups (N = 37) analyzed student perceptions of writing center visits at three "very different institutions" (Bromley et al., 2016, p. 1). Findings indicated increased student confidence due to writing center visits, and these results appeared to be consistent from institution to institution and across demographic groups (Bromley et al., 2016). Further, writing centers have been effective in "reducing students' writing apprehension and promoting positive affects to writing" (Hoon, 2009, p. 47), while also improving student confidence and overall grades (Al Chibani, 2014; Calfee, 2007; Hoon, 2009).

Another way of measuring writing center effectiveness is to compare tutoring session outcomes with pre-session student expectations. Undergraduate student writing tutoring sessions at a mid-sized, northeastern public university were analyzed over a six-week period (Raymond & Quinn, 2012). Each session was reviewed to determine how the stated student goals for the session agreed with the actual goals of the tutor during the session (Raymond & Quinn, 2012). The results revealed that students visiting the writing center "tended to request attention to more sentence-level concerns, [but] tutors tended to direct attention to argument, a larger-level concern" (Raymond & Quinn, 2012, p. 73). Results demonstrated that most sessions (82%) addressed at least one of the student's goals, and nearly one-half (48%) addressed all the student's goals (Raymond & Quinn, 2012).

Writing Center Use

Much of present-day writing center research concerns gathering usage data, including demographics (Gofine, 2012; Huang, 2012). These data are generally used to justify the existence of the writing center and to budget for its foreseeable expenses, so frequently the analysis goes no further than that (Gofine, 2012; Huang, 2012). Moreover, many writing centers

calculate usage solely in terms of numbers of visits or tutoring sessions (Dinitz & Welch, 2016; Tucker, 2012), rather than numbers of individual students served (Hager & Walls, 2017; Peters, 2016), which makes a quantitative analysis of students who received tutoring difficult. Further complicating this evaluation is the policy of some schools or specific courses to mandate student use of the writing center, thereby skewing usage data (Babcock & Thonus, 2012; Gordon, 2008). In addition, numerous reports do not distinguish between undergraduate and graduate writing center visits although the need for and availability of writing center support for graduate students is evident (Vorhies, 2015).

One correlational study related student satisfaction with writing center assistance to the number of student visits to the writing center (Carino & Enders, 2001). A survey (with no known validity or reliability testing) was used to collect satisfaction data from undergraduate students ($N = 399$) taking required English courses, with the number of visits to the writing center gathered over two semesters (Carino & Enders, 2001). Their results indicated no statistically significant correlation between number of visits and some aspects of student satisfaction (e.g., tutor courtesy, tutor ability to help), but it did indicate significant positive correlation between frequency of visits and student confidence as writers for three of the six student satisfaction characteristics (r between .197 and .330, $p < .05$), with student writing improvement revealing the strongest positive correlation (Carino & Enders, 2001). Only about 15% of the students visited the writing center five or more times (Carino & Enders, 2001).

Similarly, in their survey of 900 post-secondary institutions, the National Census of Writing (2015) revealed only a small percentage of students had at least one writing center consultation during the 2011-12 academic year: undergraduate students ($M = 16\%$, range: 0-100%) and graduate students ($M = 5\%$, range: 1-51%). In a study by Bielinksa-Kwapiz (2015),

only 30% of business seminar students visited the writing center during the semester, with only half of them visiting more than once ($M_{\#\text{ visits}} = 2$). These results agree with Salem (2016), who determined that only about 22% of incoming freshmen visited the writing center at least once. These frequency data are somewhat lower than recorded by Huang (2012), who observed that more than half (55.7%) of undergraduate and graduate students who visited the writing center were "single-session users" while only 10% visited six or more times (p. 216). Huang (2012) highlighted the need for additional research on the effects of writing center visit frequency.

Feedback

One of the most influential aspects of the scholarly writing process for postgraduate students is the ability to receive and implement feedback (Caffarella & Burnett, 2000). Boud and Molloy (2013) defined feedback as "a process whereby learners obtain information about their work in order to appreciate the similarities and differences between the appropriate standards for any given work, and the qualities of the work itself, in order to generate improved work" (p. 6). However, feedback does not automatically stimulate positive change in student behavior, as students tend to react defensively to unfavorable feedback (Boud & Molloy, 2013). Student reactions toward receiving critical written feedback range from emotional to psychological, including embarrassment (most common), lost self-confidence, fear, and reduced motivation (Can & Walker, 2011; Ilgen & Davis, 2000). One study found that while graduate students appreciated assignment feedback, they were inconsistent with the ways in which they responded to and incorporated the feedback they received (Furneaux, 2016).

In online collaborative learning environments, students preferred receiving feedback from their instructors over their peers, believing the former to be more reliable, even though they claimed to value the feedback received from both (Guasch, Espasa, Alvarez, & Kirschner, 2013).

Feedback was found to significantly improve students' collaborative writing performance, with students receiving teacher feedback showing the greatest relative improvement (Guasch et al., 2013). In another study, feedback had no effect on students' performance, but it did affect their self-efficacy beliefs (Duijnhouwer et al., 2010). Similarly, the way students perceived feedback about their writing "partially mediated the relationship between writing self-efficacy and writing self-regulation aptitude" (Zumbrunn, Marrs, & Mewborn, 2016, p. 349).

Self-Regulated Learning

Also arising from Bandura's (1977a) social (cognitive) learning theory, Zimmerman (1989) proposed another fundamental educational construct called self-regulated learning, which is closely related to self-efficacy. Self-regulated learning is a deliberate process by which students plan and execute cognitive, behavioral, and motivational processes that enable completion of academic tasks (Hadwin, 2007). A self-regulated learner is an active participant in the learning process, rather than a passive recipient (Schunk, 2001). Self-regulated learning skills are crucial for student academic success in higher education (Cassidy, 2011). Students who possess high self-efficacy engage in more self-regulating strategies throughout the learning process (Pajares, 2002; Williams, Takaku, & Bauman, 2006). Student self-efficacy and self-regulation together contribute to help-seeking behavior (Lee, 2007), such that increased student self-regulation resulted in increased help-seeking behavior ($N = 165$, $t = 2.11$, $p < .05$; Dunn, Rakes, & Rakes, 2014). Likewise, improvements in self-efficacy produce elevated self-regulated learning ($\beta = .92$, $p < .05$; Hong & Park, 2012). Conversely, enhancements in students' self-regulated learning methods corresponded to similar gains in self-efficacy (Zimmerman, 2000).

In a four-year study of ESL (English as a second language) undergraduates ($N = 256$), Williams and colleagues (2006) determined that frequency of writing center visitation was a

significant predictor of writing performance as measured by exam scores in freshman and junior English composition courses ($t(125) = 3.95$, $p < .01$; $t(28) = 2.28$, $p < .05$, respectively). The authors concluded that students who frequently visited the writing center were exhibiting high self-regulatory behavior, which is consistent with social cognitive theory (Williams et al., 2006)

Help-Seeking Behavior

Salem (2016) discovered that most college-bound students make the decision whether or not to avail themselves of academic support services (including the writing center) before they enter the university. Using academic support services like the writing center is an indicator of student help-seeking behavior (Collins & Sims, 2006). Nelson-Le Gall (1981, 1985) distinguished two conflicting motives for students' help-seeking behavior. Instrumental help (indirect help, such as hints and explanations) is sought by students, so they can master a concept (Nelson-Le Gall, 1985). Instrumental help-seeking behavior aligns with Vygotsky's ZPD and the practice of scaffolding (Nelson-Le Gall, 1985). The scaffolding is removed when the student can "self-regulate in an independent, academically effective way" (Zimmerman & Schunk, 2011, p. 6). Conversely, grade-oriented students seek executive or expedient help (Alexitch, 2006); they are not concerned with proficiency but are looking for someone to solve a problem for them (Nelson-Le Gall, 1981, 1985).

Practical application. From an educational perspective, the most desired student help-seeking behavior is instrumental as it leads to mastery and independence (Karabenick, 2006). Instrumental help-seeking behavior is viewed as an adaptive strategy used by self-regulated learners (Volet & Karabenick, 2006). Adaptive help-seeking behavior, then, occurs when a student actively seeks needed assistance to successfully deal with a noticeable shortcoming in understanding (Volet & Karabenick, 2006). Adaptive help-seeking behavior can result in the

development of healthy self-efficacy, which can enable the student to cope with future academic difficulties (Karabenick & Newman, 2009). On the other hand, non-adaptive help-seeking behavior can take two alternative courses: seeking unnecessary assistance (Newman, 2006) or avoidance (Ryan & Pintrich, 1998). This type of help-seeking behavior actually degrades the student's self-efficacy (Leppert, 2014). In the writing center context, instrumental help-seeking behavior furthers the goal of producing better writers as it focuses on the process rather than the product (Karabenick & Knapp, 1991). Executive help-seeking behavior is dependency-oriented and, in the writing center context, thwarts its purpose with student expectations of an editing or repair service (Karabenick, 1998, 2003).

Seeking help is also "a constituent of intelligence as sociocultural practice" (Newman, 1998, p. 48). In fact, students who avoid seeking help, referred to as avoidant help-seeking behavior, are denying themselves of vital social interaction, which is a crucial component of learning (Bandura, 1997; Ryan & Shin, 2011; Vygotsky, 1978). Karabenick and Newman (2009) noted that seeking help is acceptable in collectivist cultures but is frowned upon in individualistic cultures, such as the United States. Their conclusion echoes Littlewood (2001), who found that Asian students preferred working in small groups whereas European students preferred working alone. Various other studies have reported similar findings (Kudo & Simkin, 2003; Smart, Volet, & Ang, 2000; Wright & Lander, 2003). For example, Rosas (2013) correlated academic help-seeking behavior with increased hope, decreased shame, and decreased anxiety (r = .12, -.13, -.38, respectively, $p < .05$) among Argentinian university students (N = 433).

Interestingly, this positive effect of social interaction on student learning may not apply to students in non-traditional educational settings. Noting the paucity of help-seeking behavior

data available for online students, Neroni, Meijs, Gijelaers, Kirschner, and de Groot (2019) studied distance education college students ($N = 758$) and found that seeking help from others had a negative effect on the students' academic performance, $F(1, 649.08) = 6.47$, $p = .011$. These results contradicted other studies dealing with traditional students (e.g., Ryan & Shin, 2011), which caused the researchers to suggest that the difference may have been caused by the learning environment (Neroni et al., 2019). In addition, Newman and Goldin (1990) found that sixth grade students ($N = 23$) who were low achievers were less likely to seek help than their higher achieving classmates ($\beta = -.47$), $F(1, 21) = 6.09$, $p < .05$, $R^2 = .22$, which may reflect the need of early adolescents to belong to their peer-group. This finding is in agreement with Ryan, Pintrich, and Midgley (2001), who theorized that students in a traditional classroom setting who are insecure or concerned about their reputations are likely to exhibit avoidant help-seeking behavior.

Self-efficacy and help-seeking behavior. Finney, Barry, Horst, and Johnston (2018) observed that instrumental help-seeking behavior was positively correlated to academic self-efficacy ($r_{\text{1st-year}} = .16$, $r_{\text{upper-class}} = .16$, Cronbach's $\alpha = .9$) among first year ($N = 1950$) and upper-class ($N = 2107$) college students, but executive help-seeking behavior was negatively correlated ($r_{\text{1st-year}} = -.17$, $r_{\text{upper-class}} = -.24$, Cronbach's $\alpha = .9$). Their results confirmed those from earlier studies by Karabenick (2003; $N = 883$, $r_{\text{instrumental}} = .21$, $r_{\text{executive}} = -.03$, $p < .001$) and White and Bembenutty (2013; $N = 86$, $r_{\text{adaptive}} = .43$, $r_{\text{executive}} = -.13$, Cronbach's $\alpha = .8$). In their study of sixth graders ($N = 217$), Ryan and Shin (2011) determined their academic self-efficacy was positively correlated to their adaptive help-seeking behavior ($\beta = .24$, $p < .001$) but was negatively correlated to their avoidant help-seeking behavior ($\beta = -.14$, $p < .05$). Additionally, Kitsantas and Chow (2007) evaluated undergraduate and graduate students ($N = 472$) in four

different educational modalities and settings, concluding that instrumental help-seeking behavior was correlated with academic self-efficacy ($r_{instrumental} = .20$, $p < .01$), with the source of assistance (formal vs. informal) affecting the strength of the relationship ($r_{formal} = .43$, $r_{informal} = .15$, $p < .01$).

Huet, Moták, and Sakdavong (2016) evaluated the help-seeking behavior of 82 college students and surmised that help-seeking behavior was not linked to self-efficacy in a linear fashion, suggesting that their relationship is bilateral; that is, "self-efficacy, at least, may both influence and be influenced by different levels of help seeking" (p. 591). Ryan, Patrick, and Shim's (2005) study of fifth graders ($N = 474$) found that students' academic efficacy had a significant effect on their tendencies to seek help, $F(2, 450) = 22.64$, $p \leq .001$. Students with the lowest academic efficacy were avoidant help seekers ($M = 3.47$), and those with the highest academic efficacy used appropriate strategies to seek help ($M = 4.10$).

In their study of ninth-grade students ($N = 107$), Bernacki, Nokes-Malach, and Aleven (2014) ascertained that increases in academic self-efficacy were associated with fewer attempts to seek help, both concurrently and in the immediate future. Two studies (Karabenick, 2003; Kitsantas & Chow, 2007) determined that academic self-efficacy was negatively correlated to the student's sense of feeling threatened for seeking assistance ($r = -.07$, $p < .001$, $r = -.36$, $p < .01$, respectively).

Williams and Takaku (2011) characterized the number of visits to the writing center as an indicator of student help-seeking behavior. Their study used data collected over eight years from undergraduate students ($N = 671$), for whom approximately one-half English was not their primary language (Williams & Takaku, 2011). Help-seeking behavior was found to be negatively correlated with writing self-efficacy ($\beta = -.32$, $p < .01$; Williams & Takaku, 2011).

These results agreed with other studies that have determined some students with a strong perception of self-efficacy avoid seeking help even to meet a need (Anderson & Williams, 1996; Cleavenger, Gardner, & Mhatre, 2007; Madni, 2008; Ryan et al., 2001). White and Bembenutty (2013) coined the term "help seeking dilemma" (p. 11)—the cultural and mainly Western view of weakness that is ascribed to asking for help.

Dependency

While the goal of writing centers is to promote student writer independence, some of the literature suggests they may do the opposite. Pemberton (1994) reviewed contemporary work in dependency theory conducted by developmental, clinical, and social psychologists in order to recommend strategies writing center tutors can use to discourage dependent students. A writing center's goal is to empower writers by providing the necessary tools and strategies to unravel texts themselves, without relying on others for assistance (North, 1984). According to Pemberton (1994), "The writing center itself, by virtue of its basic philosophy and positioning in the academic environment, provokes dependency behaviors in some students" (p. 65).

Bornstein (1992) defined dependency as the "general tendency to be influenced by the opinions of others, to yield to others in interpersonal transactions, and to comply with others' expectations and demands" (p. 10). Since dependent people are taught to feel helpless, needing direction and assistance from others, their tendency toward help-seeking behavior is elevated (Bornstein, 1992). From the social learning theory standpoint, dependency behaviors are learned behaviors; they are exhibited because they are "rewarded, or—at the very least—are perceived by the dependent person as likely to bring rewards" (Bornstein, 1992, p. 5). Dependency is closely linked with help-seeking behavior, as well as academic underachievement (Bornstein, 1992).

Studies have also indicated that writing centers are perceived as merely writing repair shops—where students who have given up any sense of ownership or control and have become helplessly dependent go to have their writing fixed (Williams & Takaku, 2011). This image is not only common with students, but also with faculty (LaClare & Franz, 2013). On the other hand, Volet and Karabenick (2006) concluded that seeking help is not indicative of dependency but rather the opposite; that is, those exhibiting adaptive help-seeking behavior ‘‘become less rather than more reliant on others when future difficulties arise’’ (p. 117).

Motivation

Student motivation is another well-studied factor of academic success, which has also been linked with self-efficacy (Furneaux, 2016). From an educational perspective, motivation is the student’s will or desire to learn (Wallace, 2015). Motivation can come from within (intrinsic motivation) or without (extrinsic motivation; Xie & Ke, 2011), and it can shape students’ efforts, perseverance, and participation/engagement in educational activities, such as writing conferences (Mackiewicz & Thompson, 2014). Motivation has been shown to both affect and be affected by self-efficacy (Bartimote-Aufflick, Bridgeman, Walker, Sharma, & Smith, 2016; Schunk, 1991; van Blankenstein et al., 2018; Zimmerman & Risemberg, 1994). Motivation has also been positively associated with self-regulated learning (Schunk & Zimmerman, 2008) and collaborative learning (Xie & Ke, 2011), but negatively related to anxiety and apprehension (van Blankenstein et al., 2018). Other motivational constructs that have been positively related to the writing process include affect, achievement goals, and beliefs about writing (MacArthur, Philippakos, & Graham, 2016).

Determinants of Self-Efficacy

While Bandura (1986) described four general classes of individual experience that contribute to personal judgments of self-efficacy, further detail is necessary to understand the formation of self-efficacy (Gist & Mitchell, 1992). According to Bandura (1977a), the four sources of personal efficacy expectations are "personal [enactive] accomplishments, vicarious experience, verbal persuasion, and emotional arousal" (p. 195). Enactive experiences have the greatest influence on one's self-efficacy because of their personal nature whereas vicarious experiences are more limited since they are observational in nature (Zimmerman, 2000). Verbal persuasion is less effective because it is indirect and depends on the credibility of the persuader (Gallagher, 2012). Emotional or somatic cues are the least effective methods of advancing self-efficacy due to their transient and subjective character (Maddux, 2007).

The importance of understanding the determinants of self-efficacy comes from its malleability, that is, its ability to be changed and developed (Gist & Mitchell, 1992); positive changes in self-efficacy should result in proportional improvements in academic performance (Zimmerman, 2000). Given the plasticity of self-efficacy and the positive correlation between self-efficacy and academic success, it is essential for educators to find proper intervention methods for students with low self-efficacy (Gist & Mitchell, 1992). Intervention methods based on social (cognitive) learning theory, such as self-regulated learning strategies, collaborative learning, and peer tutoring, have been most effective (García-Sánchez & Fidalgo-Redondo, 2006; van Dinther, Dochy, & Segers, 2011). One key determinant in improving self-efficacy is the availability of help or support ($N = 1387$, $z = -4.35$, $p < .001$; Hutchison, Follman, Sumpter, & Bodner, 2006), which helps explain the significance of help-seeking behavior. For this reason, seeking help is viewed as a constituent of self-efficacy, which involves not only self-regulated

learning but also the conviction that one can perform well on a specific task (Bandura, 1986; Pintrich, 2000; Schunk & Ertmer, 2000; Winne, 1995).

Adult Education

Since the median age of online graduate students was 33 in 2016 (U.S. Department of Education, 2019), it is appropriate to review any possible effects adult learning theory may have on writing self-efficacy. Strongly influenced by Dewey, humanist Lindeman (1926) began espousing the uniqueness of adult education, i.e., that it was situational and experiential (as cited in Leonard, 2002). Lindeman (1926) believed that adults were motivated to learn to satisfy their needs and interests and that learning for adults was centered on life situations (as cited in Knowles, Holton, & Swanson, 2012). Lindeman's (1926) theory also noted the social and collaborative nature of adult learning (as cited in Merriam & Bierema, 2014).

Andragogy, which is the set of beliefs and suppositions surrounding adult learning, was promoted by Knowles (1973) to differentiate the ways adults learn from the ways children learn (pedagogy; as cited in Knowles et al., 2012). Knowles (1973) postulated six characteristics of adult learners: (1) they need to know why they should learn new information; (2) they have a developed self-concept and dislike being told what to do; (3) they have acquired prior life experiences, which enhance their educational efforts; (4) they are ready to learn once they have decided the material would be worthwhile; (5) they approach education from a practical orientation, expecting real world applications; and (6) they are highly self-motivated to learn (as cited in Merriam & Bierema, 2014). To take full advantage of those adult learner characteristics, a successful environment conducive for adult learning must be learner-centered with the teacher acting as facilitator (Beeson, 2018). Exercises must be experiential, such as simulations, role-

playing, case studies, problem-solving, etc. (Knowles et al., 2012). Learning should be scaffolded, building knowledge on previously learned material (Merriam & Bierema, 2014).

Merriam and Bierema (2014) noted how Knowles's original theory of andragogy has evolved in today's world. Online higher education offers many opportunities for adults that are not available in traditional educational settings: it is affordable, flexible, convenient, and interactive (Bucur, 2012). However, translating adult educational needs into an online higher education environment presents many unique challenges (Merriam & Bierema, 2014). Modern adult learning occurs in a much more social context, typified by globalization, a knowledge-based economy, information and communications technology, and changing demographics (Merriam & Bierema, 2014). Factors such as age, ability, self-efficacy, and learning intent play a crucial role in the success of any adult educational program (Phipps, Prieto, & Ndinguri, 2013). Moreover, technology is a critical factor influencing adult learning (Merriam & Bierema, 2014).

One of the obstacles facing adults seeking online higher education is the "digital divide," which is the gap between those who have ready access to computer and internet technologies and those who do not (Merriam & Bierema, 2014, p. 194). An alternate, more specific definition is the void between "those who have access and media literacy, and those who have no access and/or media literacy" (Reilly, 2005, p. 584). Media literacy is simply the understanding of how to use today's technology (Reilly, 2005), so the latter definition adds ability to mere availability. Some have voiced concern that the digital divide has become a chasm between the haves and the have-nots (Parker, 2010) while others are concerned it has become a racial gap (Reilly, 2005). Studies have shown "that socio-economic status is a factor in technology access even in affluent societies" (Bennett & Maton, 2011, p. 171). Hence, any sampling of online graduate students may reflect both socio-economic and racial biases.

A second obstacle concerns the relative age of the adult online learner. As mentioned above, the median age of online graduate students was 33 in 2016 (U.S. Department of Education, 2019), making one-half of this group older than Millennials, i.e., Generation X or older. They are "digital immigrants"; that is, they did not grow up using computer technology and may not be entirely comfortable using it (Alaniz & Wilson, 2015). Online graduate students who began their school careers using literacies involving pencil, paper, and a book now must adapt to new literacies involving wikis, blogs, avatars, and podcasts (International Reading Association, 2009). Moreover, not only are students expected to learn these new literacies, but they must also be able to produce content across the varied media domains (Bishop & Counihan, 2018). Conversely, their younger counterparts—members of Generations Y and Z, or "digital natives"—had access to computer and internet technologies from an early age; they are technology savvy and use it and social media regularly and frequently (Alaniz & Wilson, 2015). Consequently, the population of online graduate students may reflect bias concerning age and technology.

Online Tutoring Services

Online tutoring services have existed since the late 1990s, providing both synchronous and asynchronous educational assistance services to students of all ages on a variety of academic subjects from mathematics and science to English literature and composition (Turrentine & MacDonald, 2006). Some post-secondary schools provide these for-profit services as part of their distance education programs (Powers, 2010). Additionally, many public and private schools, government agencies, public libraries, and private individuals and families take advantage of their round-the-clock, on-demand availability (Powers, 2010). However, many of these services are designed for providing support to primary, secondary, and tertiary schools and

are not suitable for evaluating writing at the graduate level as their tutors are not required to possess post-graduate degrees—some even employ undergraduate students (Chegg, n.d.; Student-tutor, n.d.; Studypool, n.d.; Tutor.com, n.d.). Such online tutoring services are not associated with an educational institution or academic writing program, except by contractual arrangement, and are, therefore, not writing centers as defined herein. Accordingly, these services were beyond the scope of this study and were not included in its analysis.

Summary

Writing center research tends to be qualitative in nature and focused on writing center effectiveness and usage. No quantitative studies to date have examined the relationship between repeated use of the writing center and student writing self-efficacy at the graduate level and in an online environment. Using writing center theory, which is an offshoot of social cognitivism and social constructivism, this study attempted to fill that gap in the literature by testing the theory that repeated visits to a writing center result in steadily increasing levels of writing self-efficacy. The need for this study derives from the potential inability of writing centers to fulfill their mission of producing better, independent writers.

CHAPTER THREE: METHODS

Overview

The ability to write well is a crucial component of graduate students' success (Ragula, 2017), a component that becomes dramatically more important as their academic pilgrimage continues (Swales & Feak, 2012). Students' writing performance is reflected in their writing self-efficacy (Hetthong & Teo, 2013; Jalaluddin et al., 2015; Sanders-Reio et al., 2014), and it improves as they seek help from the writing center (Bielinksa-Kwapiz, 2015; Yeats et al., 2010). While writing self-efficacy and writing center visitation have had demonstrable effects on student writing performance, no studies to date have examined their interrelationship. This quantitative study used a nonexperimental, correlational research design to examine the relationship between online graduate students' writing self-efficacy and their help-seeking behavior. This chapter examines the research design selected for this study, as well as the research question it sought to answer, along with the appropriate null hypothesis. It presents the participants for the study and the setting in which the study took place. The instrument used in collecting study data is reviewed, as are the procedures for collecting that data. Finally, the method of analyzing the collected data is examined.

Design

A nonexperimental, correlational research design was used in this study. In this case, student help-seeking behavior, as measured by the number of completed student draft review requests by the online writing center (OWC), was the independent variable, and student writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES; Schmidt & Alexander, 2012), was the dependent variable. Since neither variable was manipulated, a nonexperimental research design was appropriate (Gall, Gall, & Borg, 2007). A

correlational research design was fitting because it helped explain the relationship between the variables under consideration and because the variables could not be manipulated (Creswell, 2015). A correlational research design also allowed the researcher to look for the relationship between two or more variables (Creswell, 2015).

The independent variable, student help-seeking behavior, was a bounded discrete variable, operationally defined as the number of times a student has received writing assistance from the OWC as reported through the university's collaboration and document management and storage system (SharePoint, 2017). Studies suggest a correlation between the number of writing center visits and academic success (Bielinksa-Kwapiz, 2015; Yeats et al., 2010). The dependent variable, writing self-efficacy, was a bounded continuous variable, operationally defined as a student's perceived confidence in his/her own writing ability as measured by the PSWSES (Schmidt & Alexander, 2012). Writing self-efficacy has been associated with academic success (Hetthong & Teo, 2013; Jalaluddin et al., 2015; Khojasteh et al., 2016; Sanders-Reio et al., 2014).

Research Question

The following research question guided this correlational study:

RQ: What is the potential relationship between online graduate students' help-seeking behavior, as measured by their number of completed writing center draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (Schmidt & Alexander, 2012)?

Null Hypothesis

One null hypothesis resulted from this research question:

H_01: There is no statistically significant correlation between online graduate students' help-seeking behavior, as measured by the number of completed writing center draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES).

Participants and Setting

This quantitative, correlational study examined online graduate students from a large, regionally accredited, faith-based, non-profit, private university in the southeastern United States with a substantial online student population (more than 94,000 online students enrolled, over 36,000 of whom are graduate students). Online graduate students represent all 50 states and more than 85 countries, so the demographic makeup provided adequate diversity for generalization. Collecting student religiosity data enabled generalization to the non-faith-based graduate student population as well.

Online Writing Center

The university's online writing center (OWC) has been providing writing assistance to online students at all levels of English writing proficiency for more than nine years. The mission of the OWC is to assist students with improving their writing skills, as well as with other writing-related matters. For logistical and pedagogical reasons, student use of the OWC support service is not mandatory, except for students enrolled in a remedial graduate writing course, although instructors are encouraged to recommend the service to their students. The OWC is available 24 hours per day, 7 days per week, 48 weeks per year (closing between the Fall and Spring semesters since there are no online courses conducted during that time) and provides over 8,000 peer writing tutoring sessions for nearly 4,000 online graduate students per academic year (three semesters: Fall, Spring, and Summer). Tutoring sessions may be given either via a synchronous

"Skype appointment" or an asynchronous "draft review," conducted through the university's collaboration and document management and storage system (SharePoint, 2017).

Peer tutors are online graduate students trained to help fellow online graduate students with comprehensive writing feedback through synchronous and asynchronous tutoring sessions. Online graduate students request writing support through the university's collaboration and document management and storage system (SharePoint, 2017) by selecting either a Skype appointment (synchronous) or a draft review (asynchronous). Each writing assistance request is assigned to a peer tutor, who meets with the student via Skype in the case of a Skype appointment, or who conducts a comprehensive written review of the student's writing in the case of a draft review. In either case, when the peer tutor returns corrective comments to the student through the university's SharePoint (2017) system, the student's request for writing assistance is considered "completed."

The OWC's method of operation encompasses much of the writing center pedagogy advanced in Chapter Two. Its very approach applies Bandura's (1977b) social (cognitive) learning theory and Vygotsky's (1978) social development theory as it makes use of the social nature of learning by linking student writers with peer tutors, drawing students into their zone of proximal development (Vygotsky, 1978). During the tutoring process, both participants learn through either synchronous or asynchronous interaction (Bruffee, 2008; Harris & Pemberton, 2008; Hughes et al., 2010; Mick & Middlebrook, 2015). Through its use of peer tutors, the OWC is utilizing Bruffee's (1984, 1993) collaborative learning theory and his perception of peer tutoring. Repeat users of the OWC experience scaffolding (Wood et al., 1976) as tutors build upon the knowledge acquired and mastered by student writers during previous tutoring sessions. The eventual goal of developing better writers (North, 1984) is accomplished through improving

student writing performance (Bielinksa-Kwapiz, 2015; Yeats et al., 2010).

The target population was all online graduate students who have used the OWC while the sampling frame was those who received writing support from the OWC more than once over the course of the 16-week Fall 2017 academic semester. Online graduate students were selected for the study because of their underrepresentation in the literature. Many online graduate students are required to avail themselves of the OWC one time as part of their graduate writing studies course, making it reasonable to restrict this investigation to those who used the OWC more than once to avoid sample bias. Only completed draft review requests were included in the sample because draft review requests that received no tutor intervention would have had no effect on student writing self-efficacy. As the independent variable was student help-seeking behavior, as measured by the number of completed writing center draft review requests, limiting the sampling frame to online graduate students who have received writing support from the OWC more than once was appropriate (Creswell, 2015).

Since approximately one-fifth of the online graduate students who receive writing support from the OWC are repeat users, there were an anticipated 500 potential participants over the course of the 16-week Fall 2017 academic semester, which was the stratified sample. Stratified probability sampling was appropriate to make generalized inferences from the data (Groves et al., 2009); however, for this study, the sample acquired was non-random, so generalizations from the study were limited (Stoop, 2012). When compared to university registration data for online graduate students, this sample adequately represented the demographics of the online graduate student population.

Table 1

Population Demographics

		University (%)	Sample (%)
Gender	Male	39	32
	Female	61	68
Age	Under 25	7	4
	25-29	20	18
	30-39	31	33
	40-49	25	25
	50-59	13	18
	60 and Over	4	4
Race	Caucasian	51	62
	African American	15	23
	Hispanic	2	8
	Asian	1	4
	Native American	1	0
	Pacific Isl.	0	0
	Other/Unknown	30	3
Program	Divinity	17	12
	Business	23	22
	Education	22	23
	Behavioral Science	22	14
	Nursing	2	8

	Other	14	21
English Primary	Yes	N/A	89
	No	N/A	11
Disability	Yes	N/A	12
	No	N/A	88
Religiosity	Yes	N/A	96
	No	N/A	4

Sample Size

In quantitative research, selecting the appropriate sample size has widespread effects, providing confidence that the sample accurately represents the target population and affecting the researcher's ability to make inferences about the target population based on the results obtained from the sample (Creswell, 2015). A suitable sample size directly influences the power of the statistical test (Warner, 2013), the degree of statistical significance, and standard error (Cohen, Cohen, West, & Aiken, 2002). Determining the applicable minimum sample size for a significant quantitative, correlational study necessitates selection of the statistical analysis method since statistical method directly affects how sample size is calculated (Maxwell, Kelly, & Rausch, 2008).

In addition to its reliance on statistical analysis method, sample size planning also depends upon the desired purpose of the study at hand (Kelley & Bolin, 2013). The analytical approach may be more correlational or predictive, thus emphasizing either statistical power or accuracy/precision (Maxwell et al., 2008). However, determining the adequate sample size for correlational studies has been problematic. Some researchers simply rely on the use of statistical

software programs such as G*Power 3 (Faul, Erdfelder, Buchner, & Lang, 2009, 2014) to provide the required minimum sample size (e.g., Field, 2013). Algina and Olejnik (2003) developed sample size tables based on effect size and accuracy where Warner's (2013) sample size table relied on statistical power and population correlation. Maxwell (2000), on the other hand, developed several formulae for determining the minimum sample size to achieve desired power and effect size for a given number of variables.

As this study was a bivariate correlation, there were two variables of interest, which resulted in a minimum required sample size ranging from 153 (Warner, 2013) to 123 (Algina & Olejnik, 2003). A minimum desired sample size of 153 was used for this study. This sample size of 153 participants results in a medium effect size, with a statistical power of .8 at the .05 alpha level (Warner, 2013).

Instrumentation

This study used one instrument as part of its data collection process. As the independent variable, student help-seeking behavior, was a count variable, no data collection instrument was necessary. The Post-Secondary Writerly Self-Efficacy Scale (PSWSES) was used to measure student writerly self-efficacy, the dependent variable.

Help-Seeking Behavior

Student help-seeking behavior, as measured by the number of completed writing center draft review requests, was the independent variable and was acquired by counting the number of completed draft review requests a student received from the OWC through the university's SharePoint (2017) system during the study timeframe, which was the 16-week Fall 2017 academic semester. As this variable is based on the number (count) of completed draft review requests, its theoretical values range from 0 to infinity; however, since only students who have

more than one completed draft review request are included in this study, the practical minimum value is 2, and the practical maximum value (based on experience) is 100. This measurement was proposed by Williams and Takaku (2011) in their study of help-seeking behavior, self-efficacy, and writing performance among college students.

Writing Self-Efficacy

The Post-Secondary Writerly Self-Efficacy Scale (PSWSES) was developed by Schmidt and Alexander (2012) as a way to measure college-level writing self-efficacy (dependent variable) across multiple writing center sessions (see Appendix A). The 20-question scale assesses a respondent's writing self-efficacy using scores that range from 0%, indicating extremely low writing self-efficacy, to 100%, indicating extremely high self-efficacy. The PSWSES has been used in multiple studies of student writing self-efficacy.

The developers reviewed several self-efficacy scales and assessed their shortcomings for use with post-secondary writers; among the deficiencies were limited focus, evaluation duration, and product specificity (Schmidt & Alexander, 2012). The PSWSES was developed to allow for "replication, causality, and sustainability" (Schmidt & Alexander, 2012, p. 2). Schmidt and Alexander (2012) reported high internal consistency and reliability across all items (Cronbach's alpha, $r_a = .93$; Guttman split-half coefficient, $\lambda = .93$). The PSWSES demonstrated high construct validity (Pearson product-moment coefficient, $r_P = .50$, $R^2 = .25$), when correlating client and tutor ratings (Schmidt & Alexander, 2012).

The PSWSES (Schmidt & Alexander, 2012) comprises 20 questions and has three subscales: (a) local and global writing process knowledge (11 questions), (b) physical reaction (7 questions), and (c) time and effort (5 questions).[1] Originally, the answer to each question was

[1] The number of questions exceeds 20 due to cross-loading of three questions.

based on the five-point Likert scale; however, the instrument has been revised to use percentages (0-100) for scoring as they are "psychometrically stronger than a scale with a traditional Likert format" (Pajares, Hartley, & Valiante, 2001, p. 214). Responses to each of the 20 questions can vary incrementally from 0 ("Never") to 100 ("Always"), yielding a combined score ranging from 0 (0 x 20) to 2,000 (100 x 20; K. Schmidt, personal communication, April 3, 2017). This total score is then converted into an average percentage score by dividing it by 20, yielding an average score ranging from 0% to 100% (K. Schmidt, personal communication, April 3, 2017).

A combined score of 0 (an average score of 0%) is the lowest possible score, indicating extremely low writing self-efficacy of the participant. A combined score of 2,000 (an average score of 100%) is the highest possible score, indicating exceptional writing self-efficacy of the participant (Schmidt & Alexander, 2012). Based on quartiles, an average score of 84% indicates above average writing self-efficacy, and an average score below 67% demonstrates below average writing self-efficacy (K. Schmidt, personal communication, April 3, 2017).

Despite the tendency of writing center research to be qualitative rather than quantitative and the relative newness of the PSWSES, the scale has been used in other research studies. Most recently, Mitchell and McMillan (2018) used the PSWSES in conjunction with other instruments to assess whether the writing self-efficacy of Canadian undergraduate nursing students ($N = 49$) accurately predicted academic performance. Miller, Russell, Cheng, and Skarbek (2015) used the PSWSES to evaluate the writing self-efficacy of undergraduate nursing students ($N = 52$) in the United States, as did Miller, Russell, Cheng, and Zembles (2018; $N = 78$). Adeyemi and Mohammed (2016) used a modified version of the PSWSES to examine the writing self-efficacy of undergraduate mass communications students ($N = 452$) in Nigeria. The PSWSES has been endorsed by the University of West Florida's (2015) quality enhancement plan and

recommended as an assessment tool for nurses' writing improvement (Tibbits, Hobby-Burns, Plodek, & Phelps, 2016).

Permission for use was obtained from the developer to use the PSWSES free of charge (K. Schmidt, personal communication, April 3, 2017; see Appendix B). Administration of the PSWSES for this study was done online via Qualtrics (2017). The PSWSES, along with all student demographic information (see Appendix E), took approximately 10 minutes per participant to complete. Scoring was performed by the researcher and validated by a research assistant.

Procedures

Preparation

After the successful defense of the proposal for this research, the researcher forwarded the informed consent form, the recruitment email explaining the purpose and need for the study, as well as the voluntary and confidential nature of the survey itself (see Appendix F), and the PSWSES survey to the university marketing department for review and approval (see Appendix D). The university marketing department controls all online student surveys, using Qualtrics (2017) research software for online data collection. To comply with university Information Technology Department policy, the researcher has completed the online Qualtrics training course and has passed the Qualtrics certification exam (Appendix J). In addition, the researcher requested and received authorization from the executive director of the Academic Success Center to access all OWC requests as reported through the university's collaboration and document management and storage system (SharePoint, 2017; see Appendix G). Institutional Review Board (IRB) review and approval was requested by submitting an IRB application and all ancillary material.

Participant Recruitment

After IRB approval (see Appendix C), the researcher submitted a request to the director of the OWC to extract the following data from the OWC database (SharePoint, 2017) for all online graduate students during the Fall 2017 academic semester: student name, student email, and number of completed draft review requests by student (Appendix H). The researcher requested the director of the OWC to provide each participant with a randomly-assigned numeric passcode identification. A master key that translated the passcode to each student's name is being securely maintained to protect the confidentiality of the participants. The researcher requested the director of the OWC to provide a sanitized listing of all participants, having replaced each student's name with a randomly-assigned numeric passcode identification, and sorted by number of completed draft review requests visits, making the student data anonymous to the researcher and non-trackable to the student's name without the master key.

Data Acquisition

The researcher created an online survey in Qualtrics, incorporating the PSWSES (see Appendix A). Student demographics were operationalized in the Design section above, and the survey items are found in Appendix E.

The director of the OWC identified 362 online graduate students who had more than one completed draft review request during the Fall 2017 academic semester: they were potential participants. To achieve the minimum required sample size of 153 (Warner, 2013) meant the needed survey response rate was more than 42%, which was optimistically high as response rates to online (email) survey requests have varied greatly, from 5% (Porter & Whitcomb, 2003) to 8% (Balajti, Daragó, Ádány, & Kósa, 2010) to 20% (Kaplowitz, Hadlock, & Levine, 2004) to 23% (Szelényi, Bryant, & Lindholm, 2005) to 32% (Sax, Gilmartin, Lee, & Hagedorn, 2008).

Implementing material incentives and follow-ups should have yielded an adequate response rate (Monroe & Adams, 2012; Porter & Whitcomb, 2003; Sue & Ritter, 2007). However, while the total number of survey respondents was 178, several of these had to be removed because of invalid passcode input, and numerous others failed to complete the survey. Thus, using the Fall 2017 academic semester for the target population resulted in only 131 valid participants, less than the minimum required sample size of 153 (Warner, 2013).

Change in Protocol

A request for a change in protocol was submitted to the IRB, seeking to broaden the target population to include the Spring 2018 and Summer 2017 academic semesters, which was granted (Appendix I). The researcher submitted another request to the director of the OWC to extract additional data from the OWC database (SharePoint, 2017) to include all online graduate students enrolled in the Spring 2018 academic semester (Appendix L). In addition, the new data set accounted for students previously identified from the Fall 2017 academic semester, eliminating any duplicates and compiling the number of completed requests. The director of the OWC identified 424 online graduate students who had more than one completed draft review request during the Spring 2018 academic semester. These additional potential participants were sent the online Qualtrics survey, resulting in a total sample size of 257 participants. Qualtrics (2017) accumulated the survey data on behalf of the university marketing department and provided the collected data to the researcher.

Starting the Spring 2018 academic semester, the OWC began offering two draft review options: “targeted” and “full.” For a targeted draft review, the tutor only evaluates limited aspects of the assigned document as selected by the student. For a full draft review, the tutor performs a comprehensive evaluation of the assigned document, just as what was formerly called

simply a draft review. For the purposes of this study, no distinction was made between these two types of draft reviews.

Data Entry

Survey data from Qualtrics, with only encoded participant identification information, were entered into Microsoft Excel (2017) by the researcher and validated by an assistant, who verified that the survey data were entered correctly. Using the encoded participant identification information, the survey data were correlated with the number of completed draft review requests obtained from the OWC database (SharePoint, 2017), and all data were validated and uploaded into IBM's Statistical Package for the Social Sciences (SPSS; IBM, 2017) for statistical data analysis.

Data Security

Research records are stored securely, and only the director of the OWC or the director's designee has access to the records. At all stages of the process, any information that could identify participants was protected. Data are stored on an encrypted external drive with no online accessibility. When not being used for data analysis, the encrypted external drive is physically secured in a locked container. Only the director of the OWC or the director's designee has physical access to the drive and the data encryption password. The encrypted data will be retained for a period of three years after completion of this research project.

Data Analysis

A Pearson product-moment correlation test was performed to answer the research question and to evaluate the existence of a statistically significant correlation between the independent variable, help-seeking behavior, and the dependent variable, writing self-efficacy (Warner, 2013). A Pearson product-moment correlation is used to assess the linear association

between two quantitative variables (Warner, 2013). However, the independent variable is bounded by 2 at the low end and is discrete, not continuous, and the dependent variable, while continuous and ratio scale, is bounded by 0 and 100, making a linear model inappropriate (Grace-Martin, n.d.). Nevertheless, it was assumed that both variables could be treated as continuous for this study because of the robustness of the Pearson product-moment correlation (Werner, 2013). Additionally, for a Pearson product moment correlation analysis to be valid, several other assumptions must be found tenable (Warner, 2013). These assumptions include bivariate outliers, linearity, and bivariate normal distribution (Green & Salkind, 2014; Laerd Statistics, 2017; Warner, 2013).

Data were screened for inconsistencies and outliers. PSWSES scores were sorted numerically to identify any missing scores (Green & Salkind, 2014) and to verify that all PSWSES scores were reasonable and within the range of possible PSWSES scores (Warner, 2013). Univariate box and whisker plots were used to identify possible outliers (Green & Salkind, 2014). To confirm the existence of outliers, raw PSWSES scores were converted into z-scores, which revealed the presence of outliers (Laerd Statistics, 2017; Warner, 2013).

Data were also screened for univariate normality, which assumed that the population distributions of the independent variable (help-seeking behavior) and dependent variable (writing self-efficacy) were normal. This assumption was checked using histograms and the Kolmogorov-Smirnov ($N > 50$) normality test (Warner, 2013).

The demographic characteristics of the sample were examined to determine how well the sample represented the target population. In SPSS (IBM, 2017), a scatter plot was used between the independent variable, help-seeking behavior, and the dependent variable, writing self-efficacy, seeking extreme bivariate outliers (Green & Salkind, 2014; Warner, 2013).

Additionally, a scatter plot was used between the independent variable, help-seeking behavior, and the dependent variable, writing self-efficacy, visually recognizing any linear relationship (Green & Salkind, 2014; Warner, 2013). Finally, a scatter plot was used between the independent variable, help-seeking behavior, and the dependent variable, writing self-efficacy, looking for the classic "cigar shape" (Green & Salkind, 2014; Warner, 2013).

A significance level (α) of .05 was used, which indicated a 95% confidence level of correctly rejecting the null hypothesis (Warner, 2013). Effect size was reported as a Pearson correlation coefficient (r), indicating the strength and direction of the relationship (Warner, 2013).

CHAPTER FOUR: FINDINGS

Overview

This quantitative study used a nonexperimental, correlational research design to examine the potential relationship between online graduate students' writing self-efficacy and help-seeking behavior. This chapter reviews the research question this study sought to answer, as well as the associated null hypothesis. In addition, it examines the descriptive statistics for the data selected for this study and the appropriate assumption tests performed as recommended by Warner (2013). Inferential statistical analyses conducted are examined, and their results are presented.

Research Question

The following research question guided this correlational study:

RQ: What is the potential relationship between online graduate students' help-seeking behavior, as measured by the number of completed draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES; Schmidt & Alexander, 2012)?

Null Hypothesis

One null hypothesis resulted from this research question:

$H_0$1: There is no statistically significant correlation between online graduate students' help-seeking behavior, as measured by the number of completed draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES).

Descriptive Statistics

This study examined online graduate students from a large, regionally accredited, faith-

based, non-profit, private university in the southeastern United States with a substantial online student population (more than 94,000 online students enrolled, over 36,000 of whom are graduate students).

Of the 786 online graduate students invited to participate in this study, responses were received from only 311. Data were screened for inconsistencies and outliers. PSWSES scores were sorted numerically to identify any missing scores (Green & Salkind, 2014) and to verify that all PSWSES scores were reasonable and within the range of possible PSWSES scores (Warner, 2013). Forty (40) respondents were eliminated for only completing the consent form, leaving 271 potential participants. Seven (7) respondents were eliminated for providing invalid passcodes, leaving 264 potential participants. Seven (7) additional respondents were eliminated for not fully completing the survey, leaving 257 potential participants who successfully and fully completed the online survey.

The participants for this study included 257 online graduate students who received writing support from the Online Writing Center (OWC) more than once over the course of the two 16-week Fall 2017-Spring 2018 academic semesters. This sample adequately represented the demographics of the university's online graduate student population.

Over two 16-week academic semesters (Fall 2017-Spring 2018), the OWC provided services to 3,200 students via 6,986 requests (SharePoint, 2017). Of these, 6,705 requests were for "draft reviews" (asynchronous), and 281 were for "Skype appointments" (synchronous), as administered through the university's collaboration and document management and storage system (SharePoint, 2017). The OWC identified 786 potential participants who received writing support more than once over the course of those two 16-week academic semesters (Fall 2017-Spring 2018) via 3,079 completed draft review requests. Of those 786 users, more than one-half

(53%) received service from the OWC only twice. While all 786 potential participants were invited to take part in the Qualtrics survey, respondents who actually completed it totaled only 257.

Skewness and Kurtosis

Skewness and kurtosis are used to evaluate the normality of a data distribution (Martin & Bridgmon, 2012). Skewness measures the symmetry, or the lack thereof, for a data distribution (U.S. Department of Commerce, 2013). Extreme outliers in either tail result in skewness (Martin & Bridgmon, 2012). If most data values are on the left side of the curve, but extreme values are present on the right side, then the distribution is positively skewed (Martin & Bridgmon, 2012). Conversely, if most data values are on the right side of the curve, but extreme values are present on the left side, then the distribution is negatively skewed (Martin & Bridgmon, 2012). The z-score for skewness, which is the ratio of the raw skewness score to the square root of its standard error, is used to evaluate the normality of the data distribution (Ho, 2014). The skewness for a normal distribution is zero (Warner, 2013). Skewness z-score values greater than +/-1.96 indicate non-normal data distribution (Ho, 2014).

Kurtosis measures the extent to which the data are clustered around the center of the distribution, thereby reflecting its flatness or "peakedness" (Warner, 2013, p. 1094)). Said another way, kurtosis evaluates the distribution's "tailedness" (Martin & Bridgmon, 2012, p. 110). SPSS reports what is known as "excess" kurtosis (Warner, 2013, p. 150). To evaluate the extent of excess kurtosis on the data distribution, the raw excess kurtosis score must be standardized by dividing it by the square root of the kurtosis standard error, which gives the z-score for kurtosis. The excess kurtosis for a normal distribution is zero (Warner, 2013). Excess kurtosis z-score values greater than +/-1.96 indicate non-normal data distribution (Ho, 2014).

Help-Seeking Behavior

Descriptive statistics for the help-seeking behavior variable ($N = 257$) are shown in Table 2. The results ranged from 2.00 to 32.00, yielding a median (3.00) that is less than the mean (4.00), which is indicative of a distribution that is strongly positively (right) skewed (Martin & Bridgmon, 2012). Additionally, the skewness and excess kurtosis values are 3.28 and 13.36, respectively. Using the standard error for skewness of 0.15 and the standard error for kurtosis of 0.30 yields a skewness z-score of 8.46 and an excess kurtosis z-score of 24.39, both of which are much greater than the 1.96 limit (Ho, 2014). Therefore, the help-seeking behavior variable is strongly positively skewed and is not normally distributed, suggesting the presence of extreme outliers (Warner, 2013).

Table 2

Descriptive Statistics for Help-Seeking Behavior

Mean	4.00
Median	3.00
Standard Deviation	3.55
Variance	12.62
Range	30.00
High	32.00
Low	2.00
Skewness	3.78
Kurtosis	20.95

Writing Self-Efficacy

Descriptive statistics for the writing self-efficacy variable ($N = 257$) are shown in Table 3. The results ranged from 10.50 to 99.15, yielding a median (84.90) that is greater than the mean (81.42), suggesting a strongly negatively (left) skewed distribution (Martin & Bridgmon, 2012). Further, converting the skewness value of -1.73 and kurtosis value of 4.84 into standard z-scores yields a skewness z-score of -4.47 and an excess kurtosis z-score of 8.84, both of which fall outside the +/-1.96 boundaries (Ho, 2014). Hence, the writing self-efficacy variable is strongly negatively skewed and is not normally distributed, indicating the presence of extreme outliers (Warner, 2013).

Table 3

Descriptive Statistics for Writing Self-Efficacy

Mean	81.42
Median	84.90
Standard Deviation	13.41
Variance	179.86
Range	88.65
High	99.15
Low	10.50
Skewness	-1.73
Kurtosis	4.84

Since the data are negatively skewed, it is appropriate to investigate the median score of the writing self-efficacy variable (Warner, 2013), which is 84.90 ($N = 257$) and is actually greater than the "above average" PSWSES score of 84 (K. Schmidt, personal communication, April 3, 2017; see Appendix B). Additionally, the mean raw score ($M = 81.42$, $N = 257$) for the writing self-efficacy variable is much closer to the "above average" PSWSES score of 84 than to the "average" score of 67 (K. Schmidt, personal communication, April 3, 2017; see Appendix B).

Results

Hypothesis

H_01: There is no statistically significant correlation between online graduate students' help-seeking behavior, as measured by the number of completed draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES).

Data Screening

All data were screened for inconsistencies, outliers, and normality (Green & Salkind, 2014, Warner, 2013). Scores for both variables were sorted numerically to identify any missing scores (Green & Salkind, 2014) and to verify that all scores were reasonable and within the range of possible scores (Warner, 2013). Data containing inconsistent (blank or missing) and unreasonable scores were omitted.

Univariate outliers. Univariate outliers are extreme data points that do not fit the sample distribution (Warner, 2013).

Help-seeking behavior. Univariate outliers for help-seeking behavior were initially identified by the presence of extreme scores on a stem-and-leaf plot (Figure 1) and box-and-whisker plot (Figure 2; Green & Salkind, 2014).

NoofRequests Stem-and-Leaf Plot

Frequency		Stem &	Leaf
125.00		2 .	00000000000000000000000000000000000000000000000000000000000000000000000
.00		2 .	
40.00		3 .	0000000000000000000
.00		3 .	
22.00		4 .	00000000000
.00		4 .	
23.00		5 .	00000000000
.00		5 .	
10.00		6 .	00000
.00		6 .	
11.00		7 .	00000
.00		7 .	
3.00		8 .	0
.00		8 .	
6.00		9 .	000
17.00	Extremes		(>=10.0)

Stem width: 1
Each leaf: 2 case(s)

Figure 1. Stem-and-leaf plot for help-seeking behavior. The number of data "extremes" is 17.

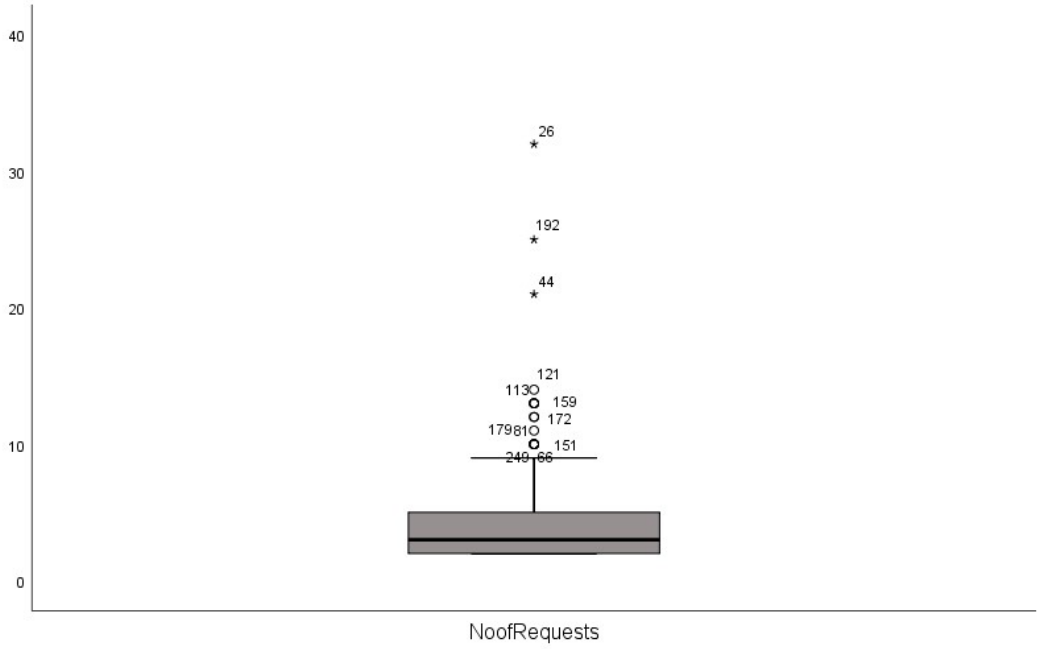

Figure 2. Box-and-whisker plot for help-seeking behavior.

The outliers for help-seeking behavior were not unexpected since a few users of the OWC repeatedly utilize the service throughout their graduate school experience (4% received service from the OWC more than 10 times). Additionally, just as with the entire targeted population, nearly one-half (49%) of the survey respondents had only two completed draft review requests.

Writing self-efficacy. Univariate outliers for writing self-efficacy were initially identified by the presence of extreme scores on a stem-and-leaf plot (Figure 3) and a box-and-whisker plot (Figure 4; Green & Salkind, 2014).

```
PSWSESAvg Stem-and-Leaf Plot

 Frequency    Stem &  Leaf

     8.00 Extremes    (=<49)
     1.00        5 .  4
     5.00        5 .  56778
    13.00        6 .  0001113334444
    17.00        6 .  55555566666789999
    18.00        7 .  001122223333334444
    34.00        7 .  55556666777777778888888899999999999
    34.00        8 .  00000011111111222333333333444444444
    57.00        8 .  55555555566666666667777778888888888888888999999999999999
    43.00        9 .  000000000001111111112222222223333333333334
    27.00        9 .  555555555666666667788888899

 Stem width:     10.00
 Each leaf:       1 case(s)
```

Figure 3. Stem-and-leaf plot for writing self-efficacy. The number of data "extremes" is 8.

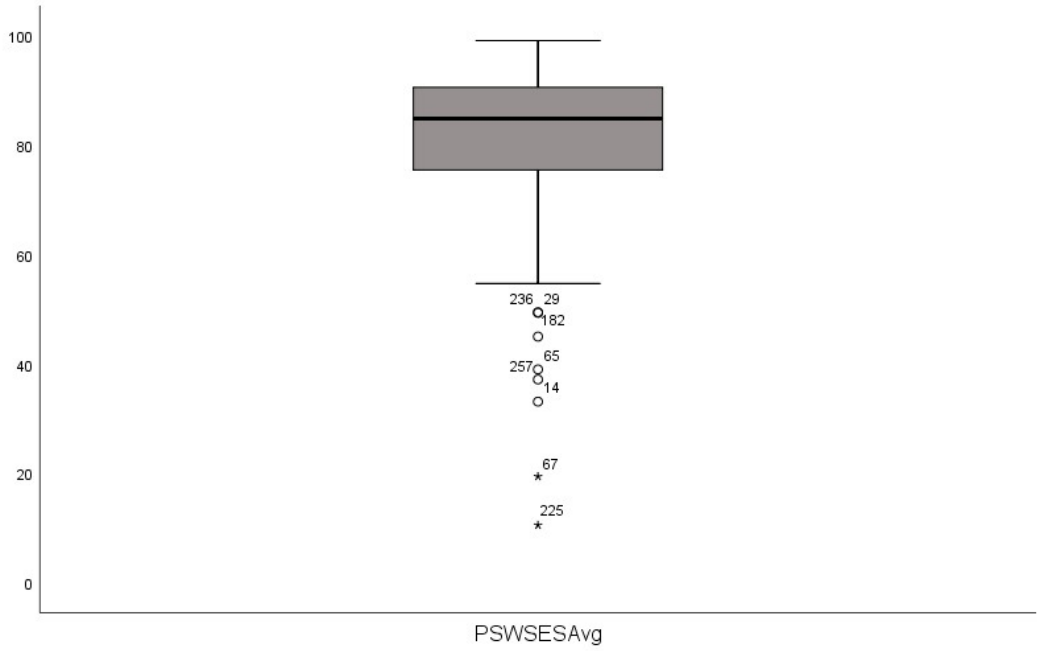

Figure 4. Box-and-whisker plot for writing self-efficacy.

The outliers for writing self-efficacy were as expected since a PSWSES score of 67 is considered "average," and a score of 84 is considered "above average" (K. Schmidt, personal communication, April 3, 2017; see Appendix B).

Standard scores. To confirm the existence of univariate outliers, raw scores for the variables were converted into standard scores (z-scores), which validated the presence of outliers (Laerd Statistics, 2017; Warner, 2013). Data records with z-scores greater than +/- 3.29 were identified as extreme outliers (Tabachnick & Fidell, 2014). Data records for participants 26, 44, and 192 and 14, 67, 225, and 257 were identified as extreme outliers for help-seeking behavior and writing self-efficacy, respectively. The descriptive statistics for the resulting data sets with the extreme outliers removed are shown in the Tables 4 and 5:

Table 4

Comparison of Descriptive Statistics for Help-Seeking Behavior with Outliers Removed

	Including outliers	With outliers for primary variable removed	With outliers for both variables removed
N	257	254	250
Mean	3.98	3.74	3.76
Median	3.00	3.00	3.00
Standard Deviation	3.55	2.59	2.60
Variance	12.63	6.72	6.78
Range	30.00	12.00	12.00
Skewness	3.78	1.88	1.86
Kurtosis	20.96	3.26	3.17

Eliminating the extreme univariate outliers for the help-seeking behavior variable greatly reduced the range and the difference between the median and the mean, and while the skewness and excess kurtosis remained higher than desired for normality, they approached acceptable levels. Using the standard errors for skewness and kurtosis of 0.15 and 0.30, respectively, resulted in skewness and kurtosis z-scores of 4.85 and 5.95, respectively, with the outliers for the help-seeking behavior variable removed, and skewness and kurtosis z-scores of 4.80 and 5.79, respectively, with the outliers for the both variables removed. These values still greatly exceeded the +/-1.96 threshold, indicating a non-normal data distribution (Ho, 2014), even with the outliers removed.

Table 5

Comparison of Descriptive Statistics for Writing Self-Efficacy with Outliers Removed

	Including outliers	With outliers for primary variable removed	With outliers for both variables removed
N	257	253	250
Mean	81.42	82.31	82.29
Median	84.90	85.00	84.98
Standard Deviation	13.41	11.39	11.45
Variance	179.86	129.66	130.99
Range	88.65	60.15	60.15
Skewness	-1.73	-0.95	-0.95
Kurtosis	4.84	0.69	0.65

Eliminating the extreme univariate outliers for the writing self-efficacy variable greatly reduced the range and the difference between the median and the mean, and the skewness and kurtosis dropped to acceptable levels for normality. Using the standard errors resulted in a skewness z-score of -2.45 and an excess kurtosis z-score of 1.26 when the outliers for the writing self-efficacy variable are removed, and a skewness z-score of -2.45 and an excess kurtosis z-score of 1.19 when the outliers for the both variables are removed. Although the skewness z-scores minimally exceeded the +/-1.96 threshold, the excess kurtosis z-scores did not, which indicated a more normal data distribution (Ho, 2014) with the outliers removed.

Since the outliers were not due to data entry or measurement errors, they most likely represented genuine data points; i.e., it was perfectly reasonable, albeit unexpected, for a student

who had two completed writing center draft review requests to have an average PSWSES score of only 10.5. Likewise, it was entirely probable to have students with more than 30 completed writing center draft review requests within a two-semester period. While potentially troublesome for the planned statistical analysis, the extreme outliers were not unreasonable data points for this research study; hence, it was decided to conduct further analysis using the data set including the outliers (unscreened) and using the data set excluding all extreme outliers (screened).

Univariate normality. Data were also screened for univariate normality, which assumes that the population distributions of the help-seeking behavior variable and the writing self-efficacy variable are normal. This assumption was checked using histograms (Figures 5 and 8) and the Kolmogorov-Smirnov ($N > 50$) normality test (Warner, 2013). As shown in the histograms, the presence of extreme outliers contributed to the data being severely skewed and not normally distributed.

Help-seeking behavior. Univariate normality of help-seeking behavior was checked using a histogram (Figure 5), as well as the Kolmogorov-Smirnov ($N > 50$) normality test (Warner, 2013).

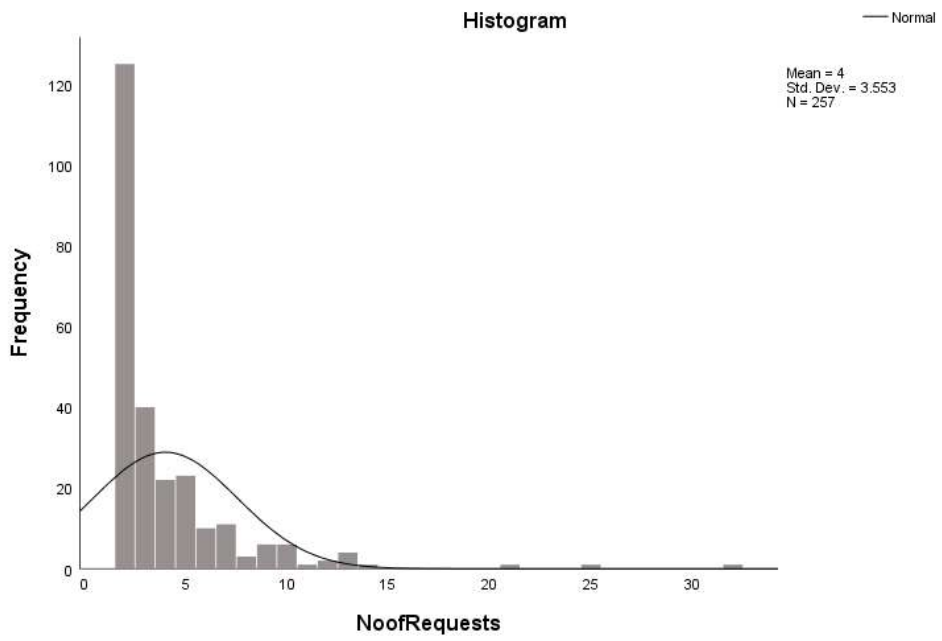

Figure 5. Histogram of help-seeking behavior showing normal (Gaussian) distribution curve.

Since most of the scores were on the left side of the curve, and there were extreme scores on the right, the distribution was positively skewed (Martin & Bridgmon, 2012) as predicted from the descriptive statistics. This skewness was not unexpected since most users of the OWC avail themselves of the service infrequently, and a minority take advantage of the service multiple times. Results from the Kolmogorov-Smirnov tests indicated significance ($p < .001$), which suggested the assumption of normality was not tenable for the help-seeking behavior variable. Because of the absence of univariate normality, histograms were also produced with the extreme outliers removed (Figures 6-7).

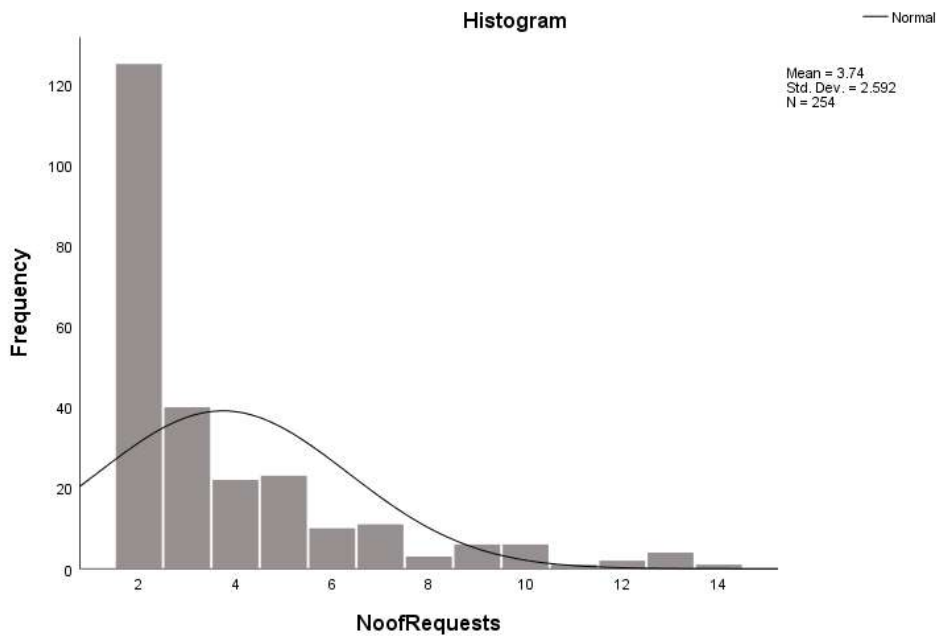

Figure 6. Histogram of help-seeking behavior with outliers removed showing normal (Gaussian) distribution curve.

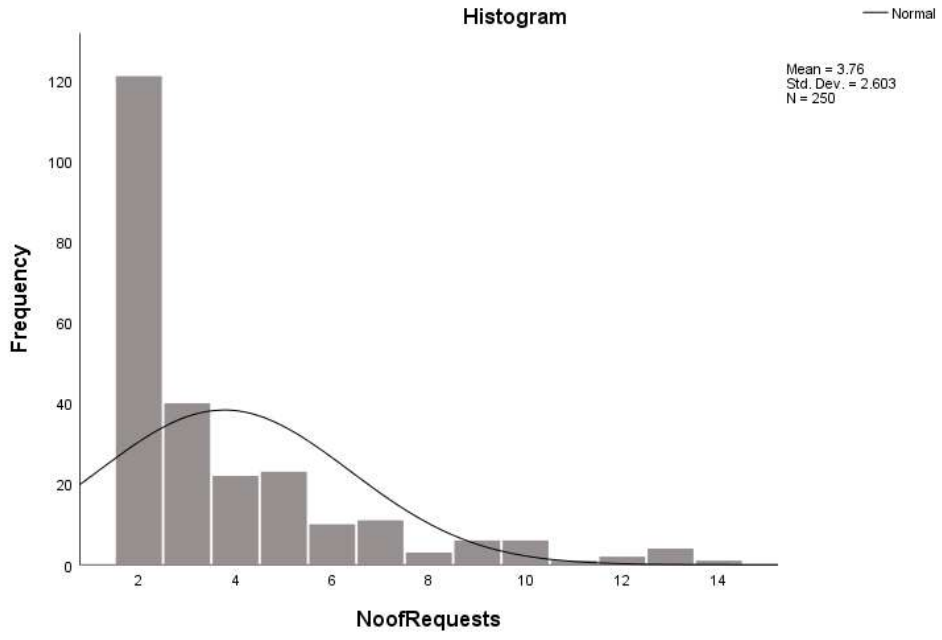

Figure 7. Histogram of help-seeking behavior with outliers removed for both variables showing normal (Gaussian) distribution curve.

From the histograms above and the associated Kolmogorov-Smirnov tests ($p < .001$), eliminating the extreme outliers did little to reduce the skewness of the univariate distribution for the independent variable or to make the distribution more normal.

Writing self-efficacy. Univariate normality of writing self-efficacy was checked using a histogram (Figure 8), as well as the Kolmogorov-Smirnov ($N > 50$) normality test (Warner, 2013).

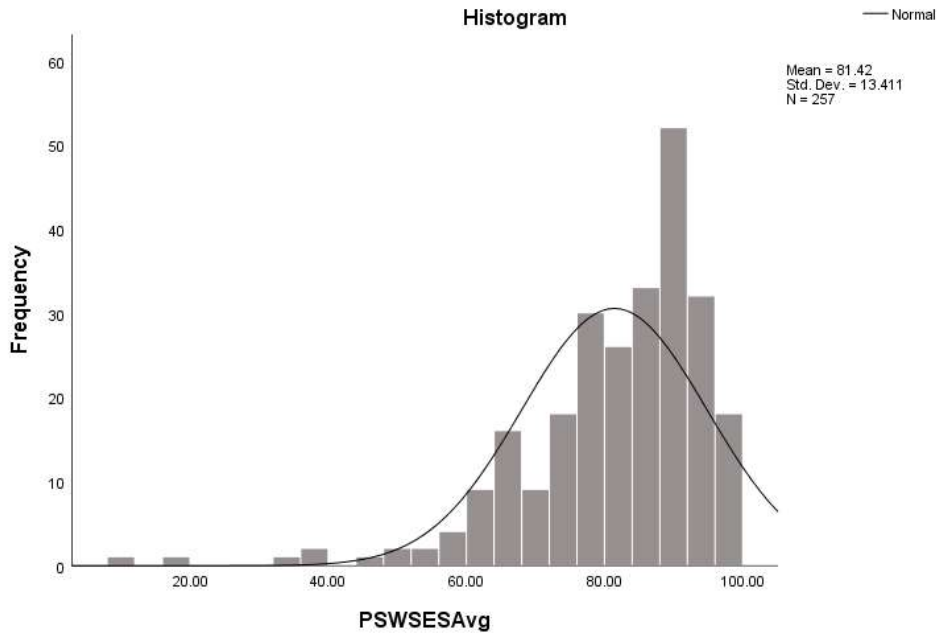

Figure 8. Histogram of writing self-efficacy showing normal (Gaussian) distribution curve.

Since most of the writing self-efficacy scores were on the right side of the curve, and there were extreme scores on the left, the distribution was negatively skewed (Martin & Bridgmon, 2012), as predicted from the descriptive statistics. The skewness of the writing self-efficacy variable was not unexpected since the average PSWSES score is 67, instead of the midpoint of 50 (K. Schmidt, personal communication, April 3, 2017; see Appendix B). Results from the Kolmogorov-Smirnov tests indicated significance ($p < .001$), which suggests the assumption of normality is not tenable for the writing self-efficacy variable. Because of the

absence of univariate normality, histograms were also produced using the dependent variable with the extreme outliers removed (Figures 9-10).

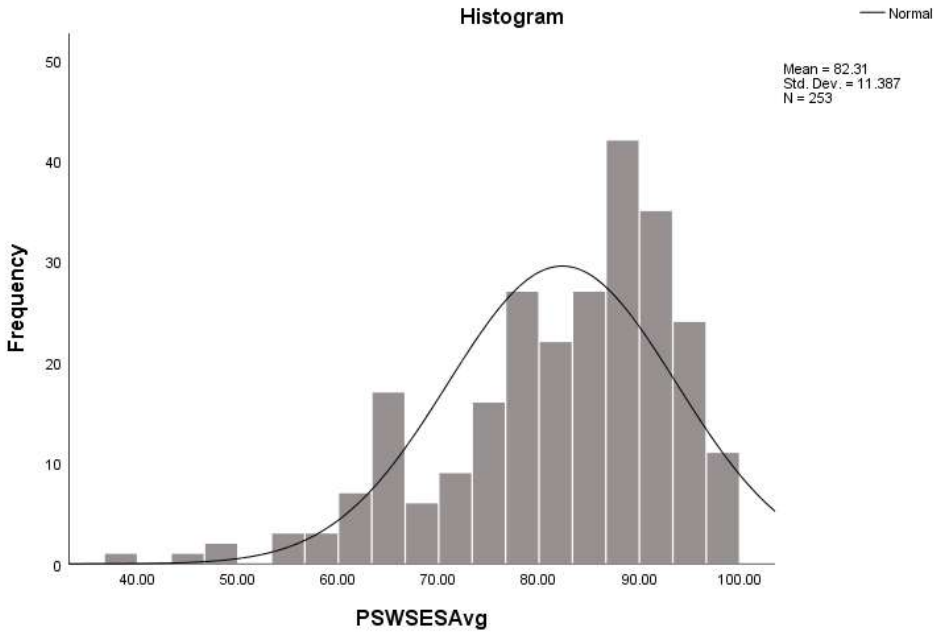

Figure 9. Histogram of writing self-efficacy with outliers removed showing normal (Gaussian) distribution curve.

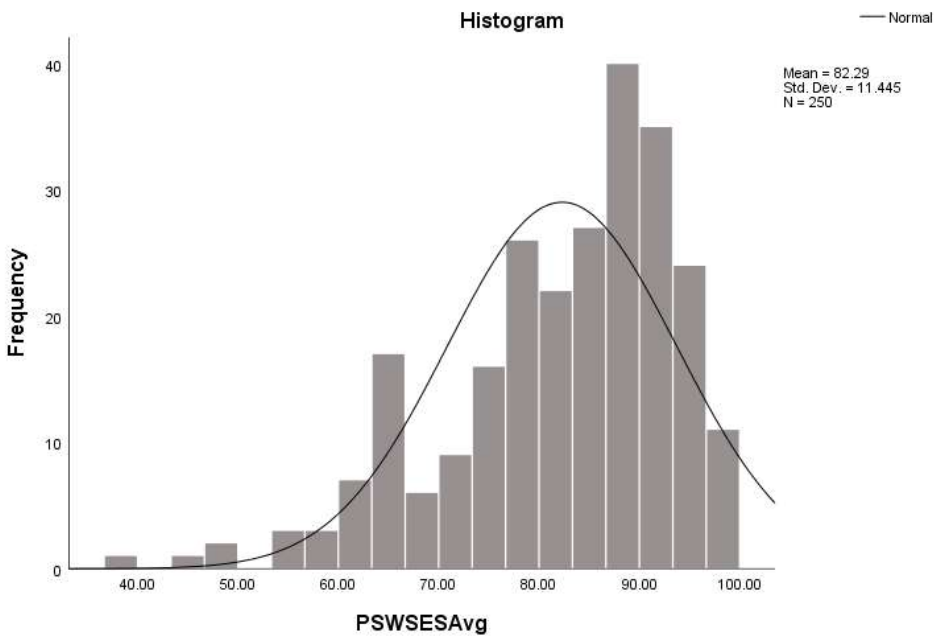

Figure 10. Histogram of writing self-efficacy with outliers removed showing normal (Gaussian) distribution curve.

The histograms above and the associated Kolmogorov-Smirnov tests ($p < .001$) indicated that eliminating the extreme outliers did little to reduce the skewness of the univariate distributions for either variable, suggesting the assumption of normality is not tenable. Fortunately, methods were available to reduce the skewness of univariate distributions (Tabachnick & Fidell, 2014). In particular, data transformation on the original data can be used to minimize the skewing effects of extreme data outliers, depending upon the severity of the skewness of the distribution (Tabachnick & Fidell, 2014; Warner, 2013).

Data transformations. Data transformations are commonly used tools to make highly skewed distributions less skewed (Osborne, 2002), thereby allowing the data to meet the assumptions of parametric inferential statistics (Lane, n.d.). However, the use of data transformations must be done with caution as the resulting transformed data may be difficult to interpret (Bland & Altman, 1996; Meyers, Gamst, & Guarino, 2013; Tabachnick & Fidell, 2014;

Warner, 2013). While linear data transformation generally does not change statistical results, such as Pearson's correlation coefficient, non-linear data transformation may drastically affect the results of these analyses (Lane, n.d.), hopefully for the better, but care must be exercised in interpreting the results (Bland & Altman, 1996). In addition, data transformations are not universally successful in reducing skewness or achieving normally distributed data (Laerd Statistics, 2017; Tabachnick & Fidell, 2014).

Help-seeking behavior. One common non-linear data transformation used to reduce the positive skewness of the distribution is accomplished by taking the common (base 10) logarithm of the independent variable and plotting the resulting histogram (Meyers et al., 2013; Warner, 2013). This method is particularly effective with substantial, or strong, positive skewness (Laerd Statistics, 2017; Meyers et al., 2013; Tabachnick & Fidell, 2014). For more moderate positive skewness, a square root data transformation is recommended (Laerd Statistics, 2017; Meyers et al., 2013; Tabachnick & Fidell, 2014), and for severe, or extreme, positive skewness, an inverse transformation may be required (Laerd Statistics, 2017; Meyers et al., 2013; Tabachnick & Fidell, 2014). Each of these non-linear data transformation methods was applied to the help-seeking behavior variable yet did little to reduce the positive skewness or improve the normality of the univariate distribution (Kolmogorov-Smirnov tests, $p < .05$).[2] Hence, the assumption of univariate normality is not tenable for the help-seeking variable.

Writing self-efficacy. Similarly, performing data transformations on the original data can also be used to rectify negatively skewed univariate distributions (Laerd Statistics, 2017; Tabachnick & Fidell, 2014), such as writing self-efficacy. Negatively skewed univariate distributions must be "reflected" (reversed or mirrored into positively skewed distributions)

[2] In the interest of space, the results of these data transformations are not shown.

before the data transformation is performed (Osborne, 2002). Once the data have been reflected, the same non-linear data transformations can be used to reduce the negative skewness of the distribution of the dependent variable as were used to reduce the positive skewness of the distribution of the independent variable: logarithmic, square root, and inverse (Laerd Statistics, 2017; Meyers et al., 2013; Osborne, 2002). Each of these non-linear data transformation methods was applied to the writing self-efficacy variable yet did little to reduce the negative skewness or improve the normality of the univariate distribution (Kolmogorov-Smirnov tests, $p < .05$).[3]

However, since the writing self-efficacy variable is expressed as a percentage, Osborne (2010) recommends an arcsine data transformation (also called the arcsine square root transformation, or the angular transformation; Carey, 2006) although it too has its detractors (Warton & Hui, 2011). Data are transformed by taking the arcsine of the square root of the number between 0 and 1, so the percentage must be expressed as a decimal. The result is expressed in radians, not degrees, ranging from $-\pi/2$ to $\pi/2$ (McDonald, 2014). This non-linear data transformation method was applied to the writing self-efficacy variable (Figure 11).

[3] In the interest of space, the results of these data transformations are not shown.

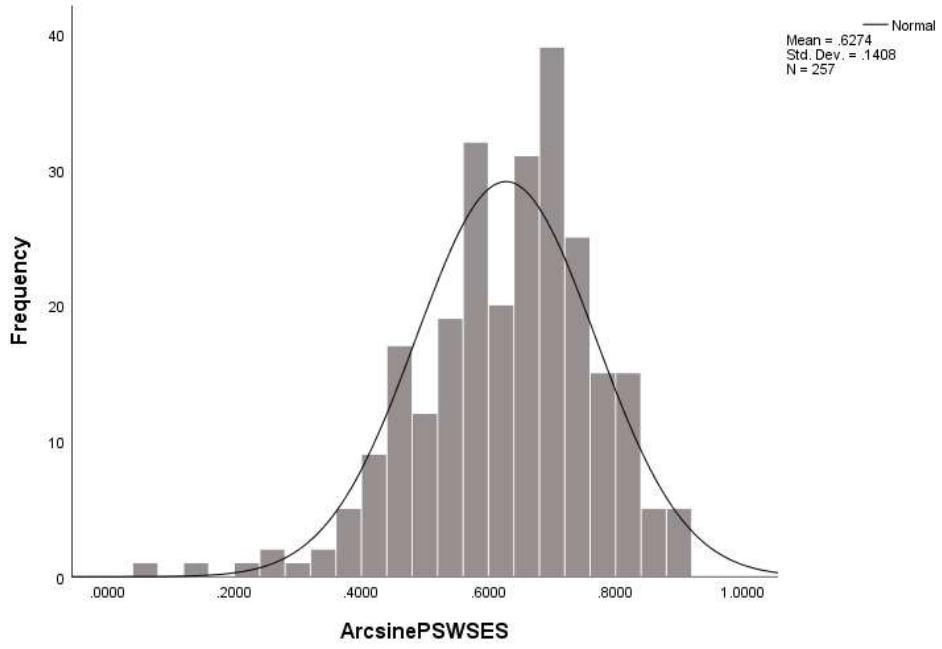

Figure 11. Histogram of writing self-efficacy, using the arcsine data transformation showing normal (Gaussian) distribution curve.

The arcsine data transformation resulted in a histogram that appears nearly normal, as revealed in Figure 11; however, the accompanying Kolmogorov-Smirnov test (p = .023) shows that the data transformation failed to produce a normal distribution of the dependent variable.

Warton and Hui (2011) observed several shortcomings of using the arcsine data transformation, instead recommending the logit data transformation for proportional data. The logit, or logarithm of the odds (Carey, 2006), is calculated by taking the common log of the ratio of the probability of an event and its inverse (Holland, 2017). The interpretation of the data transformed using the logit function is much simpler than data transformed using the arcsine function (Warton & Hui, 2011). The logit function also expands the variable scale to include all real numbers, making it a true continuous variable, rather than being bounded as with the arcsine function (Holland, 2017).

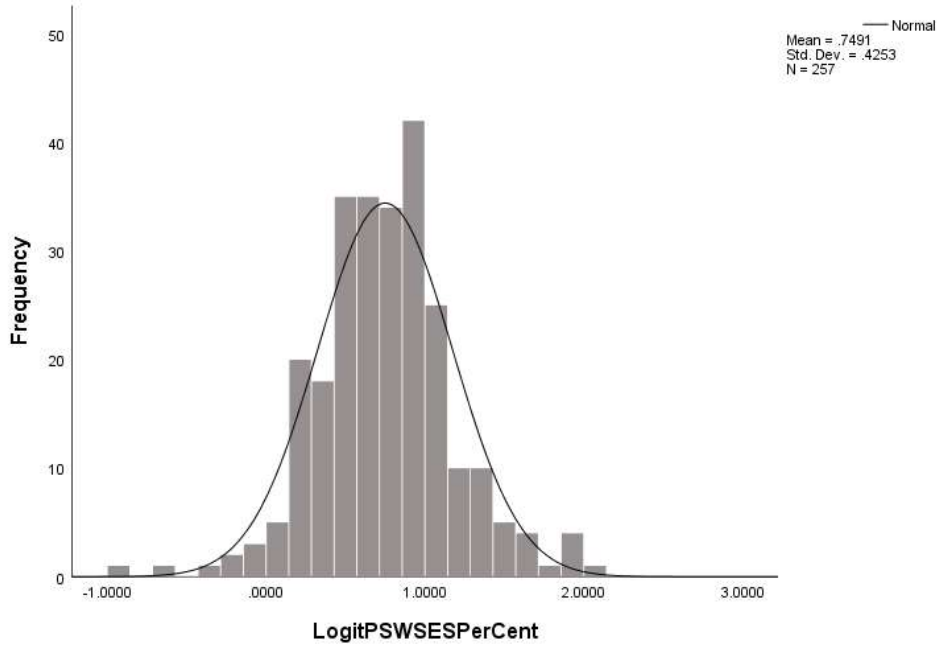

Figure 12. Histogram of writing self-efficacy, using the logit data transformation showing normal (Gaussian) distribution curve.

The histogram (Figure 12) resulting from the logit data transformation appears to represent a normal distribution, which is confirmed by the supplementary Kolmogorov-Smirnov test (p = .082), showing that the data transformation produced a normally distributed variable. Hence, the assumption of univariate normality is tenable for the writing self-efficacy variable using the logit data transformation.

Assumption Testing

For a Pearson product moment correlation analysis to be justified, several assumptions must be valid (Warner, 2013). These assumptions include bivariate outliers, linearity, and bivariate normal distribution (Green & Salkind, 2014; Laerd Statistics, 2017; Warner, 2013).

Assumption of bivariate outliers. Bivariate outliers are data points that do not fit the expected pattern of data points and are generally detrimental to the fit of the correlation coefficient (Laerd Statistics, 2017). In SPSS (IBM, 2017), scatter plots were performed between

the two variables, help-seeking behavior and writing self-efficacy, looking for extreme bivariate outliers, using both unscreened and screened data (Green & Salkind, 2014; Warner, 2013; see Figures 13 and 14, respectively).

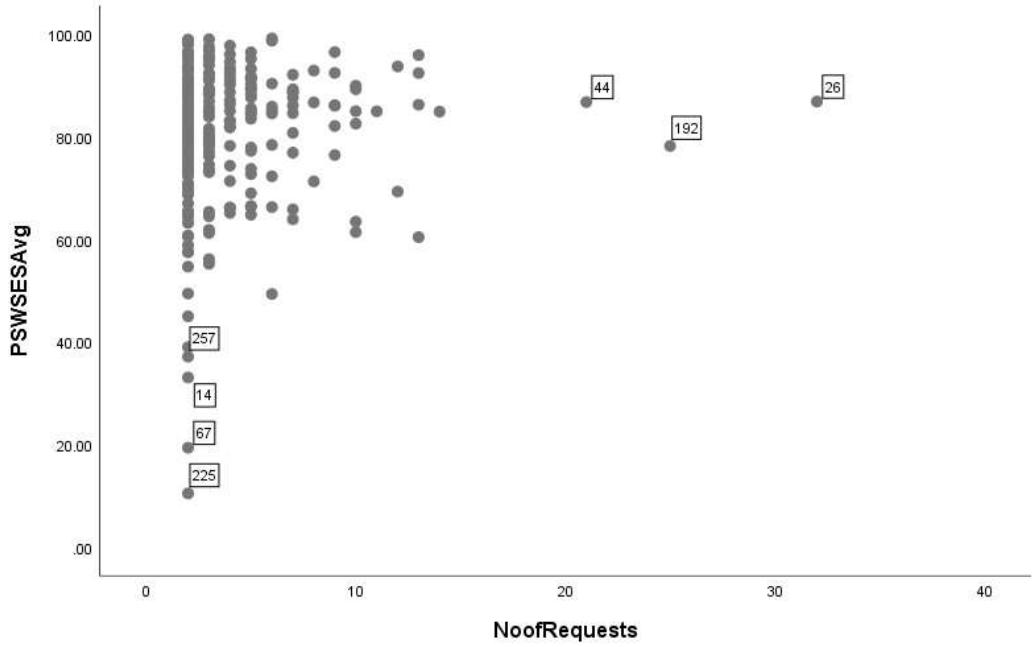

Figure 13. Scatter plot between help-seeking behavior and writing self-efficacy, using unscreened data with extreme bivariate outliers annotated.

Remarkably, the bivariate outliers resulting from the unscreened data were identified as univariate outliers during data screening (see Figures 2 and 4). The scatter plot shown in Figure 14 displays all data points identified as univariate outliers during data screening having been removed.

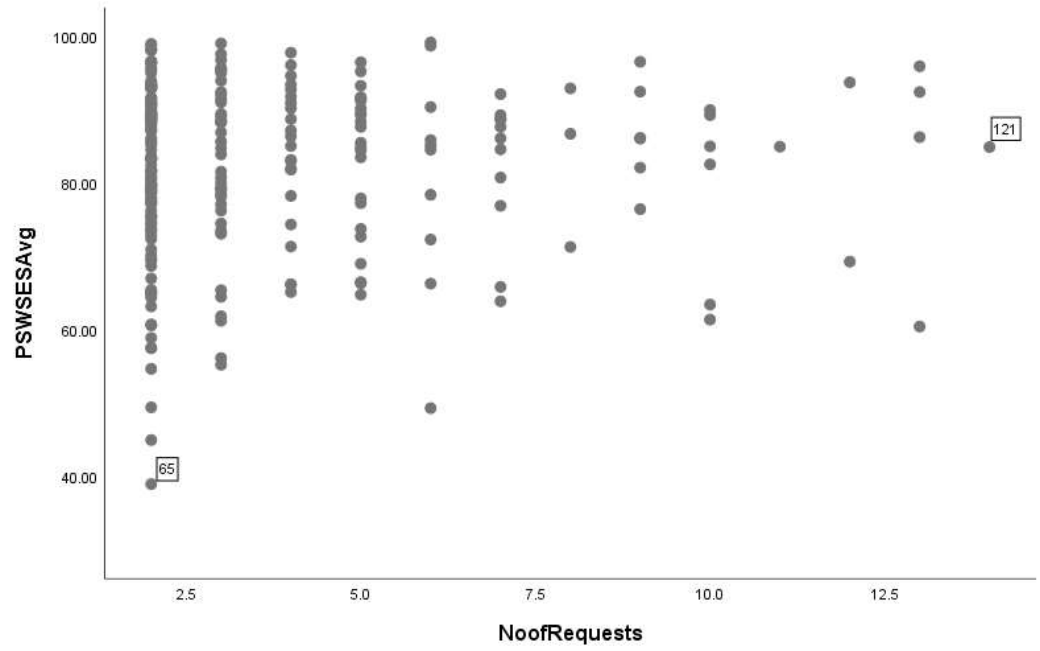

Figure 14. Scatter plot between help-seeking behavior and writing self-efficacy, using screened data with extreme bivariate outliers annotated.

Of note, the bivariate outliers resulting from the screened data, data points 121 and 65, were identified as borderline univariate outliers during data screening as their z-scores were -2.83 and -3.18, respectively (Tabachnick & Fidell, 2014). These data points were not removed as part of the data screening process since their z-scores did not exceed the threshold of +/- 3.29 (Tabachnick & Fidell, 2014). Accordingly, the assumption of bivariate outliers was not tenable.

Assumption of linearity. Linearity refers to the condition in which the two variables, help-seeking behavior and writing self-efficacy, are highly correlated with one another (Laerd Statistics, 2017; Warner, 2013). In SPSS (IBM, 2017), a scatter plot was used between the variables, visually displaying the strength of the linear association between the two variables, using both unscreened and screened data (see Figures 15 and 16, respectively).

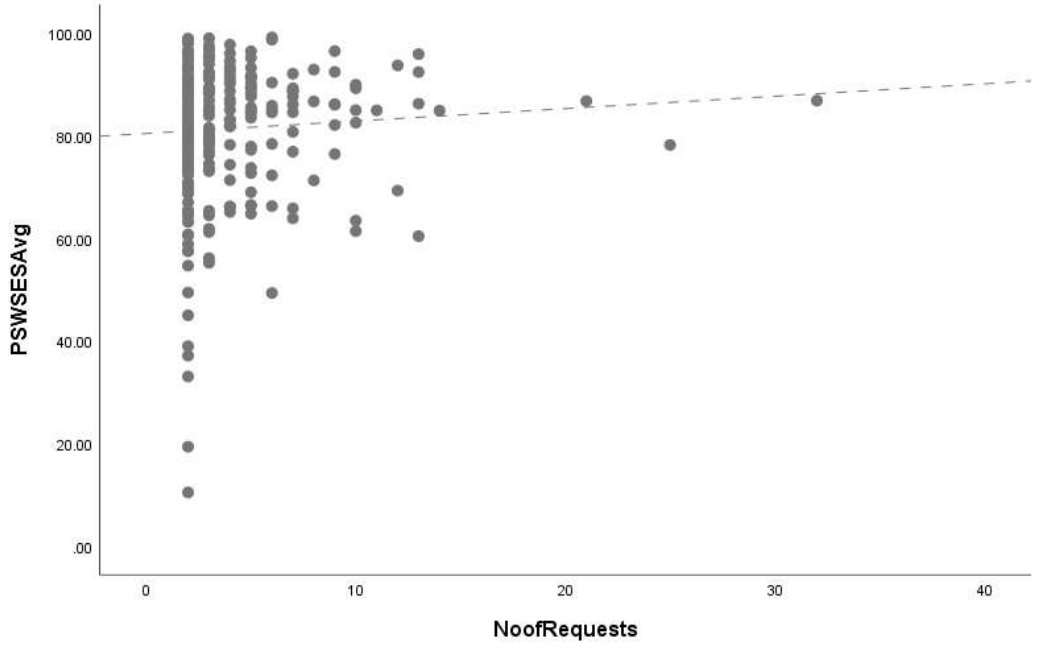

Figure 15. Scatter plot showing linear relationship between help-seeking behavior and writing self-efficacy, using unscreened data.

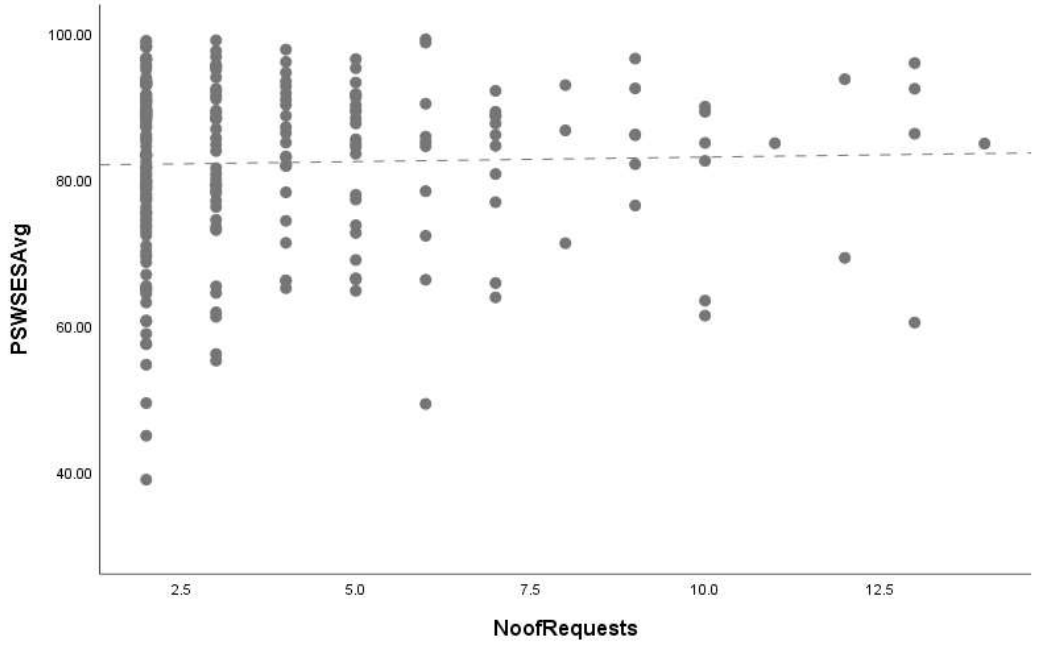

Figure 16. Scatter plot showing linear relationship between help-seeking behavior and writing self-efficacy, using screened data.

The foregoing scatter plot diagrams (Figures 15 and 16) evinced a mild linear relationship using both the unscreened and screened data; hence, the assumption of bivariate linearity was met.

Assumption of bivariate normal distribution. In a bivariate normal distribution, each variable must be normally distributed across all values for the other variable (Green & Salkind, 2014). In SPSS (IBM, 2017), scatter plots were used to examine the relationship between help-seeking behavior and writing self-efficacy, looking for the classic cigar shape, using both unscreened and screened data (Green & Salkind, 2014; Warner, 2013; see Figures 17 and 18, respectively).

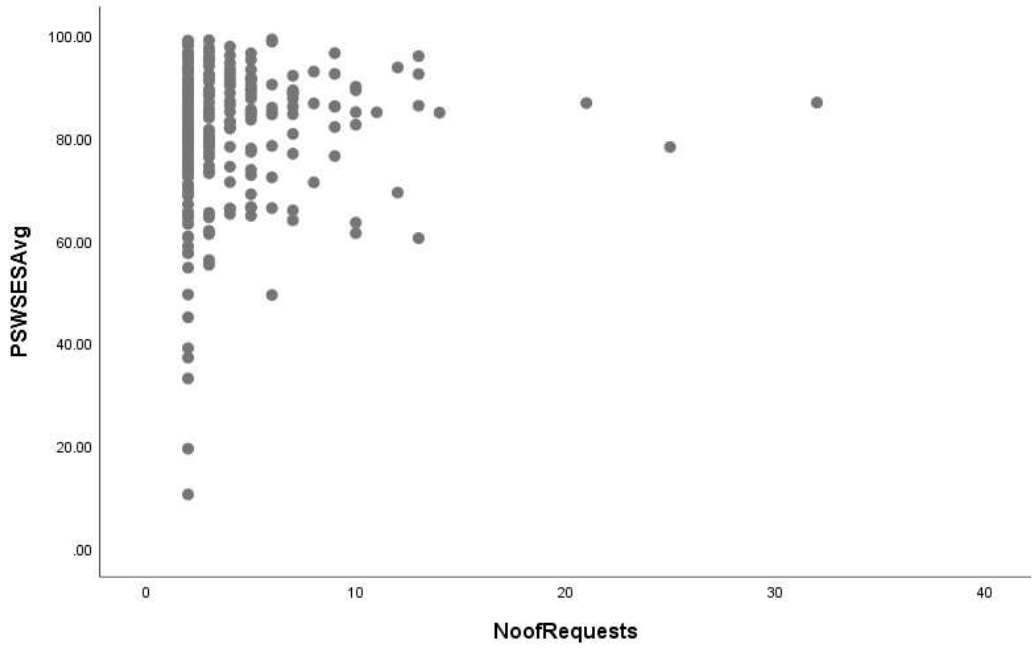

Figure 17. Scatter plot showing bivariate normality between help-seeking behavior and writing self-efficacy, using unscreened data.

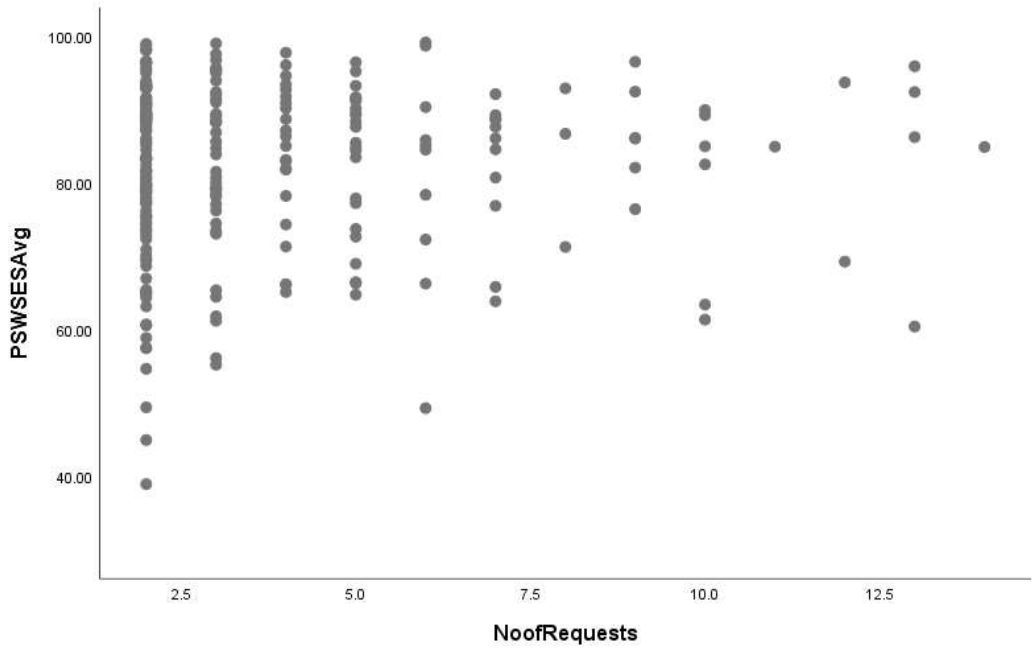

Figure 18. Scatter plot showing bivariate normality between help-seeking behavior and writing self-efficacy, using screened data.

No cigar shape could be seen from the foregoing scatter plot diagrams (Figures 17 and 18), using either the unscreened or screened data, which means writing self-efficacy was not normally distributed across all values of help-seeking behavior (Green & Salkind, 2014). Therefore, the assumption of bivariate normality was not tenable.

Options

Since the assumptions of bivariate outliers and bivariate normality were found to be untenable, three options were available to proceed: perform data transformation and recheck bivariate normality; continue to perform Pearson's correlation with non-transformed data since Pearson's is somewhat robust to deviations in normality (Laerd Statistics, 2017); or justify and seek approval to perform non-parametric testing (i.e., Spearman rank-order correlation or Kendall tau-b correlation). The decision was made to examine the first two of these options, looking for the best possible explanation of the data as non-parametric testing would not likely

have yielded improved results given the types of data being analyzed (Garson, 2013; Ho, 2014; Laerd Statistics, 2017; Warner, 2013).

Data transformations. In SPSS (IBM, 2017), scatter plots were used to examine the relationship between the variables, using the data transformation for each variable that most reduced the skewness in the test of univariate normality above: i.e., the common (base 10) logarithm data transformation for the help-seeking behavior variable and the logit data transformation for the writing self-efficacy variable (see Figure 19; Green & Salkind, 2014; Laerd Statistics, 2017; Warner, 2013).

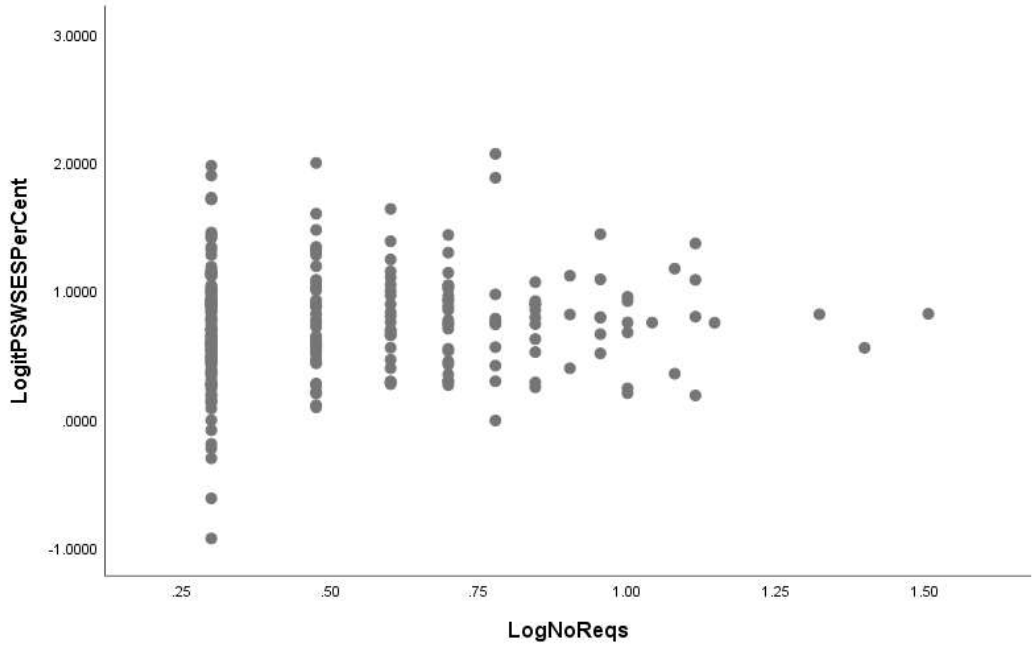

Figure 19. Scatter plot showing bivariate normality between help-seeking behavior, using the common (base 10) logarithm data transformation and writing self-efficacy, using the logit data transformation.

The foregoing scatter plot diagram (Figure 19) presents a vague cigar shape after using data transformations, which means the transformed variable, writing self-efficacy, is somewhat normally distributed across all values of the transformed variable, help-seeking behavior (Green

& Salkind, 2014; Laerd Statistics, 2017). Therefore, the assumption of bivariate normality is marginally tenable for the transformed variables.

Parametric testing. The Pearson product-moment correlation is a parametric test, which was used to assess the association between the two variables (Warner, 2013). It is commonly used to correlate two continuous or interval variables that are normally distributed (Garson, 2013; Ho, 2014; Warner, 2013), neither of which has been shown to be true in this study. The results of the Pearson product-moment correlation are given below.

Statistical Test

Pearson product-moment correlation. A Pearson product-moment correlation coefficient was computed to assess the strength and direction of the possible linear relationship between the two variables, using the unscreened data. The results of the analysis revealed no statistically significant linear relationship between the variables, $r(257) = .064$, $p = .306$. Conducting the analysis using the transformed data yielded similar results, $r(257) = .051$, $p = .420$.

This outcome supports the null hypothesis; therefore, the researcher failed to reject the null hypothesis. Effect size was reported as Pearson's correlation coefficient (r), indicating the strength and direction of the linear relationship (Warner, 2013). The post hoc statistical power ($1-\beta$) was calculated to be .267 using G*Power 3 (Faul et al., 2009, 2014), indicating a 26.7% probability that the null hypothesis was correctly rejected or a 73.3% probability that the null hypothesis was not rejected correctly.

CHAPTER FIVE: CONCLUSIONS

Overview

This quantitative, correlational study evaluated the potential linear relationship between help-seeking behavior and writing self-efficacy for online graduate students at a large, regionally accredited, faith-based, non-profit, private university in the southeastern United States with a substantial online student population. This chapter will discuss the findings of that study, as well as implications of those results both for writing center theory and for writing center administration and practice. The limitations of the study will be reviewed, and suggestions for future research will be provided.

Discussion

The purpose of this quantitative, correlational study was to determine the potential linear relationship between help-seeking behavior and writing self-efficacy for online graduate students. The study determined there is no statistically significant linear relationship between online graduate students' help-seeking behavior, as measured by the number of completed draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES). Specifically, a Pearson product-moment correlation analysis was conducted to answer the following research question:

Research Question

RQ: What is the potential relationship between online graduate students' help-seeking behavior, as measured by the number of completed draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (Schmidt & Alexander, 2012)?

Null Hypothesis

One null hypothesis resulted from this research question:

$H_0$1: There is no statistically significant correlation between online graduate students' help-seeking behavior, as measured by the number of completed writing center draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES).

Findings

The findings of this study substantiated the null hypothesis; therefore, the researcher failed to reject the null hypothesis: There is no statistically significant linear correlation between online graduate students' help-seeking behavior, as measured by the number of completed draft review requests, and their writing self-efficacy, as measured by the Post-Secondary Writerly Self-Efficacy Scale (PSWSES). The two variables are statistically independent.

As no other quantitative studies to date have examined the relationship between student help-seeking behavior and writing self-efficacy at the graduate level and in an online environment, no direct comparisons with prior research can be made. However, there have been several studies delving into the overall association between self-efficacy and help-seeking behavior. Their relationship is still somewhat nebulous and is under investigation across multiple fronts.

According to one study by Finney et al. (2018), there was a positive relationship between general, academic self-efficacy and instrumental help among traditional college students (Karabenick, 2003; White & Bembenutty, 2013). The sources of help (instructors, peers, parents, etc.) have been positively linked to academic self-efficacy as well (Karabenick, 2003; Kitsantas & Chow, 2007). However, no relationship was found between academic self-efficacy

and either executive or avoidant help-seeking behavior (Karabenick, 2003), and it was either not correlated or was negatively correlated to perceived threat (Karabenick, 2003; Kitsantas & Chow, 2007).

Karabenick and Newman (2009) noted that help-seeking behavior could generate high self-efficacy whereas Bernacki et al. (2014) observed that increases in self-efficacy predicted help-seeking behavior. On the other hand, Williams and Takaku (2011) found the two constructs negatively correlated. Ryan and Shin (2011) discovered a positive relationship between academic self-efficacy and adaptive help-seeking behavior, but a negative relationship with avoidant help-seeking behavior. Huet et al. (2016) reported participants with high academic self-efficacy were less likely to seek help than those with lower self-efficacy; however, they concluded that their relationship changed over time and is non-linear.

Neroni et al. (2019) posited that the help-seeking behavior of students in a traditional education setting differed from those in a distance education setting "because of the individual character of studying" (p. 6). In traditional education, well-performing students sought help more often than poorly performing students (Newman & Goldin, 1990; Ryan et al., 2005), who generally did not seek help to avoid being harshly judged by their peers (Ryan et al., 2001; Ryan & Shin, 2011).

The results of the present study tend to support Huet and colleagues (2016) since most participants demonstrated high writing self-efficacy as measured by the average PSWSES score. Twenty-six students (10%) scored 95.00 or higher; 68 students (28%) scored 90.00 or higher; and 134 students (53%) scored greater than 84.00, which indicates above average writing self-efficacy (K. Schmidt, personal communication, April 3, 2017; see Appendix B). Conversely, only 11 students (4%) had more than 10 completed draft review requests, exhibiting high help-

seeking behavior, as expected from the research of Anderson and Williams (1996), Cleavenger et al. (2007), Madni (2008), and Ryan et al. (2001), which concluded that students with high self-efficacy avoid seeking help. Moreover, the results could extend the findings of Newman and Goldin (1990) and Ryan et al. (2005) to include online students.

An additional issue raised by these findings concerns the type of help-seeking behavior being presented by the participants in their completed draft review requests: instrumental or executive. The absence of correlation between participants' help-seeking behavior and their writing self-efficacy seems to indicate students were demonstrating executive help-seeking behavior, which is reflective of the study by Karabenick (2003). In the writing center context, executive help-seeking behavior hinders the goal of student growth and independence (self-regulated learning) by encouraging the perception of an editing service (Karabenick, 1998, 2003). These results can expand Karabenick's (2003) conclusions to include online students.

On a more fundamental level, having high writing self-efficacy obviously did not deter students from requesting assistance from the OWC, in contrast to the assertions of Anderson and Williams (1996), Cleavenger et al. (2007), Madni (2008), and Ryan et al. (2001). The highest average PSWSES score was 99.15, which indicates nearly perfect writing self-efficacy. Interestingly, this score was achieved by a student who had only two completed draft review requests. The highest average PSWSES score by a student whose number of completed draft review requests exceeded 10 was 98.70. The student who achieved this score had 18 completed draft review requests. These results bolster the claim of Huet and colleagues (2016) and may add support to the contention by Neroni et al. (2019) that the help-seeking behavior of online students may differ from that of their traditional counterparts.

Only eight students (3%) self-scored less than 50.00 on the PSWSES, and only 37 students (15%) scored less than the average writing self-efficacy score of 67 (K. Schmidt, personal communication, April 3, 2017; see Appendix B). This preponderance of above average PSWSES scores could also provide support for the assertion by Ryan and Shin (2011) that students with low academic self-efficacy are less likely to seek help because they believe others will see them as less capable.

The maximum number of completed draft requests reported from this study was 32, which was from a student whose average PSWSES score was 86.85, still above average writing self-efficacy (K. Schmidt, personal communication, April 3, 2017; see Appendix B). This result counters the claims of Anderson and Williams (1996), Cleavenger et al. (2007), Madni (2008), and Ryan et al. (2001) while supporting the argument of Huet and colleagues (2016) and also possibly reinforcing the position of Neroni et al. (2019).

Implications

The implications of this study can be divided into empirical or theoretical implications and practical implications.

Empirical

Arising from the lack of a statistically significant linear relationship between online graduate students' help-seeking behavior and their writing self-efficacy, this study's impact on writing center theory is not immediately obvious, probably because writing centers are where theory collides with practice. While writing self-efficacy is a tremendously useful concept in writing center theory, its application to writing center pedagogy may be limited since many students may be motivated to use a writing center by something other than interest in improving their writing self-efficacy, i.e., instrumental versus executive help-seeking behavior.

Nevertheless, this study does contribute slightly to the extremely limited body of knowledge relative to writing self-efficacy and help-seeking behavior because it addresses, or rather draws into question, one motivating factor for student use of a writing center, especially for graduate students in an online environment. From the results of this study, writing self-efficacy does not have a statistically significant effect on help-seeking behavior. On the other hand, help-seeking behavior does not significantly affect the student's writing self-efficacy.

Practical

This study has important connotations for writing center administrators and practitioners because of the absence of any statistically significant linear relationship between online graduate students' help-seeking behavior and their writing self-efficacy. The number of times an online graduate student receives assistance from the writing center has no statistically significant linear relationship to his or her writing self-efficacy. Conversely, online graduate students' writing self-efficacy is not statistically significantly related to their help-seeking behavior. This lack of relationship raises vital practical questions: If there is no relationship between students' writing self-efficacy and help-seeking behavior, then why do students keep visiting the writing center? Perhaps, some repeat users of the OWC did not desire writing improvement; they simply needed a "second set of eyes" to review their work. In other words, they wanted a proofreading or editing service. Are the tutors becoming editors? Are some students using the writing center as a "repair shop"? Are they using the writing center as a "crutch"? Are tutors focusing on process or product? These possibilities are supported by this and prior research (Karabenick, 1998, 2003). From a practical standpoint, writing center administrators need to reevaluate their objectives based on these results, and writing tutors must realistically assess their own goals as well.

Limitations

As with all studies attempting to measure the association between two variables, any resulting correlation does not necessarily imply causation (Warner, 2013). Moreover, the findings of this study may have limited generality to other populations or situations (Field, 2013). Finally, the specific circumstances under which this study was conducted contribute to various other limitations.

First, the restricted nature of the sample and the overall population from which it was drawn constitutes a potential limitation. Since the sample population was drawn from a single, large, regionally accredited, faith-based, non-profit, private university in the southeastern United States with a substantial online student population, the assumption that the target population was homogeneous and therefore representative of all universities with a sizable online student base may have been too optimistic. Similarly, this sample population also reflected the use of a single online writing center. Additionally, the study assumed that all online graduate students constituted a single, homogeneous population, which is contrary to Parker (2010). It is possible that the online graduate students constitute three distinct populations: those who have never used the OWC; those who have used the OWC only once; and those who have used the OWC more than once.

Since the study data were extracted from only two academic semesters, the data may have been skewed because they did not account for possible overlap from previous or subsequent semesters. For example, a student may have had five completed draft review requests from the OWC in the Fall 2017-Spring 2018 semesters but may have had an additional five in the Summer 2017 semester, which were unaccounted for in this study. Further, while the interest of this study was only students who used the OWC multiple times, acquiring data for single-use

students would have provided an interesting comparison analysis. Likewise, studies have shown the influence of various covariables on one's self-efficacy. Factors such as age, gender, race, primary language, disability, academic degree program, and religiosity may affect how someone perceives his or her self-efficacy.

Other limitations arise from the design of the study itself. Because the independent variable was bounded and discrete, not continuous, and the dependent variable was also bounded, the available statistical analyses were severely limited. Neither variable was normally distributed, making the more common statistical analyses for correlation impractical. Additionally, the Pearson product-moment correlation analysis only evaluates the linear relationship between the two variables; it cannot assess a non-linear relationship. A further limitation arises from the possible bias introduced by the design of the study, which focused on draft review (asynchronous) requests. Because tutoring effectiveness has been linked to "the conversation" (Bruffee, 2008, p. 7), including synchronous requests may have provided different results. Moreover, using the number of completed draft requests as a measure of help-seeking behavior precludes the possibility of differentiating the various types of help-seeking behavior, which would have been enlightening. Similarly, making a distinction between targeted and full draft reviews may have also revealed an association with help-seeking behavior.

One of the greatest limitations to this study is its cross-sectional nature; that is, it examined data from a population at a specific point in time in the past, namely at the end of a previous academic semester. Therefore, the measure of the student's self-efficacy relied on the recollection of his or her writing self-efficacy a few months prior. An added limitation arises from the study's sole focus on the numerical correlation of online graduate students' help-seeking behavior and their writing self-efficacy. The results help to determine "what" that

correlation (or lack thereof) looks like, but they fail to address "why" the correlation does not exist or "how" it can be improved.

A final limitation concerns the use of writing self-efficacy as an adequate measure of writer or writing quality. While suitable research exists to justify this choice, it is possible, especially given the results, that there may be a more revealing construct for measuring student writing proficiency (Latawiec, 2016; Schoettler, 2017; Tripp, 2012). By definition, self-efficacy fluctuates throughout the learning process (Mitchell et al., 2017); therefore, it is possible that surveying students at the end of an academic semester may have resulted in scores that were unduly influenced by the students' grades for that semester, rather than solely by the number of times they received assistance from the OWC. Additionally, because self-efficacy is self-evaluated, survey respondents could easily overestimate their own abilities, which has been demonstrated in many studies (Igo, Toland, Flowerday, Song, & Kiewra, 2002; McCarthy, Meier, & Rinderer, 1985; Meier, McCarthy, & Schmeck, 1984; Prat-Sala & Redford, 2012; Walsh, Prokos, & Bird, 2014). Moreover, since the developers of the PSWSES tested the instrument using residential undergraduate students, it is possible that its reliability and validity may not be applicable to online graduate students.

Recommendations for Future Research

As mentioned previously, to date, no quantitative studies have examined the relationship between student writing self-efficacy and repeated use of the writing center at the graduate level and in an online environment. Consequently, the results of this study suggest several areas for further research. To address the aforementioned limitations, the current study could be expanded to include multiple schools, other online writing centers, or more semesters. The sample could be broadened to include students who have used the writing center once. Additionally, the

current study could be replicated to account for the possible effects of the many apparent covariables.

To deal with the limitations of the study design itself, a longitudinal study could be conducted over the course of one or more academic semesters to evaluate any trends in student writing self-efficacy. A qualitative or mixed methods study could be undertaken to answer the "what," "why," and "how" questions left unanswered by this study. Additional reliability and validity testing of the PSWSES could be conducted using an online graduate student population. A new instrument for evaluating the writing self-efficacy for an online graduate student population could be developed, and the participant questionnaire should be revised to differentiate among the types of help-seeking behavior. Finally, specialized statistical procedures should be investigated to enable the analysis of discrete (count) and bounded continuous variables and to account for their non-normal data distributions.

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APPENDIX A

Post-Secondary Writerly Self-Efficacy Scale[4]

Western Oregon University Writing Center

Getting to Know Yourself as a College Writer *

This self assessment takes less than 2 minutes to complete, and your identity will remain confidential.

Student V#: _____

Today's Date: _____

Please Assess Your Capabilities:
Never Always
0% 100%

Items	*Example: I can identify incomplete, or fragmented, sentences.*	*66%*
1.	I can indentify incomplete, or fragmented, sentences.	____ %
2.	I can invest a great deal of effort and time in writing a paper when I know the paper will earn a grade.	____ %
3.	I can articulate my strengths and challenges as a writer.	____ %
4.	I can find and incorporate appropriate evidence to support important points in my papers.	____ %
5.	I can be recognized by others as a strong writer.	____ %
6.	When I read a rough draft, I can identify gaps when they are present in the paper.	____ %
7.	I can maintain a sense of who my audience is as I am writing a paper.	____ %
8.	I can write a paper without feeling physical discomfort (e.g., headaches, stomach aches, back aches, insomnia, muscle tension, nausea, and/or crying).	____ %
9.	When I read drafts written by classmates, I can provide them with valuable feedback.	____ %
10.	When I have a pressing deadline for a paper, I can manage my time efficiently.	____ %
11.	I can attribute my success on writing projects to my writing abilities more than to luck or external forces.	____ %
12.	When a student who is similar to me recieves praise and/or a good grade on a paper, I know I can write a paper worthy of praise and/or a good grade.	____ %
13.	Once I have completed a draft, I can eliminate both small and large sections that are no longer necessary.	____ %
14.	I can write a paper without experiencing overwhelming feelings of fear or distress.	____ %
15.	When writing papers for different courses (for example, Biology, English, and Philosophy classes), I can adjust my writing to meet the expectations of each discipline.	____ %
16.	I can map out the structure and main sections of an essay before writing the first draft.	____ %
17.	I can find ways to concentrate when I am writing, even when there are many distractions around me.	____ %
18.	I can find and correct my grammatical errors.	____ %
19.	I can find and use resources that help me with my writing.	____ %
20.	When I work with a writing tutor, I can learn new strategies which promote my development as a writer.	____ %

* *Ensuring your success as a college writer is our mission; therefore, we are interested in learning more about how you understand yourself as a college writer and how your perception changes over time. You will be asked to complete this survey each time you utilize our services, and we will share the results with you, upon request. Thank you!*

[4] Permission to publish is in Appendix M.

APPENDIX B

Permission to use PSWSES

Re: Instrument Use

Katherine Schmidt <schmidtk@mail.wou.edu> on behalf of Katherine M. Schmidt <schmidtk@wou.edu>

Mon 4/3/2017 9:33 AM

To: Aunkst, Brian Douglas (Writing Center) <bdaunkst@liberty.edu>;

Cc: Joel Alexander <alexanj@wou.edu>;

1 attachments (73 KB)

PSWSES revised.pdf;

Dear Brian:

Everything appears to be acceptable. I have attached a .pdf of the revised scale, as we have changed one item from the original scale: Item 19, *I can invest a great deal of effort and time in writing a paper when I know the paper will not be graded,* did not load specifically on any given factor and the communality was low. We also were aware of the absence of a statement regarding writing resources; therefore, item 19 was replaced by a writing-resource-oriented statement: *I can find and use resources that help me with my writing.*

We created the instrument for open use, and our scoring guide is very basic at this time: someone who averages above 84 across the questions is above average Writerly Self-Efficacy, and those who score below 67 on average across questions is below average self-efficacy (based on quartiles).

Good luck with everything!

Katherine

On 4/1/17 12:39 PM, Aunkst, Brian Douglas (Writing Center) wrote:

> Dear Professor Schmidt.
>
> I am a doctoral student at Liberty University writing the research proposal for my dissertation, which is tentatively titled *The Relationship Between Online Writing Center Usage and Writing Self-Efficacy: A Correlation Study.* I would like to use your Post-Secondary Writerly Self-Efficacy Scale (PSWSES) in my research study. My plan is to use the survey with online graduate students who have used our Online Writing Center.
>
> Its use will be under the following conditions:
> - I will use the survey only for my research study and will not sell or use it with any compensated or curriculum development activities.
> - I will include the copyright statement on all copies of the instrument.
> - I will send a copy of my completed research study to your attention upon completion of the study.
>
> If these are acceptable terms and conditions, please indicate so by replying to this e-mail (bdaunkst@liberty.edu).
>
> Sincerely,
>
> Brian D. Aunkst
> *Graduate Tutor Supervisor*
> **Online Writing Center**
> LIBERTY
> UNIVERSITY
>
> *Liberty University | Training Champions for Christ since 1971*

--
Dr. Katherine M. Schmidt
Writing Center Director & Professor of English
Western Oregon University
503.838.8234

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

March 7, 2018

Brian Aunkst
IRB Exemption 3137.030718: A Correlational Study of the Relationship Between Online Writing Center Usage and Writing Self-Efficacy

Dear Brian Aunkst,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
> (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

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APPENDIX D

Consent Form

The Liberty University Institutional
Review Board has approved
this document for use from
3/7/2018 to --
Protocol # 3137.030718

CONSENT FORM
A Correlational Study of the Relationship Between
Online Writing Center Usage and Writing Self-Efficacy
Brian D. Aunkst
Liberty University
School of Education

You are invited to be in a research study on the relationship between Online Writing Center usage and writing self-efficacy. You were selected as a possible participant because you have been a user of the Online Writing Center, are an online graduate student at Liberty University, and are 18 years of age or older. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Brian D. Aunkst, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to gain a better understanding of the relationship between Online Writing Center usage and writing self-efficacy among online graduate students.

Procedures: If you agree to be in this study, I would ask you to complete an online survey to elicit data concerning your use of the Online Writing Center and your own writing self-efficacy. Certain demographic information, such as gender and race, will be requested as part of your participation. Data collected will be anonymous to the researcher. The estimated time to complete the online survey is 10 minutes.

Risks and Benefits of being in the Study: The risks involved in this study are no more than the participant would encounter in everyday life.

You should not expect to receive direct benefits for participating in this study. Additionally, this increased understanding may improve the support provided by the Online Writing Center for online graduate students.

Compensation: One in 10 participants will be selected at random by the survey platform to receive a $10 amazon.com e-gift card for fully completing the online survey. Additionally, one in 50 participants will be selected at random to receive a $25 amazon.com e-gift card for fully completing the online survey. Finally, all participants who fully complete the online survey will be entered into a drawing for an Apple iPad (minimum of 153 participants). The OWC director will contact raffle winners.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the director of the OWC or the director's designee will have access to the records with identifiable information. The researcher will only have access to the data stripped of all identifiable information.

- Codes will be used to facilitate the raffle. The master key translating student name to pseudonym will be maintained by the OWC director or the director's designee. The researcher will not have access to the master key.
- Research data, student identifying data, and the master key will be stored on an encrypted external hard drive with no online accessibility. When not being used for data analysis, the encrypted external hard drive will be physically secured in a locked container. Only the director of the OWC or the director's designee will have physical access to the hard drive and the data encryption password.
- The encrypted data will be retained for a period of three years after completion of the research project.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Brian D. Aunkst. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at . You may also contact the researcher's committee chairperson, Dr. Amanda Dunnagan, at

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, .

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

APPENDIX E

Online Graduate Student Survey Demographics Questions

1. What is your passcode ID* (use integers only)? _____
2. What is your age (in years)? _____
3. What is your gender? Male/Female
4. Are you of Latino or Hispanic origin? Yes/No
5. What is your race or ethnic background? White or Caucasian/Black or African American /Asian/American Indian or Alaskan Native/Native Hawaiian or Pacific Islander/Other
6. Is English your native/primary language? Yes/No
7. Have you been diagnosed with any type of disability? Yes/No
8. In what school or department is your degree program? Divinity/Behavioral Sciences/Education/Business/Nursing/Other
9. Would you describe yourself as spiritual or religious? Yes/No

* Passcode ID will be used for validation purposes and for distribution of any drawing proceeds.

APPENDIX F

OWC User Survey Recruitment Email

<DATE>

OWC User Survey
Dear <PARTICIANT NAME>

As a doctoral candidate in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctor of education degree. The purpose of this study is to gain a better understanding of the relationship between the Online Writing Center usage and writing self-efficacy among online graduate students. I am writing to invite you to participate in my study.

You were selected as a possible participant because you are 18 years of age or older and have been identified as an online graduate student who visited the Online Writing Center more than once during the Fall 2017 semester.

If you choose to participate, you will be asked to complete an online survey. It should take approximately 10 minutes for you to complete the procedure listed. Certain demographic information, such as gender and race, will be requested as part of your participation, but the information will remain anonymous to the researcher.

To participate, click on the link provided and complete the linked online survey. Use the following passcode ID to complete the survey: <PASSCODE>.

A consent document is attached to this letter/email. The informed consent document contains additional information about my research; please click on the survey link at the end of the informed consent document to indicate that you have read it and would like to take part in the survey. The deadline for participation is <DATE>.

One in 10 participants will be selected at random to receive a $10 amazon.com e-gift card for fully completing the online survey. Additionally, one in 50 participants will be selected at random to receive a $25 amazon.com e-gift card for fully completing the online survey. Finally, all participants who fully complete the online survey will be entered into a drawing for an Apple iPad (minimum of 153 participants).

Sincerely,

Brian Douglas Aunkst

APPENDIX G

Permission to use OWC Data

LIBERTY UNIVERSITY | ACADEMIC SUCCESS CENTER

December 11, 2017

Dear Mr. Aunkst:

I, Dr. Orlando Lobaina approve the use of the Online Writing Center, part of Liberty University's Academic Success Center to conduct your study on your research entitled A Correlational Study of The Relationship between Online Writing Center Usage and Writing Self-Efficacy.

If you have any questions, you may contact me at

Dr. Orlando Lobaina
Assistant Professor
Executive Director | Academic Success Center
College of Applied Studies & Academic Success

APPENDIX H

Data Request Email to OWC

3/17/2018

OWC Data Request

Aunkst, Brian Douglas (Writing Center)

Thu 3/15/2018 1:18 PM

To: Simpson, Shelah Yvette (Writing Center)

Cc: Dunnagan, Amanda J (College of General Studies Instruct)

2 attachments (145 KB)

Online Writing Center Instructions for Data Extraction.docx; OWC Data Extraction Request.zip;

Good afternoon, Dr. Simpson.

As we have discussed previously, I am requesting you or your designated staff to extract OWC usage data for the Fall 2017 semester from the SharePoint system for use in my dissertation study. Attached is the procedure to be used in the data extraction, as well as blank and sample Excel spreadsheets to be used for the data collection and storage. For your information, I am also attaching the IRB exemption and the approval signed by Dr. Lobaina.

Separately, I have provided an encryptable external hard drive and a lockable container for use by you or your designated staff for the secure storage of confidential student data. The encrypted data will need to be retained for a period of three years after completion of my dissertation study.

Thank you for the support of you and your staff in this effort. If you have any questions or concerns, please let me know.

Brian D. Aunkst
Graduate Tutor Supervisor
Online Writing Center
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APPENDIX I

IRB Change in Protocol

5/20/2018 IRB Change in Protocol Approval: I... - Aunkst, Brian Douglas (Writing Center)

IRB Change in Protocol Approval: IRB Exemption 3137.030718: A Correlational Study of the Relationship Between Online Writing Center Usage and Writing Self-Efficacy

IRB, IRB

Tue 5/15/2018 7:13 AM

To Aunkst, Brian Douglas (Writing Center)

Cc Dunnagan, Amanda J (College of General Studies Instruct)

Good Morning Brian,

This email is to inform you that your request to "expand the proposed study timeframe from which potential participants will be recruited from the Fall 2017 academic semester to the Summer 2017-Spring 2018 academic semesters" has been approved. Thank you for submitting your revised recruitment email for our review and documentation.

Thank you for complying with the IRB's requirements for making changes to your approved study. Please do not hesitate to contact us with any questions.

We wish you well as you continue with your research.

Best,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

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APPENDIX J

Qualtrics Certification

Aunkst, Brian Douglas (Writing Center)

From: Johnson, Jessica Lyn (IT Communications)
Sent: Wednesday, June 7, 2017 3:41 PM
To: Aunkst, Brian Douglas (Writing Center)
Subject: Re: Qualtrics Certification Class

No worries Brian. I wanted to let you know you should now be a GM for the online Writing Center.

Your DA is Elliott, Caitlin Elizabeth (Writing Center)

If you need anything else for me or have questions please let me know.

Thanks!

Jessica Johnson
IT Communications Specialist
Adjunct Instructor, College of General Studies
Information Technology

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APPENDIX K

Marketing Department Survey Approval

5/20/2018

RE: Student Survey

Brown, Melvin (Marketing Department)

Mon 4/23/2018 8:38 AM

To:Aunkst, Brian Douglas (Writing Center)

This was approved.

Melvin Brown III, M.S.
Project Coordinator
Marketing

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From: Aunkst, Brian Douglas (Writing Center)
Sent: Monday, April 23, 2018 10:31 AM
To: Brown, Melvin (Marketing Department)
Subject: Re: Student Survey

Certainly, Melvin. We had been emailing about this survey in late March-early April, with my submission sent on April 5.

I am a Liberty University online doctoral candidate, and my doctoral dissertation will be conducted with the express intent of understanding and improving operations of Liberty's Online Writing Center (OWC). I have received IRB approval for conducting this study (see attached), as well as approval from Dr. Lobaina, Executive Director of the Academic Success Center, to use the OWC to accomplish this task (see attached). The study will involve conducting an online survey (Qualtrics) of students who have used the OWC in the past.

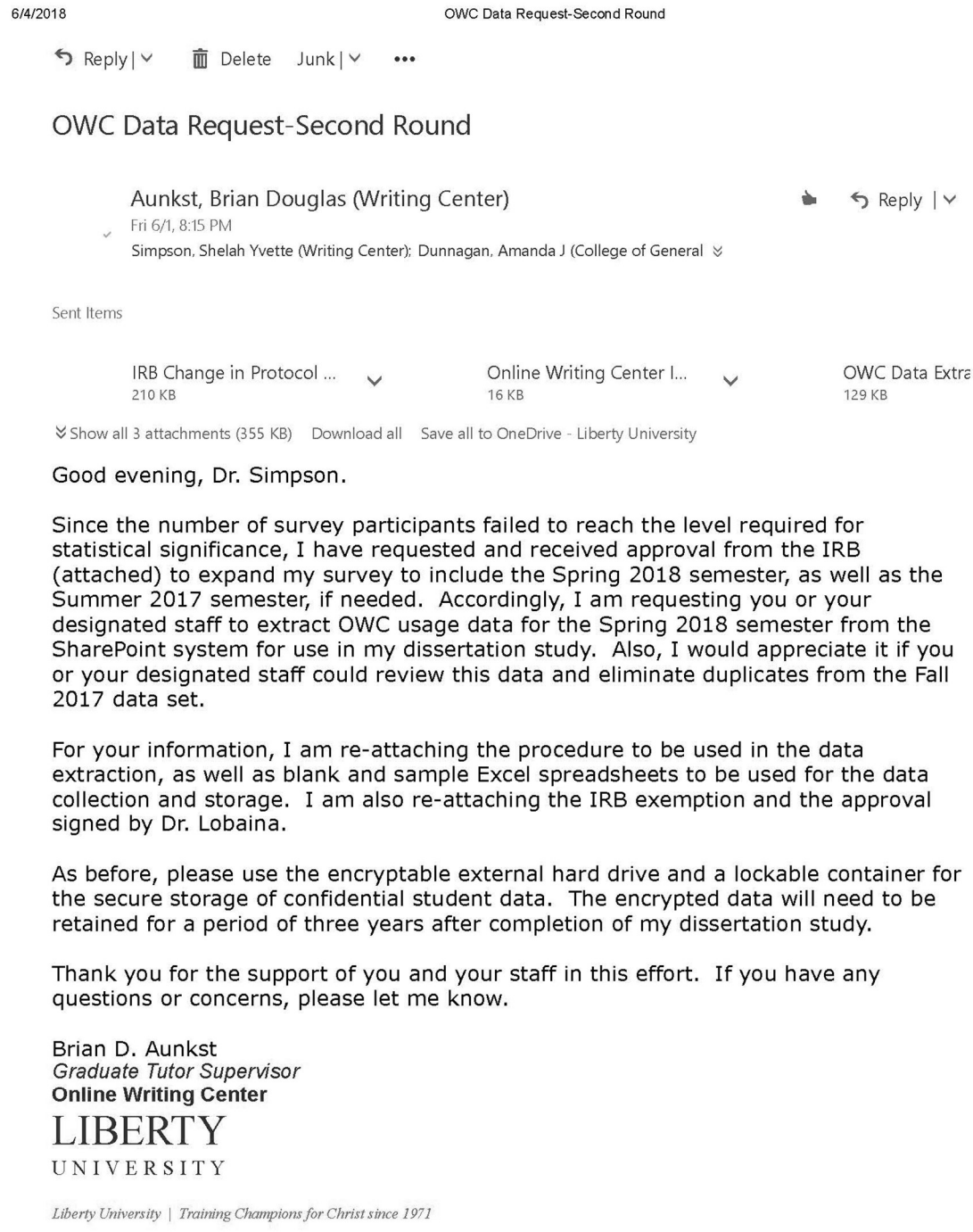
Both parts of the survey have been approved by Shelah Simpson, my Qualtrics division administrator (DA). I have attached both parts of the survey, as well as the recruitment email.

I appreciate your support! Blessings!

Brian D. Aunkst
Graduate Tutor Supervisor
Online Writing Center
LIBERTY

APPENDIX L

Second Data Request Email to OWC



6/4/2018 OWC Data Request-Second Round

Reply | Delete Junk | •••

OWC Data Request-Second Round

Aunkst, Brian Douglas (Writing Center) Reply |

Fri 6/1, 8:15 PM

Simpson, Shelah Yvette (Writing Center); Dunnagan, Amanda J (College of General

Sent Items

IRB Change in Protocol ... 210 KB | Online Writing Center I... 16 KB | OWC Data Extra 129 KB

Show all 3 attachments (355 KB) Download all Save all to OneDrive - Liberty University

Good evening, Dr. Simpson.

Since the number of survey participants failed to reach the level required for statistical significance, I have requested and received approval from the IRB (attached) to expand my survey to include the Spring 2018 semester, as well as the Summer 2017 semester, if needed. Accordingly, I am requesting you or your designated staff to extract OWC usage data for the Spring 2018 semester from the SharePoint system for use in my dissertation study. Also, I would appreciate it if you or your designated staff could review this data and eliminate duplicates from the Fall 2017 data set.

For your information, I am re-attaching the procedure to be used in the data extraction, as well as blank and sample Excel spreadsheets to be used for the data collection and storage. I am also re-attaching the IRB exemption and the approval signed by Dr. Lobaina.

As before, please use the encryptable external hard drive and a lockable container for the secure storage of confidential student data. The encrypted data will need to be retained for a period of three years after completion of my dissertation study.

Thank you for the support of you and your staff in this effort. If you have any questions or concerns, please let me know.

Brian D. Aunkst
Graduate Tutor Supervisor
Online Writing Center
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1/2

APPENDIX M

Permission to Publish PSWSES

9/30/2019

[External] Re: Permission

Katherine Schmidt
Mon 9/30/2019 12:45 PM
To: Aunkst, Brian Douglas (Writing Center)

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Yes, you have permission to use it. Congratulations!!! What is the title of your dissertation?

Katherine

On Mon, Sep 30, 2019 at 11:30 AM Aunkst, Brian Douglas (Writing Center) wrote:

> Dear Professor Schmidt.
>
> I wrote to you a couple of years ago (April 2017) requesting permission to use your PSWSES instrument for my doctoral dissertation. I was able to use it for my project and am finally in the process of completion; however, I need to request your permission to include (publish) a copy of your PSWSES instrument in an appendix. If you grant permission, please indicate so by replying to this email . I appreciate your continued support of my dissertation.
>
> Sincerely,
>
> Brian D. Aunkst
> *Graduate Tutor Supervisor*
> **Online Writing Center**
> LIBERTY
> UNIVERSITY
>
> *Liberty University | Training Champions for Christ since 1971*

--
Dr. Katherine M. Schmidt
Writing Center Director and Professor of Writing
Western Oregon University