CREATIVITY AND CONFORMITY IN FIRST-YEAR COMPOSITION AT THE U.S. NAVAL ACADEMY

by
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Abstract

A mixed-methods scholarship of teaching and learning case study was conducted in two parts with midshipmen enrolled at the U.S. Naval Academy to determine if writing error propensity could be decreased over the course of a single-semester first-year composition (FYC) class. During the needs assessment, information provided by 55 midshipmen showed an average errors per 100 words rate of .29 for formal mistakes and .65 for citation errors per essay. Qualitative information collected via survey instruments emphasized the need for an andragogy-centered approach for improvement and real-world applicability. As an intervention, cognitive apprenticeship adjustments to the FYC class syllabus allowed for including a professionally-relevant text, a scaffolded approach to writing projects, and multiple reflective writing activities. Across three writing assignments with different documentation styles, 50 midshipmen decreased their formal (.58 to .23) and citation (.77 to .62) errors per 100 words rates by the conclusion of the semester. The implications of these results are examined for the purposes of practice and future research.

Keywords: Professional writing, documentation styles, formal errors, citation errors, U.S. Naval Academy (USNA), First-Year Composition (FYC), Scholarship of Teaching and Learning (SoTL), andragogy

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Dedication

Dedicated to every senior officer I worked for who was not selected for the next level of promotion. Your career has value. I learned from you and sought to emulate your emphasis on people over process. You motivate me.

Acknowledgments

Let us begin from the present and work backwards. To start, to my committee: my senior adviser, Dr. Iris Saltiel, along with Dr. Carey Borkoski and Dr. Laura Quaynor. I am indebted for your candor and your clear, straightforward feedback on my work. I am also much obliged to Dr. Marcy Davis. Not only did you roll the dice on me by recommending approval for my JHU application, but you also recommended another committee member even after I insisted I wanted you. Your humility is inspiring. Additionally, I took more courses with Dr. Henry Smith than any other faculty member, and I am grateful for the networking opportunities you facilitated with prospective and current students, as well as other faculty. Thanks, too, for always taking the time to inquire about life at the U.S. Naval Academy (USNA).

Next, to all the midshipmen who had graciously provided consent forms and allowed me to use their assignments, survey activity responses, and reflective writings in my research. Your permission is deeply appreciated. I hope you really do find that your FYC experience pays benefits in the Fleet.

To my Johns Hopkins University study team—Jeannie Chipps, Vicky Lu, and Tonya Satchell—we did this together. I tried less hard than you but made it anyway. Your dedication to your own students will change history for the better.

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Executive Summary

Given the high-risk environments where military missions occur, leaders must develop new officers' reasoning and communication skills of (Kacher, 2018; McComas & Kristenson, 2019). Seemingly minor mistakes in written orders can lead to negative outcomes, such as avoidable personnel casualties (Rifenburg, 2019; Rifenburg & Forester, 2018; Shenk, 2008). First-year Composition (FYC) English classes are required at all five U.S. military service academies; for many undergraduates, these sessions serve as their first introductions to skills, such as critical thinking (Ennis, 1993) or professional writing (Kent, 2007). U.S. service academies are the largest sources of newly commissioned officers (Moon, 2019).

Problem of Practice

A century's worth of study confirms that undergraduates are prone to making numerous grammatical and structural errors (Connors & Lunsford, 1988; Dixon & Moxley, 2013; Johnson, 1917; Lunsford & Lunsford, 2008; Witty & Green, 1930). Other investigations (Blicblau, Bruwer, & Dini, 2015; Boysen, 2019; Davis & Anderson, 2019; Zhang, 2018) show that many writers exhibit difficulty following correct documentation styles. Such errors are particularly dire for service academy students. The context of this study was the experiences of *midshipmen*—a gender-neutral rank applied to undergraduates (Newman, 2016)—enrolled at the U.S. Naval Academy (USNA, 2019, 2020). Years of first-hand student-instructor interactions encouraged the researcher's assertion that many officer candidates had difficulty determining when critical thinking (Ennis, 1993), such as during original thesis generation, was necessary—as opposed to when compliance, such as following a prescribed documentation style, was most appropriate. Their chosen careers frequently demanded detail-oriented task completion in time-constrained, hostile environments; thus, future officers must master cognitive flexibility to avoid grievous

consequential errors in their professional writing (Kacher, 2018; McComas & Kristenson, 2019; Shenk, 2008). Once deployed, detail-oriented habits and cognitive skills are vital elements of protecting lives and resources (Miranda, 2018; Rifenburg, 2019; Stavridis & Girrier, 2004, 2007).

The FYC class is one of the first steps in training military students into a critical thinking mindset capable of juxtaposing intellectual creativity with grammatical and citation rule adherence (Ennis, 1993; Rifenburg & Forester, 2018). Further, student attitudes toward adult education, also known as *andragogy* (Knowles, 1980; Lippitt, Knowles, & Knowles, 1984), are used to identify cognitive apprenticeship-based instructor techniques that facilitate long-term knowledge retention (J. S. Brown, Collins, & Duguid, 1989; P. C. Brown, Roediger, & McDaniel, 2014). Chapter 1 employs a theoretical framework of Neal and Neal's (2013) re-conception of Bronfenbrenner's (1979) groundbreaking ecological systems theory (EST) to identify five key factors driving FYC writing error propensity: human error (Sexton, Thomas, & Helmreich, 2001), professional writing rule adherence (Lesar, Briceland, & Stein, 1997), learner empowerment (Houser & Frymier, 2009), reading comprehension (Barnes & Kim, 2016), attentiveness (Greer & McCann, 2018), and learner orientation (Eison, Pollio, & Milton, 1986).

Needs Assessment

USNA's FYC class is typically offered as a two-part course in the fall and spring semester of a midshipman's freshman year (USNA Department of English, 2020). As shown in Chapter 2, data collection during this stage identified a variety of instructor strategies to help students commit fewer professional writing errors (Kent, 2007). Teaching midshipmen grammar, citation, and critical thinking skills rests on the following bedrocks: principles of adult learning (Knowles, 1980; Lippitt et al., 1984), student learning-orientations (Eison, 1981; Eison et al.,

1986), curriculum design (Rotenberg, 2016), and class activities (Nilson, 2016). The needs assessment addressed four interrelated research questions in a mixed-methods case-study setting:

RQ1: How do the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen compare to earlier those featured in earlier studies of undergraduate writing?

RQ2: Do differences in the respective averages of grammar and citation "errors per 100 words" on First-Year Composition course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students?

RQ3: How are midshipmen assessments of meaningfulness, competence, impact, and choice reflective of their sense of learner empowerment in the FYC classroom?

RQ4: What terms and concepts do midshipmen use to characterize their experiences and expectations regarding the importance of the FYC curriculum in their future military career?

Utilizing convenience sampling (Lochmiller & Lester, 2017), all invited participants were students of the researcher. A total of 55 midshipmen agreed to participate in the study. Several data sources were analyzed. The first was midshipmen essays, including a textual analysis (Selzer, 2004), a contextual analysis (Selzer, 2004), and a response assignment. Each midshipman composed each project with a different documentation style: Modern Language Association, American Psychological Association, and *Chicago Manual of Style* (Bullock, Brody, & Weinberg, 2017). The other data source was a trio of surveys completed by participants as an in-class activity. The LOGO II (Eison, Pollio, & Milton, 1983) and the Learner Empowerment Instrument (Frymier, Shulman, & Houser, 1996) included Likert-scale items regarding learning orientation and empowerment, while the 1998 IDEA Survey (Hoyt & Lee, 2002) allowed midshipmen to rate the course via both Likert-scale responses and open-ended commentary. The

data sources revealed five constructs: formal errors (Connors & Lunsford, 1988) of grammar and mechanics, citation errors based on the documentation style (Mandernach, Zafonte, & Taylor, 2016), learning orientation (Eison, 1981), learner empowerment (Houser & Frymier, 2009), and career relevance (Lippitt et al., 1984).

Results for RQ1 showed that midshipmen committed formal errors per 100 words (.29) at a much smaller rate than the 2.45 errors in Lunsford and Lunsford (2008) or 2.26 in Connors and Lunsford (1988). Nevertheless, the average total formal errors per paper of 4.09 for midshipmen would still be considered high for their perfection-focused professions. Citation error rates for were even larger; midshipmen citation errors per 100 words fluctuated between .49 and .95, while the average total errors per paper was between 7.6 and 9.31. Those figures about doubled the formal error rate, showing as unacceptably high for future officers. For RQ2, LOGO-II (Eison et al., 1983) responses divided participants into four learning categories, but there was an unclear correlation between error propensity and learning orientation. Regarding RQ3, descriptive statistics gleaned from the Learner Empowerment Instrument (Frymier et al., 1996) showed the means for impact (2.78) and meaningfulness (2.75) both outpaced choice and competence by about .5. RQ4 was addressed through in-vivo coding based on the responses to the open comment section of the IDEA Survey (Hoyt & Lee, 2002). Identified codes included more feedback, professional development, and real-life situations. Findings from all four questions were used to design a cognitive-apprenticeship style intervention (e.g., J. S. Brown et al., 1989).

Intervention

The conceptual framework driving the intervention was the scholarship of teaching and learning (SoTL) because that approach would allow an instructor to research their students while

growing together in the learning process (Hutchings, 2007; Mathany, Clow, & Aspenlieder, 2019; Ryan, 2013). Additionally, Chapter 3's literature review of empirical studies covered critical thinking (Ennis, 1993), social justice (Cushman, 1996), grammar error correction (Connors & Lunsford, 1988), citation error correction (Boysen, 2019), inquiry-based learning (Dewey, 1938/1997), scaffolding (Quible, 2006), peer review (Bradley, 2014), and reflective writing (Nilson, 2016). All these subjects were incorporated into the final cognitive apprenticeship intervention design (J. S. Brown et al., 1989) in Chapter 4. The researcher explored seven research questions:

RQ1: To what extent, if any, did the formal grammar and mechanic "error rate per 100 words" change for midshipmen over the course of the semester?

RQ2: To what extent, if any, did the citation "error rate per 100 words" change for midshipmen over the course of the semester?

RQ3: Do differences in the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students?

RQ4: What difference, if any, exists between the way(s) participants respond to the intervention assignment and class activity changes?

RQ5: How do participants describe their learning experience as well as their perception of the instructor's role?

RQ6: How did participant sense of learner empowerment change after participating in the intervention?

RQ7: How, if at all, did midshipmen's perception of writing in the military change after revising the three FYC assignments?

Convergent design served as an intervention model because it provided a means to examine data collections individually before combining them to create result-based recommendations (see Creswell & Plano Clark, 2018). This intervention was also a prime example of an SoTL case study (e.g., Hutchings, 2007) because the researcher worked with midshipmen that the researcher directly instructed. The theory of treatment (TOT) driving this investigation was that the autonomy the researcher-instructor had in course design allowed the tailoring of the FYC course experience toward specific outcomes. Regarding process evaluation, RQ1, RQ2, and RQ4 explored participant responsiveness (Dusenbury, Brannigan, Falco, & Hansen, 2003); RQ5 was concerned with quality of program delivery (Dusenbury et al., 2003); and RQ7 involved context (Baranowski & Stables, 2000).

Intervention participants were 50 midshipmen from the class of 2025 taught by this investigation's researcher-instructor in four separate FYC course sections. A mixed-methods case study design was employed to test the effectiveness of these cognitive-apprenticeship-based course alterations (e.g., J. S. Brown et al., 1989). The intervention consisted of implementing three primary changes to the FYC: a militarily-relevant course text replaced a previous reading assignment; stand-alone projects were shifted to scaffolded two-stage writing assignments and then assessed as a "one-group pretest-posttest design using a double pretest" (Shadish, Cook, & Campbell, 2002, p. 110) to compare error rates from the first two assignments with error rates on the final paper; and in-class reflective writing exercises were added.

The same measures and instrumentation—student essays and in-class activities (e.g., the LOGO II; Eison et al., 1983), the Leaner Empowerment Instrument (Frymier et al., 1996), and the IDEA Survey (Hoyt & Lee, 2002)—employed in the needs assessment were used as data sources. Regarding process evaluation, findings for the first process question about

responsiveness showed a high level of student engagement; of the 50 participants, only three students chose not to complete one or more of the reflective activities. For the second question about the delivery quality of instructor-researcher's performance across sections, 32 out of 47 IDEA Survey (Hoyt & Lee, 2002) Likert-scale items featured at least three out of four matching medians, and 33 items showed three out of four FYC sections' responses matching the modes. For the context process question, the median of the 55 needs assessment participants to IDEA Survey (Hoyt & Lee, 2002) item 24 (regarding career relevance) was 4, and the mode was 4. Identical figures for the same item emerged from the 49 intervention participants; both the median and the mode were 4. Thus, the intervention decision to include a military text did not raise the mean and mode of Item 24 to the maximum possible value.

Findings for RQ1 showed that intervention total and average-per-100-words formal error rates of 3.88 and .23, respectively, were slightly less than those of the needs assessment participants (4.89 and .30). Further, the intervention formal error rates dropped steadily over the course of the FYC, from 8.78 total formal errors per paper to 3.88. RQ2 findings were less drastic, but intervention participants still decreased from 11.36 total citation errors per paper and .77 errors-per-100 words to 10.4 total and .62 errors-per-100 words by the end of the class. For RQ3, the influence of the intervention steps on GO and LO learners could not be usefully characterized because no clear pattern emerged between learning orientation and error propensity.

RQ4's focus on participant reactions to the intervention showed that of the 1,327 qualitative survey instrument comments coded by the researcher-instructor, 116 comments (8.74% of the total) explicitly discussed military or career considerations. Similarly, RQ5's investigation of students' learning experience descriptions showed that 11.46% of the coded

IDEA survey (Hoyt & Lee, 2002) reflections addressed grades, while 65.63% explored learning itself and its relevance explicitly. Regarding RQ6, the changes did not appreciably impact the average student responses on the Learner Empowerment Instrument (Frymier et al., 1996). Finally, for RQ7, 29 out of 50 intervention participants chose to write about the militarily-relevant text added during the intervention, and the volume of student comments about FYC course applicability to the military increased over time throughout the semester. The final 14 out of 96 (14.48 %) of coded comments regarding that subject was more than double the 22 out of 328 (6.71 %) that appeared in the course's first reflective writing exercise.

Conclusions and Implications

The intention of this SoTL case study (Hutchings, 2007) investigation was to explore ways to reduce midshipmen formal and citation error propensity to imbue them with a sense of the importance of precision in military professional writing (Kent, 2007; Rifenburg, 2019). The three primary elements of the cognitive-apprenticeship-based intervention (e.g., J. S. Brown et al., 1989)—a military relevant text, a scaffolded first and final draft review process, and an increase in reflective writing—accomplished that goal. Although intervention midshipmen committed more errors—an average of 5.5 formal errors total and 1.2 formal errors per 100 words—compared to the needs assessment participants, the intervention participants still decreased their total and error per 100 words rates from the start until the end of the class. Intervention participants also decreased their total citation mistakes (11.36 to 10.4) and citation errors per 100 words (.77 to .62) by the close of the semester. That result suggests that the TOT of using an SoTL approach to adjust FYC course elements featuring cognitive apprenticeship aspects, such as real-world applicability and reflectivity to encourage learning, was successful.

Further, regarding citations, this investigation attempted to raise interest and awareness of the singlemindedness of most documentation style projects. Earlier studies usually focus on a single documentation style and its relevance to just one academic field (Angell, 2016; Davis & Anderson, 2019; Kargbo, 2010). There appears merit in asking service academy students to become familiar with multiple documentation styles to replicate the various formats for professional military correspondence. Quantitative research into formal error reduction is relatively common (Connors & Lunsford, 1988; Lunsford & Lunsford, 2008; Johnson, 1917; Witty & Green, 1930), while quantitative research for citation is scarce and confined to a single documentation style in the manner of Boysen (2019). Therefore, the current researcher hoped that this sort of emphasis would appeal to other service academies in the interest of creating a superior standard for professional military competence.

Chapter 1

Introduction to Military Education

Given the high-risk environments where military missions generally occur, leaders must develop the reasoning and communication skills of new officers (Kacher, 2018; McComas & Kristenson, 2019). Seemingly minor mistakes in written orders or logistic requests can lead to a variety of negative outcomes, from incorrectly requisitioned equipment to avoidable personnel casualties (Rifenburg, 2019; Rifenburg & Forester, 2018; Shenk, 2008; Stavridis & Girrier, 2007). A common core course at colleges and universities nationwide, first-year composition (FYC) English classes are also required at all five U.S. military service academies; for many, these sessions offer undergraduate students their first introductions to the unique combination of rational thinking, professional writing skill, and general humanities knowledge expected of successful field commanders. This chapter's objective is to explore how behavioral factors and student traits impact writing instruction at military service academies.

Although all branches of the military offer a variety of commissioning sources for new officers, such as Officer Candidate School or Reserve Officer Training Corps and programs at major universities (https://www.usa.gov/join-military), the largest sources of new leaders are the taxpayer-funded service academies (Moon, 2019). The army's U.S. Military Academy (USMA) and U.S. Merchant Marine Academy (USMM) are both in New York; the U.S. Naval Academy (USNA, 2019, 2020) is in Maryland, and the Air Force Academy (USAFA) is in Colorado. The Coast Guard Academy is in Connecticut (USCGA; Moon, 2019). The USNA (2020) and USMM students are referred to as midshipmen, whereas the other institutions label their students as cadets (Moon, 2019). All locations simultaneously combine academic study and technical career training so that graduates earn both an undergraduate degree and a professional appointment at

the conclusion of their 4-year program of study. As their public webpages show, coursework at each institution is science, math, engineering, and technology (STEM) focused, such that even humanities' majors receive Bachelor of Science degrees in their fields.

In this chapter, error proneness in undergraduate composition is explored as a widespread educational issue using the ecological systems theory (EST) as a theoretical framework. Then, a literature review of underlying causes and considerations synthesizes research regarding the following factors: human error, rule adherence in professional writing, learner empowerment, reading comprehension, attentiveness, and learner orientation. The impact of the Global Pandemic of 2020 is briefly examined due to its impact on all research conducted throughout its duration. Last, a conceptual framework is outlined to trace the relationship of these considerations as they relate to mistakes in professional writing.

Problem of Practice

A century's worth of study confirms that undergraduate students are prone to making numerous grammar and structural errors in their compositions (Connors & Lunsford, 1988; Dixon & Moxley, 2013; Johnson, 1917; Lunsford & Lunsford, 2008; Witty & Green, 1930). Other investigations (Blicblau, Bruwer, & Dini, 2015; Boysen, 2019; Davis & Anderson, 2019; Onwuegbuzie, Combs, Slate, & Frels, 2010; Oppenheim & Smith, 2001; Zhang, 2018) show that many developing writers exhibit difficulty following correct documentation styles. Such errors are problematic for students from all walks of life, but the implications are particularly dire for those who attend military service academies.

Years of first-hand student-instructor interactions with midshipmen encouraged the researcher's assertion that many military candidates struggled to determine when critical thinking (Ennis, 1993) was necessary, such as during thesis generation, as opposed to when compliance,

such as adhering to a prescribed citation format, was most appropriate. Their chosen careers frequently demand detail-oriented task completion in time-constrained, hostile environments, future officers must master cognitive flexibility to avoid grievous consequential errors in their professional writing (Adams, 2006; Kacher, 2018; McComas, & Kristenson, 2019; Rifenburg, 2019; Shenk, 2008). On deployment, detail-oriented habits and cognitive skills are vital elements of protecting lives and resources (Miranda, 2018; Rifenburg, 2019; Stavridis & Girrier, 2004, 2007).

The FYC course is one of the first steps in training military students into a critical thinking mindset capable of juxtaposing intellectual creativity with grammatical and citation rule adherence (Rifenburg & Forester, 2018). As military service requires precision in written communication, this study focused on student perspectives of learning (e.g., Eison, 1981; Eison, Pollio, & Milton, 1986) and the FYC course experience (e.g., Hembrough & Dunn, 2019; Shivers-McNair, 2014). Further, student attitudes toward adult education (e.g., Knowles, 1980; Lippitt, Knowles, & Knowles, 1984) were used to identify strategies instructors could employ to facilitate long-term knowledge retention (e.g., P. C. Brown et al., 2014; Nilson, 2016; Rotenberg, 2016).

Theoretical Framework

The theoretical framework guiding the review of literature was the ecological systems theory (EST). In their reconception of Bronfenbrenner's (1979) "nested" EST definitions as more accurately "networked," Neal and Neal (2013) updated definitions from Bronfenbrenner's (1979) original five levels: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Figure 1 provides Bronfenbrenner's (1979) iconic visual aid.

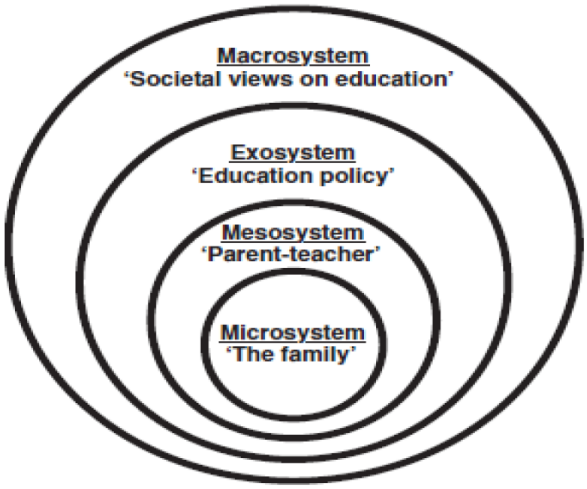

Figure 1. Bronfenbrenner's (1979) conception of how systems affect an individual learner. From "Nested or Networked? Future Directions for Ecological Systems Theory," by J. W. Neal and Z. P. Neal, 2013, *Social Development*, *22*, p. 728. Copyright 2013 by Wiley-Blackwell.

For example, Neal and Neal (2013) contended that a microsystem was more accurately "a setting-that is, a set of people engaged in social interaction-that includes the focal individual" (p. 724). The change from Bronfenbrenner's (1979) nested construct was that although that seminal study acknowledged the importance of social relationships, it held the impact of said relationships as less influential than the physical environment of the interactions. Neal and Neal's work "places primary attention on the patterns of social interaction" (p. 727), as seen in Figure 2.

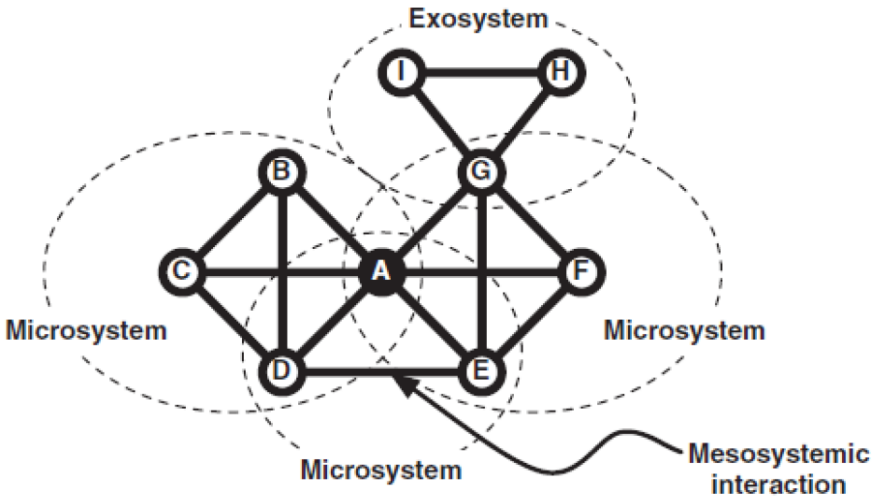

Figure 2. A networked counterproposal to Bronfenbrenner's (1979) visual aid, this structure provides a conceptualization for how both systems—and the relationships between those systems—affect an individual learner, represented by the letter "A." From "Nested or Networked? Future Directions for Ecological Systems Theory," by J. W. Neal and Z. P. Neal, 2013, *Social Development*, *22*, p. 728. Copyright 2013 by Wiley-Blackwell.

Neal and Neal admitted that physical aspects of a given space might also play a relevant role, but they contended that Bronfenbrenner's nested conception was incorrect to privilege that consideration over social relationships.

Investigating the factors driving student grammar and citation error proneness in FYC courses cannot neglect the entwined relationship of instructors and students as it relates to performance in a classroom environment (Frymier et al., 1996; Houser & Frymier, 2009). Focal individuals in academic undergraduate settings are the students. All student-to-student and student-to-instructor interactions occur in the microsystem because it is a social encounter that occurs inside either a physical space or a closed electronic space, such as a video conference. Nevertheless, such interactions can be affected by factors residing in the larger systems.

A core tenet of modern English instruction is that "writing is a social and rhetorical activity" (Roozen, 2015, p. 17), which is why the networked construct is more appropriate to

FYC research than the nested model. It offers a better lens to examine the nature of relationships of individuals interacting in close proximity in a single setting than does the layered model by Bronfenbrenner's (1979) nested conception of systems as concentric circles. For example, if one considers the layout in Figure 2 as representing a student (the letter A) enrolled in a FYC, the other letters represent individuals with whom that student interacts: classmates, friends, instructors, staff (e.g., coaches or administrators), teammates, and so on. The microsystems shown may include the classroom, locker room, or dorm, while the exosystem is the university in question. The systems matter, but more direct ties are forged between the learner and other individuals rather than between the leaner and physical environment.

Writing Composition Factors

Prior research regarding underlying causes and factors impacting undergraduate FYC writing patterns is examined in this section. Factors are organized using Neal and Neal's (2013) networked EST model. Accordingly, human error occurs at the chronosystem level, rule adherence in professional writing impacts the macrosystem, learner empowerment and reading comprehension issues exist in the mesosystem, and attentiveness and leaner orientation reside in the microsystem.

Human Error

Although making mistakes is widely understood as an essential part of the human condition, clarification is in order. Rodríguez-Pérez (2019) defined human error as "an action or decision that was not intended, that involved an involuntary deviation from an accepted standard, and that led to an undesirable outcome" (p. 14). Error exists at all levels of human performance, thus residing in the chronosystem; however, its results are particularly grave in industrial, professional, and military environments (Huang & van Gelder, 2019; Rodríguez-Pérez, 2019;

Sexton, Thomas, & Helmreich, 2001). Thus, the vast scope of each of those fields is what situates human error in the chronosystem.

Instances of human error pervade all trades; thus, it is helpful to conduct a deep-dive analysis of error consequences within a single widespread field: commercial and government maritime activities. Regarding conducting formal safety assessments after major civilian at-sea accidents, Martins and Maturana (2010) noted the value in exploring how "the human factor is directly associated with the accident event, its implicit causes, and consequences" (p. 675). Human error is observed as a major element behind ship-to-ship allisions and collisions, resulting in costly damages that often costs millions and, at worst, lives (Adams, 2006; Huang & van Gelder, 2019).

As Adams (2006) observed, error can be an individual or team problem, and it can be confined to a single group of watch standers; sometimes, fault belongs to the crews of both vessels, with the paths to disaster many. The high-profile collisions of the U.S. Ship John S. McCain and the U.S. Ship Fitzgerald warships in 2017 provide recent instances in which cascading deviations from standing policies and procedures caused by multiple individuals led to 17 otherwise-preventable deaths (Keller, 2017). An analysis of four countries' naval training procedures identified human error as a factor in at-sea collisions and demonstrated that the issue is international in nature (Valenti, 2018). Similarly, human-controlled factors, such as vessel velocity, are considered primary factors in lethal collisions between ships and various whale species (Currie, Stack, & Kaufman, 2017; Redfern et al., 2019).

Human error is just as prevalent in many other occupations, from flight activities (Miranda, 2018; Sexton et al., 2001) to medicine (Mistry, Poles, Watt, & Bolton-Maggs, 2019; Sexton et al., 2001) or nuclear power operations (Perrow, 2011; Rao, Xu, Li, Li, & Zheng, 2017).

Administrators cited “gross” human error as the leading cause responsible for the 1986 Chernobyl nuclear accident and botched containment effort (Serrill & Traver, 1986). Later, Wagman (2010) asserted human mistakes, not mere technological failure, were a driving cause behind the 2010 British Petroleum Deepwater Horizon platform marine oil spill disaster. In a powerful reminder of the long shadow of human error consequences, a 2020 National Geographic investigation determined that Gulf of Mexico wildlife—most notably dolphins—continue to suffer health effects from exposure to 130 million gallons of crude oil (Meiners, 2020).

Human error is present in the undergraduate classroom, as well. A simple way to investigate mistakes entails studying student papers. Formal errors are violations of spelling, grammar, or basic mechanical writing conventions (e.g., spliced commas or run-on lines). Connors and Lunsford (1988) analyzed writing data from 1917, 1947, and 1988. Similar formal error rates emerged across the three sample sets: 3.42 errors per paper and 2.11 errors per 100 words for 1917, 5.18 per paper and 2.24 for every 100 words in 1930, and 9.52 errors per paper and 2.26 errors per 100 words in 1988 (Connors & Lunsford, 1988, p. 406). The stability error rates over time suggests student mistake proneness is an ongoing problem in English instruction.

Such simple student writing errors are problematic because, even later in life, composition mistakes leave audiences questioning an author’s reliability and ethos. For example, Appleman and Schmierbach (2018) observed that higher percentages of technical errors in news articles reduced readers’ evaluations of the pieces’ “quality” and “credibility” (p. 936), bringing the professionalism and veracity of associated journalists into question.

Connors and Lunsford’s (1988) article remains relevant because it is one of the few empirical studies of student error volume in undergraduate composition research. Lunsford and

Lunsford (2008) updated the 1988 study two decades later. That follow-on investigation assessed 877 undergraduate papers composed for a variety of American FYC courses and found an average of 2.45 “errors per 100 words” (Lunsford & Lunsford, 2008, p. 800). Lunsford and Lunsford (2008) did not provide data for the total number or errors per paper the way the 1988 investigation did nor did they provide justification for that omission. Nevertheless, their 2008 work indicated that the average volume of student error was consistent over time. Even with vast changes in technology (e.g., the introduction of word processors and automated grammar-check tools) and new means of learning, such as online tutorials or electronic spelling games, four studies showed that undergraduates made between two and three mistakes for every hundred words penned (Connors & Lunsford, 1988; Johnson, 1917; Lunsford & Lunsford, 2008; Witty & Green, 1930).

Rule Adherence in Professional Writing

Rule adherence behavior, also sometimes termed *rule-governed* or *rule-following* (Harte, Barnes-Holmes, Barnes-Holmes, & McEnteggart, 2017, p. 747), is problematic for humans across a variety of endeavors, including composition. While dividing writing into subdisciplines is sometimes contentious, Kent (2007) expressed growing admiration for Sullivan and Porter’s (1993) efforts to conceive of professional writing more as an intersection of business, technical, English, and communication composition over attempting “to establish a single definition or disciplinary status” (p. 391) for the term. Porter and Sullivan’s (2007) response to Kent’s (2007) accolades continued to eschew providing concrete definition. Thus, professional-writing contexts occur in distinct macrosystems—due to the breadth and diversity of their workplace cultures (Neal & Neal, 2013)—such as medicine (Lesar, Briceland, & Stein, 1997; Tang, Sheu, Yu, Wei,

& Chen, 2007), business (Benson, 2018; Watkins, 1999), law enforcement (Austin, 1995), and military endeavors (Rifenburg, 2019; Rifenburg & Forester, 2018).

Various forms of written mistakes within those fields lead to tragic consequences, as evidenced by studies concerning medical records at hospitals all over the world. An oft-cited investigation of 2,103 medical prescription errors from a New York hospital found that 11.4% of the prescription problems identified were caused by "using the wrong drug name, dosage form, or abbreviation" (Lesar et al., 1997, p. 312). In addition to those simple typographical slips, clarity of language is crucial in avoiding medical hazards. A Taiwanese health care study of nurses' role in prescription problems found that 23.6% of the 72 respondents listed "complicated doctor-initiated order" as a factor and 20.8% pointed to "complicated prescription" (Tang et al., 2007, p. 451). The legibility of physician handwriting contributed to shortcomings in medical professional writing conducted at a Spanish hospital; 15% of 117 medical reports reviewed were judged unreadable (Rodríguez-Vera, Marin, Sánchez, Borrachero, & Pujol, 2002). As recently as 2016, a study that reviewed 1,500 written prescriptions at a hospital in India noted that 98% of the documents reviewed contained two or more mistakes, such as incorrect patient names (Suneina, Saldanha, Qaidri, & Rebello, 2016).

Not all failures to follow written or even simple procedural rules are inadvertent or due to oversight, as intentional rule violation also occurs. Hage, Rø, and Moen (2017) observed how nurses and orderlies in charge of patient feeding at a Norwegian hospital "tended to consistently stick to the structure if the rules involved were directly related to calorie content, treatment goals, and medical issues, whilst being more flexible concerning other matters, like replacing a drink with a similar one" (p. 147). Willful rule abandonment can be tempting when experienced professionals rationalize their decisions, regardless of whether they possess formal authority to

do so (Hage et al., 2017). Therefore, studies of rule adherence, whether for behavior or writing, should draw clear distinctions between accidental and intentional deviations.

Commercial business correspondence is another realm where composition mistakes prove costly. In a recent incident that garnered widespread media attention, an American dairy company lost a $5 million overtime lawsuit with its delivery drivers after federal appeals court judges affirmed that a missing Oxford comma rendered the overtime information in a legal contract unclear (Benson, 2018; Victor, 2018). A similar situation occurred when a transport plane defense contract featured a comma misplaced by a single decimal point, prompting a company executive to bemoan "that comma cost Lockheed 70 million dollars" (Watkins, 1999, para. 2). The 2004 civil court case *Interactive Corp. v. Vivendi Universal* was initiated because

> an apparent mistake in the drafting of the tax distribution provision caused… an after-tax return rather than a pre-tax return, causing that member potentially to receive more than $600 million over what the other member was thought to be paid. (Kean, 2008, p. 26)

Carelessness in composition costs corporations and clients alike, reinforcing the need for professional writing to be considered and corrected.

Following written procedures, administrative rules, and report processes accurately is vital in law enforcement. In a typing gaffe that garnered embarrassing headlines, a corrections officer transported an inmate to a prison in the wrong state after inputting the wrong address into a vehicle navigation system (Alexander, 2019). A study of 1,184 police reports about motor accidents in the United Kingdom found many coding and administrative errors, although the author noted the discrepancies might be due to the overwhelming volume of duties expected of responding officers (Austin, 1995). Worse, government and law enforcement individuals are not always held accountable for mistakes in official records and correspondence. Widlak and Peeters

(2020) contended, “The burden of proof for the correction of administrative errors falls on the citizen—public organisations take the correctness of their registration as a given” (p. 52). Therefore, efforts to address shortcomings in professional correspondence habits must consider the roles of ordinary people and authority figures regarding accuracy and procedural adherence.

Similar to the propensity some nurses displayed in the Hage et al. (2017) study to deviate from established hospital feeding policies, order-heavy professions (e.g., law enforcement or the military) struggle to reconcile conflicting perceptions of the permissibility of granting exceptions with their organization’s rule adherence expectations. Tyler, Callahan, and Frost (2007) contrasted “command-and-control approaches” (p. 459) with a novel “self-regulatory approach” (p. 461) to rule adherence adopted by both 209 city-level or federal-level workers in law enforcement and 210 active-duty soldiers. Such rule adherence is evidenced by fidelity to standing organizational policies, directives, or official orders, according to what leaders in each organization would consider compliance. Findings indicated that the law enforcement civilians were much more likely to express faith in organizational support for their self-regulatory decisions; conversely, the military population was more likely to believe their organization’s expectation was to follow existing policies as formally established (Tyler et al., 2007). These results suggest rule adherence patterns are inconsistent across industries and that different approaches to rule instruction should be tailored for individual audiences, such as medical, police, or military personnel (Tyler et al., 2007).

The previous examples show how humans comprehend rules in various environments considering the different social and professional culture forces that shape industry-member behaviors in the macrosystem. At their most basic level, grammar standards and documentation style requirements associated with professional writing are simply rules, albeit ones designed to

minimize the hazards of miscommunication. The same issues regarding citation adherence difficulty exist not only in academia (Blicblau et al., 2015; Boysen, 2019; Davis & Anderson, 2019; Onwuegbuzie et al., 2010; Oppenheim & Smith, 2001; Zhang, 2018) but also occur inside the medical (Carroll-Johnson, 2004), commercial (Droz & Jacobs, 2019; Gubala, Larson, & Meloncon, 2020), and military professions (Rifenburg, 2019; Rifenburg & Forester, 2018).

A study by Gubala et al. (2020) showed that those active in the business sector were perturbed when encountering basic grammar errors in professional writing; some errors, such as incorrect word choice, were more distressing than others. Beyond general writing errors, issues that arise within a specific field are problematic. After soliciting feedback from 26 participants employed at a variety of firms, Droz and Jacobs (2019) concluded that "new hires' genre convention mistakes are interpreted as a lack of training or skill, or knowledge errors" (p. 68) by employers. Genre conventions within industries are specific writing contexts, such as email etiquette (Droz & Jacobs, 2019).

Likewise, military leaders place a premium on professional writing knowledge and adherence. In a 2019 study, Rifenburg observed routine operations at an Army headquarters. Rifenburg (2019) noted that "the two most common written deliverables are warning orders… and operation orders (OPORDS)" (p. 127) and that their careful composition was vital because the person observed "used various written deliverables to push closer to the collective goal of the brigade" (p. 130). Rifenburg's highlight of the U.S. Army's written order templates mirrors the focus placed on such skills in guides to military-specific writing and new officer expectations (Kacher, 2018; Shenk, 2008). Before that study, Rifenburg and Forester (2018) found both the 38 survey participants and four interview subjects enrolled at a Southern military college

highlighted the role their institution's FYC course placed on "the importance of clarity in Army writing" (p. 59).

Similarly, FYCs at all American service academies are expected to tailor their curriculum to impart the professional writing and critical thinking skills (e.g., clarity) demanded by various military branches' leaders (Born, Phillips, & Trainor, 2012). Further, these FYCs are ideal locations for sociological research and refinement because "individuals are physically isolated from outside populations … allows one to study behavior within a relatively controlled environment" (Pershing, 2002, p. 155).

Learner Empowerment

Nearly all military academy undergraduates are 18 years of age or older due to military service requirements (Mengle, 2020); thus, a concept associated with adult learning, learner empowerment, is a relevant factor driving FYC student course performance. Undergraduate perceptions of learner empowerment are specific to their individual instructors and reach across a variety of classes; thus, these social encounters occur in more than one physical setting, becoming mesosystem-level considerations (Neal & Neal, 2013). A core tenant of Knowles's (1980) conception of *andragogy*, a term for adult learning as a field distinct from that of youth, is "the importance of organizing learning experiences (the curriculum) around life situations rather than according to subject matter units" (Lippitt et al., 1984, p. 12). Competing definitions exist regarding the term *empowerment*, with the earliest stemming from 1980s business management and organizational behavioral research (Frymier et al., 1996). Thomas and Velthouse (1990) provided greater clarification by breaking down the empowerment's application within education into four distinct elements: "impact, competence, meaningfulness and choice" (p. 671). Schultz and Shulman (1993) created a survey validating those categories for commercial applications

that Frymier and Shulman (1994) developed into a 30-item, education-specific instrument shown in Appendix B.

Nevertheless, findings in a follow-on study by Frymier et al. (1996) suggested that respondents' conceptions of empowerment validated three of Thomas and Velthouse's (1990) conceptualizations that choice did not emerge as a necessary factor. Houser and Frymier (2009) reinforced the irrelevance of choice as an empowerment element. Brooks and Young (2011) acknowledged the findings of the 1996 and 2009 studies but contended that choice did impact empowerment related to students' "intrinsic motivation" (p. 56), especially regarding schoolwork or attending course sessions. Brooks and Young's contentions of the centrality of intrinsic motivation aligned with Knowles's (1980) characterization of that force as more impactful to most adults than outside incentives, such as employment promotion. A sense of learner empowerment aligns student effort and focus, which can be reflected in their writing.

FYC course learning objectives regarding writing ability across the service academies are specific, socially-aware, and intended to facilitate situated learning (Born et al., 2012). By framing educational goals inside the boundaries of well-defined and specific conditions, situated learning recognizes that "activity, concept, and culture are interdependent" (J. S. Brown, Collins, & Duguid, 1989, p. 33). The practicality of this approach is appealing to adult learners because that population reports greater engagement when educational growth opportunities relate to their actual jobs (Conlan, Grabowski, & Smith, 2003). Ensuring adult learners feel empowered is a key element of convincing students that course requirements are meaningful and is useful in a practical way later in life (Rohlwing & Spelman, 2014). As Persyn and Polson (2012) and Zacharakis and Van Der Werff (2012) noted, military education is grounded in adult learning

principles at a wide range of levels, from active-duty serviceperson on-the-job training to higher education institutions, such as war colleges.

Reading Comprehension

Barriers to understanding assignment instructions may impact military students' ability to compose coherently within documentation style structures, such as those provided by the American Psychological Association (APA; Hinton, 2013). In a qualitative study of the FYC perceptions from former U.S. Marines enrolled in civilian college classes, Hinton (2013) relayed how one respondent confessed, "I'm kinda [sic] struggling with APA format interpretation from one teacher to the next … this professor reads the APA manual this way, and that professor reads the APA manual a different way" (p. 6). That revealing quote suggests that black-and-white text is not uniformly clear to adult learners. Comprehension barriers may prohibit learners from understanding concepts across contexts, as reflected in Bergmann and Zepernick's (2007) observation of how the undergraduates at a midwestern technical university "failed to see any connection between what they have learned about writing in English classes and what they see as the objective, fact-based, information-telling writing demanded elsewhere in their academic and professional lives" (p. 131). Military service academy students can struggle with reading implications in a variety of academic fields and classroom settings; thus, reading comprehension challenges belong in the mesosystem, along with learner empowerment.

Some students display difficulty comprehending and applying information with which they had just read. In a study of 270 undergraduates across three American universities, Stiegler-Balfour, Jakobsen, Stroud, and Daniel (2020) determined that the mere presence of APA-style citations in a text interfered with the comprehension levels of students identified as less-proficient at reading. Low-reading-skilled adult learners were noted to exhibit the same sort of

physical behaviors associated with reading comprehension, such as an extended period focusing on a word or phrase, as young learners (Barnes & Kim, 2016).

Another complication is that some students are less adept than others at creating mental models for understanding. One study of 32 University of Oregon students included in a larger four-experiment investigation noted that "all comprehenders lose access to recently comprehended information when they shift from actively building one substructure and initiate another. This explanation suggests that less skilled comprehenders shift too often; that is, they develop too many substructures" (Gernsbacher, Varner, & Faust, 1990, p. 440). Other elements in the project included more students—the largest involved 270 volunteers—and continued to indicate variations in reading comprehension ability (Gernsbacher et al., 1990). However, Gernsbacher et al. (1990) noted that by convenience sampling participants from the University of Oregon exclusively, they were forced to "assume that even our less skilled comprehenders have an adequate level of General Comprehension Skill" (p. 441). Cognitive strategies and physical patterns, such as gaze-length, at least partially accounted for some reading comprehension disparities within a given group of adult learners, but these considerations were indirectly addressed in military academy FYC course designs.

O'Reilly, Feng, Sabatini, Wang, and Gorin's (2018) examination of 60 undergraduates' reading practices revealed a tendency for students to focus on important sections of a given text when they did not have a clearly articulated "overarching goal" (p. 278) before commencing a reading activity. Although other logical alternatives, such as print-versus-electronic-text medium, might seem promising, Sage, Augustine, Shand, Bakner, and Rayne (2019) seemed to return to reader behavior and training as a root cause of reader comprehension difficulty. Sage et al. studied 120 undergraduates to evaluate whether differences emerged when students used a

traditional print book, accessed an eBook computer, or read a digital text on a tablet. Sage et al. found that "comprehension was equivalent across reading platforms" (p. 2492), suggesting that the source of conceptual misunderstandings was untethered to the reading medium.

One area of concern is citation practices, where students display a disconnect between what they read and what they apply. In-text and source attribution errors are prevalent in student writing, regardless of the documentation style assigned. Citation problems emerge when students compose in compliance with Modern Language Association (MLA) standards (Angell, 2016; Lynch & McGrath, 1993), APA requirements (Boysen, 2019; Hughes, Brannan, Cannon, Camden, & Anthenien, 2017; Mandernach, Zafonte, & Taylor, 2016; Onwuegbuzie et al., 2010), or when following *Chicago Manual of Style* (CMS) guidelines (Davis & Anderson, 2019; Kargbo, 2010). Student citation practice is relevant in education because it may be difficult to differentiate cases of student unfamiliarity with required standards versus instances of intentional plagiarism or cheating (Angell, 2016; Kargbo, 2010). Like formal errors in composition, citation mistake proneness and reading comprehension are microsystem activities confined to focal individuals, although issues can arise during group writing activities or peer-review sessions (Horne & Tritt, 2017).

Attentiveness

A similar yet distinct element of student behavior is attentiveness. Determining if students are learning is difficult to assess, in no small part because learning is a transparent social interaction between a presenter and receiver (Guskey & Brookhart, 2019). It occurs in a single physical setting and involves both the focal individual, the undergraduate, as well as the instructor providing the teaching; thus, attentiveness occurs within a microsystem (Neal & Neal, 2013). Attentiveness may be considered synonymous with "on-task behavior—e.g., looking at

the instructor who is speaking to the students" (Reid & Green, 2019, p. 2). Indeed, Reid and Green's (2019) examination of 298 adults participating in work-related training sessions indicated the instructor employment of non-lecture methods (e.g., activities or short video presentations) was more effective at holding the audience's attention than talk alone.

For the same reason, a blend of instructor-led FYC activities (Nilson, 2016) rather than a repetitive class design structure may facilitate undergraduate learning. Variations in mental stimulation by shifting between several kinds of practice rather than a single type are shown to impact retention through "motor-memory consolidation" (Kantak, Sullivan, Fisher, Knowlton, & Winstein, 2010, p. 923). A variety of mental stimulations may be more significant than traditional solutions, such as attempting to reduce student distractions (Redner, Lang, & Brandt, 2020). Redner et al. (2020) found that a classroom prohibition on electronic devices resulted in a lower quiz score average than during sessions with no such policy.

Another promising means of holding student attention entails translating key lesson themes into stories. For example, an investigation of 194 undergraduates at a large university observed that students receiving a narrative lesson performed better on the subject quiz and awarded higher ratings for their instructor than those in a presentation consisting only of brief subject application explanations (Kromka & Goodboy, 2019). Regarding the FYC course design, some indications showed that students with personal or family connections to the armed services responded favorably toward military-themed narratives and subjects (Hembrough & Dunn, 2019). Shivers-McNair (2014) reported further success building instructor and student rapport by acknowledging and addressing "the palpable gap between academic culture and military culture" (p. 232) in an FYC course for active-duty military adult learners.

Citation problems in undergraduate composition can indicate an absence of attention as well as the sort of reading comprehension difficulties explored in the previous section. In a study involving 63 liberal arts and health studies undergraduates, Greer and McCann (2018) noted a propensity for students to include an incorrect or malfunctioning website link in their citations across a variety of documentation styles. Whether that outcome was a result of inattention or genuine misunderstanding rather than student apathy was difficult to determine because the survey instrument used in this quantitative investigation did not include any inquiries regarding volunteers' experiences about participating in the experiment.

The seeming inattention to the importance of documentation style precision emerges in courses outside of the humanities, as well. Oppenheim and Smith (2001) discovered the same disturbing trends in citation errors in an undergraduate information science course, as did Blicblau et al. (2015) in engineering courses. Nor was the problem confined to undergraduates. Spearman (2001) outlined extensive citation problems among law students, while McDonald (2011) observed similar tendencies among professional health counselors, Carroll-Johnson's (2004) editorial warned of citation difficulties for nurses, and Nienhaus (2004) saw the same trend with business students.

Some institution educators have addressed widespread documentation problems through cooperative citation training opportunities conducted by university library staffs, either as special stand-alone workshops or in conjunction with formal coursework (Angell, 2016; Davis & Anderson, 2019; Horne & Tritt, 2017; Park, Mardis, & Ury, 2011). Nevertheless, library-led projects seem concerned with outlining quizzes or learning activities, such as Davis and Anderson's (2019) lessons to improve CMS proficiency or Angell's (2016) mock gameshow exercise to reinforce MLA standards. Citation practice articles composed by librarians are more

likely to outline how to create more synergy regarding citation instruction among academic departments, tutorial services, and library staffs, as explored by Horne and Tritt (2017) and Park et al. (2011), than to provide empirical data (Greer & McCann, 2018).

Although it is logical to conclude that hands-on activities, such as Davis and Anderson's (2019) scavenger hunt exercise, may increase student attention to citation tutorials, metric data confirming that conclusion was not provided. Indeed, quantitative data regarding undergraduate citation performance, such as Boysen's (2019) comparison of student improvement after completing error-identification and error-making APA exercises, seemed the exception rather than the norm in information science or library reference journal articles. Kargbo's (2010) analysis of 675 undergraduate surveys collected data about the students' perceptions of their reference citation knowledge and ability rather than objectively assessing their knowledge levels. As noted by Greer and McCann (2018), "the literature concerning the formation of students' citation skills is sparse" (p. 151). Several peer-reviewed citation and documentation articles are heavy on anecdotal evidence and instruction recommendations (Angell, 2016; Davis & Anderson, 2019; Horne & Tritt, 2017; Mandernach et al., 2016; Park et la., 2011) but light on empirical data to support such assertions.

Learner Orientation

A final factor affecting how military academy students approach the FYC experience is their personal values regarding the education process: Do they approach class from a standpoint that the acquisition of knowledge is important, or is their performance assessment ratings the primary consideration (Eison, 1981; Eison et al., 1986)? How students perceive learning is an internal, uniquely personal activity; however, because progress assessment is rendered by a course instructor, a given student's relationship with classwork and assignment or test remains

part of a social microsystem (Neal & Neal, 2013). In 1981, Eison divided learning orientations into two distinct categories: learning-oriented (LO) and grade-oriented (GO). Eison (1981) asserted that LO students "approach the college experience as an opportunity to acquire knowledge and to obtain educational and personal enlightenment" (p. 919), whereas GO individuals were "those whose academic attitudes and behaviors are focused on the belief that obtaining a course grade is, in and of itself, a sufficient reason for being in college" (p. 920).

Eison (1981) aimed to determine how to assign students to one group or the other; thus, the researcher created a survey instrument: "LOGO." Eison (1982) recycled LOGO to expand the scope of his categorical definitions. A year later, Eison et al. (1983) created a heavily-revised LOGO II, published via useful user manual; Appendix A contains the entire instrument. In subsequent years, Eison et al. (1986) used LOGO II to explore various aspects of grade perceptions among students while expanding the initial focus to explore grade attitudes of parents (Pollio, Humphreys, & Eison, 1991) and academic faculty (Eison, Janzow, & Pollio, 1993; Janzow & Eison, 1990). Awareness of a given student's learning orientation preferences enables FYC instructors to motivate different styles of knowledge acquisition by rewarding undergraduates in the manner most meaningful to them.

Placier (2018) declared Milton, Pollio, and Eison's (1986) *Making Sense of College Grades* "the most complete review of college grading" (p. 20)—a striking assertion for a nearly 3-decade-old volume. In a similar finding, Payne, Youngcourt, and Beuabien (2007) credited Eison's (1981) conceptualization of LO and GO as a major precursor to what became labeled "goal orientation" (p. 128). That term is more expansive and applicable to a greater volume of diverse fields, such as business or organizational psychology, than the other term. However, due to Eison's exclusive focus on learning and grades inside classroom settings, the researcher's

original distinction of GO and LO continues hold merit in educational research, especially in FYC course designs.

The 2020 Pandemic

A unique global event emerged in 2020, promptly impacting research efforts in nearly all forms of human endeavor: the COVID-19 pandemic. News organizations and scientific communities were slow to grasp its breadth and evolution. That trend may be explained because COVID-19 developments often defied traditional logic. As noted by Hamza, Ewing, Heath, and Goldstein (2021) in their longitudinal survey of 773 undergraduates, their counterintuitive findings demonstrated that the psychological and emotional effects of quarantines and limited social ties seemed to affect disproportionally those reporting no pre-existing mental medical conditions before the pandemic's onset.

Hamza et al. (2021) were not alone in their concerns for undergraduate health and education access. Reilly (2021) highlighted the exorbitant impact of COVID-19 on American educational opportunities, as a startling 6.8% fewer students moved directly from high school to college than during the year before (p. 38). Although massive enough in scale to qualify as a chronosystem, the global pandemic of 2020 is better characterized as an exosystem regarding education and professional writing. Learners were affected by secondary and tertiary affects in settings where they were not physically present. Indeed, the definition of "presence" became contentious as learners varied in their opinions and orientations toward remote learning via platforms, such as Google classroom or Zoom (Roman & Plopeanu, 2021; Serhan, 2020). The long-term impact to research validity and reliability for studies conducted during this disruptive period remain unclear.

Conceptual Framework

By framing educational goals inside the boundaries of well-defined, specific conditions, situated learning recognizes that "activity, concept, and culture are interdependent" (J. S. Brown et al., 1989, p. 33). The practicality of this approach is appealing to adult learners because that population reports greater engagement when educational growth opportunities relate to their actual job (Conlan et al., 2003). A central concept of situated learning theory (i.e., *cognitive apprenticeship*) helps adult learners better grasp how the physical tasks associated with formal educational coursework hone skills they require for their future careers.

J. S. Brown et al. (1989) employed an intriguing authorial choice to define cognitive apprenticeship. Rather than provide a single explanation of that compound word, J. S. Brown et al. defined the latter part first by noting that "the term *apprenticeship* helps to emphasize the centrality of activity in learning and knowledge" (p. 39), while "*cognitive* emphasizes that apprenticeship techniques actually reach well beyond physical skills … to the kinds of cognitive skills more normally associated with conventional schooling" (p. 39). Breaking the concept down into two distinct terms helps readers understand how both ideas operate distinctly—yet relatedly—to accurately characterize a single approach. J. S. Brown et al. accounted for the social aspect of learning by acknowledging that some groups of students might be tied together by shared languages, experiences, and roles. These "cultures" (J. S. Brown et al., 1989, p. 33) and the activities that occur within them offer hands-on forums for intellectual growth. Students inside such organizations acquire new knowledge via a combination of methods, from traditional oral lectures to the virtual reality simulators used to train airline pilots and law enforcement officials (P. C. Brown et al., 2014).

Cognitive apprentices aim to allow pupils to recognize how presentations, exercises, and group dynamics instill new concepts for use in their real-world roles. J. S. Brown et al. (1989) contended, “Cognitive apprenticeship methods try to enculturate students into authentic practices through acitvity and social interaction” (p. 37). This action may create learners who recognize the inherent value of productive education and can envision scenarios where their newfound knowledge may apply later. In the same way that classical trades people have once trained novices via a series of practical hands-on craft exercises, educators can use this approach to envision ways to make coursework reflect how problem solving occurs in nonclassroom settings.

Further, cognitive apprenticeship encourages participants to reconceptualize the social ties between instructor and pupil. Cobb and Bowers (1999) recasted antiquated understandings of academic achievement not as a result of instructional quality or student participation alone but rather how outcomes were “co-constructed” (p. 10) by educators and learners due to the “relation” (p. 10) between them. Because it is valid and reasonable to account for power differences between those roles, cognitive apprenticeship addresses that concern via the provision of intellectual growth opportunities for both groups. By centering the importance of social interactions between experts and rookies, cognitive apprenticeship facilitates the exchange of knowledge between each camp. This emphasis on social relationships creates a shared language between the nested EST theoretical framework and the cognitive apprenticeship conceptual framework.

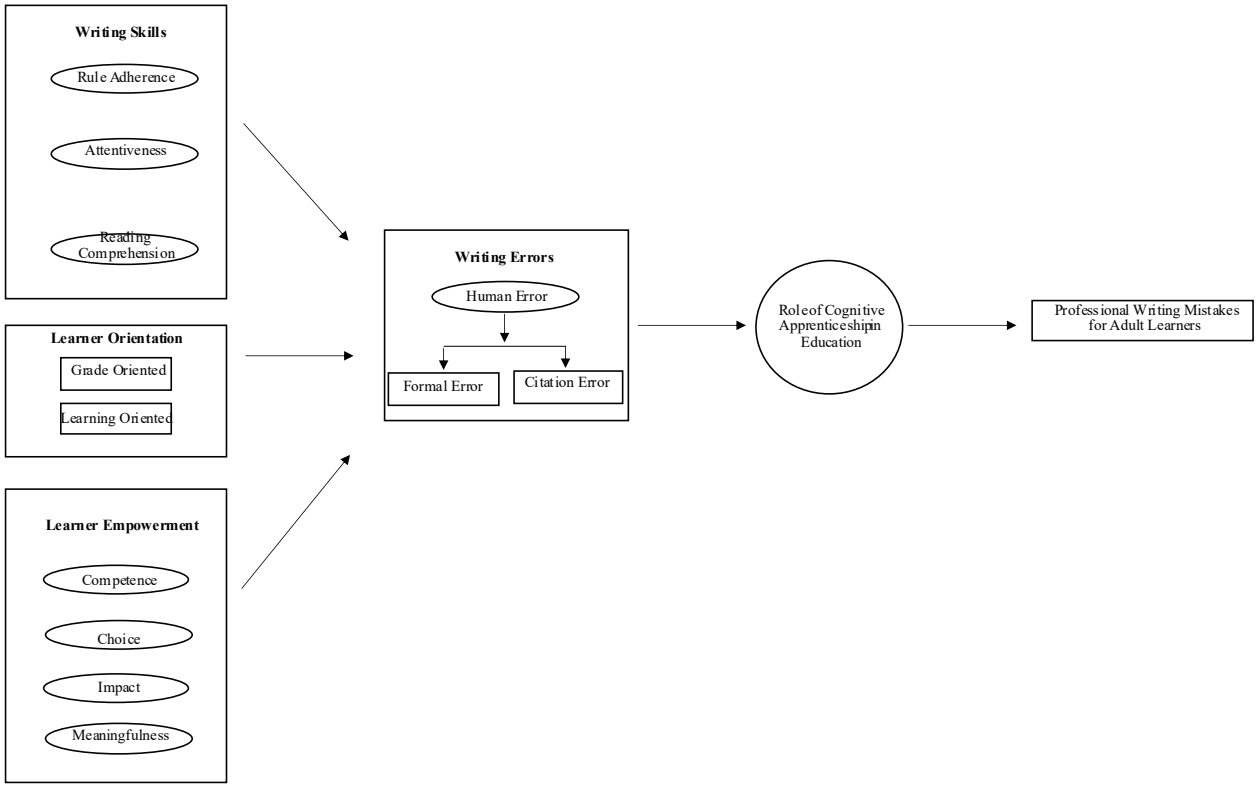

Figure 3. A conceptual framework for linking nested EST factors associated with writing to cognitive apprenticeship exposure in education which contributes to the emergence of mistakes in professional writing.

Conclusion

Human error, rule adherence in professional writing, learner empowerment, reading comprehension, attentiveness, and learner orientation all influence military service academy FYC student composition patterns. Although the root causes for all formal writing errors and citation violations cannot be precisely traced, the studies reviewed in this chapter provide the grounds for further investigation into the forces influencing undergraduate writing. To identify specific elements of military student writing experiences better, Chapter 2 expounds on a specific context (i.e., FYC courses at the USNA) and outlines the research design of the needs assessment

data collection techniques used to obtain further information regarding where midshipmen struggle with composition.

Chapter 2

Assessing Military Student Needs in First-Year Composition

Exploring undergraduate military service academy student writing requires knowing more about the dual roles teachers and students play in developing composition proficiency. The researcher aimed to improve the FYC courses at the USNA (2020); thus, a needs assessment study was held in the Spring and Fall 2020 semesters to investigate contributing factors to undergraduate writing errors and documentation style mistakes. Said factors include human error, reading comprehension, attentiveness, rule adherence, learner orientation, and learner empowerment. Each factor is observable in student compositions and written survey responses. This chapter provides the context for the present study and an overview of its relevant population. Then, the research questions and research design are introduced. The method is delineated via descriptions of participants, data collection instruments, and data analysis techniques. Finally, findings are summarized, analyzed, and discussed.

Context of the Study

A decade of first-hand student-instructor interactions with service academy students encouraged the researcher's assertion that many military candidates would struggle to determine when critical thinking is necessary—such as during thesis generation—as opposed to when compliance—like adhering to a prescribed citation format—was most appropriate. In 2012, the academic deans of the three largest American military service academies outlined a shared institutional goal:

> We develop critical thinkers and creative problem solvers who are innovative decision makers and have a bias for action. They must be articulate, both orally and in writing; they must be adaptable to their circumstances and environments; and they must

> understand and appreciate global and cross-cultural dynamics, the history of regions and peoples, and the social dynamics of interpersonal relations. (Born et al., 2012, p. 46)

These sentiments were echoed in more recent, publicly available statements from the current academic deans (Jebb, 2020, Letendre, 2020; Phillips, 2021). In short, military officers of all varieties must write clearly and concisely—in a manner respectful of social and cultural differences—while following all document style requirements required by superiors.

Although lessons gleaned from this inquiry would likely apply to all service academy FYC courses, this investigation concentrated on the professional writing necessities of the U.S. Navy and the writing training provided at the USNA (2020) during the 2019 to 2021 academic years. The FYC class is offered as a two-part course in the fall and spring semester of a freshmen student's USNA experience (USNA Department of English, 2020). Of note, midshipman is the official salutation for all undergraduate students enrolled at the institution, regardless of sex (Newman, 2016). Its use as an official U.S. Navy position precedes the 1845 founding of the USNA, and it remains a formal rank codified in U.S. law (Newman, 2016). The plural form is midshipmen.

Precision and accuracy are essential elements of official U.S. Naval writing; their prominence is readily apparent in a variety of professional reference volumes. First released in 1943, the 13th edition of *The Naval Officer's Guide* devotes an entire chapter to "Oral and Written Communication" (McComas & Kristenson, 2019, p. 90). Admonitions regarding the importance of prescribed document format appear in the *Watch Officers Guide* (Stavridis & Girrier, 2007), the *Division Officers Guide* (Stavridis & Girrier, 2004), the *Newly Commissioned Naval Officer's Guide* (Kacher, 2018), and *The Naval Institute Guide to Naval Writing* (Shenk,

2008). Each book is incorporated into all Naval Academy FYC classes to introduce midshipmen to these ideas.

As outlined in the USNA English Department (2020), the FYC course is split into two semesters for most students. Standardized test scores and a locally-written placement exam are used to place the strongest writers in a single-semester course and the weakest in a three-semester course. Roughly 63% of midshipmen will enroll in Humanities English (HE) 111 and HE112, titled "Introduction to Rhetoric and Literature I and II" (USNA Department of English, 2020). A two-term construct allows instructors to focus on basic elements of writing and analyzing short stories or articles in the first semester while delving into cultural topics, literature classics, and academic research practices during the spring semester (USNA Department of English, 2020).

The U.S. Naval curriculum is designed to support nine "Learning Outcomes," stressing composition techniques and "critical reading competency" (USNA Department of English, 2020, para. 2). These expectations closely mirror the skills recommended by the reference guides previously listed. Although the importance of such skills is routinely communicated to students by the USNA (2015) faculty (e.g., a blend of experienced active-duty instructors and tenure-track academics), student essays submitted during the FYC course contain a vast variety of grammatical, technical, and citation mistakes. The quantity of problems suggests an adjustment of in-class instructional strategies and instructor grading policies may be necessary to reduce error frequency levels.

Purpose

For FYC classes at USNA (2020), one should identify carious instructor strategies to engage midshipmen, so they may learn to balance creativity and conformity in written

communication. USNA graduates must abide by the principles of naval writing, such as clarity and attention to assigned format (Mack, Seymour, & McComas, 1998; Shenk, 2008; Stavridis & Girrier, 2004), so that the professional correspondences they draft (e.g., operation orders or critical material equipment requests) remain accurate and reliable. Given the dangerous geographic regions and urgent situations where officers often find themselves writing, leaders should teach new personnel, such as midshipmen, the skills necessary to reduce simple mistakes, procedural compliance failures, and other forms of miscommunication that so often form the link between human error and disaster (Adams, 2006; Huang & van Gelder, 2019; Martins & Maturana, 2010; Miranda, 2018; Rodríguez-Pérez, 2019).

Evaluating midshipmen writing proficiency demands examining the factors driving both student and instructor performance in the classroom. Regarding undergraduates, two constructs are well-suited to exploring composition mistakes: student formal error frequency, as an indication of larger patterns of human error, and student citation error frequency, to indicate reading comprehension and attentiveness abilities. Both constructs may be impacted by student perspectives due to the necessity of professional writing rule adherence. The teaching approach to imparting the grammar, citation, and critical thinking skills midshipmen require future career success rests on the following bedrocks: principles of adult learning (Knowles, 1980; Lippitt et al., 1984), student learning-orientations (Eison, 1981; Eison et al., 1986), curriculum design (Rotenberg, 2016), and class activities (Nilson, 2016). Accordingly, the needs assessment centered on four interrelated research questions designed to collect data regarding both student and instructor perceptions and behaviors:

RQ1: How do the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen compare to earlier those featured in earlier studies of undergraduate writing?

RQ2: Do differences in the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students?

RQ3: How are midshipmen assessments of meaningfulness, competence, impact, and choice reflective of their sense of learner empowerment in the FYC classroom?

RQ4: What terms and concepts do midshipmen use to characterize their experiences and expectations regarding the importance of the FYC curriculum in their future military career?

Method

Research Design

During the needs assessment stage, a mixed-methods approach allowed examination of both quantitative descriptive statistics culled from student FYC assignments and qualitative coding information gleaned from student low-stakes in-class writing and reflection activities. The needs assessment employed a non-experimental research design because it assessed past student work, with no future opportunity to intervene. The study was considered a classic case study category design because it occurred "within a bounded system" (Lochmiller & Lester, 2017, p. 120). The Naval Academy was a uniquely isolated setting for sociological study as observed by Pershing (2002) when examining USNA Honor Code adjudication process bias.

Two rounds of data collection occurred in the Spring and Fall 2020 USNA semesters. USNA transitioned to remote learning for the first time due to the COVID-19 pandemic midway through the spring semester; students remained at their spring break locations, completing all

coursework via Zoom sessions. The Fall 2020 collection occurred on campus, but nearly all sessions were conducted via the online Zoom videoconferencing platform. Midshipmen accessed the class remotely from their dorm rooms, the medical isolation wing, and occasionally from a socially distanced classroom, while their instructor (i.e., the researcher) participated from either a home or work office. The extent of outside variables and stresses on student participation and performance resulting from the pandemic are impossible to assess accurately.

Participants

Utilizing convenience sampling (Lochmiller & Lester, 2017), all invited participants were students of the researcher. The USNA class of 2023 finished the second semester of their FYC course in the program in May 2020; the class of 2024 commenced study in August 2020. Although individual demographic data were not collected during the needs assessment, the composition of the two Spring 2020 18-person sections of "Introduction to Rhetoric and Literature II" was roughly representative of their graduation classes. Per information previously available on the USNA (2019) public website, of the 1,181 members of the class of 2023, 73.8% were men, and 26.2% were women. The largest racial groups included the following: 63.1% White, 11.9% Hispanic, 7.9% Asian American, and 7.1% African American (USNA, 2019); the last two categories increased when respondents were allowed to list those races in addition to others. Additionally, 4.2% first served as enlisted personnel in either the U.S. Navy or Marine Corps, while 4.9% had at least one parent who was an alumnus (USNA, 2019). Additionally, 7.4% formerly studied at another college, and 21% completed a post-high-school preparatory course of instruction before their arrival (USNA, 2019).

One student left the HE112 class before completing the semester. Of the remaining 35, all were affected by USNA's decision—approximately two-thirds of the way through the Spring

2020 semester—to shift to online remote learning in response to the COVID-19 pandemic. Consequently, participant solicitation and consent form distribution were conducted remotely; thus, 12 students or 34.2% of the eligible population elected to participate. However, an advantage of the revised process was reduced risk of students feeling intimidated or pressured to volunteer; indeed, one implication of the Spring 2020 turnout was that many students did not feel compelled to participate. Final grades were posted before starting solicitation of participants; thus, none perceived that participation or non-participation impacted their class standings.

Participant descriptive demographics for the three Fall 2020 18-person sections of "Introduction to Rhetoric and Literature I" closely aligned to the overall composition of their graduating classes. As stated on the USNA website in 2020, among the 1,194 members of the class of 2024, 69.5% were men, and 30.5% were women. Major racial groups included the following: 71.6% White, 12.3% Hispanic, 8% Asian American, and 6.5% African American—again, with the latter two categories elevated when respondents were allowed to list them in conjunction with other races (USNA, 2020). Additionally, 6.6% first served as enlisted personnel in either the U.S. Navy or Marine Corps, while 6.0% had at least one parent who was an alumnus; notably, both graduating classes featured some students where both parents identified as alumni (USNA, 2020). Additionally, 6.8% of the 2024 class previously studied at another college, and 20.4% completed a post-high-school preparatory course of instruction before their arrival (USNA, 2020). Table 1 offers a visual breakdown of the two classes by raw numbers rather than percentages; information in parenthesis indicates those data reflect the primary designation in conjunction with other races.

Table 1

Demographics by Graduating Class, *2023–2024*

Graduation year	2023	2024
Total size	1,181	1,194
Men	871	830
Women	310	364
White	696	855
Hispanic	141	148
Multiple Races	136	121
Asian American (w/Other Races)	94 (188)	96 (159)
African American (w/Other Races)	85 (128)	78 (124)
Prior military experience	50	79
One parent is an alumnus	68	72
Both parents are alumni	10	6

Participation from the Fall 2020 groups was considerably higher, likely due to midshipmen's ability to sign and return preprinted consent forms rather than print, sign, scan, and email them individually. Of the 54 individuals invited, 45 volunteered, although two volunteers were dropped from the sample group because their submissions did not adhere to the assigned documentation style; the remaining 43 volunteers constituted a 79.6% response rate. One of the researcher's colleagues distributed and retained all signed consent forms until after final semester grades were posted as a precaution against undue influence.

Measures and Instrumentation

Two data sources were employed. The first was midshipmen essays created using word processors and submitted for credit inside an FYC class. Three types of writing assignments were analyzed: a *textual analysis* (Selzer, 2004), which asked the midshipman to evaluate a required course text by describing the author's sentence structure, rhetorical choices, and literary device employment; a *contextual analysis* (Selzer, 2004), which directed the midshipman to frame a course text around major societal issues occurring in either the time of the story or the

era in which it was composed; and a *response* assignment, which directed the midshipman to either concur or disagree with the analysis presented by a classmate on either of the other two assignments.

In addition to following those guidelines, each student was directed to compose each project while employing a different documentation style. Documentation style is a wide umbrella that conventionally includes the following distinct varieties: MLA, APA, CMS, and Council of Science Editors (Bullock, Brody, & Weinberg, 2017). The textual analysis of in-text citations and references were required in MLA format, the contextual analysis was required in APA, and CMS endnotes or footnotes and CMS bibliography were required for the response assignment.

The other data source was a trio of surveys completed by participants. The LOGO II (Eison et al., 1983) and the Learner Empowerment Instrument (Frymier et al., 1996) offered midshipmen the chance to provide Likert-scale responses regarding learning orientation and empowerment. The 1998 IDEA Survey (Hoyt & Lee, 2002) allowed midshipmen to rate their course experiences via Likert-scale responses and provide open-ended commentary via a blank response section; Appendix C contains a copy of the instrument. All three surveys were conducted as an in-class writing and reflection activity. Although initially envisioned as a paper survey, each was provided to the midshipmen as a Google form, so the Spring 2020 participants could complete the exercise even though the institution had transitioned entirely to remote learning by that point. Later, the Fall 2020 midshipmen were directed to conduct the exercise via Google form to minimize unintended differences once the two data sets were merged. These two data sources provided a window into five relevant constructs: formal errors, citation errors, learning orientation, learner empowerment, and career relevance.

Formal errors in student assignments. In the construct summary in Table 2, a formal error is defined as a standard-edited American English writing mistake both commonplace and widely recognized. The specific list of errors were previously examined in Connors and Lunsford's (1988) study of 3,000 undergraduate essays and Lunsford and Lunsford's (2008) follow-on analysis of 877 college papers.

The goal was to standardize better the dataset and align the relevant errors; thus, the same texts and assignments from the Spring 2020 HE112 sessions were reused, with department chair permission, during the Fall 2020 HE111 course. Typically, materials for two HE core courses were not interchangeable. Some errors frequently shown in the first data collection—such as forgetting the second "e" in "Mary Shelley" or misplacing the apostrophe in *The Liars' Club*—were difficult to replicate if the required texts had been exchanged.

Citation errors in student assignments. A citation error is defined according to the list of problems identified by Mandernach et al. (2016) and the three items the researcher constructed personally. Table 2 has all listed. One should note that specific citation errors might be dependent on the documentation style assigned.

Learning orientation. Subdivided into distinct LO and GO categories. Eison (1981) asserted that LO students "approach the college experience as an opportunity to acquire knowledge and to obtain educational and personal enlightenment" (p. 919). Conversely, GO individuals referred to "those whose academic attitudes and behaviors are focused around the belief that obtaining a course grade is, in and of itself, a sufficient reason for being in college" (Eison, 1981, p. 920).

Learner empowerment. Frymier et al. (1996) conceived of learner empowerment as resting on the following characteristics: *meaningfulness*, *competence*, *impact*, and *choice* (p.

187). The Learner Empowerment Instrument (Frymier et al., 1996) they developed assessed student perceptions of each based on their individual experiences and specific classroom situations (see Table 2).

Career relevance. As mentioned in Chapter 1, one of the major differences between older and younger students is that adult learners are much more engaged when they recognize the potential usefulness of new information to their personal or professional lives (Lippitt et al., 1984; Rohlwing & Spelman, 2014). When offered the chance to provide open-ended input regarding coursework, adult learners may offer insight into their perceptions of the practicality of coursework.

Table 2

Operationalized Constructs

Construct	Operational definition	Indicator	Method of data collection
Student Formal Error Frequency (RQ1/RQ2)	Ten formal writing errors identified by Connors and Lunsford (1988) and Lunsford and Lunsford (2008) were used to assess the volume of student writing mistakes.	"Wrong word; missing comma after an introductory element; vague pronoun reference; spelling error; capitalization; missing word; missing comma with nonrestrictive element; run-on sentence; lack of pronoun agreement; unnecessary or missing hyphen; sentence fragment." Terms above are taken from Connors and Lunsford (1988, p. 400) and Lunsford and Lunsford (2008, p.795).	Midshipmen essays submitted by participants through the USNA Blackboard system were reexamined. The frequency of formal errors using the indicators listed was manually tallied.
Student Citation Error Frequency (RQ1/RQ2)	Citation errors include 7 of the 17 types of in-text citation, reference list, and other APA formatting errors identified by Mandernach et al. (2016) as well as three original researcher-determined errors.	"Format of in-text citations; use of in-text citations; format of references on reference page; format of direct quotes; proper use of headings/subheadings; format of title page; format of header" (Mandernach et al., 2016, p. 409). Researcher-determined errors include Footnote/endnote format; assigned font and font size adherence; missing required information in source entries.	Midshipmen essays submitted by participants through the USNA Blackboard system were reexamined. The frequency of citation errors using the indicators listed was manually tallied.
Learner Orientation (RQ1/RQ2)	Eison (1981) said LO students "approach the college experience as an opportunity to acquire knowledge and to obtain educational and personal enlightenment" (p. 919), whereas GO individuals are "those whose academic attitudes and behaviors are focused around the belief that obtaining a course grade is, in and of itself, a sufficient reason for being in college" (p. 920).	LOGO II is a 32-item instrument that solicits responses using a 5-point Likert scale for participants to self-identify as either a LO or GO learner. It was developed by Eison et al. (1983). Eison et al. (1983) tabulated responses to assign respondents to one of four categories, depending on whether they fell above or below the median LO or GO average for their sample group. The categories are "high LO-high GO (H-H), "high LO-low GO (H-L), low LO-high GO (L-H) and low LO-low GO (L-L).	Midshipmen authorized use of their responses to a Google survey form (containing questions featured on the paper copy of the LOGO II) that was issued as an in-class activity.
Learner Empowerment (RQ3)	Frymier et al. (1996) defined learner empowerment as a condition which rested on student perceptions of a given course and instructor's *meaningfulness*, *competence*, *impact,* and *choice* (Houser & Frymier, 2009, p. 187).	The 30-item Learner Empowerment Instrument (Frymier et al., 1996) uses a 4-point Likert scale to solicit participant perceptions of a course and instructor from four subscales: meaningfulness, competence, impact, and choice. It was created by Schultz and Shulman (1993) and validated by Houser and Frymier (2009).	Midshipmen authorized use of their in-class activity responses to a Google survey form containing all the questions featured on the Learner Empowerment Instrument (Frymier et al., 1996).
Career Relevance (RQ4)	Lippitt et al. (1984) extolled "the importance of making clear at the outset of a learning experience what its relevance is to the learner's life tasks or problems" (p. 12).	The 1998 IDEA survey (Hoyt & Lee, 2002) is a 47-item instrument that uses a 5-point Likert scale to collect "student reactions to instruction and courses" (p. 68). It also features a blank area for participants to supply open-ended comments.	Midshipmen authorized use of their in-class activity responses to a Google survey form containing all the questions featured on the 1998 IDEA Survey.

Procedure

Data Collection

For both data collections, the three midshipmen writing assignments were collected over the course of a single semester. Midshipmen were allowed to select the order in which they completed the textual, contextual, and response assignments individually. The only restraints were that either a contextual or textual analysis needed to be submitted by the 6-week mark, and all assignments needed to be completed by the final day of class. Precise deadlines for each assignment were determined by lottery draw, whereby students selected their own deadlines and presentation dates—within the constraints outlined above—so as to best align FYC course requirements with their other coursework and athletic commitments. The three surveys—the LOGO II (Eison et al., 1983), the Learner Empowerment Instrument (Frymier et al., 1996), and the 1998 IDEA Survey—were completed during a single class session dedicated toward reflection. Reflection was completed within the final 2 weeks of the semester before students were invited to submit their official USNA end-of-course student opinion survey or consider signing a research study consent form. The consent forms were approved by the USNA Institutional Review Board (IRB) and were verified by Johns Hopkins University (JHU) School of Education faculty as sufficient to fall under the JHU "blanket" of IRB approval afforded to first-year doctoral students.

Potential participants were made aware that they would be asked to participate thanks to a note in the syllabus and a short verbal statement from the researcher near the end of the course. However, the two groups were formally invited by slightly different means. Due to the global pandemic of 2020-induced shift to remote learning, the class of 2023 participants was invited to participate via email. They were asked to return scans of the signed form to one of the

researcher's colleagues via email within 17 days. For the class of 2024, one of the researcher's colleagues distributed and collected forms in the final week of class but retained custody of them; the midshipmen were informed in advance of that arrangement. The forms were withheld from the researcher until after final course grades were submitted and could not be altered. The final number of needs assessment participants (n = 55) relative to the number eligible to participate (N = 89) yielded a total response rate of 61.7%. Over the following semester, the researcher manually verified the ages of those who had consented to participate and then isolated their assignments and surveys from those of nonparticipants before beginning data analysis. Data were stored in the USNA Blackboard learning management system and the USNA Google suite of classroom products.

Data Analysis

To address RQ1 and RQ2, the researcher examined participants' completed assignments to calculate manually formal error frequency and citation frequency averages. Descriptive statistic compilation included the total number of formal and citation errors, the lengths of the assignments, and the errors per 100 words. Using Eison et al.'s (1983) LOGO II user guide, midshipmen were assigned one of four learning orientation classifications; the labels were based on whether the respondent was above or below the LO or GO median for the sample group. The mean score for the eight LO questions was manually determined, as was the mean score for the eight GO questions featured on the instrument. Scores at or exceeding the mean were assigned a H value for "high," and those below received an L for "low." Thus, the four possible learning orientation designations included high LO-high GO (H-H), high LO-low GO (H-L), low LO-high GO (L-H), and low LO-low GO (L-L; Eison et al., 1986, p. 59).

For RQ3, all Likert-scale responses on the Learner Empowerment Instrument (Frymier et al., 1996) were analyzed to calculate descriptive statistics manually, such as the mean, median, and mode. All survey questions featured the same response scale, where 0 equated to *never*, 1 represented *rarely*, 2 meant *occasionally*, 3 represented *often*, and 4 indicated very *often* (Frymier et al., 1996, p. 186). The 30 questions on the instrument were divided into four subscales. Seven items assessed competence, seven inquired about impact, eight on the subject of meaningfulness, and eight about choice. The researcher then manually examined the dataset and calculated descriptive statistics, such as the mean, median, and mode, while searching for notable outlier values. A similar method was employed for the Likert-scale elements on the 1998 IDEA Survey. That instrument featured four distinct 5-option response scales with different labels.

Information to respond to RQ4 was obtained when the researcher employed in vivo coding. This technique "uses words or short phrases from the participant's own language in the data record as codes" (Miles, Huberman, & Saldaña, 2020, p. 65). Although the researcher first tried converting all responses to plain text and analyzing it via software that searches for word frequency and creates a word cloud for visual study, that method did not work. An individual line-by-line review of all student responses was conducted to select specific phrases and synonyms used by participants to serve as codes.

Findings and Discussion

Research Question 1

RQ1 asked the following: How do the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen compare to those featured in earlier studies of undergraduate writing? Table 3 shows an update of the table originally used by Connors and Lunsford (1988) to compare their investigation with Johnson

(1917) and Witty and Green (1930). Lunsford and Lunsford (2008) replicated the same table in their investigation yet did not provide the total average of errors per paper from their sample. The cumulative average length, errors per paper, and errors per 100 words from the present study represented combined totals from three types of assignments analyzed during the needs assessment. One notable item was that Connors and Lunsford (1988) did not include spelling errors in their error tally—they saved those findings for a separate publication. Lunsford and Lunsford (2008) did include spelling errors inside their error tabulations. The present investigation followed the Lunsford and Lunsford (2008) example and did incorporate spelling errors into the calculation. Table 3 represents only formal error calculations; no citation errors are included.

Table 3

Comparison of Error Rates Per 100 Words

Study	Year	Average length	Errors per paper	Errors per 100 words
Johnson	1917	162 words	3.42	2.11
Witty & Green	1930	231 words	5.18	2.24
Connors & Lunsford	1986	422 words	9.52	2.26
Lunsford & Lunsford	2006	1,038 words	-	2.45
Garrow	2020	1,411 words	4.09	0.29

Over a century of formal error study, several trends have become apparent. First, the average length of undergraduate composition assignments increased based on word length. Connors and Lunsford (1988) reviewed essays nearly twice the length as Witty and Green (1930), and Lunsford and Lunsford (2008) investigated essays over twice as long as the 1986 study they sought to update. The current study did not continue the trend of doubling the word length but was still roughly 35% larger than the Lunsford and Lunsford (2008) level. Correspondingly, the total number of errors seemed to increase with word length, which was logical, although the lack of Lunsford and Lunsford (2008) data complicated the trend. There

was a remarkable difference in total errors for items submitted by midshipmen, which might have been due to the many advancements in automatic error-checking software "spell check" tool, or midshipmen conscientiousness. The errors per 100 word rates in the four previous investigations rose steadily, albeit by small amounts. The midshipmen error rate (.29) was far below that of the other undergraduates, possibly due to the higher-than-usual academic ability of Naval Academy midshipmen upon acceptance. For the class of 2024, the middle 50th percentile of the Scholastic Assessment Test's (SAT) verbal section ranged from 630 to 760, meaning that half of this class scored between the 25th and 75th percentile (USNA, 2020). Although laudable, the error totals remained too high for an industry that prides itself on a zero-tolerance policy toward preventable errors.

Table 4 shows a closer look at midshipmen formal error occurrence. Unlike the aggregate figure contained in Table 3, Table 4 provides data for each assignment type. Midshipmen total error rates for each assignment type are close, with the contextual (4.89) and textual rates (4.78) best approximating each other. As a result, those assignments featured an identical errors per 100 words rate of (.30). The lower total number (2.6) and errors per 100 words level (.27) of the response assignment were likely due to its considerably shorter length in word count. Although the documentation style should theoretically not impact a students' formal error rate propensity, it is reasonable to suspect that midshipmen distracted by new citation standards might be more prone to overlook simple mistakes, such as comma use or spelling errors. Thus, Table 4 provides the style of each assignment.

Table 4

Midshipmen Formal Error Rates Per 100 Words

Type	Style	Average length	Formal errors per paper	Errors per 100 words
Contextual	APA	1,725 words	4.89	.30
Response	CMS	986 words	2.60	.27
Textual	MLA	1,612 words	4.78	.30

Regarding citation errors, the total number of errors on midshipmen submissions far exceeded their formal error rates. Again, that trend might be explained because the most common types of composition software featured electronic tools geared more toward resolving formal errors than citation errors. Table 5 shows the total citation error rates from the three types of assignments featured during the needs assessment.

Table 5

Midshipmen Citation Error Rates Per 100 Words

Type	Style	Average length	Citation errors per paper	Errors per 100 words
Contextual	APA	1,725 words	8.52	.5000
Response	CMS	986 words	9.31	.9500
Textual	MLA	1,612 words	7.61	.4864

The lengths of the contextual and textual assignments were much more approximate than the considerably shorter response essay. Nevertheless, the total errors for each were all within a two-point range. The larger number of citation problems for the response, which required that students correctly used either CMS footnotes or endnotes and provided a properly formatted bibliography, could indicate that many students did not encounter a particular documentation style during secondary school. Informally, many participants vocally expressed that the FYC course was their first introduction to APA. Although many professed to have encountered MLA before, the total number of citation problems for that assignment was similar enough to the other documentation styles to suggest that familiarity might not have been a key consideration.

In response to RQ1, although midshipmen committed far fewer formal errors than many college students, they remained part of a demanding career that asked them to strive for error rates of zero. In addition, most midshipmen seemed prone to making citation mistakes rather than formal errors although that might have been due to the ready availability of electronic grammar tools. Thus, the needs assessment data indicated that midshipmen required more assistance at improving their citation skills than they did at resolving grammar or other writing mechanical issues.

Research Question 2

RQ2 asked the following: Do differences in the respective averages of grammar and citation 'errors per 100 words' on FYC course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students? Midshipmen were assigned to a learning orientation category based on their responses on the LOGO II (Eison et al., 1983). Of 55 participants, nine (16.3%) self-identified as High LO/High GO (H-H), 21 (38.2%) as High LO/Low GO (H-L), 16 (29.10%) as Low LO/High GO, and nine (16.3%) as Low LO/Low GO (L-L). As displayed in Table 6, the average number of formal and citation errors and errors per 100 words were aggregated for each of the four groups.

Table 6

Midshipmen Error Rates by Learning Orientation

Type	Learner	Formal errors	F per 100 words	Citation errors	C per 100 words
Contextual	H-H	6.89	.45	09.11	0.58
Contextual	H-L	5.67	.33	07.43	0.44
Contextual	L-H	4.56	.27	10.44	0.61
Contextual	L-L	1.67	.10	07.11	0.39
Response	H-H	2.33	.22	09.89	1.03
Response	H-L	2.50	.27	08.71	0.91
Response	L-H	2.13	.21	11.25	1.12
Response	L-L	3.78	.45	06.67	0.65
Textual	H-H	3.22	.20	04.22	0.28
Textual	H-L	3.95	.25	08.24	0.50
Textual	L-H	5.44	.35	08.69	0.59
Textual	L-L	7.11	.42	07.67	0.47

Eison et al. (1986) characterized H-H as "motivated both to learn and to achieve high grades" and speculated "premed or prelaw" (p. 55) individuals likely fell into that category. The defining trait of H-L learners was "the pursuit of personal growth and educational enrichment" (Eison et al., 1986, p. 55). Meanwhile, L-H students "were assumed to view all aspects of the classroom experience in terms of their effects on a course grade" (Eison et al., 1986, p. 57). For L-L, "both learning and grades are somewhat irrelevant … such students are in college to make contacts for later life, to have a good time, to avoid going to work immediately after high school, and so on" (Eison et al., 1986, p. 57).

As seen in Table 6, the breakdown of formal error rates for the textual assignment aligns with what one might logically expect given the descriptions above, where H-H learners had the lowest rates, with the level rising in a linear fashion through the other categories (leaving L-L with the most errors). On the same textual assignment, citation error rates almost mirrored the formal error results, except for a lower-than-expected error rate for L-L midshipmen. As stated earlier, although midshipmen were free to complete the assignments in any order, most selected

the textual assignment first—perhaps due to the familiar MLA citation style. For the contextual assignment, however, Table 6 shows that the formal rates occurred in a peculiar reverse order compared with the textual assignment rates, whereby H-H leaners committed the most and L-L the least. Regarding contextual assignment citation errors, the result was still unexpected, with H-H committing more than L-L but less than L-H—the category that ostensibly cared about scores the most. A similar confusing pattern emerged in the citation results for the response assignment, with L-L making fewer overall errors than the other groups and L-H making the most despite their professed concerns with grades.

Based on these findings, the researcher could not draw any clear conclusions about the effect of learning orientation on students formal and citation error rates. The breakdown varied enough across the assignments to preclude clear conclusions. To see if this confusing pattern was replicable, the LOGO II (Eison et al., 1983) was administered to students during the intervention phase. At present, there does not seem to be any meaningful relationship between learning orientation and a midshipman's error propensity.

Research Question 3

RQ3 inquired the following: How are midshipmen assessments of meaningfulness, competence, impact, and choice reflective of their sense of learner empowerment in the FYC classroom? The researcher aggregated the responses by subscale to determine the mean, median, and mode for items dealing with competence, impact, meaningfulness, and choice. As seen in Table 7, only the mean varied. The median and mode for all subscales was 3.

Table 7

Learner Empowerment Instrument Results

Category	Statistic	Value
Choice	Mean	2.27
Choice	Median	3.00
Choice	Mode	3.00
Competence	Mean	2.23
Competence	Median	3.00
Competence	Mode	3.00
Impact	Mean	2.78
Impact	Median	3.00
Impact	Mode	3.00
Meaningfulness	Mean	2.75
Meaningfulness	Median	3.00
Meaningfulness	Mode	3.00

The two highest means were impact (2.78) and meaningfulness (2.75), both outpacing choice and competence by about .5. The researcher concluded that midshipmen seemed to place a premium on those categories based on their personal feelings of empowerment. In accordance with Lippitt et al.'s (1984) contentions regarding how best to engage adult learners, intervention elements would do best to forefront considerations of career impact and meaningfulness over choice and competence. Although it might have been possible to account for all four conditions in the eventual intervention, precedence was given to the two characteristics that the midshipmen indicated as most critical to their sense of empowerment.

Research Question 4

Finally, RQ4 asked the following: What terms and concepts do midshipmen use to characterize their experiences and expectations regarding the importance of the FYC curriculum in their future military career? Of 55 participants, 52 replied to the open-ended response section of the 1988 IDEA Survey, although eight responded with a single word along the lines of "none" or "NA." A total of 2,987 words were provided for analysis. The mean answer length was 55

words, and the median was 45 words. Eleven participants supplied answers exceeding 100 words, and the longest individual entry was 225 words.

The feedback covered a wide variety of material, from the fairness of in-class pop quizzes to comparisons to a student's high school English course. However, some key terms relating to career relevance emerged. One student observed, "I enjoyed how, sometimes, stories from the fleet would come along and I think that you should keep trying to work those in as much as possible." Another participant stated, "I love how the instructor relates our readings to real-life situations that will help us in our future jobs and life." A different midshipman also recounted how the researcher did well at "relating the course work and reading to real-life scenarios and issues that we will likely encounter in the Fleet." As a result, the first term to emerge from in-vivo coding was *real-life situations*. Given that, another respondent commented on "important life lessons," and one more remarked on "valuable information concerning life in the Fleet or life in a career in general." It seemed that some midshipmen had recognized the ties between a military career and FYC coursework. One commented, "I found a fair amount of professional development discussed when taking this course." *Professional development* seemed an apt term to summarize what many participants chose to remark on and was selected as a code.

In general, the comments were positive, which might have been attributed to participants knowing that, unlike their USNA end of course surveys, the 1988 IDEA Survey (Hoyt & Lee, 2002) was not going to be anonymous. The researcher required that students identify themselves via their student number to separate responses according to who provided a study consent form. Still, some notable constructive criticisms were present. One participant suggested that the FYC course should provide "a few more classes on developing our writing," while another student provided only a single line of feedback in the open-ended section stating: "I wish we had more

feedback on our papers." *More feedback* did seem to be a trend among some other responses, although no others put it so succinctly. Another midshipmen relayed how "I got crushed on my first paper but rebounded well on the next one." That statement, along with the feedback critique, provide the inspiration for the revised instructor feedback and draft revision policies that serve as elements of the intervention in Chapter 4.

Another open-ended question comment was addressed in the intervention. One midshipman revealed, "I wish we touched on texts from different perspectives to include those of people in the military." That astute observation indicated a course shortcoming. None of the required texts for the needs assessment related directly to military affairs. As a result, one element of the upcoming intervention entailed replacing one of the course texts from the needs assessment with a book not only written by a veteran but also dealing directly with the military as an industry and profession.

Conclusion

The needs assessment successfully modeled prior studies (e.g., Connors & Lunsford, 1988; Lunsford & Lunsford, 2008; Mandernach et al., 2016). The assessment demonstrated that although midshipmen might commit formal and citation errors at lower than average rates than earlier studies of civilian undergraduates, their total volume of errors was too high for an industry where the consequences of any error could be deadly. Midshipmen enrolled in the USNA (2020) FYC course used for this study expressed appreciation for some areas of learner empowerment, indicating room for improvement in the meaningfulness and impact of the course's content and instructional approach. Finally, using codes from terms employed by midshipmen themselves, the data indicated a need for greater FYC course emphasis on militarily-relevant content, additional suggestions for composition improvement, and real-world

practicality. Instructor actions and FYC course design revisions to address midshipmen error propensity need to account for these considerations.

Chapter 3

Intervention Literature Review

Data collected during the needs assessment confirmed that USNA midshipmen exhibited formal errors (Connors & Lunsford, 1988; Dixon & Moxley, 2013; Lunsford & Lunsford, 2008) and citation problems (Angell, 2016; Boysen, 2019; Davis & Anderson, 2019; Kargbo, 2010) akin to their civilian undergraduate counterparts. The needs assessment analyzed three papers and three surveys written by 55 USNA (2020) midshipmen (a 61.7% response rate) for an FYC course. Although the grammar and mechanics error rate per 100 words (.28) was lower than Connors and Lunsford's (1988) 2.26 or Lunsford and Lunsford's (2008) 2.45 findings, midshipmen's average total formal (4.09) and citation (8.48) error rates were high for a perfection-demanding profession. Certainly, those figures were high enough to warrant instructor-driven course curriculums and instructional improvements.

Chapter 1 explored the impact of factors contributing to errors in professional writing (Kent, 2007), including human error (Sexton et al., 2001), professional writing rule adherence (Lesar et al., 1997), learner empowerment (Frymier et al., 1996), reading comprehension (Barnes & Kim, 2016), attentiveness (Greer & McCann, 2018), and learner orientation (Eison et al., 1986). As noted, said errors emerged in a wide variety of professional contexts, such as medicine (Lesar et al., 1997) or business (Benson, 2018; Victor, 2018). Cognitive apprenticeship served as a conceptual framework to organize those relevant factors (e.g., J. S. Brown et al., 1989).

In Chapter 2, needs assessment data collected via following three survey instruments indicated that interventions should focus on the following areas. The LOGO II (Eison et al., 1983) indicated a bell curve distribution of LO and GO students, necessitating appealing to both groups. The Learner Empowerment Instrument (Frymier et al., 1996) suggested increasing

course meaningfulness and impact rather than choice or competence to raise engagement. In vivo coding answers from the IDEA survey (Hoyt & Lee, 2002) recommended students needed more feedback, professional development, and real-life situations.

The present chapter includes military/veteran education studies and higher education (Blaauw-Hara, 2017; Rifenburg, 2019). When possible, studies focusing on FYC English and literature classes are cited. However, investigations involving students either engaged in other academic disciplines or enrolled at foreign higher learning institutions are featured.

USNA (2015) instructors enjoy wide latitude in their ability to redesign course readings, syllabi, and assignments so long as the changes uphold the nine learning objectives which underpin the institution's two-semester FYC. Thus, this chapter aims to outline research featuring potential paths to reduce student composition errors while fostering learning engagement. First, the scholarship of teaching and learning (SoTL) is discussed as the theoretical framework for the intervention. Next, outcomes-based design and social justice are presented as relevant considerations when evaluating prior research literature for FYC course improvement. Then, earlier studies associated with critical thinking, social justice, grammar error correction, citation error correction, inquiry-based learning, and scaffolding and peer review are explored to offer an initial intervention.

Theoretical Framework

The SoTL is a logical choice for an intervention theoretical framework for educators who want convenience sampling procedures at their workplaces (Soicher, Becker-Blease, & Bostwick, 2020). Although Boyer (1990) first used SoTL, the researcher did not provide a straightforward definition, focusing instead on various elements and characteristics of the concept. Although the author asserted there was no agreed-upon standard, McKinney (2004)

provided a concise summary of SoTL as something which "goes beyond scholarly teaching and involves the systemic study of teaching and/or learning and the public sharing and review of such work through presentations or publications. Clearly, there is a focus here on the product or outcome" (p. 8). However, its origins lie outside of higher education. Coined by German social psychologist Kurt Lewin in the 1940s (as cited by Adelman, 1993), the phrase *action research* is considered an extension of *reflective teaching* (Zeichner & Liston, 1996).

Today, action research is most associated with primary and secondary school students (Jacobs & Yendol-Hoppey, 2014), but the term is occasionally employed in higher education investigations (Gray, Chang, & Radloff, 2007; Walker & Warhurst, 2000). As Gibbs et al. (2017) observed while advocating for more action research in higher education, "given its theoretical and political roots, AR [action research] is frequently called upon to explore issues relating to critical pedagogy and social justice" (p. 4). By offering a means for educators to examine their beliefs while implementing them in the classroom, AR capitalizes on the benefits of self-reflexivity and instructional best practices.

When action research is centered on the learning habits of adult students, it can also be termed SoTL. Ryan (2013) noted, "It is important that the two concepts, however similar they may prove to be, remain distinct" (p. 1). SoTL was used to characterize this investigation, even though it sometimes overlapped with action research principles. By balancing individual research interests with instruction requirements, SoTL extends a clear means for scholar-practitioners to hone their craft (Webb & Welsh, 2019). Strains stemming from conflicts between SoTL theory and SoTL application were observed by Hutchings (2007), whereas others saw this natural conflict as a hidden asset, in that they compelled SoTL to remain flexible enough to encapsulate many means and methodologies (Webb & Welsh, 2019).

In an investigation of SoTL knowledge and use, Gurung, Richmond, Drouin, Landrum, and Christopher (2019) obtained 482 volunteers from 21 disciplines at colleges and universities of all sizes. Although 13 participants were English professors, the vast majority—more than 50%—hailed from psychology. Employing a 7-ratio-scale instrument to solicit faculty perceptions, the research team's findings revealed that those from other disciplines tended to hold a dourer opinion of SoTL's potential than the psychologists surveyed, that baccalaureate-only institutions seemed to use SoTL more than those that offered graduate degrees, and that men seemed more inclined to engage in SoTL practices than women—even though most study participants were female (Gurung et al., 2019). Although the investigators mused that the focus on student instruction at nondoctoral schools might explain the middle finding, they did not offer hypotheses to frame the distinction between the sexes.

Actively used in the classroom and research settings, SoTL facilitates developing professional education identities for instructors by allowing pedagogy that is responsive to both experimentation and adherence to established standards (Mathany, Clow, & Aspenlieder, 2019). Arguably hampered by its small participant set of 19 volunteers, Mathany et al. (2019) reinforced the study based on a rise in international SoTL applications. Mirhosseini, Mehrdad, Bigdeli, Peyravi, and Khoddam (2018) located 460 articles with in-depth explorations of SoTL implications before narrowing their close-reading focus down to 145 of those pieces. Their examination resulted in identifying eight relevant SoTL attributes, with the process characterized by context, engagement, inquiry, and reflection, among others (Mirhosseini et al., 2018). The research team's coding did not yet generate widespread attention (as evidenced by its low number of scholarly citations on Google Scholar), but it was significant as an early step to identify the bounds and limitations of SoTL concretely.

Literature Review

Applying SoTL principles to achieve educational and research goals offered a number of paths, but two commonly employed techniques were relevant to this investigation. First, one entailed ensuring that course design was *outcomes centered* (e.g., Nilson, 2016; Wiggins & McTighe, 2005, 2013; Wiggins & Wilbur, 2015), the second entailed that the FYC syllabi, assignments, and course practices highlighted social justice while emphasizing equality and inclusion (Cushman, 1996; Taylor, 2018; West-Puckett, 2016). Outcomes-centered design, alternately called *backwards design* (Bean, 2011), places a premium on final results by using *essential questions* to help define and engineer said results (Wiggins & McTighe, 2013; Wiggins & Wilbur, 2015). Meanwhile, social justice considerations ensure diversity of thought and inclusion in the classroom while keeping an eye toward the benefits of students to enable what Cushman (1996) referred to as *social change*.

Therefore, an outcomes-centered, social-justice-conscious design was a logical structure for an intervention intended to impart vital professional composition skills in future officers. About a decade ago, the academic deans of the three largest service academies—USNA (2020), along with the U.S. Military Academy and the U.S. Air Force Academy—released a joint statement that made 14 mentions of "learning outcomes," as well as four direct references to "social responsibility" (Born et al., 2012, p. 20). More recently, publicly released strategic statements by each institution's dean focused on dignity and respect alongside their traditional focus on critical thinking (Jebb, 2020; Letendre, 2020; Phillips, 2021).

Designing an intervention cognizant of those considerations is one method of soliciting institutional support. The use of shared language in multiple documents at three institutions across a decade indicates these ideas are institutional priorities rather than fleeting fads. Both

concepts are relevant when evaluating prior research regarding the following intervention concepts: critical thinking, social justice, grammar error correction, andragogical learner empowerment, citation error correction, inquiry-based learning, career relevance, and scaffolding and peer review.

Critical Thinking

This investigation's conception of critical thinking was grounded on Ennis's (1993) definition: "reasonable reflective thinking focused on deciding what to believe or do" (p. 180). Ennis provided a list of 10 tasks, a majority of which an individual must do "interdependently" (p. 180) to think critically. Because his list was geared toward students, it was more applicable to this investigation than studies that had evaluated critical thinking in other contexts. Research reports, such as O. L. Liu, Frankel, and Crotts Roohr's (2014) summary of next-generation assessment methods, still cited Ennis. Relatedly, quantitative studies, such as Grant and Smith's (2018) investigation of undergraduates, continued to build on the initial concepts, but such research did not distill relevant categories as clearly as Ennis's original outline.

In what seemed a SoTL-inspired personal reflection on what critical writing meant to both himself and his students for the *Journal of Basic Writing*, Miller (2002) questioned whether critical-thinking skills could be imparted by instructors to students. Rather, the researcher reasoned that it might be more realistic to believe students possessed such skills inherently and simply needed an educator to reveal it. His examples to defend his assertions were more anecdotal than empirical, but his unique conceptualization of the challenge might still hold merit.

However, a more grounded approach was contained in Grant and Smith's (2018) exploration of undergraduate student critical thinking ability using the Critical-Thinking Assessment Test (CAT). As noted by Stein and Haynes (2011), the CAT instrument was

developed through a partnership of the National Science Foundation and numerous American universities. Grant and Smith recruited about 150 participants from two Western universities (one small and one large) enrolled in courses of various academic disciplines with syllabi that emphasized critical thinking. Participants completed both a pre- and post-study CAT. Students uniformly "showed demonstrable improvement in critical thinking skills as measured by CAT over the course of a single term" (Grant & Smith, 2018, p. 34). One implication is that when instructors forefront critical thinking as a concept and a skill, students seem inclined to grant the concept more weight.

Social Justice

Social justice can be a contentious term in many contexts, and writing instruction is no exception. In 1996, Cushman pointedly commented that when it came to applying its principles in the writing classroom,

> I'm not asking for composition teachers to march into the homes, churches, community centers, and schools of their community. I'm not asking for us to become social workers either. I am asking for a deeper consideration of the civic purpose of our positions in the academy, of what we do with our knowledge, for whom, and by what means. (p. 12)

This call-to-arms was later reflected by similar advocacy from Slee (2001), Lovelass (2014), and De Kadt (2019). Nevertheless, it is contentious because distinct differences between student perceptions of the concept seem to emerge. A telling example was West-Puckett's (2016) "digital badging" experimentation to highlight a social-justice-based alternative to FYC traditional grading. Facilitating undergraduate teamwork via peer-graded digital badges (visual accomplishment icons the researcher compared to the star rating system employed by eBay) increased undergraduate interest and buy-in. Participants included 66 freshmen enrolled in one of

the author's three FWC classes, 15 of whom self-identified as minorities. The researcher's participation-centric and peer-guided grading system received mixed reviews overall, yet verdicts rendered by students of color were particularly positive: 53% of that group applauded her focus on digital badging, contrasted with vice 21.5% of the class. That disparity demonstrates it is difficult to apply social justice concepts in a manner received uniformly.

Ensuring students are given space to ponder and describe their orientations toward social justice is one method to help all voices feel heard. Following the SoTL habit of conducting instruction improvement research in real time, McCoy (2020) qualitatively characterized students' responses to the researcher's social justice-themed writing projects. The researcher found success in prompting students to complete reflective essays revealing their orientations toward the issue and response statements to others. Metacognition grounds McCoy's approach to reflection activities, representing one method to resolve the characterization question first posed by Miller (2002).

Grammar Error Correction

Multiple studies (Connors & Lunsford, 1988; Dixon & Moxley, 2013; Johnson, 1917; Lunsford & Lunsford, 2008; Witty & Green, 1930) confirm the continual presence of grammatical and other formal structural issues in undergraduate composition. However, identifying error is not akin to resolving it. In 2006, Mark Blaauw-Hara noted the ongoing critical reaction of various faculty at his community college to persistent student grammar problems: "I don't think the answer is to devote fourteen weeks a semester to whole-class grammar instruction. Nor is it to ignore the issue, or to focus only on educating the public on discourse communities and dialect" (p. 166). The researcher advocated activities that would move students away from a binary conception of grammar as right or wrong, instead pushing

them to identify a specific grammar guide or template to model in their work (Blaauw-Hara, 2016). Incorporating industry reactions to problematic writing, as lamented in business school studies (Beason, 2001), business news stories (Victor, 2018), and other professional contexts (e.g., medicine; Lesar et al., 1997), might help resistant undergraduates acknowledge the usefulness of grammar knowledge and adherence.

In FYC classes, punctuation issues are a significant subtheme of student formal error composition. Although Downs and Wardle (2007) "understand writing as inseparable from content (CCCC; Crowley; Reither) and as more than collections of grammatical and syntactical constructions (Broad; Diller and Oates; Haswell, *Gaining Ground*)" (p. 555) in their analysis of FYC courses, the role of proper punctuation in creating context is difficult to overstate. Dawkins (2003) proposed streamlining punctuation lessons by favoring lessons that would teach students to consider punctuation standards more as principle-driven decisions rather than codified rules. Dawkins advocated involving various forms of activity, such as pushing students to read sentences aloud, to stimulate higher-order cognition and understanding, essentially for students to be highly conscious and self-aware of their punctuation choices (Dawkins, 2003).

Nevertheless, Dawkins's (2003) approach spurred counterarguments, such as Mann's (2003) multilevel decision-making tree system as "still too complex" (p. 360). The researcher proposed helping students conceptualize punctuation as a means of "information management" (Mann, 2003, p. 363); an advantage of this approach is that it may help students grasp why punctuation is important in in-text citations and bibliographical sources. Reconceptualizing punctuation rules and standards regarding their organizational usefulness also helps justify their in-class emphasis in a means that is respectful of what Lovelass (2014) termed "social and racial linguistic inequalities" (p. 20) in her Illinois State University dissertation research. Stressing

traditional punctuation and grammar standards as a form of information organization rather than as a societal control mechanism aids students in reconciling the multiple contexts within which grammar structures reside.

Andragogical Learner Empowerment

Previous learner empowerment studies revealed it as a relevant factor in education (Brooks & Young, 2011; Frymier et al., 1996; Houser & Frymier, 2009) yet offered few prescriptions for reinforcing or raising it. D. Liu (2011) offered a way to connect grammar instruction with student empowerment. Employing SoTL to solicit 41 upper class undergraduates and graduate students from both his own course as well that of a colleague, D. Liu (2011) employed a *problem-based learning* (PBL) approach to grammar instruction to increase student buy-in. The results of the case study indicated that nearly three-quarters of the participants found his corpus-centric approach helpful and engaging. In addition to Likert-scale responses, study volunteers offered open-ended opinions of the process to some instrument questions, indicating that the PBL method pushed them to think about grammar implications outside the bounds of classwork exclusively. Such an approach may well appeal to midshipmen as it is anchored in practical application or relevant previous-experience case study examples from instructors.

Peer-reviewed English composition and rhetoric journals feature far fewer empirical investigations of error reduction in student composition than one might assume. Although surprising, three subspecialty areas often make reducing the volume of mechanic problems in structure and grammar a central goal: English as a second language (ESL), English as a foreign language (EFL), and business school student professional writing.

The first two are related but distinct. As the editors of ESLteacherEDU.org note, ESL refers to students enrolled in U.S. programs whom primarily speak another language, while EFL

refers to students from other countries attempting to learn English in their native educational programs (https://www.eslteacheredu.org/about-us/). ESL studies explore the roles that peer review (Bradley, 2014) and collaborative writing play in composition knowledge (Pham, 2021; Storch, 2005), as well as how various forms of instructor feedback impact learning (Treglia, 2009). EFL investigations center the criticality of instructor feedback (Delante, 2017; Truscott & Hsu, 2008) while examining the nature of learners' mechanical errors in-depth (Lastres-Lopez & Manalastas, 2018).

Truscott and Hsu (2008) examined the writing skills of 47 EFL graduate students (predominantly men, but nine were women) from various disciplines who had enrolled in a basic writing seminar. Students were randomly assigned into control and experimental groups. The latter's distinction dealt only with the level of instructor feedback that would be provided; all other elements of course participation remained the same. Truscott and Hsu underlined errors on drafts for students enrolled in the experimental sections. Although the researchers found that students in the experimental group scored better on revisions to the same assignment where feedback was provided via underlining, there was almost no difference in the average volume of student error rates on the second narrative writing project. Therefore, the study calls into question how much of a role instructor feedback plays in student error trends over time.

Writing-intensive courses geared toward business students comprise a third area where experimentation regarding instructor strategies (Enos, 2010; Garner & Shank, 2018) and student writing performance occurs regularly (Quible, 2006; Wilson, Provaznik, & Pigeon, 2018). Quible's (2006) quasi-experimental study of 123 undergraduate business students at a major midwestern university demonstrated that the benefits of steadily requiring students to engage in what he terms *error labeling*: "Students were asked to identify and label errors on the

preadministration [sic] of the writing sample (7th week of the semester) and to identify, label, and correct errors on the postadministration [sic] of the writing sample (15th week)" (p. 9).

The students were enrolled in sections he personally taught; thus, this investigation was a prime example of SoTL research in higher education. Treatment group participants were directed to label an error using a code assigned by Quible (2006), rather than correct such issues as the control population did. Error labeling reduced the total frequency of errors on compositions drafted by members of the treatment group and punctuation errors (Quible, 2006). Given the similarities between business communication activities (e.g., practicing draft business correspondence like formal letters) and those common to FYCs (e.g., free writing or draft email composition practice), Quible's approach suggests it holds merit for courses seeking to blend elements of professional writing with classical rhetoric better.

Regarding the role the instructor might play in student growth, Wilson et al.'s (2018) quasi-experimental investigation of 96 rural midwestern university undergraduate students enrolled in a marketing class suggested instructor feedback could reduce basic sentence-level composition errors. Like Quible (2006), Wilson et al. solicited participants from their own courses in a manner consistent with SoTL practices. Students in the course could submit two drafts of the paper and receive electronic instructor feedback via the learning management system. The researchers used some techniques from Connors and Lunsford's (1988) study, notably a reliance on assessing the average of "errors per 100 words" (p. 188). The compositions submitted by the students averaged 565 words and revealed an average of .45 errors per 100 words on the initial submissions and .33 errors per 100 words on second drafts and final submissions (Wilson et al., 2018, p. 188). These results indicated that students who had submitted multiple drafts fared far better with total errors than those who had submitted only one

draft, and that instructor feedback affected this trend. Wilson et al. also observed "a substantial number of students who did only one draft failed to fix any of the noted writing errors" (p. 191) on future work. This finding might indicate that students did not understand the comments, but it seemed likelier that they did not review the feedback provided by the instructor. Directing students to review instructor comments as part of an in-class activity was one strategy that might reduce the likelihood of students ignoring instructor comments in the revision process.

The relevance of writing improvement to certain fields may be demonstrated by a clear connection between coursework and its professional application. Blaauw-Hara (2017) employed SoTL methods to investigate how veterans at his community college were adapting to the change from professional to academic writing. Although the participant pool in the study (six students, all men) was small, Blaauw-Hara applied Knowles's (1980) principles of andragogy to persuade adult learners of how to frame knowledge acquisition. Employing a combination of a 10-item survey instrument and a 7-point structured interview, Blaauw-Hara found success by identifying exercises tailored to appeal to veteran learners, such as crafting mock military situational reports.

Blaauw-Hara's (2017) approach holds merit for application at service academies, such as USNA (2020). Every USNA freshmen classes contains at least some veterans thanks to enlisted-to-officer programs, such as Seaman-to-Admiral. For the class of 2023, 4.2% of students reported prior service experience (USNA, 2019); for the class of 2024, that figure rose to 6.6% (USNA, 2020). Incorporating appealing and career-specific in-class activities, such as the situational reports option identified by this study, is likely to appeal to not only to USNA (2020) prior enlisted students but also to other midshipmen. USNA faculty have long seen value in explaining writing using samples of military professional writing as an example (Fleming, 2008); instructor strategies that build on that trend can harness powerful andragogy incentives.

Citation Error Correction

Documentation style errors emerge in undergraduate composition, regardless of whether the required format is the APA (Boysen, 2019; Hughes et al., 2017; Mandernach et al., 2016; Onwuegbuzie et al., 2010), MLA (Angell, 2016; Lynch & McGrath, 1993), or *CMS* (Davis & Anderson, 2019; Kargbo, 2010). Although many authors offer advice on methods to emphasize and reinforce documentation style improvements, Greer and McCann (2018) noted a dearth of precise empirical data demonstrating how widespread student citation problems were or the effectiveness of proposed interventions.

Boysen (2019) clearly established the merits of a SoTL-based approach to citation error education. The mixed methods investigation contrasted two APA documentation style teaching approaches. Volunteers (women represented about 75% of the sample) were solicited during a class lasting three semesters, culminating in 119 undergraduate freshmen and sophomore volunteers. Of those, 73 engaged in APA citation practice activities, while 43 others submitted reflection surveys at the class's conclusion. Practice activity data were sampled during two class periods dedicated to APA citation. In the first, one-half of the volunteer pool assembled citations from a source elements worksheet as the other half practiced error-recognition by spotting problems on a separate document. During the second class, activities groups tackled the opposite activity. Knowledge-check tests completed after each class and participant reflection surveys were used to evaluate learning progress.

Boysen (2019) found that tests from subjects who completed the error production version first featured a smaller volume of mistakes. Even once all participants practiced both techniques, students who had completed the error-identification sheet initially continued to demonstrate reduced knowledge retention levels relative to those who had engaged in original production first

(Boysen, 2019). That finding presented an intriguing contrast to Quible's (2006) error labeling activity because that investigation relied on students labeling errors in writing samples crafted by others and yet Quible subsequently saw improvements in treatment group members' original compositions. It is unclear if the distinction is due to some fundamental differences in mechanical versus citation errors or some other factors. Another intriguing implication of Boysen's (2019) end-of-class survey responses was that although 67% of Boysen's students agreed that the citation production activity was more beneficial for acquiring APA abilities, 54% preferred executing the easier, less-helpful exercise involving error identification.

One may question if a lack of proper citation instruction a is major contributor to undergraduate documentation style error patterns. There are indications that students perceive it that way; in a survey of 57 University of Liverpool health science undergraduates, "students very clearly indicated they felt they had not been taught to reference correctly in the past (74.5%)" (C. A. Brown, Dickson, Humphreys, McQuillan, & Smears, 2008, p. 144). In the same manner that ESL and EFL researchers seem to privilege mechanical error reduction more than others, international scholars seem to place a greater premium on citation accuracy compared to some American researchers. Although the researcher did not investigate his own students in the manner common to SoTL, Zhang's (2018) study of Beijing Foreign Studies University undergraduates tracked their progress at improving referencing and citation during a one semester course. This qualitative investigation focused on three students' perceptions of how their instructor introduced them to APA style. The three Chinese students initially found APA citations challenging and confusing but felt they improved over time, so much so that one student lamented "a loss for my peers who have not learned this in such an explicit way" (Zhang, 2018, p. 590).

Inquiry-Based Learning

With its provocative questions and guided lessons, the Socratic method is the oldest method in teaching (Schneider, 2013). Nevertheless, its modern iteration, inquiry-based learning, is an increasing topic of academic study thanks to its indications of effectiveness. In the first half of the 20th century, Dewey (1938/1997) asserted, "Problems are the stimulus to thinking …. It arouses in the learner an active quest for information and for production of new ideas" (p. 79). Later, Lee (2011) credited Dewey (1910) with identifying how "inquiry originates in a state of uncertainty or imbalance occasioned by difficulty and the need to resolve uncertainty and restore balance" (p. 150).

In the decades since, support for inquiry as a pedagogy foundation grew. Justice, Rice, Roy, Hudspith, and Jenkins (2009) qualitative interviews with 12 education officials, including four deans, at Canada's McMaster University suggested institution-wide support for standardizing inquiry across disciplines. Although the administrators admitted that faculty were sometimes reluctant to embrace inquiry as a teaching philosophy, they achieved success by highlighting specific methods for incorporating it in classroom activities, such as by employing inquiry to engage and train peer-tutors (Justice et al., 2009).

Some researcher aimed to demonstrate that inquiry-based learning benefits are widespread. Hu, Kuh, and Li (2008) turned to publicly available data collected in the College Student Experiences questionnaire. Of the 180,000 respondents included in the third and fourth edition, Hu et al. (2008) collected "a random sample of 15% of students (N = 5,557)" (p. 73). Undergraduates affirmed their perceived value of inquiry-oriented learning in several areas, notably "science and technology, vocational preparation, and intellectual development" (Hu et

al., 2008, p. 76) but awarded grimmer ratings to its value "in general education and personal development" (Hu et al., 2008, p. 77).

A limitation of this research was that it collected only information regarding students' self-perceptions of learning and growth, as opposed to outside evaluations from faculty or instructors. Therefore, Hu et al. (2008) likely featured data submitted by individuals "imperfect in appraising themselves and their abilities" (p. 1122), as discussed in Kruger and Dunning's (1999) article, "Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments." Thus, inquiry-based studies are on firmer ground for validity when employing mixed methods to incorporate self- and outside-observer evaluations of progress.

Career Relevance

According to Knowles's (1980) characterization of andragogy, a key difference between young and adult learners is that the latter are usually more engaged in lessons that they perceive as relevant and practical, especially for a given career path. Therefore, trade schools tailor coursework toward hands-on workforce training, as do service academies. With a narrower range of possible career paths than typical undergraduates, midshipmen learning and career preparation occurs in a particularly acute context. Baranowski and Stables (2000) conceived of context as covering the "aspects of the environment of an intervention" (p. 159). Naval Academy midshipmen complete their coursework in a location modeled on a standard military base; Pershing (2002) borrowed Goffman's (1961) label of a *total institution* to describe the campus because "midshipmen are relatively isolated from the civilian community for four years" (p. 151). Career applications for coursework are a central institutional focus (USNA, 2015).

Andragogy suggests that adult learners report higher levels of attentiveness and engagement when course subject matter provides practical applications; Sogunro's (2015) survey of 203 graduate students from a small Northeastern state university listed subject "relevance and pragmatism" as a main consideration impacting their motivation (p. 27). Granted, those students were all seeking employment in the field of education, but the principle was still applicable to military affairs. Adjusting FYC course material to focus on militarily relevant subjects is intended to improve student comprehension and attentiveness in a uniquely homogenous learning environment.

One of the simplest ways to adjust FYCs is to swap required course textbooks, novels, or plays for others. One promising step toward raising midshipmen engagement and understanding of FYC relevance entails replacing a course text with a new one that has a narrative centered on military affairs. Doing so should "provide a shared reading experience on the subject of war" (Hart & Thompson, 2016, p. 352), thereby mirroring the success achieved by earlier efforts to integrate military veterans better in civilian higher learning writing courses (Hart & Thompson, 2016; Hembrough & Dunn, 2019). Increasing the volume and duration of in-class activities that promote critical thinking skills, as advocated by Zacharakis and Van Der Werff's (2012) analysis of veteran education trends, holds promise.

Perhaps most importantly, scaffolded revision in-class activity instructions can be altered to link documentation style adherence and military professional correspondence standards, as suggested by Hinton's (2013) interviews with 12 U.S. Marine veterans enrolled in undergraduate writing courses. Helping students understand the criticality of precision in military professional writing is a critical step toward commissioning detail-oriented individuals ready to participate in

military activities where the price of carelessness is well-established (Adams, 2006; Miranda, 2018).

Scaffolding and Peer Review

One way to capitalize on Boysen's (2019) findings regarding the superiority of original citation error creation activities versus error-identification exercises is to ensure assignments are scaffolded such that students must reconsider and revise existing problems. Sometimes, scaffolded assignments are reviewed by instructors (Quible, 2006; Wilson et al., 2018) or peers (Bradley, 2014; Cho & Cho, 2011). Stellmack, Keenan, Sandidge, Sippl, and Konheim-Kalkstein (2012) explored the error reduction effects of peer review and resubmission. Soliciting volunteers from a research methods class in 2008, 161 upper-level undergraduates (almost three-quarters of whom were women) agreed to participate in a multistep study involving three subexperiments regarding peer, teaching assistant, and instructor interpretations of short, APA-compliant writing projects. Subsequent drafts were compared to identify trends among peer-reviewed papers between submissions and those that were not. This small-scale methodology was better suited for USNA (2020) research projects than the high-data-volume approach employed by Holcomb and Bell (2018). USNA FYC course sections were capped at 18 midshipmen per class (USNA Department of English, 2020), and the institution comprised about 4,500 students (Moon, 2019).

Stellmack et al. (2012) concluded that growth between draft attempts was neither standard nor uniform, given that in one grading set, "scores increased for 41 students (51%), decreased for 26 students (33%) and were unchanged for 13 students (16%)" (p. 238). Scores in a second, separate grading set were remarkably similar. In all of the study's experiments, slightly more than half of the student papers improved between the first and subsequent attempt, and the

final score improvement remained below 10%. An implication of this study was the merit of empirically documenting undergraduate student growth rather than relying on often unreliable student self-perceptions of learning (P. C. Brown et al., 2014; Kruger & Dunning, 1999) or instructor anecdotes regarding growth.

There are also indications that students learn from the act of providing peer-review rather than simply receiving and responding to it. Cho and Cho (2011) quantitatively analyzed 87 undergraduates' peer review comments placed on student assignment drafts submitted as part of a physics class. Their four-part approach saw participants submit their own first drafts, have those drafts reviewed by several peers assigned at random, receive their peer feedback and resubmit, and then comment on revised drafts. The researchers distinguished between two categories of error: *surface-level* problems (e.g., mechanical errors) and *meaning-level* issues related to content and argument strength. At the conclusion of the study, Cho and Cho declared that "the findings of the current study support the hypothesis that writing can be improved through reviewing. Student reviewers appear to learn writing by giving comments at the meaning-level rather than at the surface-level" (p. 640). That conclusion contrasted to Quible's (2006) success with error labeling, and this contradiction implied the issue would warrant further study.

Reflective Writing

P. C. Brown et al. (2014) observed, "Reflection is a combination of retrieval practice and elaboration that adds layers to learning and strengthens skills" (p. 209). Reflective writing is a common feature in writing composition courses. Reflection allows for "the exploration of connections between course material and a person's individual life or psyche" (Bean, 2011, p.

117). This format was so ubiquitous that Alsina et al. (2017) developed it and then later worked to validate it (Alsina, Ayllón, & Colomer, 2018) as a standardized rubric for the activity.

Reflection is tied to meaning-making because it offers learners the opportunity to assess the value of their own knowledge growth. Moore and Shaffer (2017) reported success inspiring novice writers with what they termed *purposeful prompts* during their investigation of 31 undergraduate FYC students. Similarly, McCoy (2020) introduced complicated issues (e.g., equality and social justice) to higher education students via reflective writing projects, supporting Bean's (2011) contention that the reflective approach "evokes writing that is more exploratory, tentative, and personal than the standard closed-form academic essay" (p. 117). The nature of the act compels learners to review recently covered material, offering a chance to see relationships and draw conclusions that may have been overlooked when a given topic is ony addressed once.

Conclusion

FYC courses offer a platform for entwining professional training with socially conscious critical thought sometimes difficult to entwine within other disciplines. Even as Bean (2011) remains a seminal author widely-cited in rhetorical instruction, Sommers (1980) continued to investigate alternative ways to conceptualize how undergraduates should grapple with composition principles. In 2004, Sommers and Saltz capitalized on a longitudinal study of 400 Harvard University undergraduates. After randomly sampling 65 of the larger investigation's participants, the research team sought to understand better how students valued writing experience, on the grounds that "we learn much from first-year students about their common struggles and abilities beyond our classrooms" (Sommers & Saltz, 2004, p. 127). That observation guides the current intervention that follows. Intervention data collection was

intended to reveal the impacts of restructuring a USNA (2020) FYC course according to outcomes-based design while aligning with social justice considerations and centering the importance of critical thinking and professional skill practicality.

Clear, intentional adjustments to classroom assignment, syllabus designs, and assessment techniques should reduce the average volume of midshipmen grammar and citation errors. An initial proposal to incorporating multiple elements from the studies described above is to adjust a USNA FYC course session as follows. First, the FYC course must blend performance rewards, such as traditional assignment scores that appeal to what Eison (1981) termed GO students with the practical knowledge imparted by career-relevant coursework that engages LO students. Scaffolded assignments that grant opportunities for score improvement may appeal to the former, while changing a required course text into something grounded directly in military affairs (as well as a greater variety of in-class exercises that mirror forms of military professional writing) should appeal to the latter (Hart & Thompson, 2016).

Second, the priority of any changes should be a quantifiable reduction in the total number and average number of errors per 100 words regarding midshipmen formal and citation error rates. Shifting once stand-alone assignments to a scaffolded model harnesses the draft improvement benefits contended by Boysen (2019), Quible (2006), and Stellmack et al. (2012) regarding probable formal and citation error reduction. To confirm this finding, a "one-group pretest-posttest design using a double pretest" (Shadish et al., 2002, p. 110) model was employed to compare error rates from the first two assignments, with error rates on the third project.

Finally, the reason for such changes to students directly is so that they understand the intended value of the activity and can better relate it to their impending careers. This process should incorporate the inquiry-based learning principles advocated by Hu et al. (2008) and was

advised by the prudent steps advocated by Oliver-Hoyo, Allen, and Anderson (2004) while reinforcing the necessary military professional composition skills examined by Rifenburg (2019). The ideal end-result of this SoTL intervention was a cadre of motivated soon-to-be-officers ready to assume responsibility for the consequential impact of their professional correspondences.

Chapter 4

Intervention Procedure and Program Evaluation Methodology

Errors in professional writing (Kent, 2007) may lead to serious consequences in medicine (Lesar et al., 1997) or business (Benson, 2018; Victor, 2018). However, military writing mistakes can be exceptionally dangerous (Rifenburg, 2019). U.S. service academies emphasize critical thinking and writing skills (Born et al., 2012), but undergraduate composition error propensity is well established (Lunsford & Lunsford, 2008). Other researchers (Boysen, 2019; Kargbo, 2010) show writers exhibiting difficulty with documentation styles. Writing mistake factors include human error (Sexton et al., 2001), professional writing rule adherence (Lesar et al., 1997), learner empowerment (Houser & Frymier, 2009), reading comprehension (Barnes & Kim, 2016), attentiveness (Greer & McCann, 2018), and learner orientation (Eison et al., 1986). The current researcher aimed to explore these factors in a more precise way; thus, a needs assessment was conducted using participants from three sections of an FYC course at USNA (2020).

The needs assessment information was obtained from 55 student volunteers. Approximately 61% of eligible midshipmen from five USNA FYC course sections consented to analyses of their writing projects and class activities. Promisingly, participants' formal error rate per 100 words (.28) was an improvement over earlier studies of civilian undergraduates (Connors & Lunsford, 1988; Lunsford & Lunsford, 2008), yet the average total formal (4.09) and citation (8.48) error rates across three writing projects were unacceptable by military professional writing expectations. The results of the LOGO II (Eison et al., 1983) did not indicate a clear relationship between learning orientation and error propensity, although it demonstrated that sections featured the full range of GO and LO learners. Responses to the Learner Empowerment Instrument (Frymier et al., 1996) prioritized meaningfulness and impact over choice and competence

regarding student engagement. In vivo coding answers from the IDEA survey (Hoyt & Lee, 2002) recommended students needed *more feedback*, *professional development*, and *real-life situations*. Changes in both the syllabus and teaching method in the intervention stage address these issues. Additional intervention ideas were inspired by the results of an in-class writing activity that featured three formal survey instruments.

The researcher was also the instructor for the midshipmen participants and is referred to hereafter as the researcher-instructor. The researcher-instructor based the intervention on adjusting the FYC course syllabus used during the needs assessment. Three major cognitive-apprenticeship-based (J. S. Brown et al., 1989) revisions to the original course formed the basis of the intervention. First, the researcher-instructor incorporated texts more directly relevant to military careers than before. Second, the researcher-instructor scaffolded the major assignments into first- and final-draft stages to provide more opportunities for instructor and peer feedback. Last, the researcher-instructor engaged in more in-class reflective writing activities to encourage midshipmen to think critically about the learning process than before.

Research Questions

The researcher-instructor explored seven research questions. The following research questions addressed both process and outcome evaluations of the program:

RQ1: To what extent, if any, did the formal grammar and mechanic "error rate per 100 words" change for midshipmen over the course of the semester?

RQ2: To what extent, if any, did the citation "error rate per 100 words" change for midshipmen over the course of the semester?

RQ3: Do differences in the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students?

RQ4: What difference, if any, exists between the way(s) participants respond to the intervention assignment and class activity changes?

RQ5: How do participants describe their learning experience as well as their perception of the instructor's role?

RQ6: How did participant sense of learner empowerment change after participating in the intervention?

RQ7: How, if at all, did midshipmen's perception of writing in the military change after revising the three FYC assignments?

Research Design

Convergent design was chosen as an intervention model because it provided a logical framework to examine data collections individually before combining them to create one set of result-based recommendations (see Creswell & Plano Clark, 2018). This design structure supported a mixed-methods approach because it facilitated collecting both quantitative data, in the form of student error volume, as well as qualitative information, obtained via open-ended question survey responses and reflective writing activities, from the same set of study participants. Error reduction in professional writing was closely tied to military performance; thus, these ideas aligned with a convergent design's emphasis on *parallel data collection questions* (see Creswell & Plano Clark, 2018).

This intervention was also a prime example of an SoTL case study (Hutchings, 2007) because the researcher worked with midshipmen that he directly instructed. This investigation

included the researcher-instructor considering his own role in the learning process; thus, it fell more cleanly into SoTL than action research (Ryan, 2013). Although improving the researcher-instructor's self-assessment ability was not a direct element of the study, it emerged as a positive byproduct because of the continuous act of self-reflection that SoTL research design demanded.

Theory of Treatment

The theory of treatment (TOT) driving this investigation was that the autonomy the researcher-instructor had in course design allowed him to tailor the FYC experience in the pursuit of specific outcomes. Here, the concerns common to GO-inclined students were allayed via a scaffolded writing assignment (Nilson, 2016) that broke the process into first and final drafts to facilitate feedback-intensive writing improvement. Additionally, for LO-leaning midshipmen, one core course text was replaced with a volume directly related to military affairs to command the attention of those for whom professional development was primary (Lippitt et al., 1984). The third component entailed increasing the volume of in-class writing practices acknowledging the social nature of composition (Roozen, 2015), such as peer-review sessions or reflective writing. Figure 4 shows the TOT.

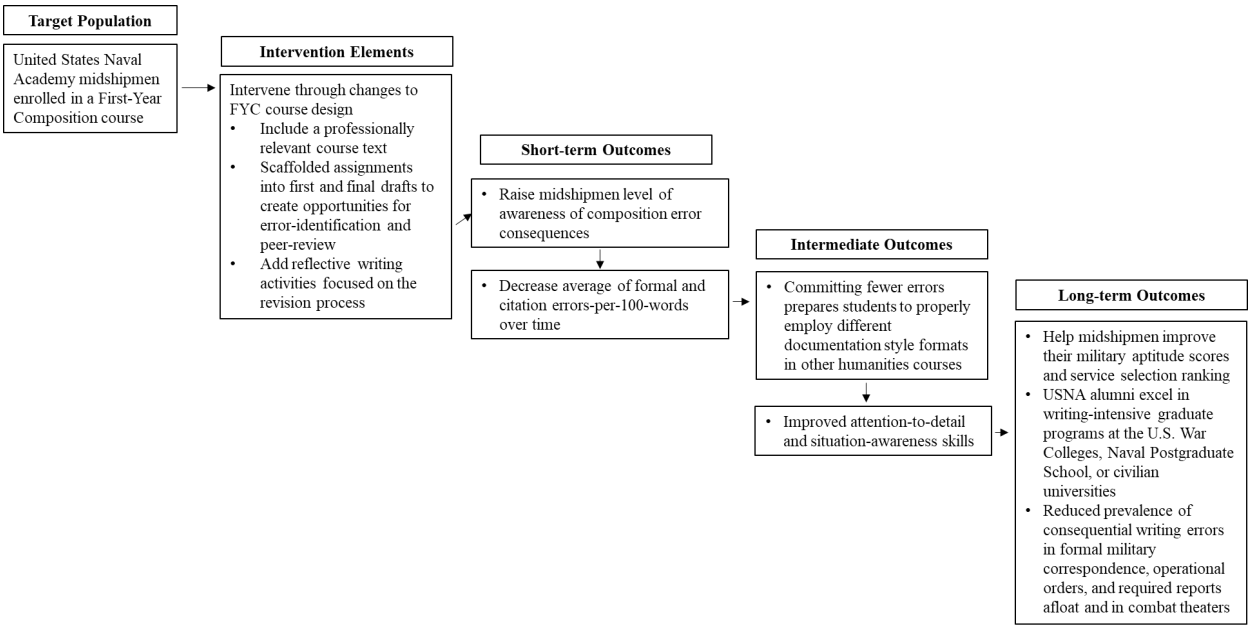

Figure 4. The theory of treatment shows the target population, key intervention principles, and possible outcomes.

Possible outcomes developed consequentially, in short-, intermediate-, and long-term increments; thus, stage-state analysis emerged as a logical research design format (see Leviton & Lipsey, 2007). All intervention steps were used to increase midshipmen awareness of error proneness and its real-world consequences. Lowering the average total volume of participant formal and citation errors constituted the first tangible indication of intervention success. Other considerations, such as increasing documentation style familiarity to make midshipmen's transition to other humanities subjects easier, might appear in the intermediate stage, even though official contact with participants ceased by then, which was true of the longer-outcomes as well, such as helping reduce writing errors in formal military correspondence.

Process Evaluation

Three components drove the intervention process evaluation questions. RQ1, RQ2, and RQ4 explored *participant responsiveness* (Dusenbury, Brannigan, Falco, & Hansen, 2003), RQ5 was concerned with *quality of program delivery* (Dusenbury et al., 2003), and RQ7 involved

context (Baranowski & Stables, 2000). Participant responses on survey instruments and in-class reflective writing activities collected information regarding participant reactions to intervention elements such as the individual and peer-review draft revision sessions. Table 8 shows the means of the process evaluation.

Table 8

Process Evaluation Indicator Matrix

Process evaluation question	Process evaluation indicator(s)	Data source(s)	Data collection tool	Frequency
Component: *Participant responsiveness* (Dusenbury et al. 2003) 1. What difference—if any—exists between the way(s) participants respond to intervention assignment and class activity changes?	Individual participants electing whether to participate in the reflective writing activities and word counts for their answers to reflective writing prompts.	Midshipmen responses to reflective questions	Discussion board posts in the Blackboard Learning Management System	Once after each in-class revision activity
Component: *Quality of Program Delivery* (Dusenbury et al. 2003) 2. How do participants rate both their own experience as well as the instructor's behavior during the FYC?	Self-learning and instructor ratings.	Likert-scale answers (1-5) to 47 survey instrument questions asking about the participants' course experience and instructor perceptions.	IDEA Survey (Hoyt & Lee, 2002).	Once. Administered as an in-class activity near the completion of the FYC.
Component: *Context* (Baranowski & Stables, 2000) 3. In what ways—if any—do participants believe class work is relevant to a military career?	Likert-scale response to IDEA Survey (Hoyt & Lee, 2002) Item 24, which asked participants to self-assess progress "developing specific skills, competencies, and points of view needed by professionals in the filed most closely related to this course."	Likert-scale responses to IDEA Survey Item 24.	IDEA Survey (Hoyt & Lee, 2002)	Once. Administered as an in-class activity near the completion of the FYC.

Participant Responsiveness

Midshipmen's self-perceptions of their experiences during the learning process were central to intervention success. This investigation relied on the way Dusenbury et al. (2003)

defined “responsiveness as ratings of the extent to which participants are engaged by and involved in the activities and content of the program” (p. 244). The number of students who had chosen to complete reflective writing assignments—with the understanding they would not be directly graded—as well as the mean and median word count of their responses showed midshipmen engagement.

Quality of Program Delivery

A major advantage of the SoTL approach was that it was capable, on a small scale, of enabling a design that achieved incremental changes over time. However, the researcher-instructor was primarily responsible for intervention element implementation; thus, it was incumbent to ensure a uniform implementation without the benefit of a backup structure. By employing the Dusenbury et al. (2003) quality of program delivery standard of focusing on “ratings of provider effectiveness which assess the extent to which a provider approaches a theoretical ideal” (p. 244) of implementation provision, midshipmen perceptions were captured via multiple instruments. The reflective writing activity discussion board posts and the open-ended question sections of the IDEA survey (Hoyt & Lee, 2002) showed their observations of instructor behavior and effectiveness.

Context

With a narrower range of possible career paths than a typical undergraduate, midshipmen’s learning and career preparation occurred in a particularly acute context. Baranowski and Stables (2000) conceived of context as covering the “aspects of the environment of an intervention” (p. 159). Naval Academy midshipmen complete their coursework in a location modeled on a standard military base; Pershing (2002) borrowed Goffman’s (1961) label of a *total institution* to describe the campus because “midshipmen are relatively isolated from the

civilian community for four years" (p. 151). Career applications for coursework were a central institutional focus (USNA, 2015).

Andragogy suggests that adult learners report higher levels of attentiveness and engagement when course subject matter provides practical applications; Sogunro's (2015) survey of 203 graduate students listed subject "relevance and pragmatism" as a main consideration impacting their motivation (p. 27). Focusing on future impact and practicality can help improve student interest when the activity in question is widely perceived as "boring" (Jang, 2008, p. 799), as grammar and citation minutiae may be considered. Adjusting FYC course material to focus on militarily-relevant subjects was intended to improve student comprehension and attentiveness in a uniquely homogenous learning environment. Although there was a slight risk of topic saturation via an over-emphasis on military practicality, steady reminders to midshipmen of the future career importance of professional skills harnessed the power of cognitive apprenticeship (J. S. Brown et al., 1989) to facilitate undergraduate engagement. J. S. Brown et al.'s (1989) emphasis on a shared student culture applied to midshipmen, who were directed to wear uniforms, encouraged to use military terms in conversation, and studied together set off from the larger community, as observed by Pershing (2002).

Outcome Evaluation

One helpful aspect of mixed-methods convergent design was that it did not require that equal weight be awarded to quantitative and qualitative datasets during the analysis and composition phase. According to Creswell and Plano Clark (2018), it is permissible to emphasize one over the other. In the intervention, identifying and reducing trends in formal and citation errors took primacy over ensuring midshipmen perceive the course as professionally relevant—although the latter was likely to impact the former. Thanks to the two pretests, one helpful lens

for approaching this investigation was *developmental evaluation*, which Mertens and Wilson (2018) contended was "most appropriate in contexts in which innovation is needed along with adaptive management" (p. 151). Intervention adaptability and flexibility were key strengths of developmental evaluation.

Relatedly, a useful element of convergent design was that it was permissible to have disparities between both the volume of available quantitative and qualitative information, as well as between the relative sizes of the groups supplying each set of information. The amount of quantitative error data obtained from analyzing three sets of term papers yielded a greater volume of information than the single open-ended qualitative study question. Further, although all participants were asked to provide an answer to the open-ended question, student responses from the needs assessment suggested a significant degree of variation in the word lengths, levels of detail, and critical analyses behind midshipmen responses. Quantity of data and quality of data were neither interchangeable nor synonymous, though such variation was arguably a hidden strength of open-ended inquiries and provided additional justification for applying a convergent design to the present study.

Method

The researcher had continued to examine student work in his own classes; thus, SoTL principles remained continually relevant, although they must be tempered by a thorough accounting of researcher positionality. The timeframe for the intervention was the same as each of the two segments of the needs assessment: a single 15-week semester. In keeping with the principles of an SoTL study, the measures, constructs, and data analysis were designed to ensure that the learning experiences of participants and nonparticipants were alike.

Participants

Convenience sampling was re-employed during the intervention. This method enabled the researcher to request participation from his own students—a common SoTL practice. As shown in Table 9, demographic data for the USNA class of 2025 closely mirrored the class of 2023 and 2024 ratios (featured during the needs assessment). Information for the class of 2025 featured a "non-Hispanic" qualifier not present in previous years to align better with how other service academies would report demographic data.

Table 9

Graduating Class Demographics, *2025*

Graduation Year	2025
Total size	1,183
Men	837
Women	346
White (non-Hispanic)	672 (898)
Hispanic	178
Asian American (non-Hispanic)	115 (202)
Two or More Races (non-Hispanic)	105
African American (non-Hispanic)	79 (124)
Prior military experience	77
One parent is an alumnus	55
Both parents are alumni	11

There were 1,183 members of the class of 2025. Of those, 70.7% were men, and 29.2% were women. The class of 2025 was roughly 56% White, 15% Hispanic, around 9.7% Asian American, and 6.6% African American. The numbers in each category were larger because of respondents who had self-identified as belonging to multiple racial categories, as shown in parentheses in Table 9. About 6.5% of the class arrived with prior military work experiences, and 6.5% came from families with at least one parent who was a USNA alumnus. Regarding the intervention study size, the maximum possible number of participants was 71. A 70.4% response rate was achieved because 51 students submitted a consent form; one volunteer's data went

unused because they were an exchange ESL student, which was not a possibility considered by the researcher-instructor when the intervention was designed.

Measures and Instrumentation

Data collection used three sources: midshipmen's Word-processor FYC writing projects, in-class surveys, and reflective writing activity forms. Composition projects consisted of an MLA-formatted textual analysis, an APA-compliant contextual analysis, and a CMS response paper that employed either footnotes or endnotes. In-class survey activities featured Google Form versions of the LOGO II (Eison et al., 1983), the Learner Empowerment Instrument (Frymier et al., 1996), and the 1998 IDEA Survey (Hoyt & Lee, 2002), as well as three free-form in-class reflective writing exercises. Quantitative data regarding error frequency were collected from the writing assignments, and some quantitative information was extracted from the Likert-scale responses featured on all three surveys. Qualitative data were mined from the open-ended question on the IDEA survey (Hoyt & Lee, 2002) and the reflective discussion board posts. Data from these sources included formal errors, citation errors, learning orientation, learner empowerment, and career relevance.

Formal errors in student assignments. A formal error consists of one of the standard-edited American English writing errors used in Connors and Lunsford (1988) and Lunsford and Lunsford's (2008) undergraduate writing investigations. Required course texts and assignments mirrored those used in the Spring 2020 HE112 and Fall 2020 HE111 sections analyzed during the needs assessment, with one exception discussed later as an explicit intervention element.

Citation errors in student assignments. A citation error consists of either an issue examined by Mandernach et al. (2016) or one of three researcher-generated error conditions.

Table 9 shows specific error varieties. Some citation errors variations were specific to only one documentation style.

Learning orientation. As Eison (1981) first noted, students might favor the acquisition of knowledge for its intrinsic or personal value and value learning for its own sake (LO), while others were more concerned with traditional rewards (e.g., higher assessments as expressed via numeric or letter scores; GO). The categories were not mutually exclusive, but they could be subdivided to express better whether a particular learner favored one over another.

Learner empowerment. Frymier et al. (1996) and Houser and Frymier (2009) defined this idea through meaningfulness, competence, impact, and choice. Respondents were afforded opportunities to assess the importance of each or to indicate that they considered all of those conditions equally critical. Individual experiences and specific classroom situations shaped respondents' perceptions.

Career relevance. Adult learners are most captivated by knowledge acquisition when it presented clear benefits to life or work (Lippitt et al., 1984; Rohlwing & Spelman, 2014). Adults might demand higher levels of autonomy and buy-in regarding their learning to assign it any sort of personal value. The more explicitly related a given project was to the real world, the less it seemed like learning for the sake of learning and more like learning for self-improvement; these sentiments were also reflective in the cognitive apprenticeship work by J. S. Brown et al. (1989). Table 10 shows this construct and the others listed above.

Table 10

Intervention Operationalized Constructs

Construct	Operational definition	Indicator	Method of data collection
Student Formal Error Frequency (RQ1)	Ten formal writing errors identified by Connors and Lunsford (1988) and Lunsford and Lunsford (2008) will be used to assess the volume of student writing mistakes.	"Wrong word; missing comma after an introductory element; vague pronoun reference; spelling error; capitalization; missing word; missing comma with nonrestrictive element; run-on sentence; lack of pronoun agreement; unnecessary or missing hyphen; sentence fragment." Terms above are taken from Connors and Lunsford (1988, p. 400) and Lunsford and Lunsford (2008, p. 795).	Midshipmen essays submitted by participants through the USNA Blackboard system will be reexamined. The frequency of formal errors using the indicators listed was manually tallied for both the first and revised drafts of all assignments.
Student Citation Error Frequency (RQ2)	Citation errors include 7 of the 17 types of in-text citation, reference list, and other APA formatting errors identified by Mandernach et al. (2016) as well as three original researcher-determined errors.	"Format of in-text citations; use of in-text citations; format of references on reference page; format of direct quotes; proper use of headings/subheadings; format of title page; format of header" (Mandernach et al., 2016, p. 409). Researcher-determined errors include Footnote/endnote format; assigned font and font size adherence; missing required information in source entries.	Midshipmen essays submitted by participants through the USNA Blackboard system will be reexamined. The frequency of formal errors using the indicators listed was manually tallied for both the first and revised drafts of all assignments.
Learner Orientation (RQ3)	Eison (1981) said LO students "approach the college experience as an opportunity to acquire knowledge and to obtain educational and personal enlightenment" (p. 919) whereas GO individuals are "those whose academic attitudes and behaviors are focused around the belief that obtaining a course grade is, in and of itself, a sufficient reason for being in college" (p. 920).	LOGO II (Eison et al., 1983) is a 32-item instrument that solicits responses using a 5-point Likert scale in order for participants to self-identify as either a LO or GO learner. Eison et al. (1983) tabulated responses in order to assign respondents to one of four categories, depending on whether they fell above or below the median LO or GO average for their sample group. The categories are high LO-high GO (H-H), high LO-low GO (H-L); low LO-high GO (L-H); and low LO-low GO (L-L).	Via the consent form, midshipmen will authorize use of their responses to a Google survey form (containing questions featured on the paper copy of the LOGO II) that will be issued as an in-class activity.
Learner Empowerment (RQ6)	Frymier et al. (1996) defined learner empowerment as a condition which rested on student perceptions of a given course and instructor's *meaningfulness*, *competence*, *impact,* and *choice*.	The 30-item Learner Empowerment Instrument (Frymier et al., 1996) uses a 4-point Likert scale to solicit participant perceptions of a course and instructor from four subscales: meaningfulness, competence, impact, and choice. It was created by Schultz and Shulman (1993) and validated by Houser and Frymier (2009).	Via the consent form, midshipmen will authorize use of their responses to a Google survey containing all the questions featured on the Learner Empowerment Instrument (Frymier et al., 1996).
Career Relevance (RQ4/RQ5/RQ7)	Lippitt et al. (1984) extolled "the importance of making clear at the outset of a learning experience what its relevance is to the learner's life tasks or problems" (p. 12).	The 1998 IDEA survey (Hoyt & Lee, 2002) is a 47-item instrument that uses a 5-point Likert scale to collect "student reactions to instruction and courses" (p. 68). It also features a blank area for participants to supply open-ended comments.	Via the consent form, midshipmen will authorize use of their responses to a Google survey containing all the questions featured on the 1998 IDEA Survey (Hoyt & Lee, 2002).

Procedure

USNA (2020) allowed FYC course instructors wide latitude in course design and teaching strategies; thus, the researcher-instructor was allowed to exchange course texts, change assignment formats, and experiment with different teaching strategies freely. Balancing the necessity of obtaining enough data for analysis while ensuring no midshipmen felt obligated to participate remains a key priority, as did ensuring that participants' and nonparticipants' course experiences were essentially identical. The intent of employing SoTL as a framework is to ensure that most elements of the procedure blend seamlessly into the FYC course such that participants should be unable to identify intervention elements from other aspects of the course.

Participant Recruitment

This study's existence was revealed to midshipmen on the first day of class via a short statement in the course syllabus. The statement read as the following:

> At some point during the semester, I will solicit volunteers for a research project I am completing in conjunction with my doctoral work at Johns Hopkins University. Your participation is entirely voluntary. It will have no effect on my willingness to assist you academically (through letters or recommendation, character witness statements, etc.). No data will be collected until I obtain your express written permission. I will not examine participation forms or data until after final grades are posted for the course so that participation or non-participation will have no impact on any of your grades. Participating in the study will not require the completion of additional coursework or assignments. All attempts to protect your confidentiality will be maintained throughout and you will not be named in any findings. You may drop out of the research study at any time, again, with no bearing on your grades.

Despite being made aware of the course at the start of the semester, potential participants were formally asked to join the study only in the final weeks of the class. The researcher was the course instructor, as well as higher in military rank than the participants; thus, consent forms were distributed and collected by a midshipman "section leader" selected randomly by lottery for each section of the course. That person collected all forms completed by participants and those who had declined to participate; all completed forms were stored in sealed folders and then provided for safekeeping to a USNA English Department faculty member uninvolved in the study. That faculty member, the English department chairperson, held onto all forms until final grades for the semester were posted. Potential participants were told that participation or nonparticipation could not affect their course grades. Data analysis began once all nonparticipant information and input were manually removed from the data set by the researcher-instructor.

Intervention

The three key cognitive apprenticeship (J. S. Brown et al., 1989) intervention adjustments to the FYC course included a text replacement inserting a more militarily-relevant novel—O'Brien's (2008) *The Things They Carried*—into the required reading, scaffolding assignments with a two-stage draft construct in lieu of a stand-alone assignment and adding reflective in-class writing activities. Figure 5 shows these elements and their roles in this study using a logic model. Logic models offer a useful means of conceptualizing investigative studies (McLaughlin & Jordan, 2010) and can be helpful in multimethod research (Cooksy, Gill, & Kelly, 2001).

<table>
<tr><th>Context</th><th colspan="3">Processes →</th><th>Outcomes</th></tr>
<tr><td rowspan="2">Grammar and documentation style errors in military professional writing can lead to grave consequences in operational environments

Service Academy FYC courses offer a forum to introduce future officers to military professional writing standards

Needs assessment data provided by 55 USNA midshipmen (gender-neutral term for students) resulted in a .28 grammar error rate per 100 words as well as a total average formal (4.09) and citation (8.48) error rates per student paper

Needs assessment survey data showed a standard bell curve of LO and GO students, a Learner Empowerment interest in improving FYC meaningfulness and impact, and three concepts determined through In Vivo Coding: more feedback; professional development; and real-life situations</td><td>Inputs →</td><td colspan="2">Outputs</td><td rowspan="2"><u>Short-Term</u>
• Raise midshipmen level of awareness of composition error consequences
• Decrease average number of errors-per-100 words as well as total number of formal and citation errors

<u>Intermediate</u> ↓
• Committing fewer errors prepares students to employ different documentation styles in other humanities courses
• Improved attention-to-detail and situation-awareness skills

<u>Long-Term</u> ↓
• Improve midshipmen military aptitude and service ranking
• USNA alumni excel in writing-intensive graduate programs
• Reduced prevalence of consequential writing errors in formal military correspondence such as operational orders or required reports</td></tr>
<tr><td>Researcher intervenes by adjusting the course syllabus to:
• Incorporate texts and activities more directly relevant to military careers
• Scaffold assignments into first and final draft stages to provide more opportunities for instructor and peer feedback
• Build on previous studies showing the benefits of varied practice and reflection

Additionally, a second element of the intervention requires the Researcher to experiment with instructor strategies to better impart grammar and formal writing skills and increase midshipmen documentation style familiarity:
• American Psychological Association
• Chicago Manual of Style
• Modern Language Association</td><td><u>Activities</u>

Increase learner empowerment by allowing midshipmen to:
• Read a military-themed course text and complete in-class military professional writing activities
• Reflect on their personal interpretations of professional development

Revise three primary FYC writing Assignments to:
• Enable instructor to give both first and final draft feedback since each assignment requires the midshipmen to employ a different documentation style
• Appeal to GO midshipmen by allowing for score improvement via an in-class draft revision activity after every first draft is returned
• Appeal to LO midshipmen via hands-on in-class activities teaching practical skills such as reference guide application

Add reflective writing in-class activities</td><td><u>Participation</u>

50 undergraduate freshmen midshipmen at USNA

1 Active-duty military USNA FYC instructor (the researcher)</td></tr>
<tr><td colspan="3"><u>Assumptions</u>
• Midshipmen are providing honest feedback via survey instruments (not what they think the Researcher wants to hear)
• Error reduction rates are due to intervention elements and not outside resources such as the tutors available through the student Writing Center</td><td colspan="2"><u>External Factors</u>
• COVID-19-related stress impacting midshipmen error rates
• Remote vs. in-person learning considerations</td></tr>
<tr><td colspan="5">Acronyms: Grade-Oriented (GO); First-Year Composition (FYC); Learning-Oriented (LO); United States Naval Academy (USNA)</td></tr>
</table>

Figure 5. A logic model summarizing the intervention and its intended outcomes.

For the first element, almost all of the same required course texts used with the class of 2023 and the class of 2024 were assigned again. Doing so kept the nature of student errors more uniform than otherwise. For example, several needs assessment participants committed spelling errors by omitting the second "e" in "Shelley" when writing about *Frankenstein*. However, one course text, the autobiography known as *The Liars' Club* by Karr (2015), was dropped from the syllabus and replaced with a military-themed novel. Building on Hart and Thompson's (2016) success creating "a shared reading experience on the subject of war" (p. 352) as mentioned in Chapter 3, midshipmen read O'Brien's (2008) book. A finalist for the 1991 National Book Award and Pulitzer Prize, the short-story collection about an American platoon in Vietnam deals more explicitly with military experiences and ethics than the text it replaced. Because it was based on

the author's life experiences, it was autobiographical enough to meet the course objectives once satisfied by Karr's book. Given that midshipmen were free to select which course text to analyze in their writing assignments, more students choosing to write about O'Brien's work than Karr's were tangible indications of increased student engagement with the course material.

The second intervention adjustment impacted the FYC writing projects. Midshipmen completed all three assignments via a scaffolded revision process. First drafts were submitted to the researcher-instructor and received an initial grade. Rather than providing detailed commentary on meaning-level issues (organization, argument coherence, etc.), feedback consisted of the generic term "error" applied in places where a unique type of formal or citation error occurred for the first time. Similar to the *error-labeling* exercise designed by Quible (2006), after all first drafts were returned, there was a revision-centered class period where midshipmen used *The Little Seagull Handbook* (Fourth Edition) documentation style reference guide to determine the nature of the error identified by the instructor before correcting it. To receive a higher grade on the final draft, midshipmen had to not only correct all errors explicitly identified by the instructor but also to fix the same issues in places where the instructor did not originally provide a specific note. For example, when the instructor commented on an incorrect abbreviation for the publication month on one source citation, the midshipmen did not receive additional credit if they corrected only that single instance while failing to adjust the abbreviations in other source citations.

During the first pretest (the MLA paper revision activity), midshipmen completed the in-class review and revision exercise individually. For the second pretest (the CMS paper revision), midshipmen were paired with a partner to help each other identify errors through teamwork and peer review (Cho & Cho, 2011; Stellmack et al., 2012). During the posttest (the APA paper

revision), midshipmen again worked individually to reanalyze and revise their own draft. The IDEA Survey (Hoyt & Lee, 2002) was issued at the conclusion of the course to solicit midshipmen's perceptions of several course aspects: the instructor, progress on course learning objectives, course workload, the student's own attitude and behavior in the class, the student's work ethic, and an open-ended response area. The open-ended area offered the best window into midshipmen's thinking regarding how the revision activities and coursework impacted their perceptions of the military relevance of error frequency reduction.

The last major change to the FYC course was the addition of three short reflective writing activities. To harness the benefits of personal reflection touched on by P. C. Brown et al. (2014) and confirmed in empirical studies, such as Alsina et al. (2018) and Moore and Shaffer (2017), or personal ethnographies, such as McCoy (2020), midshipmen composed short musings about their learning experiences, posting them for their peers to see via the USNA (2020) Blackboard Learning Management System. Although making the posts public ran a risk of discouraging students from posting private positions or unpopular opinions, it offered a window into how they connected the revised course text and writing assignments' relevance to their future careers.

Data Collection

As in FYC course sections led by the researcher-instructor in the past, midshipmen uploaded the textual analysis, contextual analysis, and response paper as a .pdf file to the USNA Blackboard learning management system. Reflective writing activities were posted to the Blackboard course discussion board, and survey activities were administered via the USNA Google software suite. The goal was to ensure there was no difference in class experience between participants and nonparticipants; thus, all data came from materials submitted during the normal course of the FYC class.

Midshipmen essays. Essays included a textual analysis composed in accordance with MLA citation format, a contextual analysis adhering to APA format, and a response paper that used CMS citation standards. The difference was that with the scaffolded intervention design, each of these essays was collected twice (the first draft submission and then after the in-class revision activity). Formal and citation error rates from each draft were manually calculated by the researcher-instructor using the same construct definitions and data analysis methods used during the needs assessment in Chapter 2.

In-class survey activities. The LOGO II (Eison et al., 1983), Learner Empowerment Instrument (Frymier et al., 1996), and 1998 IDEA Survey (Hoyt & Lee, 2002) were distributed to all midshipmen as a Google Form during a single-lecture, stand-alone in-class activity. As with the midshipmen essays, responses submitted by those who did not wish to be part of the study were removed from the data set before analysis began.

Reflective discussion board posts. Midshipmen provided a short reflection statement at the start of the class period on the day that followed each of the periods during which students revised their writing assignments. The phrasing of the four-question direction prompt was a direct quote from reflective questions used in Nilson (2016; see Appendix D). For example, one line of inquiry asked the respondent to "identify the goals and strategies for your revision" (Nilson, 2016, p. 233). Respondents averaged between 175 words and 215 words in total while responding to the four prompts.

Data Analysis

Quantitative data, such as formal and citation error rates, were analyzed by determining descriptive statistics, such as total error rates and mean error rates. Descriptive statistics were also used to examine Likert-scale responses on the survey activities. Qualitative data analysis

determined appropriate codes from the reflective writing posts and the free-form section of the 1998 IDEA Survey (Hoyt & Lee, 2002).

Midshipmen essays. The bulk of information gleaned from written student assignments was quantitative in nature. For the 10 types of formal writing errors included in the Student Formal Error Frequency provided in Chapter 2, both raw error totals and error averages per 100 words were calculated for the first draft of each of the three assignments submitted by every participant. Comparisons were drawn regarding any error rate changes that occurred over the course of the semester. Comparisons were also made between intervention and needs assessment participants to characterize better any changes resulting from the scaffolded assignment design.

In-class activity surveys. Both quantitative and qualitative information were procured via the three survey instruments completed during the FYC. The LOGO-II (Eison et al., 1983) and Learner Empowerment Instrument (Frymier et al., 1996) only offered participants a chance to submit Likert-scale responses; thus, only quantitative information—in the form of descriptive statistics, such as the mean, median, and mode—was obtained. The 1998 IDEA Survey (Hoyt & Lee, 2002) consisted mostly of Likert-scale inquiries, but it offered respondents a chance to submit open-ended comments in its final section. Descriptive statistics were manually calculated from the former sections, and in-vivo coding was used for the open-ended section.

Reflective discussion board posts. In-vivo coding and analysis served as the primary means to glean qualitative information from comments posted by students to the class discussion board. Descriptive statistics, such as average word count, were also employed to measure midshipmen engagement. Participants were assigned an alphabetic code to permit anonymity when directly quoting from their reflections.

Researcher Positionality

The researcher-instructor shared personal career examples to explain the importance of error reduction in military correspondence; thus, such views might have unduly influenced participants' perspectives, such that the researcher's views might have been echoed in midshipmen's submissions. There was some risk to the validity of this research in that midshipmen might have been prompted to write what they "think the instructor wants to hear" because the data sources were not anonymous, and the researcher was the sole instructor for the course. The ethos of USNA as an institution provided a small bulwark against this issue, with its emphasis on honesty as a key midshipmen tribute (USNA, 2015). The focus on candor in personal reflection, as discussed during course sessions devoted to autobiographical tactics and O'Brien's (2008) memoir/novel, encouraged all participants to supply the most truthful responses possible. Potential data influenced by the researcher were a consideration in SoTL studies, given that the "work is explicitly and self-consciously embedded in practice" (Hutchings, 2007, p. 2). Although this potential threat to validity could not be completely eliminated, expressly characterizing the researcher-instructor's connection to the material and self-awareness of its potential affects served as a mitigating factor.

Conclusion

Creating synergy through the simultaneous application of andragogy principles, PBL, and reflective practice was the intent of the proposed intervention. The challenge was that midshipmen error propensity was already less frequent than the trends observed in earlier studies (Connors & Lunsford, 1988; Lunsford & Lunsford, 2008). Like an advanced runner seeking to shave precious seconds off an already impressive speed, striving toward an error rate of zero was, in some ways, unreasonable and extreme in a chaotic world. Nevertheless, the severe

dangers of military professional writing errors demanded that the pursuit of perfection not be abandoned out of hand. Through applying SoTL, the researcher-instructor sought to learn along with the midshipmen, as each partnered together to make a practical solution to writing improvement clear.

Chapter 5

Findings and Discussion

Fields as diverse as private industry (Benson, 2018; Victor, 2018) and medical services (Lesar et al., 1997) can see their operations impacted by writing mistakes in official compositions (Kent, 2007). However, few can rival military professional writing (Rifenburg, 2019) regarding the gravity of written error. In light of that consideration, writing and critical analysis skills (Born et al., 2012) are emphasized at officer training sites, such as the U.S. service academies. Nevertheless, those facilities are not immune from the average levels of composition error tendencies that impact all levels of undergraduate education (Lunsford & Lunsford, 2008). In addition to formal errors, such as grammar or spelling, citation irregularities emerge within student writing across a variety of documentation styles (Boysen, 2019; Kargbo, 2010). Multiple factors contribute to these patterns: human error (Sexton et al., 2001), professional writing rule adherence (Lesar et al., 1997), learner empowerment (Houser & Frymier, 2009), reading comprehension (Barnes & Kim, 2016), attentiveness (Greer & McCann, 2018), and learner orientation (Eison et al., 1986).

Data from 55 USNA midshipmen during the needs assessment study revealed a .28 formal error rate per 100 words considerably lower than prior research by Connors and Lunsford (1988) and Lunsford and Lunsford (2008). However, the average total of both formal (4.09) and citation (8.48) mistakes demonstrated by needs assessment midshipmen throughout three major course projects did not reflect an emphasis on perfection demanded by senior military leaders. The goal was to develop an intervention plan; thus, needs assessment participants were asked to provide additional information via three surveys. The LOGO II (Eison et al., 1983) indicated that any intervention would need to appeal to the instincts of both GO and LO learners. Frymier et

al.'s (1996) Learner Empowerment Instrument suggested that impact and meaningfulness should take priority rather than competence or choice to increase student engagement. Last, the open-ended question section of the IDEA survey (Hoyt & Lee, 2002) allowed the researcher-instructor to employ in vivo coding to identify more feedback, professional development, and real-life situations as key concepts that midshipmen expected an FYC course to incorporate.

Process of Implementation

Feedback provided by the needs assessment participants via the LOGO II (Eison et al., 1983), the Learner Empowerment Instrument (Frymier et al., 1996), and the IDEA (Hoyt & Lee, 2002) helped the researcher-instructor identify teaching methods and syllabus alterations capable of addressing student concerns. A case study design was employed to test the effectiveness of these cognitive-apprenticeship-based course alterations (J. S. Brown et al., 1989). All midshipmen from the class of 2025 assigned to the researcher-instructor's FYC sections were subject to the intervention changes. The intervention consisted of implementing three primary changes to the FYC. A militarily-relevant course text replaced a previous reading assignment that did not have any ties to midshipmen's chosen career path. Next, the FYC assignments were changed from stand-alone projects to two-stage writing assignments that featured both a first and final draft. This process allowed for a "one-group pretest-posttest design using a double pretest" (Shadish et al., 2002, p. 110) to compare error rates from the first two assignments, with error rates on the final paper. Finally, an in-class reflective writing exercise was added following each project to give midshipmen an opportunity to ponder their own learning process and to speculate about possible means toward improvement.

After receiving IRB approval from the USNA and JHU human research protocol offices, the researcher instructor solicited participants from the intervention FYC, seeking their consent

to analyze their information in the form of their written assignments, their reflective writing activities, and the in-class survey activity. The data analysis addressed the following seven research questions.

RQ1: To what extent, if any, did the formal grammar and mechanic "error rate per 100 words" change for midshipmen over the course of the semester?

RQ2: To what extent, if any, did the citation "error rate per 100 words" change for midshipmen over the course of the semester?

RQ3: Do differences in the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students?

RQ4: What difference, if any, exists between the way(s) participants respond to the intervention assignment and class activity changes?

RQ5: How do participants describe their learning experience as well as their perception of the instructor's role?

RQ6: How did participant sense of learner empowerment change after participating in the intervention?

RQ7: How, if at all, did midshipmen's perception of writing in the military change after revising the three FYC assignments?

The time of the case study was the USNA Fall 2021 academic term, a 15-week period from September 2021 through December 2021. Fifty-one of 71 possible candidates signed written consent forms, allowing the researcher-instructor to access their data for research purposes. One midshipman's data were not used because they were an ESL student enrolled through an international exchange program. In accordance with IRB standards, the researcher-

instructor verified that all were at least 18-years-old on the date the consent forms were distributed. Data access permission was granted at the end of the academic term once final FYC course grades were posted by the registrar to prevent any midshipmen from feeling coerced into supporting the study.

In the sections that follow, the results of these intervention changes are explored to assess their effectiveness at reducing midshipmen writing and citation error propensity. A mixed-methods approach allowed for quantitative analysis of raw error averages, as well as a qualitative analysis of student reflections and survey instrument feedback. Implications and limitations of this research for other service academies are examined, along with ideas for future projects.

Findings

The findings exploration begins with answering the process evaluation questions posed in Chapter 4. It then proceeds to examine outcomes, organized by their relevance to each of the research questions. Evidence is offered from both the needs assessment and intervention datasets, as well as from outside studies.

Process Evaluation

In Chapter 4, intervention process evaluation questions were outlined and assigned a generalized category term. Recall that RQ1, RQ2, and RQ4 examined participant responsiveness (Dusenbury et al., 2003), while RQ5 addressed quality of program delivery (Dusenbury et al., 2003), and RQ7 described context (Baranowski & Stables, 2000). Participant responses on survey instruments conducted as an in-class activity and via reflective writing exercises allowed a window into how midshipmen conceptualized intervention elements.

Participant responsiveness. Evaluating how students responded to the FYC activities hinged on Dusenbury et al.'s (2003) correlation between responsiveness and engagement. The

major indicator of engagement was the volume of information supplied by the midshipmen during the in-class writing activity. The researcher-instructor did not require a specific word count during the activity, introducing each session by encouraging everyone to write "a sentence or two" in response to each reflective question. Table 11 shows the mean and mode of the word count provided by participants after each in-class reflection activity.

Table 11

Reflective Writing Activity Descriptive Statistics

Type	Style	Average length	Median length
Textual	MLA	215.00 words	211 words
Response	CMS	197.38 words	260 words
Contextual	APA	176.00 words	204 words

The average length of student responses on an ungraded assignment was approximately 200 words across all three assignments, and median lengths were higher, with all exceeding 200 words in a way the averages did not. Of the 50 participants, only three students chose not to complete one or more of the reflective activities, representing a mere 6% of the total group. The willingness of 94% of the participants to provide roughly 200 words of reflective writing—even after being informed that their responses would not be individually graded—was a sign that midshipmen were engaged in the activity.

Quality of program delivery. This investigation was an SoTL (Hutchings, 2007) case study involving a researcher-instructor teaching, observing, and learning along with students. Every effort was made to ensure that research participants and nonparticipants had the same FYC experience, including that all enrolled individuals completed survey instruments as an in-class activity for course credit (to reiterate, though, only consent-form-authorized submissions were analyzed for this research project). Instructor assessments provided by participants gave some indications regarding the uniformity of the conduct of the four FYC sections. Dusenbury et al.

(2003) identified student ratings of an instructor's competence and performance as a method of exploring teaching efficacy. They were also relevant here to assess the researcher-instructor's uniform conduct of each individual FYC section. The goal was to provide the lectures, course material, and intervention elements to the midshipmen in each section as closely as possible, almost as if all learned in one large lecture space together rather than broken up into four 18-person sessions.

The goal was to determine program delivery uniformity; thus, 49 IDEA survey (Hoyt & Lee, 2002) responses were analyzed using descriptive statistics. Of note, there were only 49 forms to review because one of the participants was not present in class on the day of the activity. Each IDEA Survey (Hoyt & Lee, 2002) contained 47 Likert-scale items asking for perceptions of the class instructor, the respondent's self-assessed progress regarding the material, and course design elements (e.g., the volume of reading material). Median and mode statistics were calculated for each FYC section separately. The researcher instructor looked to see which items had the same median for a given item to support comparisons and assess experiential uniformity. In 19 of the 47 instances, all four sections provided the same median or 40.3%. For 13 items, three out of four of the FYCs had identical medians, corresponding to 27.66%. Together, 32 out of 47 items featured at least three out of four matching medians, constituting 68.09% of the total.

In most instances, the overlap of medians was taken as an indication of similarity, regardless of the Likert-scale value of the responses. However, for two of the 47 items, all four FYC sections had a median of 5, the highest score. One of them was item 41, "Overall, I rate this instructor as excellent," and the other was for Item 47: "The instructor used educational technology (e.g., internet, email, computer exercises, multi-media presentations, etc.) to promote

learning)" (Hoyt & Lee, 2002, p. 68). The numeric overlap indicated consistency, while the nature of the items saw the participants awarding high marks for quality to the researcher-instructor.

A similar pattern emerged when analyzing the mode for the IDEA survey (Hoyt & Lee, 2002) Likert-scale items. For 15 items, all four sections were identical (31.91%), and for 18 others, at least three out of four were (38.30%). Thus, for mode, there were 33 items where three out of four FYC sections featured matching modes, or 70.21% of the total. In three instances, all four sections returned perfect 5 scores in response to the survey items. The first, IDEA Survey Item 1, asked whether the instructor "displayed a personal interest in students and their learning;" while Item 19 asked if the instructor "gave projects, tests, or assignments that required original or creative thinking;" and the last, Item 47 discussed in a previous paragraph, asked about educational technology (Hoyt & Lee, 2002, p. 68). The overall pattern indicated that the participants thought highly of the researcher-instructor's teaching ability.

As with the median analysis, the heavy overlap of the modes seems to reveal that instructor-researcher was successful in providing the course content in a similar manner to each section—a clear indication of uniform program delivery. Further, the particular items where a large number of midshipmen selected a Likert-scale response of 5 dealt with the quality of the instructor and the creative merit of the FYC assignments. Participant perceptions of the courses delivery and content appeared satisfactory.

Context. The location for this SoTL case study was an isolated total institution (Goffman, 1961; Pershing, 2002) separated from its surrounding area by fences, access points, and armed sentries. The influences, stresses, and effects of residing in such an area are difficult to characterize, quantify, or qualify. One way that USNA (2015) faculty offset this challenge is

by striving to ensure that the relevance of campus classes and activities are directly applicable to a variety of military careers in a way that adult learners can readily appreciate (Jang, 2008; Sogunro, 2015).

The intervention decision to alter some assigned reading within the FYC course in favor of obviously militarily-related topics strove to address some of this investigation's factors such as midshipmen attentiveness and comprehension. The goal was to evaluate whether there was a change in student realization of the professional relevance of the material; thus, a comparison of Item 24 on the IDEA survey (Hoyt & Lee, 2002) was employed. Item 24 asked the student to evaluate their learning achievement rate—labeled "progress" on the instrument—regarding "developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course" (Hoyt & Lee, 2002, p. 68). The median of the 55 needs assessment responses to this item was 4, and the mode was 4. Identical figures emerged for the 49 intervention participants who had completed the IDEA survey; both the median and the mode were 4 (Hoyt & Lee, 2002). On the Likert-scale, 4 was a relatively positive value; only 5 was higher. Although it was encouraging that many midshipmen in both groups saw the course as militarily relevant, the intervention decision to include a military text did not raise the mean and mode of Item 24 to the maximum possible value.

Research Question 1

The first research question was the following: To what extent, if any, did the formal grammar and mechanic "error rate per 100 words" change for midshipmen over the course of the semester? It posed a straightforward inquiry modeled after the investigations of Connors and Lunsford (1988) and Lunsford and Lunsford (2008): How many errors do undergraduate midshipmen make in every 100 words of required writing for an FYC class? An additional

element of the research analyzed whether those average figures changed over time as the FYC course proceeded. Recall that during the needs assessment, midshipmen exhibited an average of 4.09 errors per paper in total and .29 errors for every 100 words over an average essay assignment length of 1,411 words. As shown in Table 12, the intervention participants committed errors at an even greater rate, with 5.55 errors per paper and 1.2 errors per 100 words.

Table 12

Comparison of Error Rates Per 100 Words Post-Intervention

Study	Year	Average length	Errors per paper	Errors per 100 words
Johnson	1917	162 words	3.42	2.11
Witty & Green	1930	231 words	5.18	2.24
Connors & Lunsford	1986	422 words	9.52	2.26
Lunsford & Lunsford	2006	1,038 words	-	2.45
Garrow (Needs Assess)	2020	1,411 words	4.09	0.29
Garrow (Intervention)	2022	1,488 words	5.55	1.20

Data analysis did not provide a ready answer for this increase.

A brighter picture of the intervention emerged regarding the formal error rate over time. One change from the intervention was that midshipmen participating in the FYC course were instructed to submit their major course assignments in a specific order rather than in a sequence of their own choosing: textual, response paper, and contextual analysis. Standardizing the order of assignments was intended to foster overlapping concept patterns in the in-class reflective writing assignments and ensure a more uniform experience regarding the in-class revision activities: individual revision first, then a partner revision, followed by a final solo effort. Per Table 13, the total and average volume of errors decreased as the semester progressed and the various intervention elements were applied.

Table 13

Intervention Midshipmen Formal Error Rates Per 100 Words

Type	Style	Average Length	Formal Errors per Paper	Errors per 100 words
Textual	MLA	1,575 words	8.78	.58
Response	CMS	1,023 words	4.00	.39
Contextual	APA	1,865 words	3.88	.23

Compared to the needs assessment group, the intervention midshipmen committed about twice the number of total formal errors on the textual analysis assignment despite writing slightly fewer words on average. By the time the contextual analysis was completed at the end of the FYC course, intervention total- and average-per-100-words formal error rates of 3.88 and .23, respectively, were slightly less than those of the needs assessment participants (4.89 and .30), indicating that the intervention was at least partially successful in helping midshipmen decrease their tendencies to commit formal writing errors.

Research Question 2

The second research question mirrored the first but focused on citation accuracy rather than formal writing errors. RQ2 asked the following: To what extent, if any, did the citation "error rate per 100 words" change for midshipmen over the course of the semester? Prior research (Boysen, 2019; Kargbo, 2010) touched on citation mistakes for a given documentation style but did not explore how students grapple with multiple citation formats. As a result, it was difficult to compare the findings from this investigation with others, and it was hard to tell if the seemingly high rates of citation mistakes indicated larger trends or if they were unique to this sample group. Table 14 demonstrates that intervention-stage midshipmen have committed a greater total number of citation errors on all three assignments than their needs assessment counterparts. There, the total numbers were 7.61 citation errors on the textual analysis, 9.31 on

the response, and 8.52 on the contextual analysis. The intervention students exhibited 11.36, 12.9, and 10.4 errors, respectively.

Table 14

Intervention Midshipmen Citation Error Rates Per 100 Words

Type	Style	Average length	Citation Errors per paper	Errors per 100 words
Textual	MLA	1,575 words	11.36	.77
Response	CMS	1,023 words	12.9	1.26
Contextual	APA	1,865 words	10.4	.62

Although it was promising that the total number of citation errors decreased by the completion of the final project, they did so to a much smaller degree than the improvement—between the first and last assignment—than appeared in the formal error rates. Quantitatively, intervention elements were more successful at encouraging students to improve their formal error performance than at helping midshipmen increase their citation skills.

Research Question 3

Research Question 3 asked the following: Do differences in the respective averages of grammar and citation "errors per 100 words" on FYC course assignments submitted by midshipmen correlate to their self-identification as either high or low learning- and/or grade-oriented students? Data collected during the intervention indicated that the answer to that question was the following: "No." Strong correlations did not appear between a given student's self-identification as either a High or Low GO or LO leaner and their propensity to commit formal or citation mistakes in their FYC compositions. Table 15 shows formal and citation error averages broken out by learning orientations. Note that the information was provided in the order the assignments were completed rather than alphabetically per APA custom.

Table 15

Intervention Midshipmen Error Rates by Learning Orientation

Type	Learner	Formal errors	F per 100 words	Citation errors	C per 100 words
Textual	H-H	9.44	.58	12.67	0.78
Textual	H-L	7.00	.49	10.89	0.80
Textual	L-H	9.11	.61	12.00	0.81
Textual	L-L	12.8	.83	08.40	0.54
Response	H-H	5.11	.48	14.44	1.32
Response	H-L	3.00	.30	12.33	1.23
Response	L-H	4.61	.46	12.33	1.22
Response	L-L	3.40	.33	14.20	1.49
Contextual	H-H	5.00	.27	10.67	0.56
Contextual	H-L	4.01	.27	10.56	0.72
Contextual	L-H	2.94	.17	10.67	0.60
Contextual	L-L	4.60	.24	8.400	0.44

Similar to the needs assessment participants, H-H midshipmen—which Eison et al. (1986) characterized as "motivated both to learn and to achieve high grades" (p. 55) committed fewer formal and citation mistakes than their opposite L-L counterparts on the first assignment, yet their performances were inverted by the final contextual assignment. There, L-L students committed fewer formal and citation errors. Although it could be speculated that perfectionism plays some role in error propensity, such that H-H students became more agitated over time and their performance declines, while L-L students capitalized on their lower stress levels, the data were not firm enough to draw a strong conclusion.

In another attempt to make sense of the data, for each of the three assignments—textual analysis, response paper, and contextual analysis—the error rates of the 10 students with the lowest number of citation and formal errors were compared with those of the 10 students with the highest error rates. No clear pattern emerged. The breakdown of the highest and lowest performers mirrored the overall bell-shape of the distribution of GO and LO learners that emerged among both the needs assessment and intervention groups. The greatest clusters were in

the center, labeled H-L and L-H, suggesting that most learners expressed some interest in learning for its own sake and usefulness, as well as their course grades. A similar pattern emerged when examining the top 10 highest and lowest error-prone students for each assignment. The cluster remained in the middle with only a few H-H and H-L learners present as outliers. Thus, the influence of the intervention steps on GO and LO learners could not be usefully characterized. Future instructors and researchers would do well to try to implement strategies capable of appealing to all four types of learning orientations.

Research Question 4

The fourth research question of this investigation inquired the following: What difference, if any, exists between the way(s) participants respond to the intervention assignment and class activity changes? One major indication of midshipmen reaction was the number of students who had chosen to write about the militarily-relevant text inserted in the course as part of the intervention. O'Brien's (2008) *The Things They Carried* Vietnam War short story anthology replaced Karr's (2015) memoir, *The Liars' Club*.

During the needs assessment stage, participants were free to select which course texts they would use in their three major assignments. Only two of 55 needs assessment participants elected to write about Karr's (2015) work, representing 3.63% of the sample group. Nevertheless, during the intervention stage, 58% of 50 intervention participants chose to write about O'Brien's (2008) book for the contextual analysis assignment. This jump indicated that the students did find military literature engaging and relevant to their professional development, validating recommendations from prior research (Blaauw-Hara, 2017; Hart & Thompson, 2016; Hinton, 2013) regarding the utility in tailoring FYC coursework to veteran interests.

Another indication of intervention alteration relevance was the number of midshipmen who had provided military-related or career-relevant comments on the reflection activities and the open-ended question area of the IDEA survey (Hoyt & Lee, 2002). Recall that the incorporation of a reflective writing activity after each scaffolded in-class revision activity was a major element of the intervention process. Of 1,327 qualitative comments coded by the researcher-instructor, 116 comments—8.74% of the total—discussed military or career considerations. More importantly, that number grew over time. After the first assignment, the textual analysis, 6.71% of the coded comments addressed the usefulness of the activity to military affairs and career performance. That figure rose to 8.14% on the response, 9.41% on the contextual analysis, and 14.58% on the IDEA Survey (Hoyt & Lee, 2002), which was completed in the last 2 weeks of the course.

The specificity of student feedback suggested that as adult learners (Lippitt et al., 1984), they understood the nature of what was being asked of them and could envision how it could be useful in the future. For example, on the textual analysis assignment, Participant GGG observed, "In the professional world, formatting is very important, so making mistakes and then revising formatting issues in this revision assignment was beneficial to me as it adjusted my mindset to focus on little details everywhere in my paper." Later, during the FYC, and after completing the Response revision in-class activity, Participant LLL realized, "You really have to pay attention to the fine details in order to do something right the first time. This will help us in the future when we have to write reports for officers above us." By the time the final reflective post-revision in-class writing activity occurred, Participant ZZZZ related how

> This assignment has taught me how to focus on hyper specific details, a skill that will follow me for my entire life. I think this will apply to all work I do in the fleet or in the private sector, perfection is a great standard to have.

These sorts of comments indicated that midshipmen saw the connection between FYC coursework and professional writing standards.

Research Question 5

Research Question 5 asked the following: How do participants describe their learning experience as well as their perception of the instructor's role? This aspect of the intervention pondered how the midshipman elected to characterize their learning experience in the FYC course and also questioned whether they gave much thought to the researcher-instructor's part in the process. Regarding the first part of this research question, qualitative analysis of the comments provided during the in-class reflective writing activities and the open comment section of the IDEA survey (Hoyt & Lee, 2002) indicated that students seemed to spend more time pondering the practicality of the learning process rather than their assignment scores or final grades. During the first in-class reflection activity, about 3% of the comments dealt with grades, whereas 6.7%—slightly more than double—expressed observations about learning or real-life application. That gap continued during the response reflection, with just under 7% of the comments addressing grades, while 10.43% addressed learning and reality, which jumped during the contextual reflection, where 5.7% discussed assessment levels, while 16.86% of the comments dealt with worldly applications or knowledge acquisition. The greatest gap appeared in the open-ended IDEA survey (Hoyt & Lee, 2002), where 11.46% of the coded reflections addressed grades, while 65.63% explored learning and its relevance explicitly. On that instrument, Participant WWW asserted, "I got excited to come to class because I was rewarded

for doing the work and the assessments were not incredibly hard," which was one of the few GO comments supplied. Far more common were comments, such as Participant QQQ's remark about the researcher-instructor's "ability to connect our readings to real world situations." The vast majority of IDEA survey responses privileged learning usefulness and applicability over grades.

For the second part of the research question, midshipmen did not often remark on the instructor's role until the in-class survey activity that occurred near the end of the course. Among the responses for the first two reflection activities, each only featured five mentions of the researcher-instructor explicitly. Even then, the mention was almost in passing, such as Participant DDD's assertion that "the next assignment will be better because I have my correction [sic] made by LCDR Garrow to refer to." The focus was not on the instructor-researcher but rather on the tool provided. That 5-mention figure dropped to 3 during the contextual analysis revision reflection, suggesting the midshipmen spent much more time considering their own role in the learning process, rather than the instructor's position. When the instructor was mentioned, it was often in conjunction with a mention of grades, such as Participant MMMM's observation:

> When I make a mistake I understand that I will get points off, however, not every teacher allows the chance to revise the given mistakes. I appreciate LCDR Garrow giving us a revision chance because it not only helps our grade, but also gives us a chance to better learn the material.

In the open-ended comments of the IDEA survey (Hoyt & Lee, 2002), midshipmen used the researcher-instructor's name and rank 20 times and made nine other mentions of "instructor" or "teacher." This finding might have occurred because one of the quantitative, Likert-scale sections on the survey asked students to rate their instructor's performance, which likely reminded them to think more about the role the instructor might play in learning.

Research Question 6

The penultimate research question investigated how midshipmen's perceptions of their voices and agency were impacted by the intervention. It asked the following: How, if at all, did participant sense of learner empowerment change after participating in the intervention? The intervention changes seemed to influence midshipmen's attitudes minutely regarding the core learner empowerment factors of choice, competence, meaningfulness, and impact. A comparison of the information assembled during the needs assessment by the Learner Empowerment Instrument with that of the intervention participants showed nearly identical values, as seen in Table 16. The label "NA Value" shows needs assessment data from 2020, and the "I Value" contains information collected in 2021 during the intervention.

Table 16

Comparative Learner Empowerment Instrument Results

Category	Statistic	NA Value	I Value
Choice	Mean	2.27	2.22
Choice	Median	3.00	2.25
Choice	Mode	3.00	3.00
Competence	Mean	2.23	2.24
Competence	Median	3.00	2.14
Competence	Mode	3.00	3.00
Impact	Mean	2.78	2.78
Impact	Median	3.00	2.85
Impact	Mode	3.00	2.00
Meaningfulness	Mean	2.75	2.72
Meaningfulness	Median	3.00	2.56
Meaningfulness	Mode	3.00	3.00

Survey results from the needs assessment suggested that respondents believed that the original course design was already sensitive to their learning styles and needs; it gave them autonomy in deadline selection and assignment type. Even after the intervention adjustments, such as the inclusion of a military-centric text, a two-stage scaffold, and opportunities for

reflection, the changes did not impact the average student responses on the Learner Empowerment Instrument. This finding need not be construed as a failure of the intervention overall but merely indicative of no particular relevance to learner empowerment levels overall.

Research Question 7

The final line of inquiry asked the following: How, if at all, did midshipmen's perception of writing in the military change after revising the three FYC assignments? The answer was less straightforward than the responses to some of the other research questions, yet the overall picture was promising. First, the sheer volume of midshipman participants—29 out of 50—who had elected to explore O'Brien's (2008) text—as examined in RQ 4—indicated that students saw merit in a combat veteran's efforts to share the emotional truth of his experience with others through writing. This work seemed to speak to them in ways that Karr's (2015) work—despite its literary fame and legacy—simply did not.

Additionally, another indication of perception change was shown by the surge in midshipmen participants that explicitly discussed the FYC's potential impact on their military careers in the open-ended area of the IDEA survey (Hoyt & Lee, 2002) issued as an in-class activity near the end of course. The final 14 out of 96 (14.48 %) of coded comments regarding that subject was more than double the 22 out of 328 (6.71 %) that appeared in the first reflective writing exercise that followed the textual analysis revision. Participant NNNN stated, "the work was applicable to how things would work out in the fleet which made the entire class worth taking." Participant YYYY revealed how "the discussions of how these skills are relevant to the fleet overall encouraged me to work harder in the class." Such comments indicated that the researcher-instructor was successful enough in emphasizing the practicality of classroom

instruction as related to military professional correspondence that students could identify that link and then take the time to internalize and reflect on it later.

Conclusions

The intention of this investigation was to explore ways to reduce midshipmen formal and citation error propensity and to imbue them with a sense of the importance of precision within military professional writing (Kent, 2007; Rifenburg, 2019). The three primary elements of the intervention—a military relevant text, a scaffolded first and final draft review process, and an increase in reflective writing—accomplished that goal. Although intervention midshipmen committed more errors—an average of 5.5 formal errors total and 1.2 formal errors per 100 words—compared to the needs assessment participants, the intervention participants still decreased their total formal (8.87 to 3.88) and error per 100 words (.58 to .23) rate from the start until the end of the class. Intervention participants also decreased their total (11.36 to 10.4) and errors per 100 words (.77 to .62) for citations by the close of the semester. That result indicated that the TOT of using an SoTL approach to adjust FYC elements featuring cognitive apprenticeship aspects, such as real-world applicability and reflectivity to encourage specific short-, intermediate-, and long-term goals, was successful. Figure 6 shows the conceptual framework for TOT outcomes.

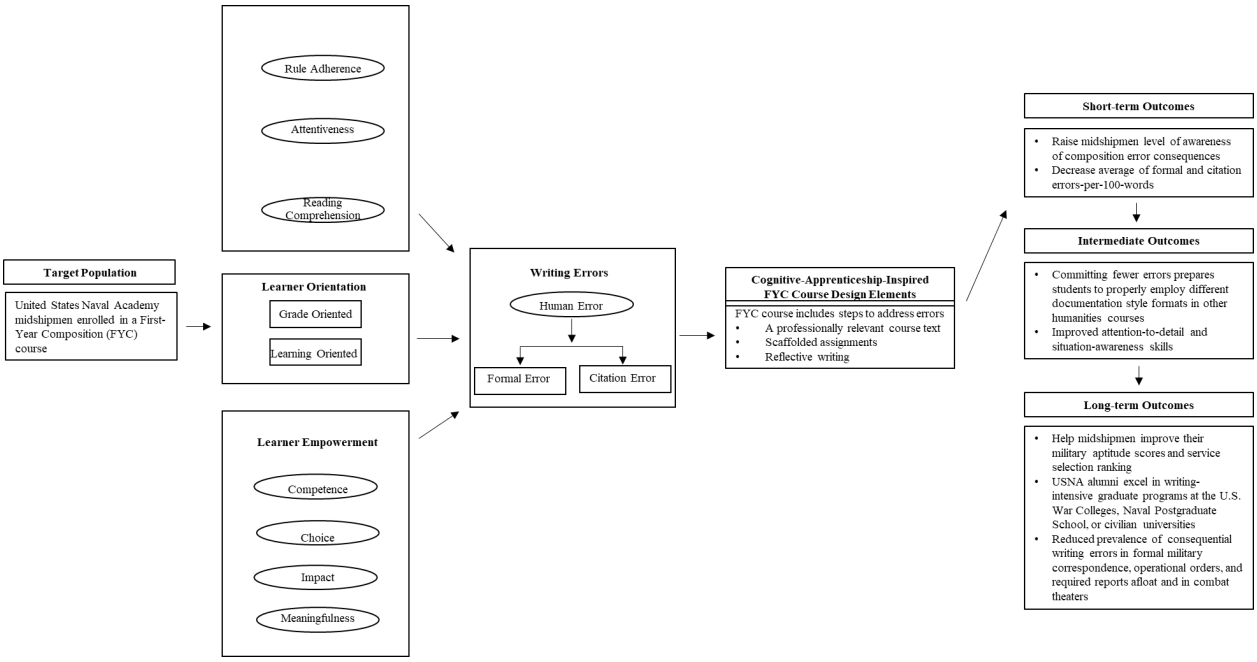

Figure 6. The theory of treatment results conceptual framework summarizes the evolution of this investigation over time and incorporates information provided in earlier chapters. Adaptive approaches (Mertens & Wilson, 2018) to teaching is a key principle of SoTL studies.

Figure 6 combines elements of Figure 3 from Chapter 1 with TOT techniques and goals exhibited in Figures 4 and 5 to summarize this entire investigation's conceptual framework. Note that the TOT only achieved short-term outcomes due to the limited timeframe of this case study. A longitudinal study that tracked midshipmen's progress throughout their military careers would be required to properly evaluate intermediate and long-term outcomes. However, the achievement of the short-term goals was a positive indication that follow-on effects might occur.

Regarding the larger error rates on first drafts of intervention participants compared to needs assessment participants, it is likely that the COVID-19 pandemic played a role (Pokhrel & Chhetri, 2021). Intervention participants lost a substantial part of their secondary school experiences to remote learning in ways that had impacted secondary school English instruction (Bardone, Raudsep, & Eradze, 2022), whereas needs assessment participants had already completed high school; thus, they had their FYC course experience interrupted by the nation's

health emergency. The extended nature of the pandemic caused increasing levels of stress, mental health concerns, and human interaction abnormalities to occur among high school students at elevated levels (Jones et al., 2022). Nonetheless, in the same way that the needs assessment total and average error rates were unacceptably high by military professional standards, so too were the intervention group's even less impressive figures. However, it remained encouraging that participants' error propensity decreased over time; future researchers could achieve larger reductions via other intervention actions.

The other major goal of this study was to get freshmen undergraduate military candidates to recognize the role that professional writing (Kent, 2007) played in general and in their chosen industry in particular (Rifenburg, 2019; Rifenburg & Forester, 2018). The sharp increase in students who had chosen to analyze the militarily-relevant text inserted into the FYC course as part of the intervention—58% rather than less than 4% for the book it replaced—was an indicator that these adult learners (Lippitt et al., 1984) placed value on course elements with practical connections to their future professions (Sogunro, 2015).

Recommendations and Limitations of the Study

The intervention helped midshipmen reduce their formal and citation error propensities over the course of the one-semester FYC course and encouraged them to focus on the importance of professional writing during their reflective activities. However, a few limitations emerged during the investigation. All midshipmen knew that their reflective writing activities and IDEA survey (Hoyt & Lee, 2002) responses would be identifiable to the researcher-instructor to separate participants from nonparticipants in accordance with IRB standards. Some might have chosen to mimic statements made in class or attempted to provide a "right" answer—or at least

what they considered their instructor might have wanted to hear—rather than have the freedom of a fully anonymous survey.

A number of midshipmen wrote about how much they learned about the importance of "attention to detail" and precision while making numerous spelling and grammatical errors in their reflective writing and IDEA survey (Hoyt & Lee, 2002) answers. During the qualitative coding process, the researcher-instructor identified this pattern with the code "Dunning Kruger" in honor of Kruger and Dunning's (1999) seminal article. This particular code emerged more frequently than any other during qualitative analysis of the three in-class reflective writing activities, although it did decrease (as a percentage of coded comments) overtime, from 28.66% on the first reflection to 21.57% on the last. It did not emerge as a consideration when evaluating the IDEA survey (Hoyt & Lee, 2002) responses, but that could mostly be attributed to the much shorter statements that midshipmen provided on that instrument compared to their reflective writings.

Due to lingering COVID-19 concerns, the researcher-instructor abandoned one element of the initial research design: conducting verbal participant interviews. Although this choice might have been wise from an IRB-strategy perspective, given the additional restrictions caused by the health scare, it was likely that valuable information—that might have emerged otherwise—was lost. Any study attempting to replicate these findings would do well to add interviews as an additional data source and potential means of triangulation. Participants choosing to write about professional practicality spiked from 6.71% in the first reflective activity to 14.58% on the open-ended comments area of the IDEA Survey (Hoyt & Lee, 2002) further indicated that midshipmen gained a greater appreciation for course relevance throughout the FYC course.

Implications for Practice

This investigation was a small step in filling the gap in writing error studies, especially regarding citations. It served as a successor to Connors and Lunsford (1988) and Lunsford and Lunsford (2008), yet it did not begin to approach either of those studies in terms of size and scope. Ideally, the broad outlines of those research projects and this one could be scaled up to include all of the major U.S. service academies to determine if the midshipmen error rates observed represented a larger group of military undergraduates. Written correspondence and precision is common to all branches of the U.S. Armed Services; thus, those institutions may find the idea intriguing, yet it would run into the sort of joint-IRB red-tape struggles noted by Lunsford and Lunsford. However, the benefits of better preparing fledgling officers to tackle military professional correspondence may prove enticing enough to justify partnership project hurdles.

Regarding citations, this investigation and intervention attempted to raise interest and awareness of the singlemindedness of most source citation and documentation style projects. As observed during the literature review, earlier studies focused on a single documentation style guidelines and its relevance to just one academic field (Angell, 2016; Davis & Anderson, 2019; Kargbo, 2010). There appears to be merit in asking service academy students to become familiar with multiple documentation styles—more importantly, effective style guide use—to replicate, in an unclassified way, the various formats for professional correspondence featured within and between military services.

Although SoTL proved effective for this investigation, it would be useful to replicate the scaffolded revision process and reflection activity incorporation with a larger number of instructor-volunteers. Thus, a researcher could remain in a single role without having to worry

about instruction or the danger of participant coercion. A larger number of willing instructors would be even more enlightening if they could be a mix of active duty officers and civilian faculty, so as to try to separate better the message from the messenger. Perhaps, the highest sign of success would be if student reflective statements indicated that service academy students were equally willing to take career advice from nonveterans on the grounds that the logic of the professional writing recommendations was strong enough to overcome any concerns about a personal lack of *ethos*.

Future Research

The researcher-instructor's primary motivation throughout the investigation was to identify relevant factors impacting student formal and citation error rates and to devise intervention steps capable of lowering that propensity. Quantitative research into formal error reduction is relatively common (Connors & Lunsford, 1988; Lunsford & Lunsford, 2008; Johnson, 1917; Witty & Green, 1930), while quantitative research for citation is scarce and generally confined to a single documentation style in the manner of Boysen (2019). The intervention participants' error totals and average-per-100-words decreased in the formal and citation categories from the first FYC assignment to the last; therefore, this goal was achieved—albeit by a much smaller margin than one might hope. The formal errors per 100 words for intervention participants dropped from .58 to .23 over the course of the semester, while the citation errors moved from .77 errors per 100 words to .62.

Given the consequences of errors in military professional correspondence (Rifenburg, 2019; Rifenburg & Forester, 2018), any reduction—no matter how slight—can arguably be deemed a success. From this vantage point, this investigation can be safely characterized as successful overall. Thanks to the mixed-methods approach, it was heartening to see the number

of midshipmen who had chosen to reflect on the real-world implications of their FYC course experience, both as it related to their upcoming military careers and their futures in general. The scaffolded in-class revision activity used PBL principles to help midshipmen connect the physical action of using a documentation style guide with how those skills could translate to professional writing standard adherence (Kent, 2007). Intervention participants' mean and mode scores of a perfect 5 for IDEA Survey (Hoyt & Lee, 2002) Item 19 regarding creativity, along with 107 out of 1,327 coded comments implying how the revision goal was perfection, showed that midshipmen did make progress in balancing creativity and conformity through this study's FYC course. It has been a decade since the academic deans of the service academies released a joint statement of their priorities (Born et al., 2012); in addition to their shared emphases on critical thinking, the results of this investigation suggest that a prioritization of rule adherence and precision is merited.

Not all survey instruments were equally useful; the relative lack of current research using the LOGO II (Eison et al., 1983) or the Learner Empowerment Instrument (Frymier et al., 1996) may be explained by the uneven results featured in this study. Nor did clear patterns emerge equally among all of the research questions. Nonetheless, the general tenor of midshipmen feedback collected via the reflections and the IDEA Survey (Hoyt & Lee, 2002) during this SoTL case study (Hutchings, 2007) indicated that participants found the scaffolded and reflective approach to error correction personally and professionally useful. Therefore, the researcher-investigator hoped that this sort of emphasis would appeal to other service academies, creating a superior standard for professional military competence. The increasingly joint, interconnected, and communication-centric nature of modern warfare demands nothing less.

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Appendix A

LOGO II

Part I

Below is a series of statements taken from interviews with a large number of college students concerning their reactions to various courses, instructors, and classroom policies. Please read each statement carefully and indicate how strongly you agree or disagree with each item using the following scale: 1 = “strongly disagree,” 2 = “disagree,” 3 = “neither disagree nor agree,” 4 = “agree,” and 5 = “agree strongly."

1. Easy classes that are not pertinent to my educational goals generally bore me.
2. I get annoyed when lectures or class presentations are only rehashes of easy reading assignments.
3. I enjoy classes in which the instructor attempts to relate material to concerns beyond the classroom.
4. I appreciate the instructor who provides honest and detailed evaluation of my work though such evaluation is sometimes unpleasant.
5. I am more concerned about seeing which questions I missed than I am with finding out my test grade.
6. I find the process of learning new material fun.
7. A teacher’s comments on an essay test mean more to me than my actual test score.
8. I prefer to write a term paper on interesting material than to take a test on the same general topic.
9. I dislike courses in which a lot of material is presented in class, or in reading, that does not appear on exams.

10. I do not find studying at home to be interesting or pleasant.
11. Instructors expect too much out-of-class reading and study by students.
12. I think that without regularly scheduled exams I would not learn and remember very much.
13. Written assignments (i.e., homework, projects, etc.) that are not graded are a waste of a student's time.
14. I think it is unfair to test student son material not covered in class lectures and discussions, even if it is in reading assignments.
15. I dislike courses which require ungraded out-of-class activities.
16. I think grades provide me a good goal to work toward.

Part II

Please read each of the following statements. Indicate how frequently your behavior coincides with the action described using the following rating scale: 1 = "never," 2 = "seldom," 3 = "sometimes," 4 = "often," and 5 = "always."

17. I stay after interesting classes to discuss material with the instructors.
18. I participate in out-of-class activities even when extra-credit is not given.
19. I try to keep all my old textbooks because I like going back through them after class is over.
20. I do optional reading that my instructors suggest even though I know it won't affect my grade.
21. I browse in the library even when not working on a specific assignment.
22. I discuss interesting material that I've learned in class with my friends or family.
23. I try to make time for outside reading despite the demands of my coursework.

24. I buy books for courses other than those I am actually taking.
25. I cut classes when confident that lecture material will not be on an exam.
26. I get irritated by students who ask questions that go beyond what we need to know for exams.
27. I will withdraw from an interesting class rather than risk getting a poor grade.
28. I try to find out how easy or hard an instructor grades before signing up for a course.
29. When looking at a syllabus on the first day of class, I turn to the section on tests and grades first.
30. I'm tempted to cheat on exams when I'm confident I won't get caught.
31. I borrow old term papers or speeches from my friends to meet class requirements.
32. I try to get old tests when I think the instructor will use the same question again.

All prompts are direct quotes (Eison et al., 1983, pp. 6-8). Copyright 1983 by the Learning Research Center, The University of Tennessee.

Eison, J. A., Pollio, H. R., & Milton, O. (1983). *Manual for use with LOGO-II*. Retrieved from http://trace.tennessee.edu/utk_theopubs/2

Appendix B

Learner Empowerment Instrument

Respondents reply via a Likert-type scale where 4 = “very often,” 3 = “often,” 2 = “occasionally,” 1 = “rarely,” and 0 = “never.”

1. I feel confident that I can adequetely perform my duties.
2. I have the power to make a difference in how things are done in my class.
3. Class is consistent with my values.
4. My participation is important to the success of the class.
5. My instructor makes me feel inadequate.
6. I actively participate in all the tasks required of my class.
7. I typically do mor ework than is required by the syllabus.
8. I am overwhelmed by all the work my class requires.
9. I work hard for class because I want to, not because I have to.
10. I have a choice in the methods I can use to perform my work.
11. The tasks required in my class are personally meaningful.
12. I like to talk about what I’m doing in my class with friends or family.
13. I feel intimidated by what is required of me in my class.
14. I can make an impact on the way things are run in my class.
15. My instructor allows felxibility in the way I perform my taks.
16. I look forward to going to my class.
17. My instructor believes that he or she must control how I do my work.
18. Expressing my own attitutdes and ideas is rewarded in my class.
19. I agree with the standards I must meet in my class.

20. I possess the necessary skills to perform successfully in class.

21. My success in this class is under my control.

22. My instructor thinks he or she is always right.

23. I find my class to be exciting and energizing.

24. I have a high level of autonomy in accomplishing my work.

25. I find my class to be interesting.

26. I an be creative in the way I perform the tasks required in my class.

27. The tasks required by my class are valuable to me.

28. The tasks required by my class are valued by potential employers.

29. I agree with the meaning my instructor has for what good performance on class work is.

30. I am able to perform the necessary activities to succeed in my class.

Items 3, 9, 11, 12, 19, 25, 27 and 29 assess meaningfulness.

Items 1, 5, 8, 13, 20, 23, and 30 assess competence.

Items 2, 4, 6, 14, 16, 21, and 28 assess impact.

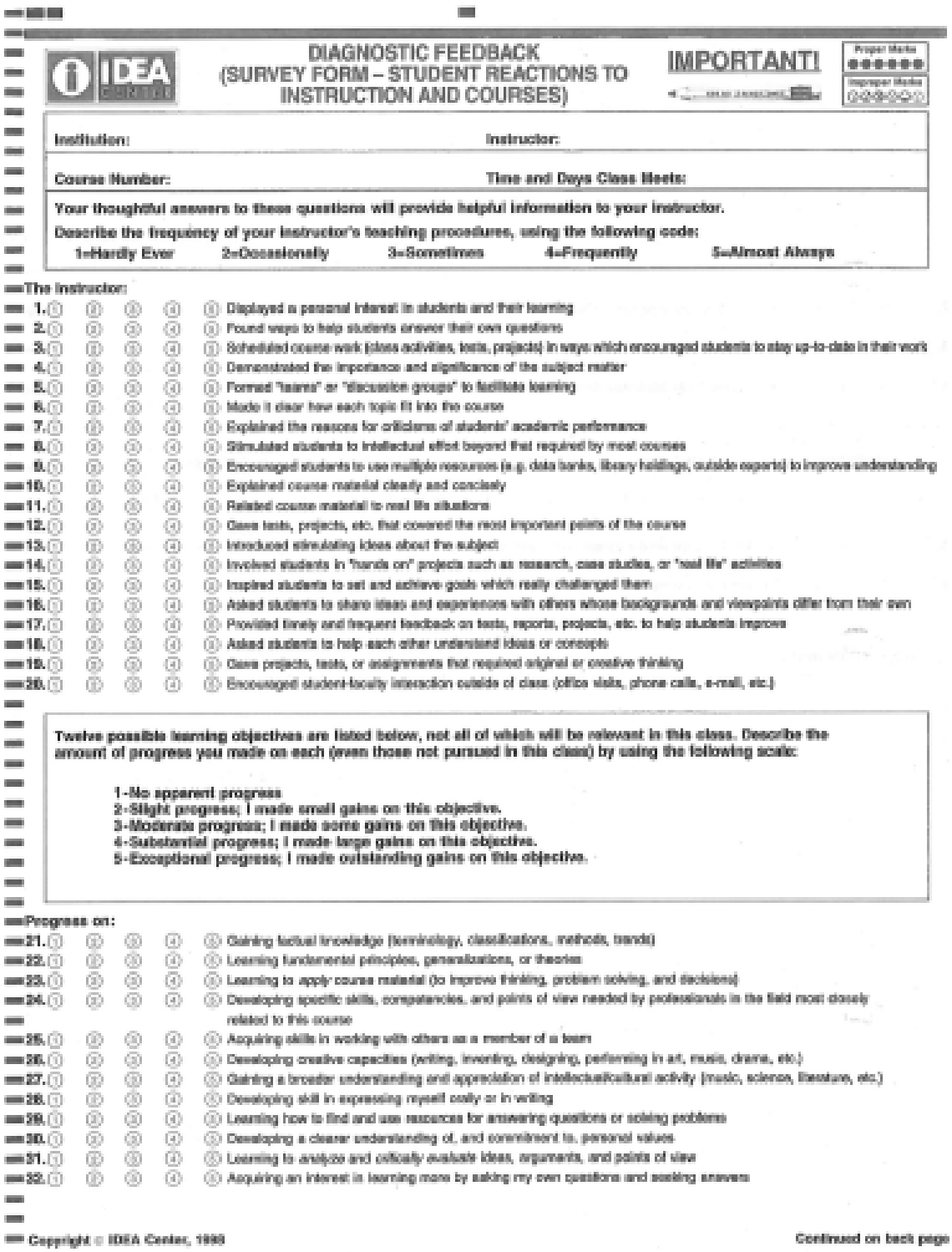
Items 7, 10, 15, 17, 18, 22, 24, and 26 assess choice.

All prompts are direct quotes (Frymier et al., 1996, p. 187). Reprinted with permission.

Frymier, A. B., Shulman, G. M., & Houser, M. L. (1996, July). The development of a learner empowerment measure. *Communication Education*, *45*(3), 181–199. Retrieved from https://www.tandfonline.com/loi/rced20

Appendix C

Diagnostic Feedback



DIAGNOSTIC FEEDBACK
(SURVEY FORM – STUDENT REACTIONS TO INSTRUCTION AND COURSES)

IMPORTANT!

Institution: Instructor:

Course Number: Time and Days Class Meets:

Your thoughtful answers to these questions will provide helpful information to your instructor.

Describe the frequency of your instructor's teaching procedures, using the following code:

1=Hardly Ever 2=Occasionally 3=Sometimes 4=Frequently 5=Almost Always

The instructor:

1. ① ② ③ ④ ⑤ Displayed a personal interest in students and their learning
2. ① ② ③ ④ ⑤ Found ways to help students answer their own questions
3. ① ② ③ ④ ⑤ Scheduled course work (class activities, tests, projects) in ways which encouraged students to stay up-to-date in their work
4. ① ② ③ ④ ⑤ Demonstrated the importance and significance of the subject matter
5. ① ② ③ ④ ⑤ Formed "teams" or "discussion groups" to facilitate learning
6. ① ② ③ ④ ⑤ Made it clear how each topic fit into the course
7. ① ② ③ ④ ⑤ Explained the reasons for criticisms of students' academic performance
8. ① ② ③ ④ ⑤ Stimulated students to intellectual effort beyond that required by most courses
9. ① ② ③ ④ ⑤ Encouraged students to use multiple resources (e.g. data banks, library holdings, outside experts) to improve understanding
10. ① ② ③ ④ ⑤ Explained course material clearly and concisely
11. ① ② ③ ④ ⑤ Related course material to real life situations
12. ① ② ③ ④ ⑤ Gave tests, projects, etc. that covered the most important points of the course
13. ① ② ③ ④ ⑤ Introduced stimulating ideas about the subject
14. ① ② ③ ④ ⑤ Involved students in "hands on" projects such as research, case studies, or "real life" activities
15. ① ② ③ ④ ⑤ Inspired students to set and achieve goals which really challenged them
16. ① ② ③ ④ ⑤ Asked students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own
17. ① ② ③ ④ ⑤ Provided timely and frequent feedback on tests, reports, projects, etc. to help students improve
18. ① ② ③ ④ ⑤ Asked students to help each other understand ideas or concepts
19. ① ② ③ ④ ⑤ Gave projects, tests, or assignments that required original or creative thinking
20. ① ② ③ ④ ⑤ Encouraged student-faculty interaction outside of class (office visits, phone calls, e-mail, etc.)

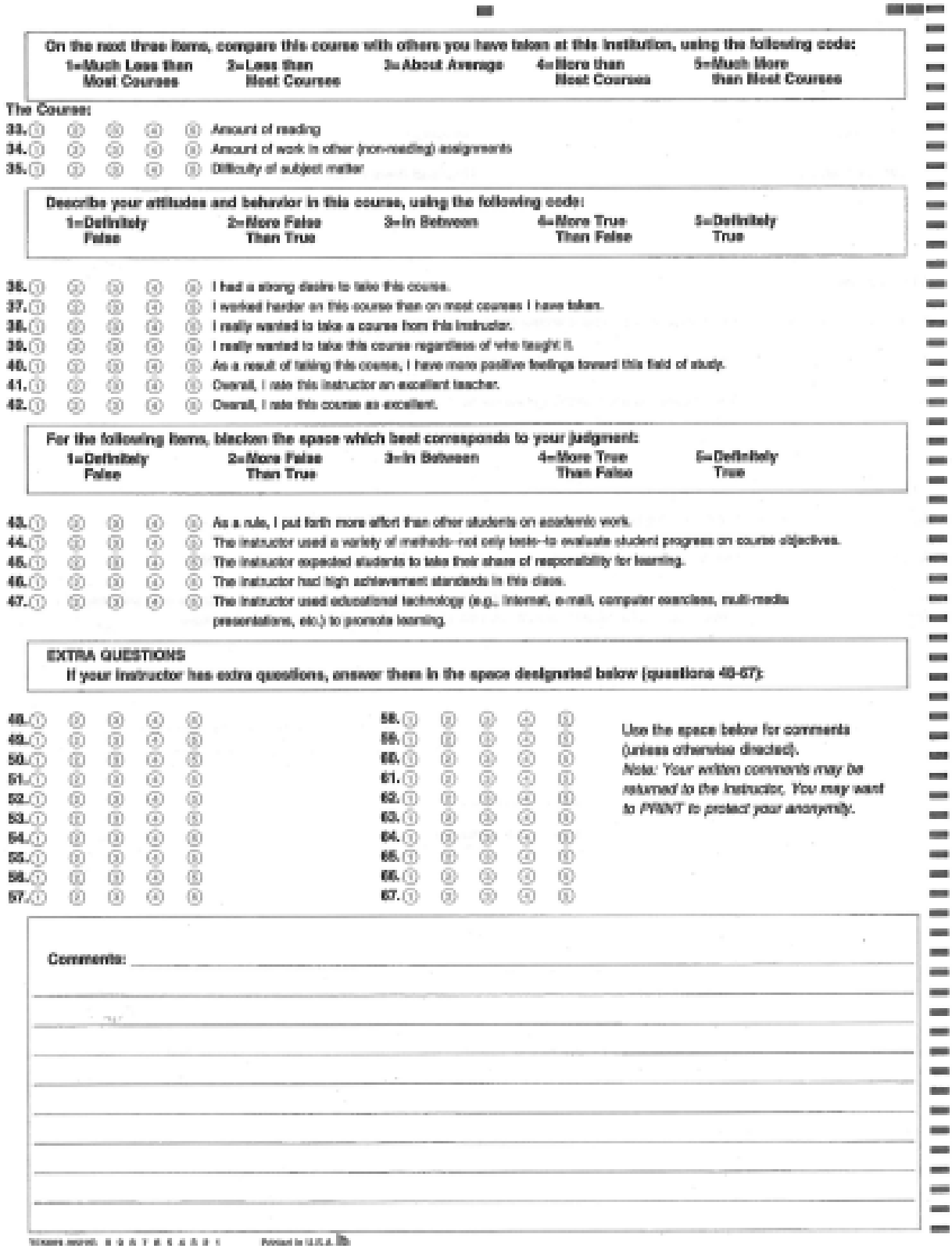
Twelve possible learning objectives are listed below, not all of which will be relevant in this class. Describe the amount of progress you made on each (even those not pursued in this class) by using the following scale:

1-No apparent progress
2-Slight progress; I made small gains on this objective.
3-Moderate progress; I made some gains on this objective.
4-Substantial progress; I made large gains on this objective.
5-Exceptional progress; I made outstanding gains on this objective.

Progress on:

21. ① ② ③ ④ ⑤ Gaining factual knowledge (terminology, classifications, methods, trends)
22. ① ② ③ ④ ⑤ Learning fundamental principles, generalizations, or theories
23. ① ② ③ ④ ⑤ Learning to apply course material (to improve thinking, problem solving, and decisions)
24. ① ② ③ ④ ⑤ Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course
25. ① ② ③ ④ ⑤ Acquiring skills in working with others as a member of a team
26. ① ② ③ ④ ⑤ Developing creative capacities (writing, inventing, designing, performing in art, music, drama, etc.)
27. ① ② ③ ④ ⑤ Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc.)
28. ① ② ③ ④ ⑤ Developing skill in expressing myself orally or in writing
29. ① ② ③ ④ ⑤ Learning how to find and use resources for answering questions or solving problems
30. ① ② ③ ④ ⑤ Developing a clearer understanding of, and commitment to, personal values
31. ① ② ③ ④ ⑤ Learning to *analyze* and *critically evaluate* ideas, arguments, and points of view
32. ① ② ③ ④ ⑤ Acquiring an interest in learning more by asking my own questions and seeking answers

Continued on back page



On the next three items, compare this course with others you have taken at this institution, using the following code:
1=Much Less than Most Courses; 2=Less than Most Courses; 3=About Average; 4=More than Most Courses; 5=Much More than Most Courses

The Course:

33. Amount of reading
34. Amount of work in other (non-reading) assignments
35. Difficulty of subject matter

Describe your attitudes and behavior in this course, using the following code:
1=Definitely False; 2=More False Than True; 3=In Between; 4=More True Than False; 5=Definitely True

36. I had a strong desire to take this course.
37. I worked harder on this course than on most courses I have taken.
38. I really wanted to take a course from this instructor.
39. I really wanted to take this course regardless of who taught it.
40. As a result of taking this course, I have more positive feelings toward this field of study.
41. Overall, I rate this instructor an excellent teacher.
42. Overall, I rate this course as excellent.

For the following items, blacken the space which best corresponds to your judgment:
1=Definitely False; 2=More False Than True; 3=In Between; 4=More True Than False; 5=Definitely True

43. As a rule, I put forth more effort than other students on academic work.
44. The instructor used a variety of methods--not only tests--to evaluate student progress on course objectives.
45. The instructor expected students to take their share of responsibility for learning.
46. The instructor had high achievement standards in this class.
47. The instructor used educational technology (e.g., Internet, e-mail, computer exercises, multi-media presentations, etc.) to promote learning.

EXTRA QUESTIONS
If your instructor has extra questions, answer them in the space designated below (questions 48-67):

48. 49. 50. 51. 52. 53. 54. 55. 56. 57.

58. 59. 60. 61. 62. 63. 64. 65. 66. 67.

Use the space below for comments (unless otherwise directed).
Note: Your written comments may be returned to the instructor. You may want to PRINT to protect your anonymity.

Comments: _____

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Hoyt, D. P., & Lee, E. J. (2002, August). *Basic data for the revised IDEA system* (IDEA Technical Report 12). Retrieved from https://www.ideaedu.org/Portals/0/Uploads/Documents/Technical-Reports/Basic-Data-Revised-IDEA-System_techreport-12.pdf

Appendix D

Reflective Writing Prompts

1. Identify the goals and strategies for your revision.
2. Explain the value of this assignment to you. What knowledge did you gain? What skills did you gain or improve? When do you think this knowledge or skills will be useful in the future?
3. How will you do a better job on a similar assignment next time?
4. What advice do you have for the students who will take this course the next time it is given? How should they best prepare? What strategies do you recommend? What problems and pitfalls can you warn them about? What are they likely to gain from doing this assignment?

All prompts are direct quotes (Nilson, 2016, p. 233). Copyright 2016 by Jossey-Bass.

Nilson, L. (2016). *Teaching at its best: A research-based resource for college instructors* (4th ed.). San Francisco, CA: Jossey-Bass.

Curriculum Vitae

LCDR Philip M. Garrow

Hometown:	Traverse City, Michigan
Commissioning Source:	NROTC
Date of Commissioning:	21 MAY 2005
Date of Rank:	01 SEP 2015

CHRONOLOGICAL RECORD OF MILITARY SERVICE

Dates	Unit	Primary Duties
2005-2007	USS COWPENS CG-63	Combat Electronics Officer & Electrical Officer
2007-2010	USS INDEPENDENCE LCS-2	Main Propulsion Assistant
2010-2013	SWOS	N71: Training & Simulations Instructor
2014-2015	USS SAMUEL B. ROBERTS FFG-58	Operations Officer
2015-2017	Destroyer Squadron TWO EIGHT	N3: Operations Officer & Staff Director
2017-Present	US Naval Academy	Permanent Military Instructor

DEPLOYMENTS

Dates	Unit	Operation/AOR/Primary Duties
2005-2006	USS COWPENS CG-63	7th Fleet (Operation Foal Eagle, ANNUALEX)/Combat Electronics Officer and Electrical Officer
2006-2007	USS COWPENS CG-63	7th Fleet (Operation Foal Eagle, ANNUALEX)/Auxiliaries Officer
2009-2010	USS INDEPENDENCE LCS-2	2nd Fleet (Pre-Commissioning/Commissioning)/Main Propulsion Assistant
2014-2015	USS SAMUEL B. ROBERTS FFG-58	6th Fleet (Operation Active Endeavor, Operation Jukebox Lotus, Operation Oaken Lotus)/Operations Officer
2015-2016	Destroyer Squadron TWO EIGHT	6th Fleet, 5th Fleet (Operation Inherent Resolve) as part of Carrier Strike Group EIGHT/N3: Operations Officer

EDUCATION

Date	School	Degree Awarded
2005	Tulane University	B.A. (Political Science) Magna Cum Laude
2012	Salve Regina University	M.A. (International Relations)
2017	US Naval War College	M.A. (National Security & Strategic Studies)
2018	University of Maryland: College Park	M.A. (English)
2022	Johns Hopkins University	Ed.D. (Entrepreneurial Leadership) Student

DECORATIONS/PERSONAL AWARDS

Navy/Marine Corps Commendation Medal (3); Navy Achievement Medal (3); Meritorious Unit Commendation Ribbon (1).