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Elements of Scholarly Writing Identified by Writing Center Tutors in the Health Sciences

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Walden University

College of Education and Human Sciences

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Hideki Nakazono

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2023

Abstract

Elements of Scholarly Writing Identified by Writing Center Tutors in the Health Sciences

by

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MA, University of Colorado, Boulder, 2008

BS, University of Wisconsin, Madison, 2004

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Higher Education, Leadership, Management, and Policy

Walden University

August 2023

Abstract

Postsession narrative notes written by professional tutors in a health sciences university writing center had never been analyzed to identify the most common elements noted as subpar in graduate students' scholarly writing. The purpose of this basic qualitative study was to examine these notes to identify the most common elements noted as subpar in graduate students' scholarly writing. The conceptual framework was Bloom's original taxonomy. Hand coding of archival data was used to analyze 300 postsession narrative notes submitted by professional writing tutors during the fall trimester of 2022.

Descriptive first-cycle coding was followed by pattern coding. The five most common elements were flow, style guide related concerns, organization, clarity, and alignment.

Recommendations include that all elements of scholarly writing should be addressed simultaneously, professional writing tutors working with health science graduate students should not prioritize higher over lower order concerns, and predetermined instructional approaches should be secondary to addressing students' individual needs. Findings may be used to improve writing support services to meet the demand for health care practitioners in the United States. Findings may also encourage equitable access for individuals who have faced barriers to obtaining and completing graduate education.

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Dedication

I dedicate this project to my immediate family: Delicia, Isabela, and Hiroki. You were the primary reason that I decided to pursue a PhD, you are my main sources of inspiration and motivation, and I could not have completed my program or this project without your understanding, love, and support. The three of you mean the world to me.

Additionally, I've dedicated my career, and so dedicate this research, to people. Everyone deserves a chance. I promise to continue doing what I can to help.

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Chapter 1: Introduction to the Study

Scholarly writing is the genre of writing that appears in all academic fields (Walden Writing Center, n.d.-b). The ability to write in a scholarly manner is critical in graduate-level health science education. However, students enter many programs with varying levels of writing ability. Some programs do not assess writing as part of their program admission processes (Gazza et al., 2018; Riley, 2019). Students in scientific fields advance their profession by engaging in research, employing evidence-based practices, and disseminating their findings with scholarly writing (Gazza et al., 2018). In addition to varying levels of writerly readiness upon admission to graduate school, doctoral students face increasing expectations to quickly become adept scholarly writers (Tyndall et al., 2019).

High-impact practices to improve scholarly writing are critical in health sciences programs where standards increase during relatively short periods due to program requirements and course loads (Keener et al., 2021). Although scholarly writing skills are considered critical for health science professionals (Gazza et al., 2018), many programs' curricula are saturated, resulting in exclusionary decisions surrounding the depth of topics such as writing (Hooper et al., 2018). The development of scholarly writing at the graduate level often occurs due to the levels of communication required for dissertation research (Tyndall et al., 2019).

Education in the sciences often includes fewer writing requirements than liberal arts degrees; however, graduate programs in the health sciences place an increasing emphasis and expectations on writing (McGurr, 2020). The situation that prompted me to

search the literature is that many tutors in a professional writing center shared their perception that students entering health science graduate programs lack the scholarly writing skills they are expected to have mastered from prior degree programs or experiences (personal communication, September, 2019). To put the situation another way, doctoral students need writing support when their fields demand a high level of writing output (Tyndall et al., 2019).

The present study carries the potential for positive social change by improving writing support services for graduate students in the health sciences to increase the number of professionals needed to meet the increasing demand for health care practitioners in the United States. The study also carries the potential for positive change by improving writing support services for graduate students in the health sciences, which is a strategy that may encourage equitable access for populations of individuals who have faced barriers to obtaining and completing graduate education. This chapter comprises a background section that includes a summary of the research literature related to the scope of the study and an identified gap in the literature on writing center pedagogy. Chapter 1 also includes the problem statement, purpose of the study, and research question. In addition, the chapter contains the conceptual framework, nature of the study, and rationale for selecting the research design. The remaining sections of the chapter are definitions, assumptions, scope and delimitations, limitations, and the significance of the study.

Background

For many academics, scholarly writing is challenging (DeCoux Hampton & Chafetz, 2021; Kensington-Miller & Carter, 2019; Riley, 2019). Writing centers are known to improve course outcomes (Hollywood et al., 2019; Miller, 2020; Savarese, 2021; Self et al., 2020; Trosset et al., 2019; Wilson & Mikita, 2018), and professional writing tutors support the development of scholarly writing (McKinney, 2020). Writing studies have progressed to the point that composition scholars may begin looking to writing center scholarship for a better understanding of writers and writing outside the classroom (McKinney, 2020).

Graduate school attrition and time to degree completion have increased since the early 2000s, and the need for more structured graduate student support led to the rise of graduate-focused writing centers (Summers, 2019). Writing centers wield the capacity to promote literary skills in scientific fields by creating an environment in which students can practice writing with greater intention (Shome, 2019). The logical progression of these layers of awareness results in writing center support for graduate students in scientific fields. However, few formal studies exist on writing centers operating in universities in the health sciences. The literature focused on issues such as faculty support for publication (Wilson & Mikita, 2018). Other articles on the topic focused on the existence of support services (McElroy, 2020; McGurr, 2020).

The problematic elements of writing exhibited by graduate students in the health sciences is an area in which writing center tutors can provide insight. Tyndall et al. (2019) postulated that threshold concepts are central to the mastery of a topic, which is

crucial for the development of writing and learning for doctoral health science students. Tyndall et al. suggested the need for further examination of these writing concepts and what doctoral students in the health sciences seem to have the most difficulty with. Meyer and Smith (1987) established the tradition of categorizing students' errors into higher and lower order concerns. The practice that has continued into contemporary writing center pedagogy (Lawrence & Zawacki, 2019; Wisniewski et al., 2020).

Higher order concerns are elements of writing considered crucial to providing logical understanding, analysis, or synthesis (Reigstad & McAndrew, 2001). Lower order concerns pertain to elements considered crucial toward the technical correctness of language (Reigstad & McAndrew, 2001). Style guide-based formatting is another area where graduate students need support (Conzo, 2019; DeCoux Hampton & Chafetz, 2021; Durham et al., 2019). Although research surrounding the work of writing centers in institutions of higher education has been conducted (Riley, 2019; Savarese, 2021; Self et al., 2020), the postsession narrative notes compiled by professional tutors in a health sciences writing center have never been analyzed to identify the most common elements in which graduate students exhibit subpar writing skills.

Problem Statement

Although researchers have identified problems with scholarly writing among health science students, faculty have yet to agree on how to identify and measure these skills (DeCoux Hampton & Chafetz, 2021). Health science students can address their needs in writing centers, where scholarly writing is concerned, though only 11% of respondents in one study indicated that their medical or health science universities have a

writing center (McGurr, 2020). Ninety percent of visitors to one medical university writing center reported that the center met their needs, and students who visited the center were twice as likely to earn A grades on their assignment of focus (McGurr, 2020). However, more research was needed to determine the elements that professional writing center tutors identify as subpar in health sciences graduate students' scholarly writing.

A gap in the literature that my study was designed to fill was the lack of research on writing centers operating in health sciences universities. Only a few articles existed on student support for writing development for medical or pharmacy students, including dedicated writing centers (McGurr, 2020). Postsession narrative notes written by professional tutors in a health science writing center had never been analyzed to identify the most common elements noted as subpar in graduate students' scholarly writing.

Purpose of the Study

The purpose of this basic qualitative study was to examine the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that were noted as subpar in graduate students' scholarly writing. Professional writing tutors benefit from mentorship, though a lack of support resources is an area of need for the profession (McBride & Rentscher, 2020). Through an analysis of professional writing tutors' postsession narrative notes, this study could contribute to the types of support resources that professional writing center tutors find helpful. The lack of support resources is surprising given that many professionals working in writing centers have academic backgrounds in the humanities, such as

English, that emphasize the value of close reading, and discourse analysis has existed in the profession since its inception (Rymer, 2020).

Research Question

The research question that guided this study was as follows: What are the most common elements identified by professional writing center tutors as subpar in graduate students' scholarly writing?

Conceptual Framework

Bloom et al.'s (1956) *Taxonomy of Educational Objectives* provided the conceptual framework for this study. The taxonomy provided a lens for interpreting the data. The taxonomy was developed as a common language of educational objectives and as a method of improving the exchange of ideas and materials among test workers, people conducting educational research, and those involved in curriculum development (Bloom et al., 1956). The notion of classifying and defining terms such as "thinking" and "problem solving" had been developed to enable groups of individuals in education to discern similarities and differences in the goals identified by educational programs (Bloom et al., 1956). This type of classification served as the conceptual foundation for my examination and analysis of professional writing tutors' postsession narrative notes. The original taxonomy is considered a seminal conceptual text; it was not a research study.

The purpose of my study was to examine the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that were noted as subpar in graduate students' scholarly writing. My

research was initiated through an examination of Bloom's classification system. Bloom's taxonomy is used to categorize and assess students' knowledge in many fields, including health sciences, through writing assignments and other methods (Keener et al., 2021). The key element of the original taxonomy that served as a framework for interpreting the data in the present study derived from its primary objective: facilitating communication (Bloom et al., 1956). A more thorough explanation of the framework appears in Chapter 2.

Nature of the Study

I used a basic qualitative design to answer the research question by examining writing center tutors' postsession narrative notes that provided critiques and recommendations for graduate students' scholarly writing. By original design, the postsession narrative notes were for internal purposes. Their intended purpose was to provide asynchronous contributions to an ongoing discussion among tutors about the scholarly writing issues that tutors identified in each appointment. I made an informal inquiry to the local institutional review board (IRB) in the intended site of the study to determine the feasibility of completing my research. After I had described the nature of my proposed project, the IRB chair at the study site informed me that I would be able to complete my research upon receiving approval from the Walden IRB and submitting the requisite interagency authorization form. The study site IRB also provided a recommendation about how to expedite my request.

When trained for the role, tutors learn to think about and create postsession narrative notes as communications to be shared with other writing tutors in the center.

The notes provide insight and reminders for a tutor should they happen to work with the same students again. The purpose of the postsession narrative notes is to help students develop their scholarly writing skills with the goal of becoming independent scholarly writers operating at the levels expected as graduate degree recipients in their respective fields.

I used a researcher-designed instrument to allow for the analysis of the raw data exported from a health sciences archival database. The data were examined in a manner that aligned with the research question. The basic qualitative design included descriptive coding as a first-cycle analytic process, followed by pattern coding as a second-cycle approach, allowing for the development of categories, themes, and answers to the research question. This approach was expanded with word-frequency content analysis.

A code is a word or short phrase assigned by a researcher to a passage of qualitative data to capture its essence (Saldaña, 2016). Descriptive coding is the process of assigning of words or short phrases when analyzing qualitative data (Saldaña, 2016). These words create an inventory that can be indexed and categorized as a means for assigning meaning to data (Saldaña, 2016). First-cycle coding is the initial process used to derive meaning from qualitative data (Saldaña, 2016). Focused coding is a thematic or conceptual categorization used to identify frequent or significant initial codes for developing salient categories (Saldaña, 2016). Pattern coding is a second cycle of organizing coded data into sets, themes, or constructs that can attribute meaning to data (Saldaña, 2016). Chapter 3 includes a detailed description of how the data were collected and analyzed.

Definitions

The following definitions informed this study:

Composition scholars: Individuals who operate in composition studies focusing on students in courses associated with the instruction of writing (McKinney, 2020).

Composition studies is one branch in the disciplinary field of writing studies (McKinney, 2020).

Health science: An interdisciplinary branch of science that focuses on health problems and outcomes; many careers in the health sciences, such as occupational therapy and physical therapy, require graduate education and certification or licensure beyond advanced degree programs (Kowarski, 2020).

Higher order concerns: Elements of writing considered central to comprehension, understanding, and communicability (Reigstad & McAndrew, 2001). Also referred to as global issues (Ianetta & Fitzgerald, 2016), higher order concerns include elements of writing such as focus, structure, organization, and voice (Reigstad & McAndrew, 2001).

Lower order concerns: Elements of writing that pertain to the superficial appearance or correctness insofar as the standard rules of written English dictate (Reigstad & McAndrew, 2001). These types of errors in writing have also been referred to as later order concerns, suggesting they are less significant elements of writing (Ianetta & Fitzgerald, 2016). Sentence-level or microlevel concerns are synonymous terms in the literature (Ianetta & Fitzgerald, 2016; Lawrence & Zawacki, 2019).

Postsession narrative notes: The observations, critiques, and recommendations for improvement, or the overall summaries written by professional tutors following

writing center appointments. The client report form is the name of the larger record in which the notes are added to the study site's scheduling platform database (Twenty Six Design, n.d.). The professional writing tutors refer to their entries in the research site as wrap-up notes. The recording and tracking of these notes occur in many writing centers (Dadugblor, 2021).

Professional writing tutor: Also referred to as writing specialists, writing center tutors have obtained an advanced degree, often in writing-related fields, and work in a writing center (Marshall et al., 2019). Professional writing center tutors are employed in writing centers to support writers engaging in varying fields and environments with complex writing tasks (McKinney, 2020).

Purposeful sampling: A strategic selection process that yields context-rich and detailed data (Ravitch & Carl, 2021).

Scholarly writing: Also known as academic writing, it is the genre of writing that appears in all academic fields (Walden Writing Center, n.d.-b). Scholarly writing is the expected genre of writing that surrounds academic publication, which is essential for disseminating knowledge and advancing science (Payakachat et al., 2021).

Scientific literary skills: A student's ability to communicate their ideas in writing and to understand the implications of scientific communications (Shome, 2019).

Writing center scholarship: The scholastic domain of writing center professionals who seek to support students as writers not only in association with composition studies but across all disciplines in which writing takes place, including in graduate schools (McKinney, 2020).

Writing center sessions: Also referred to as sessions, these are scheduled appointments that take place between a student and a writing tutor for a set duration of time in the defined settings of an institutional writing center (Dadugblor, 2021).

Writing studies: The discipline concerned with writing in all forms, mediums, locations, processes, technologies, and contexts (McKinney, 2020).

Assumptions

In the secondary analysis of archival institutional data, I assumed that the postsession narrative notes were completed honestly and accurately for their original intent to support students' scholarly writing progress and development. I also assumed that the data set was representative of the students visiting the health sciences institution that was the subject of the study.

Scope and Delimitations

The study site writing center, which operates in a graduate level health sciences university, was chosen for the present study because of the data-rich archive that corresponded with the gap identified in the study: the lack of research on postsession narrative notes written by professional tutors in a health sciences writing center to identify the most common elements that were identified as subpar in graduate students' scholarly writing. The scope of the study allowed for a focused analysis of all postsession narrative notes developed in the selected writing center.

The scope of the study kept the data set manageable for the study, an aspect of the design that researchers must be mindful of to yield useful findings (Burkholder, 2016). All postsession narrative data obtained from the fall 2022 term in the health sciences

university were included in the study. The data were deidentified to maintain confidentiality. The professional writing tutors who supplied the data were not the subject of inquiry. The focus was not on the professional writing tutors but on the postsession narrative notes obtained from the writing center, which supported the transferability of the findings. All postsession narrative notes from the time period were considered. To keep the data set manageable given that there were many entries collected across the trimester, I selected the 300 most data-rich postsession narrative notes. This selection set led to a theoretical saturation of data. A detailed description of the data collection process appears in Chapter 3.

Limitations

A challenge I faced was that I was the director of the writing center where the archival data were obtained. I needed to be mindful and transparent about my bias so that findings would be derived from the data. Document analysis included no human participants, and I requested another university employee to export the data and deidentify them before sending them to me for analysis. Deidentification involved removing the names of the tutors who completed each review and the students who received support. This degree of anonymity ensured that the data were reviewed without bias and kept the research focused with a broader review of the narrative notes, as opposed to narrowing down data analysis to the level of individual tutors or students.

My time working with students in a tutorial capacity was much less than the other tutors; my appointments comprised less than 5% of the total reviews that occurred each year. The Walden IRB office hours provided the opportunity to ask whether the inclusion

of my postsession notes in the study would constitute an ethical concern. The reviewer explained that there was no concern because another employee deidentified the data. Furthermore, because the data were created for business purposes and not for the current study, I was informed there would be no conflicts of interest arising from including the data.

Deidentifying the data constituted another potential limitation of the study. Because data were deidentified, patterns could not be associated with any individuals. Another potential limitation may be that the study focused on the notes with the most data-rich submissions. The coding of the data and the ensuing categorization that took place resulted in a reorganization of the materials that led to unbiased and credible results.

Significance

Further studies are needed to explore how to improve scholarly writing among students in health science fields (Riley, 2019). The current study is significant in that findings may contribute to the policies and practices of the local site. The results may help practitioners learn the elements of scholarly writing that professional tutors should be most prepared to help students develop. This information may be beneficial not only to tutors and students at the local site but also to other health sciences programs with a writing center or health science programs considering establishing a writing center. This study may inform a training module or professional staff development project for working in a health sciences graduate writing center. Furthermore, the study may contribute to the advancement of knowledge in the field of writing center pedagogy and

support services for health sciences institutions operating at the graduate level. The findings may inform more efficient practices and approaches supporting the development of scholarly writers through support services such as writing centers.

The potential for positive social change beyond the programs is substantial and twofold. First, there is a growing need for health care practitioners in the United States (Almeida et al., 2019; Figueroa et al., 2021; Hamlin, 2022; U.S. Bureau of Labor Statistics, 2022). Health care writing centers help students succeed in their respective fields (McGurr, 2020). Second, writing centers allow students who may have struggled with scholarly writing to reach the expected levels associated with their respective degrees (Monty, 2022). Some studies demonstrated correlations among socioeconomic factors, race, and success in higher education, including admittance and beyond (Boliver, Banerjee, et al., 2022; Boliver, Gorard, & Siddiqui, 2022; Conwell & Quadlin, 2022). Writing centers help students who have faced economic disadvantages (Monty, 2022), racism (Basta & Smith, 2022), or other forms of marginalization (Bunting, 2022).

Summary

Graduate writing centers must adapt to the institutions they serve, paying particular attention to the needs of their students (Summers, 2019). Given how little was written about graduate-level health science university writing centers, there was a need to learn what observations professional tutors make about the students they tutor in such a center. The current study's potential social benefits include improving writing support services for graduate students in the health sciences and the ensuing increase in the number of health care practitioners, an area of increasing demand in the United States.

A gap in the literature that my study was designed to fill was the lack of research on writing centers operating in health sciences universities. The research problem addressed through this study was the postsession narrative notes written by professional tutors in a health science writing center had never been analyzed to identify the most common elements that were identified as subpar in graduate students' scholarly writing. Bloom et al.'s (1956) *Taxonomy of Educational Objectives* provided the conceptual framework for this study. A basic qualitative design was used to answer the research question through an examination of archival documents comprising writing center tutors' postsession narrative notes that provided critiques and recommendations for graduate students' scholarly writing.

The study site writing center, which operates in a graduate-level health sciences university, was chosen for the study because of the data-rich archive that corresponded with the identified gap in the literature. Because I was the director of the writing center in question, I needed to be mindful and transparent so that I would analyze the data objectively. Findings of the study may be used to improve the practices in the local site, support the development of writing centers in other health sciences programs, and advance the knowledge surrounding writing center pedagogy in support of graduate students working in health science fields. Chapter 2 includes a review of the literature and a more thorough description of Bloom's taxonomy.

Chapter 2: Literature Review

Doctoral students must elevate their scholarly writing skills to the levels expected in their professions (Keener et al., 2021; Tyndall et al., 2019). This expectation exists in the health sciences because of the importance of efficiently sharing information, advances, and data obtained from scholarly research. The benefit of academic support designed for graduate students is apparent, and services intended for this purpose are prevalent in more university settings than ever before (Aldrich & Gallogly, 2020; Lawrence & Zawacki, 2019).

More research on graduate-level writing support is needed (Medvecky, 2021; Self et al., 2020). There is a lack of support resources for professional writing tutors (McGurr, 2020), and there is little agreement among faculty working with health science students about how to identify the skills needed for health science students to reach the levels of scholarly writing expected in these professions (DeCoux Hampton & Chafetz, 2021). Writing center postsession notes present the opportunity to examine scholarly writing through textual analysis (Dadugblor, 2021). The research problem addressed in the current study was that the postsession narrative notes written by professional tutors in a health science writing center had never been analyzed to identify the most common elements that were identified as subpar in graduate students' scholarly writing.

Scholarly writing is dependent on understanding fundamental writing skills, knowledge of rules about written English, and more advanced elements such as critical evaluation and synthesis (DeCoux Hampton & Chafetz, 2021). Graduate students in health science programs often suffer from poor writing that exhibits a lack of

understanding of the fundamental elements of writing and the more advanced components (Durham et al., 2019). The need for support for the development of scholarly writing for students is important for health sciences professionals (Gazza et al., 2018; Keener et al., 2021; Riley, 2019; Tyndall et al., 2019).

This chapter begins with a description of the strategy for collecting scholarly articles in preparation for the current study, followed by an overview of related published research in academic journals. This review of the literature includes the separation of categories into three types: higher order concerns, lower order concerns, and format. The conceptual framework that provided the analytic lens for the project also is explained. Finally, the chapter includes a description of the categories to consider in examining the professional writing center tutors' postsession notes.

Literature Search Strategy

The keywords searched included *scholarly writing* AND *data analysis*, *writing center* AND *health sciences*, *Bloom's taxonomy* AND *qualitative analysis*, *andragogy* AND *qualitative analysis*, and a more comprehensive review of the search term *writing center*. Searches took place in the Walden Library databases and library databases from the health science university that served as the site for the study. The search parameters were full text and peer-reviewed scholarly journals only, and searched items were initially limited to academic journals published from 2017 to 2021. This range was current when I began collecting articles during the early development of my study. However, I recognized that the recency of my older articles might push them outside of what might be considered current by the time my study would be published. After that,

the range for articles shifted to 2019–2022. The search was expanded to older but relevant publications when no recent research existed.

Walden Database Search

Using the search criteria resulted in the following yields in the Walden Library databases: *scholarly writing* AND *data analysis* produced 94 results. *Writing center* AND *health science* yielded only one result. *Bloom's taxonomy* AND *qualitative analysis* yielded 16 results. *Andragogy* AND *qualitative analysis* produced 74 results.

The more comprehensive search of the term *writing center* yielded 1,298 articles. To limit this search, further limiting terms were introduced using Boolean operators. The search *writing center* NOT *ELL*, NOT *ESL*, NOT *international*, NOT *multilingual*, NOT *antiracism* produced 758 results.

Health Sciences University Library Database

Using the following search criteria resulted in smaller yields from the library databases in the health sciences university that was the subject of study. *Scholarly writing* AND *data analysis* led to 134 results. *Writing center* AND *health science* produced seven results. Among the articles obtained, any research that focused on irrelevant topics was taken out, such as ESL (English as Second Language) learning, elementary or high school education, or fields that were distantly related. There were also duplicate studies that needed removing.

Additional Resources

The initial review of articles led to additional recent articles of interest in academic, peer-reviewed journals or well-regarded books in the scholarly community.

Despite being written about projects relevant to my research, many of these articles did not include terminology that led to their inclusion in the searches. Nonetheless, these additional articles and books helped round out a more thorough and complete review of the recent published literature on the topic.

Conceptual Foundation

The original version of Bloom et al.'s (1956) *Taxonomy of Educational Objectives*, often referred to as Bloom's taxonomy, served as the conceptual foundation for the study. Taxonomies, notably through the example of biological taxonomies that permit classification (e.g., kingdom, phylum, class, etc.), are a means for communicating the organization and relationship among various components in a particular environment or system (Bloom et al., 1956). Bloom's taxonomy classified goals in the education system (Keener et al., 2021). The theory is helpful for educators analyzing outcomes in the cognitive areas of remembering, thinking, and problem solving (Bloom et al., 1956).

The original Bloom's taxonomy provided thoroughly developed and detailed descriptions of six primary categories in the cognitive domain (Sobral, 2021). The categories are knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom et al., 1956). The original taxonomy ordered the categories from the lowest to the highest degree of complexity (Dunn & Moore, 2020). Additionally, the seminal researchers responsible for the revised taxonomy described the taxonomy as moving from concrete to abstract (Krathwohl, 2002). The more detailed scope of the original taxonomy contained depth and nuance that were thought to be beneficial to interpreting the themes by coding and categorizing in the current study. On the other hand, the revised version

demonstrates more clarity (Forehand, 2010). This clarity may result from simplifying the categories, which is beneficial in certain contexts. For example, a guide in the Vanderbilt University Center for Teaching site, which caters to K–12 and college education, indicated that the revised taxonomy draws attention away from educational objectives in favor of action words (Armstrong, 2010). The Vanderbilt Center for Teaching guide highlighted the Forehand (2010) text, which stated that the revised taxonomy is helpful for teachers and is included in the State of Georgia K–12 Technology Plan and the Omaha Public Schools Teacher’s Corner. This distinction indicated that the complexity of the original taxonomy was the best choice for the study of graduate students.

The conception of one of the main categories in the original taxonomy (*synthesis*) appeared better suited to an analysis of professional writing tutors’ observations than its replacement in the revised version (*create*), which is a term that seems better suited for hands-on activities. In the 1956 version, Bloom et al. defined *synthesis* as “the putting together of elements and parts so as to form a whole” (p. 206). The category *create*, on the other hand, was linked with actions such as generating, planning, and producing (Armstrong, 2010). The remaining categories took on verb forms (Ulum, 2021). Moreover, the older version is still relevant in academic research. The original exists in a parallel position to the revised taxonomy. Both versions appear in contemporary research literature. Some examples of contemporary research using the original taxonomy include Chandio et al. (2021) and Sheguf and Alhaj (2022). Current research using the revised taxonomy includes Wang (2022) and Ragonis and Shmallo (2022).

The handbook can be helpful for its recommendations for measuring each class of objectives. In the context of the present study, the classification process in the original taxonomy aided in the interpretation of findings based on the coding categories and themes assigned to the postsession narrative notes developed by professional writing center tutors in a health sciences graduate university. Each of the six primary sections of the original Bloom's taxonomy contains elements that were considered useful for interpreting the categorizing and theming the areas of student deficit identified by professional writing center tutors.

The present study also benefitted from prior research on Bloom's taxonomy because the taxonomy needed to be more accurate in some cases. For example, some medical educators developed assessments for their students with categorizations of higher and lower order level skills as developed by Bloom's taxonomy (Monrad et al., 2021). However, faculty and students had different interpretations of what constitutes higher and lower order skills (Monrad et al., 2021). The present study benefitted from previous research of this sort. An analysis of professional writing tutors' postsession notes led to the identification of problematic elements in scholarly writing, with interpretations compared against the types of classification that appear in Bloom's taxonomy.

Knowledge

The taxonomy describes *knowledge* as the collection of information surrounding a topic that an individual can bring forward from memory; the mastery of this information is such that the material is understood even amid a reorganization therein, as well as the process of relating that information in various situations (Bloom et al., 1956).

Memorization, in Bloom's taxonomy, is associated with the categorical identifiers of remembering and understanding, which are categories that do not fully translate into knowledge or create bridges for practical application in clinical contexts (McHugh et al., 2021).

Knowledge of Specifics

The *knowledge of specifics* entails recollecting pieces of information associated with symbols and concrete referents (Bloom et al., 1956). In this category is the *knowledge of terminology*. This information refers to knowledge surrounding specific referents or understanding the lexicon association with varying subjects.

Knowledge of Ways and Means of Dealing With Specifics

This type of knowledge pertains to the patterns of organization in subjects and how these are determined (Bloom et al., 1956). *Knowledge of ways and means* includes the knowledge of conventions, trends and sequences of criteria, and methodology. *Knowledge of conventions* refers to the accepted rules and standards established by an arbitrary or authoritative basis retained because of general agreement in a field. The *knowledge of trends and sequences* includes the recognition of shifts in conventions concerning time. The *knowledge of criteria* is information about how the assessment of facts or ideas occurs. *Knowledge of methodology* refers to knowledge surrounding the gathering of data.

Comprehension

Comprehension refers to an individual's ability to understand a communicated idea (Bloom et al., 1956). The categories of comprehension included in the taxonomy are

translation, interpretation, and extrapolation. *Translation* is a demonstration of understanding on such a level that the contents of a communication can be paraphrased or rendered from one language into another. *Interpretation* involves broadening or summarizing ideas, perhaps through presenting a new view of the material. *Extrapolation* pertains to the extension and application of trends observed in given data to determine implications, corollaries, and effects.

Application

Application refers to using concepts, ideas, and abstractions in practical or real-life situations (Bloom et al., 1956). These abstractions may exist as general ideas, rules of process, or general methods. Abstractions can include technical principles or theories that must be remembered and put into practice.

Analysis

Analysis refers to the separation of communication elements, making the relationship or hierarchy among parts apparent (Bloom et al., 1956). The *analysis of elements* refers to identifying the various elements in a communication. The *analysis of relationships* brings the focus of analysis to the relationships among the elements. In contrast, the *analysis of organizational principles* refers to the systematic structuring of language that holds the structure together.

Synthesis

Synthesis refers to bringing elements together to form something new (Bloom et al., 1956). Considerations of synthesis include the *production of a unique communication*, which refers to the development of writing intended to convey ideas or

experiences. The *production of a plan or proposed set of operations* entails creating an intentional, organized approach to satisfy expectations placed on students.

Evaluation

The final category presented in the original taxonomy, *evaluation*, pertains to a person's ability to determine the value of an object against its intended purpose (Bloom et al., 1956). *Judgments in terms of internal evidence* include logical accuracy and consistency considerations. *Judgments in terms of external criteria* appear based on a self-designed set of standards or expectations.

Literature Review Related to Key Concepts

Scholarly writing is elusive and challenging to master. The complexities of scholarly writing are determined by nuance as often as by rules, which becomes apparent when considering the myriad definitions accompanying the concept of scholarly writing. There are several descriptions of what scholarly is, what it entails, and what it is not. One description of scholarly writing in the health sciences suggested that it includes synthesizing original thought and support from a body of literature, field-specific knowledge, formal terminology, and formatting standards consistent with peer-reviewed journals (Gazza et al., 2018). Scientific, scholarly writing depends on fundamental writing skills such as grammar, word choice, and organization, though the selection of references, critical evaluation of those articles, and synthesis are equally important (DeCoux Hampton & Chafetz, 2021). Poor writing, insufficiency of detail, lack of clarity, inappropriate referencing, illogical progression of ideas, and inadequate synthesis are

areas of deficit in graduate (master's and doctoral level) health science programs (Durham et al., 2019).

Whether attempting to categorize scholarly writing by evaluating what it is or by determining what it is not, there appear to be several elements present in the genre. Genre specialists define a genre by the overall purpose of a text and its communicative context (Flowerdew, 2020). Furthermore, the rhetorical patterning in a genre reflects the discursive intention of the participants in a community (Flowerdew, 2020). Scholarly, also called academic, writing falls in the genre of research publication. Researchers focusing on the textual analysis of writing center postsession notes has shown that the artifacts carry the potential to provide insight into phenomena surrounding scholarly writing, as demonstrated by patterns (Dadugblor, 2021; Giaimo & Turner, 2019; Modey et al., 2021). In one study, patterns appeared in tutors' postsession notes through the definition of concerns brought forward by visiting students, the expressed strategies used to achieve the concerns, and the recap provided of the agreed-upon approaches for improving the writing tasks surrounding the concerns (Dadugblor, 2021).

The need for support with the development of scholarly writing by students in the health sciences is not a surprise, given the immense scope of rules, recommendations, and guidelines. This notion is evident when considering the increasing importance of scholarly communication in the health sciences (Gazza et al., 2018; Keener et al., 2021; Riley, 2019; Tyndall et al., 2019). Most health science students have backgrounds in physical or life sciences rather than in the liberal arts. Liberal arts education seems to include a heavy focus on writing and communication. One study on factors related to

scholarly writing showed that even among faculty in the health sciences, mastery of the English language was a perceived barrier to publication (Payakachat et al., 2021). Respondents in the high publication category were more likely (29.4%) to hold a PhD degree than those in the low publication category (4.9%; Payakachat et al., 2021). This evidence appeared to demonstrate that mastery of scholarly writing is elusive, even at the highest levels of academia in the health sciences.

Writing centers are known to improve course outcomes (Miller, 2020; Savarese, 2021; Self et al., 2020; Trosset et al., 2019). In one study, students who completed a review with a writing center tutor demonstrated a 14.7% higher final score than those who did not (Self et al., 2020). Professional writing tutors support the development of scholarly writing (McKinney, 2020). Professional writing tutors are, perhaps, the most qualified individuals for recognizing the most common elements that require instruction when working with graduate students in a health science writing center. The recording of events by a tutor following a writing center session is a common practice in writing centers across the United States (Giaino & Turner, 2019; Modey et al., 2021). However, much of the research surrounding writing center postsession notes focused more on how different audiences interact with these notes rather than the content they contained (Giaino & Turner, 2019).

There was a longstanding notion among writing center professionals that the records produced for one writing center are different from those produced for another (Gofine, 2012). However, a contemporary study centered around postsession writing center notes found that there are frequently similar motivations for data collection among

different writing centers, which often result in similar data (Modey et al., 2021). The study included examining a cross-institutional survey of 61 different writing centers completed in institutions that varied in several factors, such as size, demographics, and mission. The focus was on how different centers used their notes, the different forms used for collection, the motivations that led to the collection of notes, and the institutional and scholarly purposes for their development. Ninety-three percent of respondents to the survey reported using session notes, 83% reported that postsession note development training was provided to staff (Modey et al., 2021).

In response to the lack of research on the content of writing center postsession notes, one longitudinal discourse analysis of 1,261 postsession notes appeared (Giaino & Turner, 2019). The postsession notes were coded with 12 variables for analysis; however, the focus of this study related to the behavioral, semantic, and affective aspects of writing center tutoring (Giaino & Turner, 2019). The results included that writing center tutors demonstrated similar patterns in their postsession notes, regardless of their rank in the institutions they worked for, after at least one semester of employment (Giaino & Turner, 2019). Studies have shown that the patterns appearing in postsession notes carry potential insights into phenomena surrounding scholarly writing (Dadugblor, 2021; Giaino & Turner, 2019; Modey et al., 2021).

According to DeCoux Hampton and Chafetz (2021), writing skill development among nursing students was a topic of interest that appeared in the literature, yet the specifics surrounding this skill development were poorly defined and assessed. Students in DNP programs have expressed anxiety and confusion created by inconsistent

messaging from faculty and mentors, while faculty have expressed concerns about students' ability to synthesize literature and write with clarity and brevity (Durham et al., 2019). Furthermore, many faculty members needed clarification about the projects and their role as mentors for the students (Durham et al., 2019). In their cross-sectional descriptive analysis of 27 DNP project papers, DeCoux Hampton & Chafetz (2021) applied a standardized essay writing rubric that focused on critical response, development, structure, language use, and grammar. From within these categories, critical appraisal, the use of secondary sources, and concise presentation were areas of deficit. This subpar standard, though, was not always apparent until compared against a scientific writing assessment that had been developed by the principal investigator (DeCoux Hampton & Chafetz, 2021).

Rubrics for Doctor of Nursing Practice (DNP) students often do not include a complete set of scientific writing skills, a distinction of skills, clearly explained performance standards, or applicability throughout courses and programs (DeCoux Hampton & Chafetz, 2021). Nonetheless, despite this apparent lack of clarity, there are lofty expectations surrounding graduate-level writing in the health sciences (Gazza et al., 2018; Keener et al., 2021; Riley, 2019; Tyndall et al., 2019). The primary objective of scholarly writing, and the features that lead to its differentiation from commercial or creative writing, is to inform rather than entertain (Gillett, 2021). The elements of scholarly writing discussed in the next three sections are as follows: higher order concerns, lower order concerns, and format.

Higher Order Concerns, Lower Order Concerns, and Format

According to the American Psychological Association (APA, 2020), effective scholarly writing is clear and succinctly communicates ideas in an orderly manner (p. 111). The 7th edition of the *Publication Manual of the American Psychological Association* guides the four qualities that the APA establishes as necessary for achieving effective scholarly writing: flow, continuity, clarity, and conciseness (p. 111).

In “Part II · Style and Usage” of the 17th edition of the *Chicago Manual of Style* (University of Chicago Press [UCP], 2017), a rather amusing preamble to the elements of grammar is provided, which helps succinctly frame the difficulties that surround the field of writing: On the one hand, in describing the field of grammar, the manual includes that, in the usual sense, grammar can be considered the rules that determine how words connect to communicate ideas (p. 225). On the other, in the description of schools of grammatical thought, the authors succinctly quip that, when it comes to grammar, “It seems that the more we learn, the less we know” (p. 225). The section explains that the more detailed a grammar manual becomes, the less beneficial it is for most writers (UCP, 2017). Of course, despite their witticisms about the difficulty of providing practical guidance about writing in the form of a style guide, the manual then proceeds to provide over 1,100 pages of the rules and many nuances surrounding the elements of writing.

The 11th edition of the *AMA Manual of Style* (American Medical Association [AMA], 2020) is another prominent style manual in contemporary health sciences scholarship. The manual includes extensive rules on virtually every aspect of writing intended to promote the dissemination and furthering of research findings and scholarly

pursuits. The comprehensive manual extends to over 1,200 pages, including two pages filled with resources identified as additional potential sources for General Style and Usage, Medical/Scientific Style and Usage, and Writing (AMA, 2020, pp. 1149–1150).

Despite the myriad styles of resources available, students in the health sciences demonstrated deficiencies in citations, grammar, and punctuation (DeCoux Hampton & Chafetz, 2021). Improved organization, communication, confidence, and critical thinking were additional areas that scholarly writers were encouraged to develop (Riley, 2019). Some other main writing features identified include complexity, formality, precision, objectivity, explicitness, accuracy, hedging, responsibility, organisation [*sic*], and planning (Gillett, 2021).

Meyer and Smith (1987) developed a model for supporting adult writers in educational settings. The approach for their instruction prioritized categories such as ideation, the formation of concepts, and the shaping of papers, cascading down to superficial components such as punctuation and spelling (Meyer & Smith, 1987). Reigstad and McAndrew (2001) later coined the earlier elements in that approach as higher order concerns, elements defined as “central to the meaning and communication of the piece...matters of thesis and focus, development, structure and organization, and voice” (p. 42). Higher order concerns, also referred to as global issues, are those elements that have to do with writing, its overall effect, and communication (Janetta & Fitzgerald, 2016). Lower order concerns, conversely, were defined as “matters related to surface appearance, correctness, and standard rules of written English” (Reigstad & McAndrew, p. 56). Lower order concerns are also referred to as sentence-level concerns because of

their connection to smaller units of construction and matters of readability (Ianetta & Fitzgerald, 2016).

Given the tradition in writing center pedagogy that has developed since Meyer and Smith (1987) published *The Practical Tutor*, of moving from higher to lower order concerns, the topics included in the next section of this literature review progress similarly, moving finally to the topic of format. The categories of higher concerns considered for this current study, based on concepts identified as of central importance in the literature, include comprehension, critical appraisal, paraphrasing, primary sources, organization, and tone. Subsections in the heading of lower order concerns included grammar, vocabulary, and lower order concerns and graduate students. The format heading included considerations concerning style guide-based formatting, the aesthetic elements of writing, and major graduate student projects.

Higher Order Concerns

Comprehension

An aspect of comprehension, for both readers and authors, has to do with clarity. A scholarly writer is responsible for demonstrating that any text they have read and drawn from for supporting evidence is comprehensively understood (Gillett, 2021). Simultaneously, a scholarly writer must clarify how various text parts are related (Gillett, 2021). Responsibilities of this sort may lead to the categorization of scholarly writing as complex. Issues of clarity and comprehension appeared in studies conducted on students writing across the health sciences (Buck et al., 2021; Durham et al., 2019)

Despite the complexity often used to characterize scholarly writing, The *Publication Manual of the American Psychological Association* explained that scientific writing should be formal, professional, clear, and straightforward (APA, 2020). Scholars argued that the primary objective of scientific research is to communicate one's findings; however, a researcher's data is only meaningful if the audience can correctly interpret what the author has in mind (Gopen & Swan, 1990). Unfortunately, clarity is an area identified as subpar for some doctoral students in the health sciences, even when they develop their capstone projects (Durham et al., 2019). Scholarly writing skills allow for the effective and succinct sharing of professional information and research findings (Riley, 2019), and professional writing tutors should strive to help develop this skill for graduate-level writers in the health sciences.

Critical Appraisal

Critical appraisal is an outcomes-based writing approach that is crucial for mastering writing skills sustained over time (Tyndall et al., 2019). An author's ability to think critically is associated with their writing self-efficacy and understanding of the role of a scholarly writer (Cheung et al., 2017; Riley, 2019). Authorial identity is the feeling a writer has about themselves as a writer and the identity they create with their writing (Cheung et al., 2017). Unfortunately, critical appraisal was an area found to be lacking in many papers considered in the DeCoux Hampton and Chafetz (2021) study of DNP students' writing, with most students defaulting to mere summary of articles.

Paraphrasing

Paraphrasing is an effective strategy in writing intended for publication because it allows scholarly writers to summarize and synthesize multiple sources (APA, 2020). In a study on the effectiveness of asynchronous writing center tutoring, paraphrasing categorized as a meaning-preserving surface change (Buck et al., 2021). The study utilized Faigley and Witte's taxonomy of revision changes, which the authors found appropriate because it allowed for a comparison of writing tutor's comments and the ensuing revision made by the student (Buck et al., 2021).

Scholarly authors should strive to paraphrase to allow the focus to remain on the significant information from one or more sources pertinent to the writing at hand (APA, 2020). Argumentative synthesis requires students to integrate multiple points of view into a singular overarching viewpoint (Mateos et al., 2020). Furthermore, it is the academic writer's responsibility to make a reader understand how the various parts of a text are related (Gillett, 2021). Synthesis requires (a) comprehension of sources, (b) the finding and selecting of information from multiple sources, (c) the comparing or contrasting of information into the elements that connect them, and (d) the integration of information into a unique text in support of an argument (Mateos et al., 2020). In their secondary analysis of data collected during an intervention study, researchers found that synthesis relies upon a knowledge-transforming learning process (Mateos et al., 2020). Because of this complexity, synthesis is considered the most demanding aspect of scholarly writing (Mateos et al., 2020). Synthesis was an area of concern for graduate student writers

(DeCoux Hampton & Chafetz, 2021; Durham et al., 2019; Hyytinen et al., 2017; Santelmann et al., 2018).

Beyond the difficulty of successful synthesis in scholarly writing, accidental plagiarism may occur where the underlying cause has more to do with a misunderstanding about synthesizing literature or paraphrasing in a scholarly manner. Such was the scope of this misunderstanding that behaviors some students considered unethical, immoral, or academically dishonest behaviors were considered normal by others in health sciences programs (Ewing et al., 2019). Simply put, some students did not know the limits of acceptable behavior (Ewing et al., 2019). This misunderstanding may be rooted in a less than satisfactory understanding by graduate students about paraphrasing and synthesizing.

Primary Sources

Scholarly writers are responsible for any claims made, all of which must be grounded in published evidence (Gillett, 2021). DeCoux Hampton and Chafetz (2021) identified the use of secondary sources as a recurrent issue exhibited in Doctor of Nursing Practice (DNP) students' capstone papers. In their cross-sectional, descriptive investigation of 27 DNP papers, 87% of faculty expressed varying degrees of dissatisfaction with the scholarly writing exhibited in final DNP projects, and the use of secondary sources was a misstep that appeared consistently (DeCoux Hampton & Chafetz (2021). This occurrence appears to persist in scholarly writing despite the APA's (2020) explanation that good scholarly practice includes locating and discussing primary sources (p. 258). Research and writing should be considered intertwined processes

(Albanese & Fena, 2021). Nevertheless, information literacy only occurred in a mere 13% of writing center consultations (Albanese & Fena, 2021).

Organization

Scholarly writing depends upon intentional and logical planning, with ideas flowing from one to the next (APA, 2020), often in a fashion consistent in a genre (Gillett, 2021). Approaches to organizing information have attracted attention in the literature on graduate-level education (Cahusac de Caux, 2021), and organization is considered a fundamental component of scientific writing (DeCoux Hampton & Chafetz, 2021; Riley, 2019). Unfortunately, wordiness, redundant presentation of ideas, and repeated information in multiple paper sections were issues of concern in graduate-level writing in the health sciences (DeCoux Hampton & Chafetz, 2021). Organization was a skill in which DNP students only earned an average of 80% of the total potential points in their end-of-program projects (DeCoux Hampton & Chafetz, 2021). Well-formatted and clearly labeled headings can aid readers of scholarly writing (APA, 2020), and including level headings is often practiced in the classroom and publication intended writing in the health sciences.

Interestingly, students only sometimes appear to recognize organization as a significant element in scholarly writing. In a study examining students working on scientific master's theses and the feedback they receive, experts in the varying disciplines attempted to emphasize the organization of content in their feedback, and yet most students perceived that the very same feedback focused on language and style (Eriksson & Nordrum, 2018). In their interviews about what was important and difficult about

writing, none of the graduate student participants identified organization among their feedback (Eriksson & Nordrum, 2018). Additionally, the perception of some undergraduate students was that writing center tutors do not work on areas of writing such as organization (Trosset et al., 2019).

Structure is an element of organization that occurs at the sentence or local level. Buck et al. (2021) included structure as surface changes, also known as a lower order concerns. These changes related to understanding, as compared with text-based changes that alter the meaning of a sentence, paragraph, or paper (Buck et al., 2021). Structure appeared in three categories at the most basic sentence levels: noun phrase-based, prepositional phrase-based, and verb phrase-based expressions (Nam & Park, 2020). Successful communication of scientific ideas was greatly enhanced when authorial decisions met a reader's expectations for prose structure; purposeful language presentation improved comprehension (Gopen & Swan, 1990).

Tone

Tone is an element of scholarly writing that many find difficult to master, perhaps because the concept is nebulous and takes on different considerations in different genres. Written language is often more complex than spoken, and scholarly writing is frequently considered more formal than other genres (Gillett, 2021). Of course, the purpose of scientific writing, and the genre of publication, is often to share research findings and disseminate knowledge. Thus, scholarly writing ought to be delivered straightforwardly, though this does not mean that writing in the genre should lack style or be dull (APA, 2020). On the contrary, scholarly scientific writing should be interesting and compelling

yet convey formality and professionalism (APA, 2020). Brevity, an element of tone in writing style, has also been identified as subpar in some cases in doctoral health science programs (Durham et al., 2019).

Teaching tone was more effective when writing instructors or tutors understood the connection between a scientific genre's purpose and the writing structure that best supported that purpose (Rollins et al., 2020). Tone more likely improves when a writer is familiar with the common lexicon in a genre. Scholarly writing contains notable patterns and objectivity that result in similarities across publications in the health, natural, and social sciences (Bada & Ulum, 2018). In the social sciences, the active voice appeared much more frequently than the passive (a 74:25 ratio), while in natural and applied sciences this ratio was only 60:40, respectively (Bada & Ulum, 2018). In the health sciences, there was nearly an even ratio (51:49) of active to passive construction (Bada & Ulum, 2019). Though still true to the fashion that Strunk and White' (1979) described in their early and influential *Elements of Style* (initially published in 1918), writers should "avoid fancy words" (p. 79) otherwise identified as elaborate, pretentious, coy, and cute. In a more modern context, the APA (2020) explained that scientific scholarly writing should be imagined for a reader conducting research in a particular field, yet one who is not necessarily familiar with jargon or insider perspectives. Nevertheless, despite recommendations of the sort, the use of jargon along with colloquial words and phrases was a formal grammatical error committed by 76.1% of scholarly writers in a study on authors writing at the dissertation level and beyond (Onwuegbuzie, 2017).

Lower Order Concerns

Many believe that the difficulty often associated with scientific writing arises from the complexity of scientific topics. However, Gopen and Swan (1990) demonstrated that several rhetorical principles led to clear communication without oversimplifying the scientific matter. Microlevel level or lower order concerns were among the elements identified as important areas for writing center teaching (Lawrence & Zawacki, 2019; Wisniewski et al., 2020). These concerns included aspects of writing such as grammar and vocabulary (Wisniewski et al., 2020). Grammar was an issue in scholarly writing through the graduate level and beyond (Wisniewski et al., 2020). Program directors in DNP degree-seeking programs identified writing deficiencies in ranges from 5% to nearly 100% of their students (DeCoux Hampton & Chafetz, 2021). In one study, at least two of the 35 most common errors in formal journal submissions intended for publication appeared in over 75% of submitted articles (Onwuegbuzie, 2017). When working with writing centers, it was not uncommon for students to request support for lower order concerns such as grammar, even as specific as known errors such as comma splices (McNeal & Gray, 2021).

Grammar

Writing instructors sometimes believe lower order errors persist in the realm of scholarly writing that can be improved or corrected through proofreading (Willard, 2017). Similarly, incorrect grammar and “careless” (p. 117) sentence construction can create confusion, distraction, or unclear communication (APA, 2020). Grammar and usage concerns, thus, are considered in this study among the types of concerns identified

as lower order. These elements of writing are frequently considered in research revolving around scholarly writing. One review examined the effectiveness of asynchronous writing tutoring for university students across undergraduate subjects and identified that 20.6% of comments, the second highest category percentage among the findings, were related to elements of grammar (Buck et al., 2021).

The *Publication Manual of the APA* (2020) separates grammar and usage into categories based on errors that often appear in papers submitted to academic instructors and editors of journals. The first is verbs, which include verb tense, active and passive voice, mood, and subject-verb agreement. Active versus passive verb usage is a topic that garners attention in the sciences, with distinct patterns appearing for the ratio of these constructions in natural, applied, social, and health sciences research (Bada & Ulum, 2018). The second category, pronouns, comprises first- versus third-person pronouns, editorial “we,” singular “they,” pronouns for people and animals, pronouns as subjects as objects, and pronouns in restrictive and nonrestrictive clauses. The third category is sentence construction, which includes subordinate conjunction, misplaced and dangling modifiers, and parallel construction.

The Walden Writing Center (n.d.-a) included the same categories in the section on grammar. Further, it explicated the main parts of speech, run-on sentences and sentence fragments, relative clauses, comparisons, transitive and intransitive verbs, noun-pronoun agreement, articles, count and noncount nouns, conjunctions, and prepositions. Another popular site known for supporting scholarly writing, the *Purdue Online Writing Lab* (n.d.-b), provided even further detail by adding other categories of grammar: spelling,

numbers, adjective or adverbs, appositives, relative pronouns, and irregular verbs.

Additionally, the *Purdue Online Writing Lab* (n.d.-b) had an entire section on punctuation, which included instruction surrounding the topics of commas, apostrophe introduction, hyphen use, and question marks. The type of instruction that students found most effective for addressing lower order concerns revolved around identifying their writing errors, coupled with grammar instruction surrounding those instances (Anderson et al., 2020).

Vocabulary

Academic vocabulary is a longstanding topic of interest in linguistics and education. Knowledge about academic vocabulary encourages the acquisition of academic literacy and promotes the purpose (dissemination) of research writing (Omidian & Siyanova-Chanturia, 2021). In their study of a corpus of empirical research articles, the authors found that more than one-fifth of the high-frequency words were specialized and key in developing and transmitting field-specific meaning in research writing (Omidian & Siyanova-Chanturia, 2021). Word selection was an aspect of scholarly writing considered a lower order or later order concern (Epstein & Draxler, 2020). Wherever one might categorize specialized language use among the hierarchy of scholarly writing skills, there was an increasing population of graduate students visiting writing centers who exhibited a combination of professional experience and basic writing skills (Nobles, 2019a).

Academic vocabulary was, in part, identified as “sub-technical” (p. 16), meaning lexicon related to general academic vocabulary considered beneficial for its usefulness in

supporting the dissemination of research (Omidian & Siyanova-Chanturia, 2021). The other aspect of vocabulary and word choice that pertains to graduate students was the demonstration of technical language, specialized language that deals with a discipline-specific set of language and terminology (Omidian & Siyanova-Chanturia, 2021).

The classification of lower or later order concerns as secondary comes into question when considering the importance of knowledge surrounding the specialized vocabulary of a given field. Some graduate-level scholars indicated that their ability to produce writing utilizing language apropos of their respective fields signaled their readiness to participate in scholarly conversations surrounding important topics (Riley, 2019). Producing field-appropriate writing is even an area of primary importance (Wyllie et al., 2020). Scholarly writing is of primary importance in the realm of academia because of the way it allows writers to demonstrate knowledge and insight about topics and specialized terms (Bada & Ulum, 2018). Technical language knowledge exists beyond the expertise of most writing centers (Arnett et al., 2020).

Research participants suggested that their higher order skills, such as critical thinking, had improved upon receiving assistance with concepts traditionally considered lower order, such as word selection and phrasing (Epstein & Draxler, 2020). There is a small amount of irony at play when considering the dominant conception surrounding word choice and vocabulary: word choice is of secondary importance where writing instruction is concerned. However, scholarly writing is often judged based on qualities such as word choice, idioms, and the handling of specialized language. One scholar observed that among the chief expectations that follow them in their role as a professional

copy editor is to directly improve authors' writing with the intent of assisting in producing a specific, perhaps commercial, purpose (Nobles, 2019b).

Lower Order Concerns and Graduate Students

Lower order concerns are often considered secondary among writing instructors at the university level and beyond (Anderson et al., 2020; Gillespie & Lerner, 2003). This perception may exist because a directive approach to writing tutor instruction is more effective when addressing lower order concerns, whereas non-directive instruction appeared most effective for higher order concerns such as structure, organization, coherence, and argument (Eleftheriou, 2019). Directive approaches were often considered a less preferred strategy for providing writing instruction among writing center professionals (Eckstein, 2019; Werner & Lin Awad Scrocco, 2020). Although, directive approaches may be more effective for writing center visitors who still need to develop a strong sense of the type of scholarly writing needed, or perhaps first-generation college students (Bond, 2019; Colton, 2020). The implication that accompanies labeling superficial types of writerly concerns as lower or lesser may have unfortunate consequences upon the prioritization that can take place in support centers designed for graduate students.

Although the traditional, preferred approach for teaching writing encourages a cascading of instruction from higher to lower order concerns, a revisiting of this prioritization where graduate students are concerned was encouraged (Lawrence & Zawacki, 2019). Graduate students, the argument was laid out, have urgent needs for tutorial focus on lower order concerns (Lawrence & Zawacki, 2019). In particular, the

demanding expectations for excellent scholarly writing, reliance on their own subject-matter expertise, and feedback from their own faculty toward what they often perceived as content-based matters in their writing (Lawrence & Zawacki, 2019). The types of concerns that might otherwise be identified as local for undergraduate students, such as word choice, requires a complexity for graduate students, which should be recognized for the coinciding difficulty and intellectual labor that accompanies the work (Lawrence & Zawacki, 2019). Lower order concerns are sentence level concerns because of their significance in determining acceptable sentence structure (Ianetta & Fitzgerald, 2016). Gillespie and Lerner (2008, as cited in Ianetta & Fitzgerald, 2016) eventually referred to these concerns as later order concerns, suggesting that they are less significant elements only requiring consideration after the global issues. However, Ianetta and Fitzgerald (2016) reasoned that refusing to tutor toward lower order concerns first demonstrates an inflexibility that might prevent some students from reaching their highest potential as writers. Serving as an example, Kensington-Miller and Carter (2019) found that a simple explanation of structure, in some cases, led to students reporting that they suddenly learned how to write clearly after struggling with tangled prose for years.

Format

A mere 1.6% of students worldwide completed advanced research degree programs; this low rate was likely due to several factors (Huerta et al., 2017). Academic writing was a known barrier for students at all levels of education (Bustamante & Eom, 2017; Huerta et al., 2017; Kinney et al., 2019; McKinney, 2020; McMurray, 2020; Summers, 2019). In the health sciences, the development of scholarly writing is often of

critical importance (Ewing et al., 2019; Riley, 2019). For example, whether disseminating work through scholarship and publication, cultivating a culture of dissemination of evidence-based practices and quality improvement outcomes in clinical settings, or teaching writing skills as nursing educators, nurses must learn to write effectively (Gazza et al., 2018). Formatting is a particular aspect of scholarly writing that warrants consideration; specialized tutoring has even been created to support APA style concepts specifically (Conzo, 2019).

Style Guide-Based Formatting

Graduate students in the health sciences face lofty expectations regarding publication-grade formatting standards, such as those established in the *Publication Manual of the American Psychological Association* (Riley, 2019; Watwood et al., 2018) or in the *AMA Manual of Style*. One descriptive correlational design included a survey of graduate nursing students to self-determine their ability to demonstrate the knowledge, skills, and attitudes toward scholarly writing (Gazza et al., 2018). Participants' lowest ratings occurred in the category of producing scholarly writing in a form following peer-reviewed journal guidelines; from the possible range of scores between 1 and 5, the mean score was 2.90 (Gazza et al., 2018). Despite these expectations, many graduate programs would benefit from additional support for style guide-based formatting (Conzo, 2019; DeCoux Hampton & Chafetz, 2021; Durham et al., 2019). Academics often identify good student writing by how well it engages with the contemporary dialogue in a field and by whether it meets assignment parameters (Thoms, 2020). Avoiding errors established by the American Psychological Association (APA) style guide is particularly important for

students developing dissertations and researchers pursuing publication (Onwuegbuzie, 2017).

Aesthetic Elements of Writing

The *Purdue Online Writing Lab*, known informally as the Purdue OWL, is a well-regarded and popular open-access academic website dedicated to developing scholarly writing (Lamb, 2015). The site included an entire section surrounding the aesthetic element of formatting (Purdue Online Writing Lab, n.d.-a). This section included resources for analyzing and developing visual rhetoric, which is the appearance that accompanies formal writing. The resources include materials designed for scholarly development where font, color, data visualization, PowerPoint presentation slides, and the like are concerned (Purdue Online Writing Lab, n.d.-a).

The aesthetic quality of writing is almost certainly a lower or later order concern, and some writing instructors might not even consider visual considerations as elements of writing. Nonetheless, prominent style guides include visual considerations among the formatting aspects that scholarly writers need to consider. For example, the *Publication Manual of the American Psychological Association* includes font, line spacing, paragraph alignment, and indentation, among other aesthetic considerations in their section about format (APA, 2020). The manual explains that the physical appearance of writing can both enhance or detract from its purpose, and a strongly formatted document encourages readers to view writing as scholarly or professional (APA, 2020).

The *AMA Manual of Style* groups several lower order concerns together in the chapter titled “Editing, Proofreading, Tagging, and Display.” The chapter addresses

topics such as design, typeface, font, spacing, layout, and specific uses of fonts and styles (AMA, 2020). The existence of the topic in such well-known sources indicates that, though aesthetics is not often written about in the scholarly literature surrounding the field of writing center pedagogy, it is an aspect of scholarly writing that warrants attention. A study comparing the multiword expressions of students attending university in the United States with those of Korean, English as second language learners at the university level suggested that the external expectations arising from varying influences can affect the appearance of scholarly writing (Nam & Park, 2020). Among the findings of that study included that Korean English learners preferred indefinite quantifiers that would function as hedges as well as text-organizing expressions, while American students used reflective expressions in their persuasive writing, and they demonstrated a preference for noun strings (Nam & Park, 2020).

Major Graduate Student Projects

Graduate students often face a myriad of responsibilities outside of academia that prevent them from developing their own linguistic skills and knowledge surrounding appropriate formatting through resources such as books or style manuals (Kensington-Miller & Carter, 2019; Riley, 2019). Working in a community of scholarly writers helps academics recognize that texts are artifacts that require a development of mechanics, overcome embarrassment over sharing their writing, and encourages them to take accountability for their writing (Crome et al., 2019; Dadugblor, 2021; Franks, 2018; Kensington-Miller & Carter, 2019). Furthermore, engaging in a give-and-take process of feedback and receiving instruction in a writing and learning community helps students

develop a sense of choice and agency as both scientists and writers (Tyndall et al., 2019). Regular opportunities for mentoring and constructive feedback are components of a supportive, collegial culture (Hollywood et al., 2019). However, despite knowing these strategies, in a study of MSN students' knowledge, skills, and attitudes toward scholarly writing, students struggled with identifying a support network and developing approaches to engage with the emotional aspects of writing (Gazza et al., 2018).

An aspect of scholarly writing in conjunction with students' dissertation or doctoral capstone projects, was internalizing and addressing advisors or committee members' feedback (Bowles Jr., 2021; Kranek & Regidor, 2021). Members of graduate writers' feedback networks directly influence the development of their students' writing processes, and this relationship affords writing center tutors with the ability to more actively support these writers who are in the final stages of becoming disciplinary experts (Kranek & Regidor, 2021). Furthermore, when doctoral candidates consult with writing center tutors about how to address direct feedback offered by advisors and committee members, the students benefit from the formation of conscious and deliberate responses to their direct feedback network (Kranek & Regidor, 2021). Unfortunately, in a study examining metacognitive awareness, students' responses to a questionnaire showed that regardless of their level of metacognitive awareness, 40% were unable to assess their understanding of the information they received, and none were fully independent (Ramadhanti, 2019). Kranek and Regidor (2021) indicated that across a diverse participant pool, conversations about interacting in writing center sessions about engaging with faculty and advisors were most robust among users who had developed

relationships with consultants over time. Learning to respond to feedback is essential for creating graduate students' scholarly identity (Kranek & Regidor, 2021).

Summary and Conclusions

Academic services, such as writing centers, that support graduate students are increasingly important and appear in more universities than ever before (Aldrich & Gallogly, 2020; Lawrence & Zawacki, 2019). However, despite the increasing number of graduate writing centers, more research about graduate-level writing support was needed (Medvecky, 2021; Self et al., 2020). Stephen North's (1984) foundational description of the role of writing center practitioners was that they "produce better writers, not better writing" (p. 438). Latta (2019) explained, though, that the suggestion of producing better writers may signify that there is something wrong with said writers in the first place. My study contributed to the conversation about the traditional hierarchical categorization of elements of writing instruction as higher and lower. The foundation for this study occurred with the identification of several categories of writing center tutorial instruction and the ongoing need for additional information about support services for graduate students. What remained for discovery were the most common elements identified as subpar by professional writing center tutors working in a graduate-level health sciences university.

This chapter explored higher order concerns about comprehension, critical appraisal, paraphrasing, primary sources, organization, and tone. Lower order concerns, including grammar, vocabulary, and conceptions regarding higher and lower order prioritization, were detailed as they relate to graduate students. Furthermore, aspects of

format, including style guide-based formatting, aesthetic elements of writing, and major graduate student projects, have been considered, such as they appear in the literature on the topic. Moreover, although these topics appear in the literature, there needed to be more support resources for professional writing tutors (McBride & Rentscher, 2020). A gap appeared in the literature: there was little to no research analyzing the postsession narrative notes written by professional tutors in a health science writing center to identify the most common elements that were identified as subpar in graduate students' scholarly writing. My research was intended to help fill this gap through an analysis of archival data from a health sciences university writing center that included the postsession narrative notes written by professional writing tutors. The ensuing chapter, *Methods*, provides a comprehensive and detailed description of the steps for selecting, collecting, and analyzing the data. The degree of detail provided should allow for the reproduction of the study.

Chapter 3: Research Method

The purpose of this study was to examine the postsession narrative notes written by professional writing tutors in a health sciences university writing center to identify the most common elements that were identified as subpar in graduate students' scholarly writing. This chapter includes a description of the research methods used to analyze the data and produce the findings for the study. The chapter addresses the research design and rationale, role of the researcher, methodology, and trustworthiness of the study.

Research Design and Rationale

The research question was as follows: What are the most common elements identified by professional writing center tutors as subpar in graduate students' scholarly writing? This study fell under the tradition of basic qualitative research. The rationale for choosing this tradition was that qualitative research is exploratory, serving the purpose of understanding through observation and description (see Crawford, 2016). The basic qualitative approach included a frequency distribution of words content analysis to identify the most common elements addressed in the research question. Content analysis can include the searching and counting of recurring words or themes in qualitative data to identify consistencies and meaning (Patton, 2015). A seminal research project conducted in the political sciences indicated that word-frequency data analysis does produce acceptable content analysis categories (Simon & Xenos, 2004). Though not commonplace, this approach of examining word frequency to support content analysis has been used in fields such as psychology, health care, linguistics, consumer research, and public opinion (Dicle & Dicle, 2018).

Basic qualitative research is conducted in the initial stages of understanding a complex phenomenon (Crawford, 2016). In the current study, a qualitative approach allowed for a systematic approach to understanding what professional writing tutors identified as the most common areas of need for scholarly writing among health sciences students. The professional tutors compiled postsession narrative notes for business purposes that were not related to the purpose of the current study. A basic qualitative approach was appropriate because, according to Crawford (2016), qualitative research occurs in natural rather than controlled settings.

Role of the Researcher

My role as the researcher was to provide a thorough and unbiased analysis of the postsession notes submitted by the professional writing tutors in a health sciences university writing center. Although professional writing tutors wrote the notes for a writing center where I was the director, the postsession notes were a requirement of the regular tutorial practice for the center. These requirements existed before my research purpose was developed. The postsession notes addressed business goals (the development of independent scholarly writers) not directly connected to my study. Furthermore, because my study focused on archival data, no human participants were involved in the data collection.

Another consideration was whether the data I produced as one of the professional writing tutors should appear in my data set. As the center's director, I worked with students in a one-to-one tutorial capacity like other employees in the center. My time working directly with students in a tutorial capacity was much less than most of the other

tutors during the period in question; my appointments comprised less than 5% of the total reviews that occurred that year. To gain an unbiased perspective on the matter, I visited the Walden IRB office hours to ask if there is any ethical concern over including my postsession notes in the study. They explained that there was no ethical concern because there were no human participants in the study, and the archival data obtained were deidentified by another employee. Furthermore, because the data were created for business purposes and not for this research, there were no conflicts of interest arising from including my data.

My role as a graduate student pursuing a Doctor of Philosophy degree at Walden University informed my role as a researcher because I was pursuing the mission of promoting positive social change. My motivation for choosing my topic, was sympathy. Thomas et al. (2009) noted that sympathy is an emotional motivator for encouraging positive social change. Walden University (n.d.) highlighted the importance of identifying social inequalities and opportunities for positive social change, which bolstered my motivation to promote positive social change.

Methodology

Qualitative document analysis, or the review of existing and contextually relevant data maintained by an organization or group in naturally occurring documents, can help researchers understand the complexities of a phenomenon (Ravitch & Carl, 2021). The detailed review of previously obtained data housed in an archive was recommended by the Walden Office of Research and Doctoral Services (n.d.). A benefit of document analysis is that no one created the work output as an extra task for research purposes.

Therefore, the results are often more complete and less biased than an opt-in approach. Archival data analysis is often sustainable for future use and replication. Obtaining the data can be less time-consuming than using an opt-in approach to collect original data for a study. Document analysis also makes retrospective analysis, the examination of real-life data generated in the past for reasons other than research, possible (Hess, 2004).

Data Selection Logic

The deidentified and deaggregated data collected were from professional writing center tutors' postsession narratives. These narratives included critiques and observations about each visiting student's scholarly writing, further development recommendations, or tutors' observations during each appointment. Data included the postsession notes written by eight professional tutors about their appointments with students in a health sciences university writing center during the fall trimester of 2022. The postsession notes included in the study had been submitted by professional writing tutors, signifying that their only relationship with the university was as employees; none were also graduate students. The writing center at the health sciences university for the study employs only professional writing tutors. The university offers classes in three trimesters per calendar year, with individual visits totaling over 1,000 per term. Tutors have 5–10 minutes at the end of each appointment to complete their postsession notes. Therefore, a conservative estimate was that each tutor spent about 3 minutes on the notes' narrative portion.

The saturation point during data collection occurs when no new knowledge is being gained (Rubin & Rubin, 2012). Also referred to as theoretical saturation, data saturation is the point at which data gathered become redundant (Patton, 2015). Several

journals in the health sciences require theoretical saturation to justify the appropriate sample size for a study, though there has yet to be an agreed upon number for this size (Guest et al., 2006). Guest et al. (2006) focused on the number of interviews that would result in theoretical saturation and determined that 12 would be sufficient. Twelve interviews at an average of 1 hour per interview results in about 720 minutes of data for analysis. The initial data set for the current study included the notes from 300 sessions. Given the estimated 3 minutes of written narrative comments per session, 300 sessions resulted in around 900 minutes of data collected. Based on the findings of Guest et al., 900 minutes could reach about 3 hours of data beyond theoretical saturation. This potential redundancy suggested that the data analysis would achieve theoretical saturation.

Purposeful sampling is a strategic selection process that generates context-rich and detailed accounts of a particular situation (Ravitch & Carl, 2021). The selection process at the current study site was purposeful because the data archive contained information that aligned with the research question. The total number of postsession narratives notes collected from writing center appointments in a single trimester term was large enough for reaching theoretical saturation. The 300 sessions selected were the ones that contained the most data, as measured by the length of the narrative comment submitted by the professional writing tutor.

The length of narrative comments was evident when the column housing the comments in an Excel spreadsheet appeared without wrapped text formatting (the wrapping of extra-long lines of text that increase single-page visibility for a reader).

Without the application of wrapped text in the spreadsheet, each entry in the column contained a single horizontal line that ran to its completion. The 300 entries with the most text, as determined by those that indicated the most physical length in the Excel spreadsheet, were purposefully selected so that the data obtained would be likely to reach theoretical saturation.

The archival data for the fall 2022 term included over 1,000 entries in the data export. Additional data could have been exported if theoretical saturation needed to be met after the examination of the initial 300 postsession notes. The process for selecting additional notes would have been the same; they would have been purposefully selected based on length. Additional postsession notes would, at that point, have been collected in sets of 20, which at 3 minutes per note would have yielded about 1 hour of additional data. However, this additional selection process was unnecessary because the initial data set was sufficient for reaching theoretical saturation.

Instrumentation

For basic qualitative research, the researcher is the primary instrument of data collection, and they serve as the instrument through their analysis of documents (Crawford, 2016). For the present study, the postsession notes that professional writing tutors were required to complete led to the production of the data to be analyzed. The prompt in the form was the word “Comments” followed by an open-text response area. Validity of the data occurred because the document analyzed was the raw data comprising professional writing tutors’ postsession narrative notes submitted as a function of their role of supporting graduate students in a health science writing center. I

obtained the raw data for the study by using the System Data Export feature in the health sciences writing center's WCONLINE software. The WCONLINE scheduling software is the system that electronically collects the postsession narrative notes completed by the professional writing tutors following each session for the writing center that was the subject of this study. The system's secure database automatically stores the data.

The WCONLINE software can aggregate robust data (see Appendix A). To answer the research question, I needed the raw data associated with one field from the information collected and housed in WCONLINE. The field that supplied the raw data for the study was the open-ended prompt "Comments" that the professional writing coaches completed as the concluding requirement in their role in the health sciences university writing center. Writing center appointments occurred on a one-to-one tutor-to-graduate-student ratio. Postsession notes were brief, usually between one and four sentences, but they were descriptive in pinpointing problems in students' writing. The high customization level that addressed each student's unique needs did not lead to readily apparent commonalities. The narrative notes appeared in their entirety. My initial role as the researcher was to cull the data relevant to answering my research question from in the postsession narrative notes. These raw data were the subject of analysis in the present study. The data were sufficient for answering the research question because the content of the data aligned with the research question. The professional writing tutors at the health sciences writing center received training when they started their role as tutors. This training included job requirements such as identifying subpar elements exhibited

during one-to-one sessions. Identifying subpar elements supported the development of students into independent scholarly writers.

Data Sources

WCONLINE, as described in the company's website, is a "scheduling, recordkeeping, and reporting solution for the academic support center" (Twenty Six Design, n.d. WCONLINE section). Students register an account when they initially log into the system, where they can reserve live or asynchronous appointments to work with a professional writing tutor. The system stores all data for registrations, appointments, and client reports (postsession notes). These data are retrievable via the System Data Export feature. Data are sortable by any defined temporal range, and the export settings can be customized to include or exclude a wide range of categories (see Appendix A).

All raw data obtained for the present study were deidentified and deaggregated by a university employee who was not me. Deidentification maintained the anonymity of any person who visited or worked in the health sciences university writing center during the fall 2022 academic term. I removed any identifiable information that appeared in the "Comments" field, such as a student's name, before any coding practices began.

Data Collection

I used archival data from the writing center where I worked, a health science graduate university. The data resided in the WCONLINE scheduling software used by the university. A university employee not affiliated with this study deidentified and exported the raw data. The university employee obtained the data for the fall term of the 2022 academic year and exported it to an Excel spreadsheet. The individual removed all fields

generated by the system data export except for the responses supplied by the professional writing tutors in the “Comments” section of the postsession narrative notes. The individual sent the raw data via their secure university email account to my secure university email account. The individual then deleted the email from their sent and deleted folders.

Upon receipt of the raw data, I saved the Excel spreadsheet onto an external flash drive. The flash drive was encrypted and secured with a complex password. The email was then deleted from my inbox folder and permanently deleted from my deleted folder. The flash drive served as the data’s sole location outside of the university’s database. I secured the flash drive in a locked desk in a private facility when it was not being used.

Data Analysis Plan

I analyzed the deidentified archival data from a health science, graduate university writing center through a multiple-cycle process that began with the initial sorting and selection of the data collected, such that the sampling method was purposeful. The data were reviewed and analyzed with a focus on the research question: What are the most common elements identified by professional writing center tutors as subpar in graduate students’ scholarly writing? Once the data contained only the determined, purposeful sample, I began my two cycles of coding. The first cycle included initial coding and filtering to ensure that the data aligned with my research question. I then completed a second coding cycle to conduct the categorization and prepare for the subsequent thematic analysis.

My multiple-cycle process appeared in an Excel spreadsheet document. The Excel spreadsheet included the WCONLINE data, which served as the starting point for analysis. The Excel coding spreadsheet served as the tool for organizing the coding process and encouraged the search for patterns in language, sequences of information, context, or meaning.

Upon receiving and securing the deidentified data, the original, unaltered data remained in its original on a tab in the spreadsheet throughout the project. My next step was to create a duplicate page in the Excel document for the sorting and selection of data to be analyzed. With the purposeful sample drawn from the complete raw data set, each raw data entry was assigned a number, after which the coding cycles began.

I coded the data with a hands-on, manual process. I organized a table in my spreadsheet with columns for the first- and second-cycle coding. Hands-on coding takes time. The complexity of interpreting and analyzing professional writing tutors' comments necessitated a hands-on approach. In addition to searching for patterns in the postsession narrative notes, I coded the data across each entry. Searching for patterns across a dataset can uncover additional themes for analysis (Laureate Education, 2016). I applied multiple coding cycles, which, according to Saldaña (2016), enables more attuned perspectives gained with each engagement with the coding process. Upon completing the multiple coding cycles, I counted the categories, codes, and subcategories.

Coding

First-cycle coding is the initial systematic process that takes place, which can lead to the production of meaning out of data (Saldaña, 2016). The first cycle of the coding

process was descriptive. Descriptive coding is the assigning of a word or short phrase (a code) that captures the essence of a topic in a passage of qualitative data (Saldaña, 2016). Descriptive coding provides an inventory of topics that can be indexed and categorized (Saldaña, 2016).

For the current study, I began my interpretation of the deidentified data by assigning codes to the bits of language that appeared in the “Comments” field of the selected data. I planned to assign codes that captured the essence of all the elements in the data. The purpose of assigning these codes was to obtain a sufficient and comprehensive list of subtopics. While this first coding cycle occurred, focused coding efforts kept the codes the same in instances where the subtopics were similar, even when the original language differed slightly. Focused coding categorizes codes based on thematic or conceptual similarity, allowing for the identification of the most frequent or significant initial codes so that the most salient categories can be developed (Saldaña, 2016). Discrepant cases that appeared in the data were appropriately coded in a separate tab in the Excel spreadsheet. These cases were analyzed to determine any findings of interest that arose from discrepant cases.

Another component that took place during the first-cycle coding was removing language that was not in alignment with the research question. For example, I removed comments that entangled wellness and writing center advising sessions, which Giaimo (2020) described as increasing because of the Covid pandemic. There were other instances of language that did not fit in the focus of the current study. The initial filtering

of the data kept the analysis on topic. After the first coding cycle, the second cycle began, which led to categorization.

The first-cycle coding process was initially going to occur in a tab titled Codes in the Excel spreadsheet containing the data (see Appendix B for the template). The spreadsheet tab's column headings were to be Point in Program, Postsession Note #, Postsession Note, Descriptive Codes, Memos, and Misaligned Material. I planned to complete the columns Point in Program, Postsession Note #, and Postsession Note as appropriate. After I added the 300 purposefully selected samples to the table, analysis of the unaltered lines began. I highlighted noteworthy passages in yellow, and codes were assigned. Simultaneously, any misaligned material was cut from the postsession Note and pasted into the Misaligned Material column. I tracked any thoughts about the material while the first-cycle coding took place in a Memos column.

Categories

Synthesis is the primary heuristic for qualitative data analysis (Saldaña, 2016). Synthesis combines things to form something new, and in qualitative data analysis, it describes the transformation between coding and categorizing (Saldaña, 2016).

Qualitative analysis often synthesizes data that leads toward consolidated meaning, which can take the symbolic form of a category, theme, concept, or assertion (Saldaña, 2016).

The second coding cycle for the present study engaged pattern coding, a labeling process that clusters similarly coded data and organizes the corpus into sets, themes, or constructs that attribute meaning (Saldaña, 2016). Pattern coding is an analytic strategy for categorizing data (Saldaña, 2016). Second-cycle coding can also result in rearranging

first-cycle codes into different or even new categories (Saldaña, 2016), which is an approach I used for the study. The categorization of codes identified in the analysis led to the identification of themes in the data. The themes were bolstered by the frequency of the appearance of categories, subcategories, and codes.

The data categorization took place in a tab in the Excel spreadsheet labeled “Categories & Themes.” The tab included the headings Point in Program, Postsession Note #, Postsession Note, Descriptive Code, Category, and Themes (see Appendix C for the template). Each entry was brought from the Coding tab, although duplicate entries existed for every unique code assigned in the first coding cycle. I then sorted the page by the Code column, so that matching codes appeared next to one another. Codes were then assigned a Category.

Themes

Themes are the outcomes of coding, categorization, and analysis (Saldaña, 2016). A theme is an extended phrase or sentence (by comparison with a code) that identifies what a unit of data is about or what it means (Saldaña, 2016). Another way to conceptualize a theme is as a statement explaining what is happening in a given phenomenon (Saldaña, 2016).

The purpose of my study was to examine the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that are identified as subpar in graduate students’ scholarly writing. The analytic plan for the study was to progress through the data with a systematic process of coding to categorizing to theming. I conducted this process to arrive at findings about

the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that are identified as subpar in graduate students' scholarly writing.

After I assigned categories, I sorted the categorized data by the Categories column. This sorting allowed me to re-examine for newly emergent themes. These themes were the units of meaning that informed my findings. My findings were further enriched by the identification and analysis of the frequency of categories, subcategories, and codes.

Trustworthiness

According to Mathison (2011), trustworthiness in qualitative research signifies something approximately equivalent to validity. Trustworthiness comes from considerations such as whether data-gathering processes are grounded in primary sources, whether data is verifiable, and whether conclusions are logical and plausible (Mathison, 2011). Mathison's (2011) description of trustworthiness appears straightforward enough. Even so, evaluating the quality of qualitative research can be difficult. According to Flick (2007), though the topic garners ongoing attention amongst scholars, there has yet to be a generally agreed-upon definition of trustworthiness. Rheinhardt et al. (2018) explained that scholars place increasing importance on evaluating the quality of research based on rigor, which is a term that encompasses trustworthiness as a subcategory. In other evaluations of what constitutes rigor, several terms should be considered, including validity, truthfulness, goodness, integrity, precision, and reliability (Rheinhardt et al., 2018). Though Rheinhardt et al. (2018) acknowledged the variability and overlap

surrounding the qualities of trustworthiness and rigor, they concluded that researchers must agree on the need for these characteristics. Furthermore, qualitative researchers must be transparent about their research methods and processes (Rheinhardt et al., 2018).

In the interest of transparency and ethical practice, and in addition to the organizational benefit of the document, my data collection used a coding spreadsheet with multiple cycles of analysis. Multiple coding cycles occurred because an iterative and structured research design helps capture the entirety of a complex phenomenon (Ravitch & Carl, 2021). The criteria for evaluating trustworthiness are credibility, transferability, dependability, and confirmability (Mathison, 2011; Shenton, 2004). Rigor is another term that includes these collective categories (Rheinhardt et al., 2018). The following sections of this chapter focus on these categories as they contribute to the rigor of the project.

Credibility

Credibility refers to the internal validity of a study (Shenton, 2004). Credibility is a measure that demonstrates how well a study successfully measures the phenomenon that was the focus of an investigation (Shenton, 2004). The data were credible because they were created by professional writing tutors in a health sciences university, following actual one-to-one appointments between tutors and graduate students. The verbatim data sources led to the dependability of the interpretation and analysis. The detailed coding processes also supported this project's credibility.

Transferability

Transferability pertains to the external validity of a project (Shenton, 2004). External validity signifies how well the findings of a study apply to other real-world

situations (Shenton, 2004). Qualitative document analysis is often replicable and obtaining the data can be less time-consuming than using an opt-in approach to collect original data for research purposes only (Walden Office of Research and Doctoral Services, n.d.). The present study, being a qualitative analysis of archival data, is transferable to other institutions and situations.

Dependability

The dependability of a study indicates how reliably a study would yield similar results if repeated (Shenton, 2004). Dependability increases when studies are strategically designed and executed, include detailed data gathering and transcription processes, and are evaluated for effectiveness (Shenton, 2004). The sufficiency of the determined data saturation point supported the dependability of this project, and the opportunity for additional data analysis guaranteed that the data analysis was thorough, detailed, and complete.

Confirmability

Confirmability occurs when a researcher objectively obtains data (Shenton, 2004). Qualitative researchers have an ethical responsibility to examine their biases (Ravitch & Carl, 2021). Shenton (2004) explained that findings must be based on the ideas of research participants rather than on a researcher's preconceived notions. The clear demonstration of data leading to findings is considered a data-oriented approach that enhances confirmability (Shenton, 2004). The transparency of my processes and role as a researcher enhanced the confirmability of the project.

Ethical Procedures

Researchers must always make ethical decisions when collecting data. One issue that can arise from data collection is othering, which is the act of dehumanizing and minimizing people into generalizable data sources (Ravitch & Carl, 2021). Othering, and other potential forms of dehumanization, however, did not arise as possibilities in the current project because the archival data precluded direct interaction from human participants. The data were created and obtained for work-related reasons, not to support this research.

Demonstrating bias is another ethical issue that can arise during data collection. Bias results from lived experiences, and no one can separate themselves from bias (Ravitch & Carl, 2021). For this reason, it is unethical for a researcher not to challenge their assumptions. The critical confrontation of interpretations and the biases that shape them is of utmost importance (Ravitch & Carl, 2021). The transparency of my role as researcher and continual assessment of my practices prevented my own bias from guiding my interpretations. My goal was not to produce predetermined findings but to see where the data led.

Prior to obtaining and analyzing the data that informed this study, I needed to obtain institutional permissions. First, from the Walden IRB, following the guidelines for PhD student dissertations. I also needed approval from the health sciences university that provided the data for the study. I submitted an informal inquiry to the study site's IRB and the IRB chair informed me that I would be able to complete my research upon receiving approval from the Walden IRB and submitting an interagency authorization

form. According to that IRB chair, the interagency authorization form stated that the site of study recognizes Walden as the IRB of record and that their judgment would be trusted and honored (approval# 02-10-23-0989055). These permissions guaranteed that the study was conducted ethically and with integrity.

I treated the data with the utmost attention to security and confidentiality. Data for the health sciences university was secured by password and only accessible to select employees in the institution. One such employee obtained and exported the data, and I transferred it to a secure external flash drive. The drive was password protected and secured in a locked desk in a private facility. I will keep the data for 5 years following the study's publication. After those 5 years have passed, I will permanently delete the files from the external flash drive. I will then dismantle the flash drive, physically destroy the microchip, and dispose of the remaining pieces in a receptacle bound for a landfill. These precautions will make retrieval of the data impossible.

Summary

The purpose of this study was to examine the postsession narrative notes written by professional writing tutors in a health sciences university writing center to identify the most common elements that were identified as subpar in graduate students' scholarly writing. The tradition of basic qualitative research was appropriate for studying the archival data. My role as the researcher for the project was to complete an unbiased analysis of the postsession notes that were housed in the database of a health sciences university writing center.

Qualitative document analysis of archival data often results in more complete and less biased results than with an opt-in approach because the data were created as work output that were not associated with the proposed study (Walden Office of Research and Doctoral Services, n.d). The data collected for the proposed study included the deidentified and deaggregated postsession notes created by professional writing center tutors operating in a health sciences university during the fall 2022 trimester. In order to reach theoretical saturation, the initial raw dataset included the 300 most data-rich postsession notes submitted. I analyzed the data through a multiple-cycle coding process. Purposeful sampling led to context-rich, comprehensive, and detailed data for analysis.

Continuous mindfulness about my role as a researcher ensured that the study was trustworthy, ethical, and promoted positive social change. Additionally, I treated the data with attention to confidentiality and security. Ethical procedures, such as the review of the intended study through Walden's and the local site's IRBs, occurred to ensure that no concerns would arise. All data obtained were kept secure and will be permanently destroyed after 5 years have passed from the completion of the project.

This chapter provided a detailed and comprehensive description of the process used for the selection, collection, and analysis of the data. Among the elements included are the research design and rationale, the role of the researcher, the methodology, and considerations pertaining to the trustworthiness of the study. The level of detail provided should allow for the study to be duplicated. The next chapter, Results, provides a description of the site of the research; the steps taken to ensure that the data collection

and analysis was ethical, transparent, and had reached theoretical saturation; and the results of the research.

Chapter 4: Results

The purpose of this basic qualitative study was to examine the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that were subpar in graduate students' scholarly writing. A qualitative document analysis was completed with data that had been created as work output for purposes other than those associated with the current study. The research question that guided this study was as follows: What are the most common elements identified by professional writing center tutors as subpar in graduate students' scholarly writing? This chapter includes a description of the settings in which the data were created, demographic considerations, the data collection process, the data analysis process, evidence of trustworthiness, the resultant categories and supporting data, themes, and a summary of the results.

Setting

The data that were the subject of document analysis for this study were the deidentified and deaggregated postsession narratives written by professional writing center tutors. The narratives were written as part of the end-of-session practices expected of the tutors following their writing center meetings with students. The writing center operates in a health sciences university that offers graduate-level degrees in the fields of health administration, nursing, occupational therapy, physician assistant studies, physical therapy, speech-language pathology, and education. The university operates in trimesters with students pursuing master's and doctoral degrees.

The health science university's writing center is staffed by professional writing tutors whose only relationship with the university is as employees; none are also graduate students in the health sciences university. Students reserved 1-hour appointments with writing center tutors to receive support with their writing and their development as independent scholarly writers. Over 1,000 writing center appointments occur each term. The conclusion of each appointment is marked by the writing tutors' completion of a postsession note. The internal purposes of these notes include internal communications among the writing tutors to support the development of independent scholarly writers, the tracking of appointments, and the initiation of an automated satisfaction survey mechanism. Tutors are allotted up to 10 minutes at the end of each session to complete their postsession notes, which may include their critiques and observations about the visiting students' scholarly writing or the tutors' recommendations for the development of the students' scholarly writing.

Demographics

There were no human participants directly involved in this study; therefore, no demographic data were collected. Qualitative document analysis, the detailed examination of data that were previously obtained for purposes not related to the current research, was the methodological approach selected. The focus of the analysis was the postsession narrative notes that were submitted by nine professional writing coaches during the fall 22 trimester. The professional writing tutors employed in the study site's writing center all had advanced degrees in writing-related fields. During the fall 22 trimester, six of the nine writing tutors were doctoral degree holders.

The WCONLINE scheduling software that the writing center uses includes an archive of the postsession narrative notes. These notes are part of a larger end-of-session client report form, which stores the name of the writing tutor facilitating each tutorial session, as well as the name and demographic information of each student visitor. However, in the current study, demographic information captured through the client report form was removed by a university employee before the document was sent to me.

Demographic data could not be identified from among the collected data. The health sciences university serving as the research site for the study enrolls students in the health and rehabilitative sciences. The program offerings include master's and doctoral degrees in occupational therapy (Master of Occupational Therapy and Doctor of Occupational Therapy, respectively) and a postprofessional Doctor of Occupational Therapy degree that is pursued and obtained through an online modality. Doctoral degrees are also offered in physical therapy (Doctor of Physical Therapy), nursing (Doctor of Nursing Practice), and education (Doctor of Education). Additional master's degrees offered at the time of the current study were in the areas of speech-language pathology (Master of Science in Speech-Language Pathology) and health administration (Master of Health Administration). The health sciences university also offers various graduate certificates and continued professional education opportunities (see Table 1)

Table 1*Health Sciences University Degree Offerings*

Degree	College of Rehabilitative Sciences	College of Health Sciences	Continuing professional education
Doctoral	Doctor of Occupational Therapy Postprofessional Doctor of Occupational Therapy Doctor of Physical Therapy	Doctor of Education Doctor of Nursing Practice	
Master's	Master of Occupational Therapy Master of Science in Speech-Language Pathology	Master of Health Administration Master of Science in Nursing	
Nondegree seeking	Nondegree physical therapy online courses	Graduate certificates Postgraduate nursing certificates	Clinical orthopedic residency Orthopaedic manual physical therapy fellowship Continuing professional education

Data Collection

After receiving committee and IRB approval to proceed with my study from both Walden University and the IRB for my research site (approved with an interagency authorization form), I reached out to a study site university employee who had full administrative access to the archival database for the health sciences university writing center of interest. I requested that that employee obtain the complete and deaggregated client report form data housed in their WCONLINE scheduling and data housing software. These data were retrieved using the WCONLINE software's System Data Export feature, which creates an Excel spreadsheet with all client report form information. I asked that all columns and information except for the Wrap-Up Notes column be removed for the deidentification of the data set. Reassurances of the necessary

safeguards and precautions regarding the protection of the data were offered and followed. The research site employee emailed the data and then deleted their email from both their sent and deleted folders.

Data Analysis

I received the complete deaggregated and deidentified data set as a data export printout in a Microsoft Excel spreadsheet. The data included all of the narrative postsession notes submitted by professional writing center tutors during the fall 2022 trimester. The data were trimmed to the 300 lengthiest entries. The original data set included over 1,000 entries and was retained in case data saturation was not met upon completing the analysis of the 300 entries selected. Those additional data were unnecessary, however, because categories began to repeat well before the completed analysis of the 300 entries.

After trimming the data, I produced a separate coding spreadsheet (see Appendix D) in which I began my analysis. The coding spreadsheet was revised from the version I developed in the proposal phase of my study. The revision was applied because I learned how much raw data the data set included. My intention for my initial coding spreadsheet was to include all of the raw data as entries in the coding spreadsheet, but this approach was shown to be overly laborious after a couple dozen entries were analyzed. Instead, I numbered each entry in the raw data set and brought over only the associated code words and phrases that I identified.

The increased visibility in the revised coding spreadsheet proved to be more efficient. Each code was given its own line in the coding spreadsheet, and some data were

given more than one code (and line). In addition to the codes that I entered in the Code Words and Phrases column, my first-cycle analysis included more nuanced descriptions that were included in the First Cycle Descriptive column. Data saturation seemed apparent during the first cycle of coding because the codes repeated many times in nearly every instance. This indication was confirmed during the identification of categories that took place later in the data analysis. Some of the material included in the data set was not relevant for the study (e.g., students who were seeking support about the emotional component to writing or who were struggling with finding the motivation to work through their programs). This type of data was recorded in the Misaligned Material column.

Upon completing the first cycle of coding, I began my second cycle by sorting the Code Words and Phrases column to see what patterns emerged in the First Cycle Descriptive column. These patterns were considered for my initial identification of subcategories. The subcategories were recorded in the Second Cycle Patterns column. Because the document contained over 1,000 lines of code, slight discrepancies among similar types of information began to occur while I completed the first re-sorted review of the codes. This was inevitable because of the size of the data spreadsheet against my computer monitor. I observed that the First Cycle Descriptive column demonstrated repeated entries, but those entries did not always match the patterns that appeared across the recurrent codes. Therefore, a second re-sorting of the data was completed. The second re-sorting of the codes was completed along the First Cycle Descriptive column so that a Second Cycle Patterns column could be developed.

After completing the multiple coding cycles, I conducted the word-frequency distribution content analysis. This approach is not common in a basic qualitative study. I counted the total categories, subcategories, and codes that emerged. Content analysis is a qualitative process that can include the counting of recurring words in qualitative data (Patton, 2015). Word-frequency data have been demonstrated as comparable to traditional sample analyses (Dicle & Dicle, 2018; Simon & Xenos, 2004). Word-frequency data, a factor analytic technique with a mathematical basis, can lead to greater precision and validity in resulting categories and closer representation of textual meaning, while safeguarding against bias (Simon & Xenos, 2004).

Once the second-cycle patterns were identified, I analyzed those patterns for main categories and subcategories. These were sorted and organized alphabetically by main category (see Appendix E), including the code words and phrases that were associated with each category and subcategory. There were 1,041 lines of code in the raw data set. This resulted in 17 categories comprising 86 subcategories. The subcategories were developed from 383 codes.

Evidence of Trustworthiness

Evidence of trustworthiness can be determined by the credibility, transferability, dependability, and confirmability of a research project (Mathison, 2011; Shenton, 2004). Credibility pertains to the internal validity of a project, where transferability pertains to external validity (Patton, 2015). The internal validity of the current study was bolstered through the inclusion of verifiable data drawn from a comprehensive set of peer-reviewed literature that was published in 2018 or after. Credibility is also a measure of how well a

study measures the phenomenon under examination (Shenton, 2004). The current study was based on archival data that had been produced for educational purposes that were not related to this study. The responses were based in real-world applications, not theoretical, which often leads to a more complete data set and the potential for less bias than might appear through an opt-in approach (Walden Office of Research and Doctoral Services, n.d.).

Beyond supporting the credibility of the current study, the use of real-world data also provided trustworthiness. Among other things, trustworthiness refers to the external validity of a project and how well the findings apply to other real-world situations (Shenton, 2004). Additionally, trustworthiness is based on considerations such as whether the data-gathering processes have been grounded in primary sources and whether the data obtained are verifiable (Mathison, 2011). The literature review undergirding the current study was comprehensive, recent (based primarily on research published in 2018 or later), and obtained from peer-reviewed scholarly journals. Furthermore, evidence of trustworthiness appears when qualitative researchers are transparent about their methods (Rheinhardt et al., 2018). I made sure to be as transparent and thorough as possible with the description of my methods, and I consistently moved through my coding process with the utmost attention to the integrity of the project. These efforts supported not only the trustworthiness and transferability of the project but its dependability as well.

Dependability, also referred to as reliability, indicates that data analysis has been systematically examined through a consistent, defined process (Patton, 2015). I used multiple coding cycles to enhance thoroughness, transparency, and consistency to

produce a comprehensive understanding of a complex situation. Using multiple coding cycles is a benefit of iterative and structured research that increases rigor (Ravitch & Carl, 2021). Dependability also refers to whether a study, if repeated, would yield similar results. The size of the raw data set for the current study suggested that saturation could be met. The raw data contained over 1,000 entries (1,041 in total), which was more than needed to reach saturation. The initial decision to trim the data to the predetermined number of the 300 most data-rich entries (estimated to equal about 900 minutes' worth of data) was sufficient for reaching saturation.

Confirmability has been identified as analogous to objectivity (Patton, 2015). Qualitative document analysis is often considered less biased than the collection of data from an opt-in approach, and other advantages include that the results are often more complete, more sustainable for future use and replication, and obtained from a less time-consuming process (Walden Office of Research and Doctoral Services, n.d.). The consistency of my coding approaches and methods supported the objectivity of my analysis. Furthermore, I continuously questioned my coding and analysis to make sure I was doing everything possible to eliminate bias from the project. Examining bias is an ethical imperative that all researchers should follow (Ravitch & Carl, 2021).

Results

Analysis of the data yielded 16 main categories: alignment, argumentation, clarity, conventions of genre, evidence, flow, grammar, meeting the assignment, misaligned material, organization, paragraph, planning, style, style guide related, synthesis, and word choice. These categories represented the most common elements

identified by professional writing center tutors as subpar in graduate students' scholarly writing. This information was central to answering the research question of this study. To answer the other aspect of the research question, which was the most common elements identified by professional writing center tutors, the frequency of appearance of the main categories and subcategories was also considered. Table 2 includes the main categories and subcategories identified from among the data, accompanied by the number of times they occurred and sorted from most common to least common.

Table 2*Main Categories and Subcategories*

Main category	Subcategory
Flow (161)	Readability (85), transitions (31), progression (15), funnel (7), logic (6), cohesion (6), headings (5), focus (3), avoid repetition (2), nonspecific (1)
Style guide related (108)	Format (60), APA (39), AMA (6), nonspecific (2), Vancouver style (1)
Organization (105)	Headings (43), paragraphing (36), section elements (12), thematic presentation (7), structure (5), introduce ideas (2)
Clarity (99)	Language development (44), precision (18), focus (13), APR (9), grammar (5), phrasing (3), nonspecific (2), purpose (2), headings (1), intention (1), logic (1)
Alignment (88)	Section elements (28), sections (24), language (15), jargon (14), parallelism (6), nonspecific (1)
Meeting the assignment (68)	Audience (26), instructions (17), relevance (13), missing information (9), analysis (3)
Style (65)	Active language (34), direct language (15), concise writing (6), voice (4), emphasis (3), nonspecific (1)
Grammar (62)	Non-specific (51), parallelism (9), ESL (2)
Evidence (57)	Ground in literature (56), introduction (1)
Synthesis (46)	Thematic presentation (11), paraphrasing (11), unintentional plagiarism (9), support (6), citation (4), Argument & evidence (2), objectivity (2)
Planning (42)	Ideation (25), outline (17)
Conventions of genre (38)	Tense (19), missing elements (15), primary sources (2), appendices (1), masking (1)
Word choice (34)	Repetition (18), elevating language (11), jargon (3), bias-free language (1), consistency (1)
Paragraph (22)	Structure (14), development (5), analysis (3)
Argumentation (20)	Thesis development (8), gap (4), development (3), purpose (2), implications (1), precision (1), significance (1)
Misaligned material (27)	Process (15), aesthetics (7), nonspecific (5)

Note. This table is organized by the frequency of the appearance of main categories and subcategories identified from 1,041 coding entries.

Categories

Despite the raw data being deidentified and deaggregated, there were clear patterns that were present in the post-session narrative notes submitted by the professional writing coaches, which appeared to indicate that certain groupings of findings were potentially attributable to a particular writing tutor. The purpose of the study was to examine the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that are subpar in graduate students' scholarly writing. Therefore, the indication of individuals was inconsequential. What was interesting to observe, however, was how different elements of writing were described by, presumably, different professional writing tutors.

Frequently, the most suitable categories that patterns or key codes and phrases were associated with only became discernable when considering multiple aspects of an entry, or sometimes the entry in its totality. As a result, there were often key codes and phrases that appeared in association with multiple categories. Furthermore, there were even a few subcategories that were used for different categories, though in these instances there were significant nuances that led to their categorization into one main category or another. This section focuses on the categories that became evident, as well as the nuances that led to the distinctive categories. Several of the main categories included the subcategory Nonspecific. The subcategory Nonspecific in this context referred to instances where a writing tutor identified a main or subcategory as an element that needed attention in a student's writing, but no further elaboration was provided.

Flow

Flow was an aspect of scholarly writing that carried implications corresponding to both higher and lower order concerns. The *Publication Manual of the APA* highlights the importance of effective writing as being characterized by continuity, the logical consistency in, and flow, the seamless cadence of expression as exhibited by words and sentences (APA, 2020). The subcategories that appeared, in order of frequency of occurrence, were readability (85 instances), transitions (31 instances), progression (15 instances), funnel (7 instances), cohesion (6 instances), headings (5 instances), focus (3 instances), avoid repetition (2 instances), and nonspecific (1 instances).

The higher order concerns among these included transitions, progression, funnel, cohesion, headings, and focus. The lower order included avoid repetition, though readability was an interesting subcategory that emerged because that categorization also included some elements of writing that could be perceived as higher order. The subcategory readability emerged rather significantly in the study. With 85 occurrences, readability had 25 occurrences more than the next most frequent subcategory.

Style Guide Related

Style guide related concerns ranked as the second most common area identified as problematic in graduate-level health sciences writing with 105 instances from among 1,041 entries. Put differently, about 10% of the students visiting the writing center required support on style guide related matters. Unlike the somewhat elusive nature of the scholarly writing element of flow, style guide related concerns were very clearly defined, perhaps more so than any other aspect of writing. Style guidelines seem to be of critical

importance in health sciences writing, and many assignment rubrics dedicate the awarding of points specifically for adherence to a particular set of expectations. In the health sciences, as demonstrated by the evidence obtained in this study, APA guidelines were prominent. The AMA guidelines were another significant set of expectations, for the field of physical therapy. The types of characteristics that were most frequently considered style guide related would certainly be characterized as lower order concerns.

Organization

Organization is a term in scholarly writing for aspects concerned with the placement and relationship of information in a document. Organization was identified as a higher order concern, and with 105 occurrences, the element demonstrated to be one of the chief concerns for graduate-level students in the health sciences. The subcategory that was the most common in the element of organization was headings (43 instances), which in this category had to do with the logical segmenting and progression of a document as guided by its section headings. Paragraphing (36 instances), the second most frequently appearing subcategory in the category of organization, similarly dealt with the grouping and sequencing of material. The primary distinction between paragraphing and the organizing component of headings was the writing that made up the introduction, body, and concluding sections in any given paper. Section elements (12 instances), thematic presentation (7 instances), and structure (5 instances) were elements that appeared in the data. These elements pertained to the appropriateness of the written materials that were grouped together paragraphs.

Clarity

Appearing 99 times across the dataset, the main category of clarity was another significant element of concern exhibited in the students' writing, appearing in slightly less than 10% of the professional writing tutors' notes. The APA (2020) indicates that clear, precise, and concise writing is far more likely to successfully reach publication. A similarity between clarity and the element of flow is that they both included some concerns that could be characterized as higher order and others as lower order. The higher order concerns fell into the language development (44 instances), precision (18 instances), focus (13 instances), phrasing (3 instances), purpose (2 instances), headings (1 instance), intention (1 instance), and logic (1 instance) subcategories, which revolved around matters of comprehension and tone. In this category, issues of clarity with headings signified that students were having trouble capturing the essence of a section of writing in their headings. The lower order concerns identified in the study included ambiguous pronoun references (9 instances) and grammar (5 instances). In addition to being a subcategory of clarity, grammar appeared in this study as a main category as well. However, due to the specific nature of the main category clarity, I decided to include those items that could have potentially appeared in either main category in the main category of clarity.

Alignment

Alignment was the next most common element of concern, with 88 instances occurring from among the datasets. Alignment was singularly a higher order concern that was associated, most frequently, with lengthy and complex documents. Among the code

words associated with alignment were “background section,” “chapter elements,” “definitions,” “delimitations,” “IRB documents,” “results chapter,” and others that corresponded to dissertation and capstone projects. Other code words that appeared in the study, such as “parallel structure,” “presentation of information,” and “section alignment” demonstrated that the main category of alignment was related to organization: there was a component having to do with the sequencing of information. However, the distinction that alignment carried from the main category of organization occurred in the connectivity and consistency among organizational units in a complex piece of writing. The most prevalent subcategory that appeared in the main category of alignment were section elements (28 instances), which pertained to whether the appropriate information appeared in the appropriate sections, and sections (24 instances), which appeared to focus more on whether the separate sections were consistent. Other subcategories in alignment included language (15 instances), jargon (technical phrasing particular to a field; 14 instances), and parallelism (6 instances). In the context of the main category alignment, the code word parallelism appeared to signify that faulty parallelism was present across complete sections of writing rather than on the sentence level.

Meeting the Assignment

Meeting the assignment was a category that appeared 68 times in the data set. This element fell into the category of higher order concerns because of the complexity of the tasks that appeared in assignment instructions and through course-based feedback. Unlike higher order concerns that were not usually bound by specific requirement, the element of meeting the assignment revolved around particular expectations for students

that were set out in their instructions, assignment rubrics, and feedback. These types of guidelines operated like those of publication style manuals or scholarly journal submission expectations, except that they originated from particular academic programs, instructors, or assignments and contained elements that did not appear in the larger publication manuals. The code words and phrases for the category included language such as “assigned length,” “following instructions,” and “following template.” The resultant subcategories that were produced from these types of codes were audience (24 instances), instructions (17 instances) and missing information (9 instances).

There was also a set of subcategories that fell into the main category of meeting the assignment that were not necessarily resultant of an inability to incorporate guidelines set out by instructions. These dealt more with the appropriateness of the responses provided. The subcategories of this sort were identified as relevance (13 instances) and analysis (3 instances), and they corresponded to code words and phrases such as “prompt not answered,” “writing off-topic,” and “appropriateness.”

Style

Style was the sixth most common main category in the study, occurring in 63 of the 1,041 codes that appeared in the data. Style was often associated with higher order concerns such as paraphrasing, comprehension, and tone. The correspondent subcategories that appeared in the study included active language (34 instances), which signified the use of active over passive voice, and direct Language (15 instances), which was characterized as concrete, simple, or straightforward language (as opposed to wordy). “Action verbs,” “authorial voice,” and “conciseness” were among the code

words included, as were the phrases “excessive hedging” and “too fancy.” Concise writing (6 instances), voice (4 instances), and emphasis were other subcategories that appeared in the category.

Grammar

With a presence in 62 of the codes, grammar was the next most common category that appeared in the data. Grammar was a category that fell squarely in the category of lower order concerns. Most of the codes were grouped in the nonspecific (51 instances) subcategory, because the codes were too specific for categorization, or were not particularly identified by the professional writing tutors. For instance, several of the code words and phrases were nondescript entries such as “grammar,” “mechanical edits,” “revision,” “sentence-levels,” and “proofreading.” Specific code words included “article misuse,” “capitalization,” “comma splice,” “italics,” and “sentence fragments.” Parallelism was an identified subcategory, with nine instances appearing that included subject-verb agreement, lists, and verb tense. ESL, with two occurrences, was the only other subcategory.

Evidence

Scholarly writing, at the graduate level and beyond in particular, is grounded in published literature. Health science writing requires critical thinking and evaluation that is built upon published, evidence-based practices. With 57 occurrences appearing in the data set, the main category of evidence was in the top half of the most common elements of writing that health sciences graduate students struggled with, as observed by the writing tutors that they worked with. Nearly every entry for the category fell into the

subcategory of ground in literature. Among the code words and phrases that appeared for the category were “cite sources throughout,” “empirical claims/data,” “evidence lacking,” “gap in practice,” and “support needed.”

Synthesis

Scholarly writing at the graduate level in the health sciences is expected to go beyond the mere reporting of data or summarizing of articles or other texts. In this regard, the main category of synthesis was closely related to evidence. The main category of synthesis was presented in 46 instances. Unlike evidence, which was assigned to the students’ demonstrated need for evidentiary support drawing from peer-reviewed and published sources, synthesis pertained to instances where support was incorporated, but often with less skill than was expected of graduate-level academics. There were several subcategories that appeared under the larger category of synthesis, the majority of which would be considered higher order. The large number of subcategories in synthesis perhaps spoke to the myriad of obstacles that can impede mastering that skill.

The most common of the subcategories was thematic presentation (11 instances), which corresponded to students moving from descriptions of several articles in sequence. This type of organization might be expected in an annotated bibliography, rather than by weaving together multiple sources with a thematic arrangement. The next most common was paraphrasing (11 instances). In the context of the category synthesis, paraphrasing referred to students’ ability to successfully incorporate evidence into their writing while simultaneously maintaining their authorial voice or argument. The next two subcategories, unintentional plagiarism (9 instances) and support (6 instances), were

related to paraphrasing, except that they identified issues that could arise in paraphrasing. The former being a student's inability to successfully identify the source of a bit of data or an idea, and the latter being related to the opposite: the inadvertent misrepresentation of a bit of a student's original work as appearing in a cited source. Another recurrent subcategory was Citation, which in the category of synthesis referred to a student using only a single source too frequently in a section or manuscript. The subcategory Citation was associated with code words and phrases such as "over-citation" and "too many in single source location."

Planning

Planning was a somewhat unique main category in this set of results in that it was the only category that may not always appear related to subpar elements of writing exhibited by the students. Instead, the main category of planning surrounded problematic writing that appeared to be a result of a disorganized approach to paper development. All the other types of code words and phrases that dealt with writing tutors' instructions or the process of writing or conducting research were placed in the main category of misaligned material, which appeared as the final main category included in this section. However, I decided to include planning as a main category because the issues demonstrated in the tutors' postsession narrative notes originated in problematic writing. By comparison, code words that were placed in the misaligned material category were resultant of students arriving to their appointment, for example, with nothing written.

Planning, which appeared 42 times, included two subcategories: ideation (25 instances) and outline (17 instances). The code words associated with this main category

included examples such as “approach/content lacking,” “preliminary draft,” and “outline for development.” Ideation appeared to pertain to instances when the writing was somewhat basic and required planning before further development could take place. Outline, on the other hand, referred to instances where information was present, but the sporadic or disconnected writing needed to be considered through the larger scope of an outline. This approach was often referred to as “reverse outlining” by writing instructors.

Conventions of Genre

Conventions of genre appeared as a category from among 38 of the code words identified in the study. The category focused on higher order concerns that were not unlike the types identified in the categories of style guide related and meeting the assignment. The elements revolved around students meeting expectations set out for their writing. The conventions of genre category was distinct, however, in that it pertained to guidelines and scholarly expectations that were not necessarily housed in either publication manuals or assignment instructions or rubrics. These concerns seemed to result from known, but often undefined, expectations that surround the genre of scholarly, health sciences writing. Writing center visitation was often encouraged as a supplemental support service as a means for addressing concerns surrounding these unspoken aspects of scholarly writing in the health sciences.

The first of the two main subcategories that appeared in the conventions of genre category was tense (19 instances), which in this context usually referred to a requirement from project advisors for students to adjust the verb tense of their documents to keep them consistent with the stage of their project they were in (proposal or final project).

Verb tense appeared as a lower order concern in other categories in these results, but in this context, because of the role it plays in the larger communication of the documents/projects, it was considered higher order. The second was missing elements (15 instances), where students were often expected to include components in their sections that had not been defined in any formal locations. These expectations similarly appeared to revolve, in most instances, around capstone and dissertation projects. Code words and phrases for the topic included “appendices,” “lit review,” “methods,” and “what data to include in body.”

Word Choice

Word choice was a category that was identified, which fell into the category of lower order concerns. Word choice appeared 32 times, and the concern most frequently appeared with general concerns identified by the writing tutors. The most common subcategories in word choice were repetition (18 instances) and elevate language (11 instances). Code words and phrases included “colloquialisms,” “language development,” and phrasing.” The subcategory jargon (3 instances) in this context indicated language that students merely needed to learn through their increased involvement in their respective health sciences fields, as a matter of their development as professionals.

Paragraph

Paragraph was a main category that fell in the category of higher order concerns, particularly because it surrounded elements of organization and analysis. The decision was made to include the category as a main category, rather than including it under the main category of organization for two reasons. The first was that the subject matter of the

element pertained to organizational and analytic concerns that arose in the unit of paragraphs, while the subcategory paragraphing that appeared in the main category of organization had more to do with the sequencing and relationship that existed between paragraphs. The second was that there were several subcategories that appeared in the main category of paragraph.

The most common of the subcategories in paragraph was structure, which appeared 14 times. Structure in this context referred to the need for an intentional design and internal cohesion in a paragraph. Many of the writing tutors would even recommend specific structures, as evidenced by the code words for the subcategory, such as “PIE” (which stands for point, information, evidence) and “MEAL” (main point, evidence, analysis, lead out).

Argumentation

Argumentation was the least common main category, which appeared 20 times throughout the data set. The element pertained to aspects of critical appraisal and comprehension, and therefore was categorized singularly with higher order concerns. The most common subcategories for the element were thesis development, which appeared eight times, followed by gap, with appeared three times and referred to the need for a student to better articulate where their project fit in the scope of the published literature. Code words for the main category of argumentation included “argument strengthening,” “explain purpose of a project,” and “focus and intentionality.”

Misaligned Material

The category misaligned material was created to capture the data that pertained to aspects of writing center tutoring sessions that did not relate to elements of writing. These bits of data were not removed during the initial sorting along with other material that was unrelated to this study because they existed among entries that did include relevant information. For the sake of transparency and completeness with my data analysis, I included the misaligned material among the categories and in the results. The misaligned material is categorized into three subcategories: process, aesthetics, and unrelated.

The subcategory process captured tutorial support that was instructional in nature, required redirection toward other support services, or was connected to counseling-type support or mentoring. None of these pertained to elements of writing. Process was similar to the main category of planning that was discussed earlier in the chapter, insofar as there was sometimes a brainstorming or planning aspect to the process components. However, the material was moved into the misaligned material section in instances where the students had visited with nothing written. The code words and phrases for these included “accountability,” “positive feedback,” and “research paralysis.” There were seven instances where writing tutors were asked to support concerns related to aesthetics such as “PPT appearance,” “images,” and “website format.” None of these instances involved writing. The subcategory unrelated captured completely irrelevant codes and phrases that made their way into the study including “research process,” “meet with statistician,” and “visual impairment issues.”

Themes

The raw data, coding spreadsheet, and resultant categories were reviewed upon the completion of the study so that themes could be identified. The findings include three themes that appeared pertinent for consideration for professional writing tutors working with health sciences graduate students. The themes that emerged from the results included that (a) all elements of scholarly writing must be addressed simultaneously, (b) the traditional writing center approach to providing support, which prioritizes higher over lower order concerns, does not appear to apply where working with graduate students in the health sciences is concerned, and (c) the elements that ought to be the focus for each writing center session should be based on each individual more than any standard operating procedure.

The theme of providing simultaneous feedback occurred through the appearance of the consistent combination of various but distinct elements across the dataset. This finding resonated across the writing tutors 300 postsession narrative notes in the raw dataset. For example, one note that included observations of distinct and unrelated areas of concern in a students' writing suggested work on:

structure and organization...to substantiate the connection between student-athlete transition and [occupational therapy]" as well as "eliminating 'to be' verbs in favor of more concrete/active verbs, rephrasing interrogatives in declarative sentences to more straightforward noun phrases, [and] matching sequences of sentence elements to the sentence's logical structure," in addition to "general sentence-level micro editing.

In another example of the simultaneous providing of feedback, the narrative note included, “APA 7th Edition style [concerns]. Make thesis statement direct. Introduce distinct supportive reasons. Focus body paragraphs on individual reasons and include source citations and specific examples.” The same note included additional information surrounding the topic of organization, and then moved into sentence-level concerns: “Very difficult to follow ideas and arguments...focus on... [one] or [two] action verbs per sentence.”

The raw data for the study included 417 entries; however, the data were sorted into 1,041 unique lines of data for coding. The resultant 16 categories of elements of scholarly writing identified as subpar demonstrated that there were similarities across the individual sessions. The greater amount of data for coding demonstrated that multiple elements of writing were addressed in each session; an average of 2.5 elements per session. Furthermore, the varied nature of the results indicated that the elements being addressed spanned across the range of categories identified. This appeared to demonstrate that graduate students in the health sciences benefit from receiving support on distinct elements of writing in a simultaneous fashion.

The next theme that appeared was that the professional writing tutors did not limit their instruction with the traditional approach of prioritizing higher over lower order concerns. This theme was made most apparent through the seemingly random appearance of higher and lower order elements across the range of elements identified by the professional writing tutors. Lower order concerns appeared in the first, second, and eighth most common elements identified. Examples of these frequently appearing lower

order concerns identified in the professional writing tutors postsession narrative notes were phrases. One example that identified flow as a concern appeared as follows:

She was concerned with flow and asked me to make sure everything made sense.

We read through her paper and identified several ways in which she could improve her clarity, including using active voice, being more straightforward, and using specific language.

An example that identified style guide related concerns was, “No style guidelines followed...read work aloud; break up long paragraph; break up long sentences.” The appearance of lower order concerns amid the top two most-common categories (as well as a third right in the middle) demonstrated that the professional writing tutors did not provide their support based on the traditional approach of prioritizing higher order concerns. On the contrary, lower order concerns were included among the most common categories, which signaled that the population seemed to prioritize lower order concerns during their session.

Of course, there were far more categories that could be characterized as including higher order concerns (13 out of the 16). For example, on the topic of alignment, one writing tutor wrote among their recommendations, “Define terms to create alignment among sections and to maintain focus on delimited problem statement; work backwards from ‘Problem Statement’ section to set up ‘background.’” Although, this finding appeared to mostly indicate that there were more categories of scholarly writing for health sciences graduate students that could be categorized as higher order. Lower order concerns were among the most common elements of writing that were identified as

subpar by the professional writing tutors, which showed that there was no prioritization of addressing higher over lower order concerns. Given the scope of data as occurring through the appearance of patterns, Table 3 is included to provide a comprehensive glimpse.

Table 3

Study Main Categories, Bloom's Taxonomy Categorization, and Higher Versus Lower Order Concerns

Main category ^a	Bloom's taxonomy category ^b	Higher/lower order ^c
Flow (161)	1.20: Knowledge of Ways and Means of Dealing With Specifics	Higher & lower order
Style guide related (108)	1.21: Knowledge of Conventions	Lower order
Organization (105)	1.24: Knowledge of Criteria	Higher order
Clarity (99)	2.00: Comprehension	Higher & lower order
Alignment (88)	Ground in literature (56), introduction (1)	Higher order
Meeting the assignment (68)	1.10: Knowledge of Specifics	Higher order
Style (65)	2.10: Translation	Higher order
Grammar (62)	1.10: Knowledge of Specifics; 1.20: Knowledge of Ways and Means of Dealing With Specifics	Lower order
Evidence (57)	1.22: Knowledge of Trends and Sequences	Higher order
Synthesis (46)	1.31: Knowledge of Principles and Generalizations	Higher order
Planning (42)	4.20: Analysis of Relationships	Higher order
Conventions of genre (38)	1.21: Knowledge of Conventions	Higher order
Word choice (34)	1.11: Knowledge of Terminology	Higher order
Paragraph (22)	4.30: Analysis of Organizational Principles	Higher order
Argumentation (20)	5.10: Production of a Unique Communication	Higher order
Misaligned material (20)	n/a	n/a

^a Main category presented in descending order of appearance by number.

^b Category identified by cognitive domain number, label, and description.

^c Type of concern in the traditional dichotomy of writing instruction.

An interesting pattern emerged when grouping the most common elements by the frequency of their appearance among the dataset. The elements grouped into three categories, with the demarcation points occurring where the greatest separation between categories existed. The top tier, what has been identified as the most common elements identified, included the five most frequently appearing categories. The second tier of categories included meeting the assignment, style, grammar, evidence, synthesis, planning, conventions of genre, and word choice. The final tier included only paragraph and argumentation. As made apparent by Table 4, along with the larger drops in frequency that happened in the three tiers at these points, the Bloom's categorizations also demonstrated leaps in terms of their rankings in the cognitive domain.

Alignment, the most common element that has been identified as the cut point between the first and second tier of elements, was most suitably categorized with the Bloom's levels of 4.2: Analysis of Relationship and 5.0: Synthesis. Compared with the first and second cognitive domain ranking that appears in the first four most common elements, the element of alignment appeared to rank much higher. The second tier of elements was also dominated with first level cognitive domain rankings. Six of the eight elements in the second tier were identified as associated with first level rankings, while one fell in the second level, and another fell in the fourth. Interestingly, the pattern of a spike in cognitive domain appeared again with the least common elements, with paragraph appearing to connect best with a fourth level ranking and argumentation corresponding with a fifth level. I interpreted this pattern to suggest that the more complex components in the cognitive domain were representatively present in each tier of

elements, though with the least amount of frequency in each. In other words, higher ranking cognitive efforts were required in each set of appointments, but their appearance at the lower end of each tier suggested that fewer opportunities were spent focusing on these elements.

The third theme that emerged from the results was that support for graduate-level health science students should be based on everyone visiting the writing center, rather than by bringing forward areas of focus based on the frequency of elements identified as subpar in previous sessions. The number of categories that made up the most common elements identified by the professional writing tutors (16) demonstrates that graduate students' areas of need are varied. As examples, the range in students' needs appear in a comparison of two postsession narrative notes. The first includes attention to elements primarily falling in the categories of lower order concerns: "AMA 11th Edition style. General feedback: use acronyms and superscript citations consistently; vary word choice; and watch vague language (it)." The second pertains to completely different elements, primarily higher order concerns, than appear in the first:

Worked on breaking up long sentences, making notes regarding where to add more information (to support choices regarding content she will include in podcast), and synthesizing findings: moving away from annotated bibliography - using elements from sources in different sections rather than trying to exhaust every article in one section.

The most common elements could be identified as such because there were elements that appeared more commonly in the individual sessions. However, the similar or even exact

language that appeared in the more frequently appearing categories suggests that their increased frequency was also related to the number of sessions offered by certain writing tutors. This finding suggests that writing tutors, even professionals who hold advanced degrees in the fields of writing, tend to fall into patterns for the elements of writing that they focus on. And so, just as everyone brings their unique set of concerns to each writing center appointment, each writing tutor should be considered as favoring certain instructional elements over others. Support for students visiting a health science writing center at the graduate level should be based on everyone who has requested support.

Results for the Research Question

The categories that appear in this chapter all relate to the research question for this study. The chapter captures the nuances and details behind the main categories identified in the pursuit of a response to the research question posed: What are the most common elements identified by professional writing center tutors as subpar in graduate students' scholarly writing? Upon filtering the collected and analyzed data into a concise response to the research question, the most common elements that were identified by professional writing center tutors as subpar in health sciences graduate students' scholarly writing are flow, style guide related concerns, organization, clarity, and alignment. These elements appeared in the data captured from across 1,041 code words and phrases, which were extracted from the 300 most data-rich postsession narrative notes submitted by professional writing tutors in a health sciences graduate university writing center. The resultant themes are that all elements of scholarly writing must be addressed simultaneously, professional writing tutors working with health science graduate students

should not prioritize higher over lower order concerns, and each writing center session should be based on each student more than any predetermined instructional approach.

Summary

This chapter included a description of the setting and demographic information pertaining to the health sciences university that served as the site of the research. The intention for the study was to pursue the knowledge sought with ethical, transparent, and comprehensive practices. The data collection and analysis included steps to ensure these desired characteristics were met. Data collection and analysis was transparent, thorough, and meticulous. The dataset examined was more than sufficient for reaching theoretical saturation.

The results yielded 16 main categories. Among the most common concerns, several of the most common could be categorized as both higher and lower order concerns. Moving from the most to least common elements identified, higher and lower order concerns appeared sporadically. Furthermore, both higher and lower order concerns appeared among the most and the least common elements. The themes that emerged from the results were that all elements of scholarly writing should be addressed simultaneously, professional writing tutors working with health science graduate students should not prioritize higher over lower order concerns, and each writing center session should be based on each student more than any predetermined instructional approach. The fifth chapter of this study includes an interpretation of the findings in the context of the literature and the conceptual framework, as well as the limitations of the study.

Additionally, recommendations for future studies and the implications of this research are discussed. Finally, Chapter 5 ends with the conclusions drawn from this research.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of the basic qualitative study was to identify the most common elements identified as subpar in graduate students' scholarly writing by professional tutors working in a health science writing center. To complete this examination, I conducted a qualitative document analysis of the postsession narrative notes submitted by a team of professional writing center tutors during the fall 2022 trimester. Document analysis was appropriate for this study because the results were based on data collected in a real-world setting rather than a theoretical or imagined setting, which led to more complete and verifiable data that were, perhaps, less biased than data obtained through an opt-in approach. Furthermore, the data set was not created as work output for the purpose of the study, which bolstered the trustworthiness of the results.

The original *Taxonomy of Educational Objectives* by Bloom et al. (1956) served as the conceptual framework for this study. The selection of the original taxonomy was to include a common language that could be used to examine the methods and approaches used to improve scholarly writing of students in the health sciences. The taxonomy supported this goal through the identification and categorization of educational objectives. This classification was applied to my examination of professional writing center tutors' postsession narrative notes. The intention of my classification was to identify and categorize the most common elements noted as subpar by professional writing center tutors who assessed graduate students' writing in a health sciences university. The commonness of the elements appearing in the study was supported by a word-frequency content analysis. Findings may be used to increase awareness of the

needs of scholarly writers in the health sciences and improve instructional approaches used by professional writing center tutors.

Attrition and the length of time needed to complete a degree in graduate school have increased since the early 2000s, which has signaled a need for more structured graduate student support (Summers, 2019). Writing centers have been shown to promote literacy skills in scientific fields (Shome, 2019), yet there were few formal studies conducted on writing centers operating in health sciences universities. To address this concern, I developed a researcher-designed instrument for the filtration and analysis of raw data exported from a health sciences archival database. Using a basic qualitative design, I conducted descriptive coding as a first-cycle analytic process and a second-cycle pattern coding approach, which allowed for the development of categories, themes, and answers to the research question.

The analysis of the data resulted in 15 relevant categories that were used to answer the following research question: What are the most common elements identified by professional writing center tutors as subpar in graduate students' scholarly writing? These categories were, in order from most to least common, flow, style guide related concerns, organization, clarity, alignment, meeting the assignment, style, grammar, evidence, synthesis, planning, conventions of genre, word choice, paragraph, and argumentation. An additional category (misaligned material) emerged that did not correspond to the research question but was included in the analysis. The five categories that were most prominent across the 1,041 code words and phrases were flow, style guide related concerns, organization, clarity, and alignment. Three themes that appeared in the

results were the following: (a) All elements of scholarly writing should be addressed simultaneously, (b) there should be a prioritization of higher over lower order concerns by tutors working with graduate students in the health sciences, and (c) any preformulated instructional approaches should be secondary to the needs of each individual visiting such a center.

A significant component that appeared in and across the main categories was the categorization of higher versus lower order concerns. The categorization of students' errors as falling into one of the two categories was introduced in early tutorial practice manuals (Meyer & Smith, 1987) and is a practice that has carried into contemporary writing center pedagogy (Lawrence & Zawacki, 2019; Wisniewski et al., 2020). Bloom et al.'s (1956, as cited in Dunn & Moore, 2020) original taxonomy ranks the six primary categories of the cognitive domain from the least to most complex, signifying a hierarchy of educational objectives.

Historically speaking, in the fields of scholarly writing, higher order concerns have been considered of greater importance (as reflected in their name) because of their focus on elements considered central to providing logical understanding, analysis, or synthesis (Reigstad & McAndrew, 2001). Lower order concerns have been deprioritized and can be considered as pertaining to the technical correctness of language (Reigstad & McAndrew). Despite the traditional cascading approach that encourages tutorial instruction as moving from higher to lower order concerns, a revisiting of this prioritization has been encouraged at the graduate level (Lawrence & Zawacki, 2019).

The results of the current study showed that the most common elements identified included both higher and lower order concerns. Additionally, both higher and lower order concerns appeared in the least common elements. Finally, the appearance of higher and lower order concerns was sporadic when moving from the most to least common elements identified by professional writing tutors in a health science graduate university writing center. The interpretation of the findings for this study occurs in relation to their categorizations as higher versus lower order. Additionally, these categorizations are considered against the categorization of cognitive domains that appeared in Bloom et al.'s (1956) original taxonomy.

Interpretation of the Findings

The subject of interest in this study was the postsession narrative notes submitted by professional writing center tutors operating in a health sciences university. The stakeholders who contributed to the postsession narrative notes were the tutors and graduate-level health science students about whom the notes were written. The interpretation of the findings pertains to these populations. My interpretation of the findings addresses the research question, the literature surrounding the topic, and the conceptual framework.

Research Question

The most common elements identified by professional writing center tutors identified as subpar in graduate students' scholarly writing were identified by the 16 categories that emerged from analysis of the data set. To answer the research question, I used a basic qualitative approach that included a word-frequency content analysis. This

technique has been described as leading to greater precision and validity, as well as less bias, in comparison to more common approaches to category construction (Simon & Xenos, 2004).

The most common subpar element of writing identified in the study was flow, with 161 out of 1,041 total entries falling into the category. Flow has been defined as “the smooth cadence of words and sentences” (APA, 2020, p. 111). This prominent element was branched into subcategories, most of which could be categorized as higher order (transitions, progression, funnel, cohesion, headings, and focus) based on the literature. However, one of the subcategories, repetition, appeared to fit more readily into the lower order of concerns due to it falling into the realm of sentence-level errors. It is perhaps because of the flexibility between the two traditionally established categories (higher and lower order concerns) that the main category flow appeared so prevalently across the data set. Readability, a subcategory of flow, was the most frequently occurring in the element. Readability was a subcategory that included keywords that contained nuance that would categorize as higher order concerns (e.g., themes, structure, and illogical progression) and others as lower order (e.g., long sentences). The fact that the most common element identified as subpar eluded singular categorization affirmed the need to revisit the traditional prioritization of higher and lower order concerns for students’ writing at the graduate level. The other most common elements were style guide related concerns, organization, and clarity.

Literature

The major findings from my study demonstrated a few departures from the literature, although these departures made sense when pieced together. For example, word choice had been identified as an element that was associated with higher levels of complexity for graduate students (Lawrence & Zawacki, 2019). The current study demonstrated that word choice was the second least common element identified. This finding appears to contradict the literature, but perhaps makes sense because of the health sciences university in which the study was conducted. Bias-free language was not a concern, perhaps because health science students are trained to use people-first language when discussing symptoms and conditions. For example, language such as “a person who suffers from alcoholism” is preferred over “an alcoholic.” My interpretation of the findings takes into consideration the type of training that health science students receive as emerging professionals in their fields.

The element of flow as the most common element among the findings from my study appears to contradict the literature on the topic. Tone, a nebulous and difficult concept to master, is an aspect of scholarly writing that can be considered as corresponding with flow. Studies have shown that scholarly writing in the health sciences contains notable patterns that result in similarities across publications (Bada & Ulum, 2018). Given that tone and flow likely improve when writers are more familiar with the common lexicon in a genre, one might expect that graduate students in the health sciences would be proficient in the area. However, when considering the notion that writing instructors are more effective at teaching tone when they understand the purpose

of a genre and the structure that best supports that purpose, the identification of flow as the most common element identified as subpar makes sense in that graduate students visiting their writing center are still learning these conventions of writing even if their grasp of the conceptual components of their fields are already at an elevated level.

My findings on organization, the third most common element, also appeared to contradict the literature, in which the topic has attracted attention in graduate-level education (Cahusac de Caux, 2021). The contradiction is further corroborated when moving into the fields of health science, where organization is considered a fundamental component of scientific writing (DeCoux Hampton & Chafetz, 2021; Riley, 2019). The frequency of the appearance of this element in my study was a departure from the literature on the topic in that though it appeared as one of the most common elements in my study, the literature suggested that students only sometimes recognized organization as a significant element in their scholarly writing (Eriksson & Nordrum, 2018). The appearance of the category as the third most common element could also signal that the students' lack of awareness of the significance of the element could be a reason for the frequency of its appearance in my findings.

The findings of the second and fourth most common elements (style guide related and clarity, respectively), corresponded with the literature. Studies indicated that formatting and the support of APA style concepts have warranted specialized tutoring (Conzo, 2019). Several studies have indicated that many graduate programs benefit from additional support for style guide-based formatting (Conzo, 2019; DeCoux Hampton & Chafetz, 2021; Durham et al., 2019), which was corroborated in my findings. Similarly,

clarity has been identified as an area of deficit for students in graduate-level health science programs (Durham et al., 2019), and the element appeared in my findings.

Framework

Bloom et al.'s (1956) original taxonomy, the conceptual framework for the current study, provided an additional layer for consideration of the educational objectives of professional writing center tutors. The original taxonomy was laid out in the reverse order of the higher and lower order prioritization. Higher order follows a pattern of the top-most components pertaining to matters of greater complexity (elements of language pertaining to logical understanding, analysis, or synthesis). Meanwhile, lower order concerns (elements of language related to superficial correctness and standard rules of writing) are deprioritized, thereby establishing the downward cascading sequence. Bloom's taxonomy progresses from the least to most complex aspects of the cognitive domain, with six primary categories ranked and sorted by the numbers 1 being the least complex and 6 being the most complex. Therefore, the taxonomy progresses in an upward-moving hierarchical fashion. Regardless of the direction of the sequences, both approaches would seek to prioritize certain types of elements through a system of ranking. These approaches, therefore, may result in formulaic tutoring approaches that limit the learning and developmental potential that may exist in one-to-one writing tutoring opportunities for graduate students in the health sciences.

In application of Bloom's *Taxonomy of Educational Objectives*, elements of writing can be assigned throughout most of the levels of complexity that appear in the cognitive domains of the taxonomy. Scholarly writing might be considered central to

expressing judgments in terms of internal evidence, which is a subcategory of Evaluation 6.00, the highest educational objective in the taxonomy. The definition of judgments in terms of internal evidence that appears in the appendix to the original taxonomy includes the “evaluation of the accuracy of a communication from such evidence as logical accuracy, consistency, and other internal criteria” (Bloom et al., 1956, p. 207).

Scholarly writing could be assigned to the other subcategory of the educational objective evaluation, which is judgments in terms of external criteria. Ranked as Cognitive Domain Section 6.20, the subcategory is defined as the “evaluation of material with reference to selected or remembered criteria” (Bloom et al., 1956, p. 207). Scholarly writing is characterized by the purpose of writing in that genre, which is the pursuit of publication or entrance into the dominant discourse surrounding contemporary topics in any given field. Whether determined in terms of internal or external criteria, scholarly writing appears to fall into the highest ranked cognitive domain included in the original taxonomy.

Among the other ranked sections of the cognitive domain, the higher order components that fell into the main category of flow (readability, transitions, progression, funnel, cohesion, and focus) align well in the lowest category of the cognitive domain, knowledge. Specifically, the subcategory Knowledge of Ways and Mean of Dealing With Specifics 1.20, where “knowledge of the ways of organizing...as well as the patterns of organization through which the areas of the fields themselves are determined and internally organized” (Bloom et al., 1956, p. 202). Of interest is the connection between the main category of flow, in addition to the category being flexibly categorized as higher

and lower order, with its seemingly logical ranking in the taxonomy. Despite its appearance in this study as the most common subpar element identified, the element is ranked low in the hierarchy of complexity in the cognitive domain, as established by Bloom et al. (1956). Furthermore, it is perhaps worth noting that it was not the lower order elements that could be categorized into Bloom's Subsection 1.20, but rather it was those concerns that were identified as higher order.

Among the five most common elements identified in this study, the top three (flow, style guide related concerns, and organization) appeared to fit into the first level of Bloom's categorization: knowledge. The category, style guide related, appeared to associate most directly with Bloom's subcategory Knowledge of Conventions 1.21. Bloom's (1956) subcategory corresponded to the characteristic components that are used for the purposes of communication, consistency, practices, and forms that best suit the fields for which they are employed. Style guide related matters are elements of scholarly writing that have been specifically identified in any given field, at least in part, for the purpose of consistency with communication.

Given the frequent consideration of style guide related elements of writing in academic rubrics, the frequency of attention paid to the topic is not surprising. However, most health science students (and the rubrics they provide that dictate what they would often care to focus on in their writing) consider style guide-related matters as the particulars surrounding citation, referencing, and the formatting components. Style guides, such as the AMA and APA publication manuals, provide expectations that cover virtually all elements of scholarly writing. Nonetheless, it is the lower order concerns

related to citation, reference pages, and aspects of aesthetic formatting that receive students' attention. The main category of style guide related matters is nearly always identified as a lower order concern. Therefore, even among the top two most common elements identified in this study, higher versus lower order concerns did not serve as reliable predictors for the type of elements that graduate level health science students exhibit as subpar in their scholarly writing.

Where the two most common elements did intersect, by way of predictability, was with the low-level Bloom's ranking by cognitive domain, with the top two elements identified corresponding with Bloom's sections 1.20 and 1.21, respectively. This trend continued with the third most common element, organization, where the most suitable categorization in the cognitive domain is likely the same as applied to flow: Knowledge of Ways and Means of Dealing With Specifics 1.20.

While the ranking level in Bloom's taxonomy remained the same across the top three most common elements, the trend of inconsistent higher versus lower order concerns continued with the element switching again to higher order concerns. Once again, the predictability of higher versus lower order concerns among the most common elements of scholarly writing was unreliable. Despite the inconsistency of higher versus lower order concerns appearing among the most common elements, all but one of the elements beyond the fourth most commonly appearing element, clarity, were categorized as higher order.

The consistency of the first-level ranking among Bloom's taxonomy is noteworthy; however, it should also be noted that there were several first-level ranking

elements presented throughout the most common elements identified as subpar. Perhaps of equal interest was the sporadic appearance of higher-ranking categories from Bloom's taxonomy among the results. Specifically, the first, second, third, sixth, eighth, ninth, tenth, twelfth, and thirteenth most common elements could be considered as falling into the earliest ranking of cognitive domain, as established in Bloom's taxonomy.

Limitations of the Study

A limitation that I faced with this study was the potential for bias arising from my position as the director of the writing center from which the archival data were obtained. However, transparency and mindfulness were maintained so that my interpretation of the data would be as objective as possible. Safeguards were followed to ensure that I did not have any information about the dataset being examined, other than that which was predetermined as needing to appear in the dataset for the study. Because of the time that has elapsed between the fall 2022 trimester (from which the data were collected) and the time during which data analysis occurred (January to March of 2023), as well as the fact that I provided less than 5% of the tutoring sessions that took place during that term, I was not able to discern which notes I had written. Neither could I, for that matter, determine which notes had been prepared by any of the other writing tutors who submitted postsession narrative notes that term. However, while I was not able to determine which writing tutor may have produced notes, I did notice distinct patterns in the data.

A second limitation of the study was related to the identifiable patterns and similarities that arose, presumably, from each writing instructor. The frequency of issues

identified may have somewhat correspondent to the number of sessions provided by individual writing tutors. As part-time employees, the number of hours provided each week varied by tutor. There may have been an inclination for individual writing tutors to focus on elements of writing that they have deemed more significant than others, which would result in a greater frequency of those elements appearing in the data. An approach to consider for future similar studies would be to use pseudonyms for the writing tutors, as opposed to completely removing all identifying data, as the patterns that emerge corresponding to individuals might yield further insight into the phenomenon. Another potential limitation may have occurred because the study focused on the notes with the most data-rich submissions.

A delimiting factor of the study was that the student population did not consist of many non-native English-speaking students. The dataset only included a few instances related to English as second language or non-native English-speaking students. Researchers looking to build upon this study would need to take the delimiting factor into consideration, should they be working among a student population with greater non-native English-speaking student representation.

Recommendations

The purpose of this study was to examine the postsession narrative notes written by professional tutors in a health sciences university writing center to identify the most common elements that were subpar in graduate students' scholarly writing. A recommended next step for the research, based on the anonymity of the writing tutors resulting in a limitation of the study, would be to use pseudonyms for the tutors, rather

than completely deidentifying the data. This approach could potentially yield further insight into the most common elements, taking into account the number of instances of each individual contributing to the dataset. Include a similar number of responses from each writing tutor, rather than simply trimming the dataset to include the most data-rich entries, would eliminate the limitation.

Beyond the possibility of using pseudonyms for the writing tutors, another recommendation would be for the researcher to be aware of who the writing tutors were (and only later building in pseudonyms or alphanumeric identifiers to maintain confidentiality). A possible benefit from knowing who the tutors were could be the addition of interviews or surveys provided to the tutors to add to the richness of detail submitted in their postsession narrative notes. Of course, this approach would likely result in less participation and a potentially incomplete dataset (document analysis of archival data guarantees a complete dataset).

Implications

I examined the postsession narrative notes submitted by professional tutors operating in a health science writing center to further the knowledge and literature surrounding the best practices for these and similar settings. The pattern that emerged of high-ranking cognitive tasks appearing consistently throughout the dataset, but appearing with less frequency than other tasks in similar tiers is worth consideration and could signal that a change in the tutors' focus, at least in the site that provided the research, could be warranted. The finding is suggestive of the possibility that the tutors were not spending as much time on the more complex cognitive tasks. Of course, this information

alone does not necessarily signal a problem. The tutors could simply be responding to the elements that the students preferred to focus on for their sessions. Focusing on the less demanding cognitive tasks could simply lead to increased productivity. Alternatively, the pattern may have occurred because of the limitations on time that surrounded the session. It may also suggest that the professional tutors were choosing to spend the majority of sessions working on the less complex cognitive tasks, leaving the higher pieces for students to grapple with on their own. This type of expectation might be appropriate for graduate students.

The purpose of this study was not to examine the rationale for selected focus for writing center sessions, but these possibilities demonstrate the types of considerations the findings might generate. For example, based on the resultant theme of individualized approaches, graduate students who exhibit various concerns in their writing would benefit from meeting with different writing tutors to maximize their benefit from multiple visits. Additionally, writing tutors might benefit from considering if their own approaches had become formulaic, at the expense of the students' development. In addition to the possibility of informing tutor training and practices in health sciences university writing centers, this current study yields the potential to encourage positive social change.

Positive Social Change

The current study can generate positive social change in at least two ways. The first of these is to improve support for students attempting to emerge as professionals in the health science and medical fields. There is a growing need for health care clinicians in the United States (Almeida et al., 2019; Figueroa et al., 2021; Hamlin, 2022; U.S. Bureau

of Labor Statistics, 2022). Improving writing center training and practices could lead to more and better qualified professionals entering the high-demand fields that contribute directly to the overall health of society.

The second way that this study may impart positive social change is by increasing access to students to the highly specialized fields in the health science and medical professions. Researchers have found correlations among socioeconomic factors, race, and success in higher education (Boliver, Banarjee et al., 2022; Boliver, Gorard, & Siddiqui, 2022; Conwell & Quadlin, 2022). Writing centers have helped balance disadvantages brought about from a myriad of external factors such as racism (Basta & Smith, 2022), unfair economic situations (Monty, 2022), or other forms of marginalization (Bunting, 2022).

Recommendations for Practice

The findings of this current study will contribute to the field of writing center pedagogy, and in particular to the identified gap surrounding the specializations that exist in the health sciences. This information can be used to support the training or inform the practices of the tutors at the study site, and hopefully at other similarly situated institutions. A strong emphasis on tutor training persists in the field of writing center practice and pedagogy.

Many tutor training approaches remain rooted in the historically traditional approach of moving through tutoring sessions from higher to lower order concerns. Unfortunately, students and faculty often have different impressions about what elements of writing would be considered higher versus lower order (Monrad et al., 2021).

Moreover, the suggestion has been made that this prioritization should be revisited when it comes to graduate student support (Lawrence & Zawacki, 2019). The findings from this study support that a myriad of higher order concerns exist among the elements that require support from writing center professionals. However, there should, perhaps, not be as strong an emphasis placed on the one type over the other (higher over lower). The findings of this study showed that lower order concerns were very prevalent among the most commonly elements identified as subpar.

The most common elements identified as subpar oscillated among higher and lower order concerns, despite most main elements identified in the study (13 out of 15) appearing at least partially in the category of higher order concerns. Higher order concerns were more prevalent (809 out of the 1,041 data points collected), however, the most common elements did not fall squarely into either category. Many of the lower order concerns that were presented in the data could be found in three of the four most common elements that appeared. This finding suggested that for graduate students in the health sciences, there may not be a need to prioritize one category over the other. The themes identified indicated that all elements of scholarly writing should be addressed simultaneously, tutors should not prioritize higher over lower order concerns, and individualizing instructional approaches may prove more effective than following predetermined instructional approaches.

Conclusion

Due to the often-higher levels of writing ability demonstrated by graduate-level scholars, as well as the increased expectations placed on students in graduate school, the

traditional approach to working with students in writing center appointment of moving from higher to lower order concerns may not be the most effective. Writing center tutors should support students on the level of their most apparent demonstrated need, rather than by focusing on higher versus lower order concerns. The most common elements that were identified by professional writing center tutors as subpar in health sciences graduate students' scholarly writing were flow, style guide related concerns, organization, clarity, and alignment. This current study supports the idea that a mix of higher and lower order writing support is most beneficial to graduate-level students in health sciences institutions.

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Appendix A: WCONLINE Custom Data Export Options

In order to create a custom export, select the fields that you want to include from the display below and then select "save custom export." Once saved, the custom export can be downloaded via the options at the top of this page by selecting "Custom Export" from the "Data to Export" field. Note that off-schedule client report forms cannot be included if appointment date is also included (as off-schedule client report forms aren't tied to appointments).

REGISTRATION DATA

- First Name
- Last Name
- Email Address
- Registration Date
- Last Profile Update
- Last Login
- Administrative Notes
- Account Deactivated
- Degree program you are currently enrolled in
- USAHS campus you attend
- Student ID (Faculty/Staff: please write "Employee")
- Telephone Number
- First or Home Language
- Gender
- Age group
- How long you have been in your program

APPOINTMENT DATA

- Schedule Title
- Staff or Resource
- Appointment Date
- Start Time
- End Time
- Walk-In/Drop-In
- Missed/No-Show
- Placeholder
- Online
- Focus
- Created
- Created By
- Modified
- Modified By
- Repeating
- Course
- Instructor
- How far into your program are you?
- Is this your first live session with the Writing Center?
- Is this your first time submitting work for Asynchronous Feedback?
- Have you read about Asynchronous Feedback at the top of this page?
- What style guidelines are you using for this paper/project?
- When is your paper due?
- What is your paper/project about? What would you like to work on today? Please indicate if the project is part of a collaborative group assignment or if multiple group members plan to participate.
- How detailed of a review would you like for this session?

CLIENT REPORT DATA

- Staff or Resource
- Appointment Date
- Start Time
- End Time
- Length (Minutes)
- Report Added Date
- Off-Schedule
- Assignment
- Comments

Note. This figure includes the complete list of custom export options available through WCONLINE scheduling software for the research study site as of September 2022.

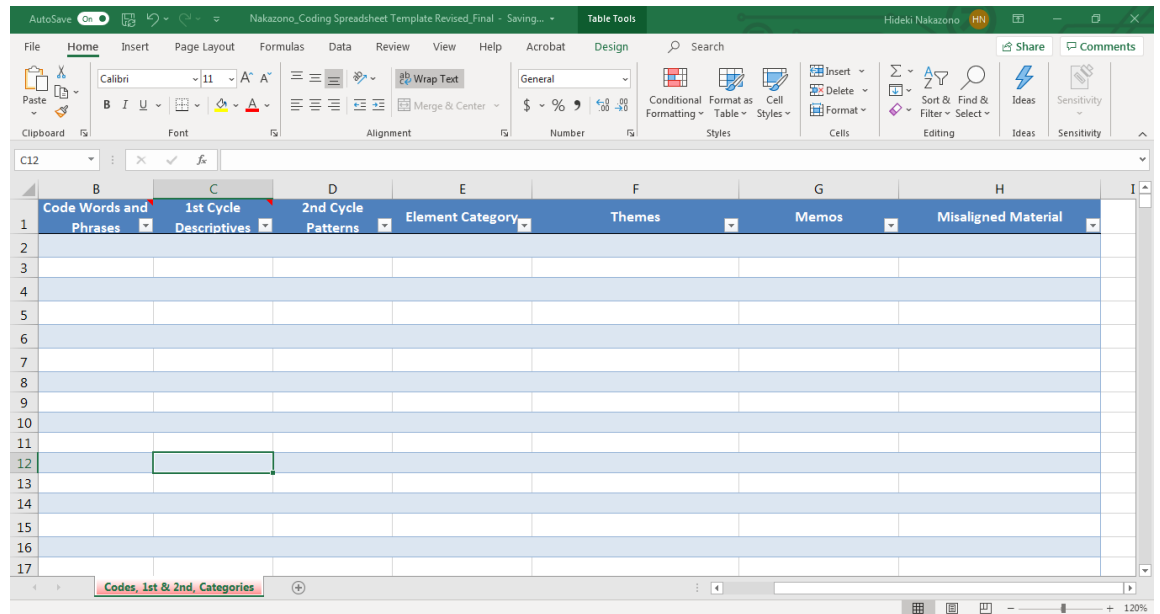
Appendix B: Data Coding Template Codes Tab

	A	B	C	D	E	F
1	Point in Program	Postsession Note #	Postsession Note	Descriptive Codes	Memos	Misaligned Material
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

Appendix C: Data Coding Template Categories and Themes Tab

	A	B	C	D	E	F
1	Point in Program	Possession Note #	Possession Note	Descriptive Code	Category	Themes
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						

Appendix D: Revised Data Coding Template



Appendix E: Categories, Subcategories, and Coding

Main category	Subcategory	Code words and phrases
Alignment (88)	Jargon (14), language (15), nonspecific (1), parallelism (6) section elements (28), sections (24)	Alignment; background section; callbacks; chapter introduction; chapter abstracts; connect material from different sections; consistency; content; definitions; delimitation; disorganized; id section from a research article; introduce ideas earlier; IRB documents, lit review; measurement cycles; missing elements; organization; paragraph organization, parallel structure, phrasing; presentation of information; problem, purpose, rationale; results chapter; section alignment; section elements; sections first; structure, terms; weak conclusions; weak introductions; when to introduce material; word choice
Argumentation (20)	Development (3), gap (4), implications (1), precision (1), purpose (2), significance (1), thesis development (8)	Argument strengthening, clarify stance, explain purpose of project, flesh out body section, focus and intentionality, gap in practice, gap – lit, ill-defined significance, implications of research, precision, PICO question, scholarly development, team writing, thesis development,
Clarity (99)	APR (9), focus (13), grammar (5), intention (1), headings (1), language development (44), logic (1), nonspecific (2), phrasing (3), precision (18), purpose (2)	Ambiguity, APRs, capstone project revision, clarity, cover letter, cut filler, cut language, elevate style, eliminate filler, focus, focus – narrowing, focus project, grammar, headings, language, language development, logic, mechanical revision, narrative flow, non-specific, organization, phrasing, precision, proofreading, pronouns, proposal review, purpose, read aloud, reduce filler, sentence development, sentence-level focus needed, sentence revision, single ideas, specificity, trim details, trim fat, trim filler, trim language, unnecessary info, vague language, vague writing, website review, word choice, wording
Conventions of genre (38)	Appendices (1), masking (1), missing elements (15), primary	Appendices, CLOs, Conclusion, conclusion needed, conclusion paragraph, direct quotes, headings, instructional review, introduction, introduction lacking information, masked location,

	sources (2), tense (19)	introduction needed, lit review – verb tense, methods – verb tense, past tense for published work, tense, secondary sources, what data to include in body
Evidence (57)	Ground in literature (56), introduction (1),	Add detail, cite sources throughout, details missing, empirical claims, empirical data, evidence, evidence lacking, evidence needed, gap in practice, info needed, lacked examples, lit review – scant document, making connections, research, support needed, vague writing
Flow (161)	Avoid repetition (2), cohesion (6), focus (3), funnel (7), headings (5), logic (6), nonspecific (1), progression (15), readability (85), transitions (31)	Broad to specific, cohesion, connect, flow, funnel structure needed, lead out sentences, logical flow, long paragraphs, long sentences, maintain focus, missing topic sentences, paragraph organization, paragraph progression, paragraphs, rabbit holes, redundant sentences, section sequencing, sentence length, short sentences, sign posts, signal phrases, topic changes, transition sentences, transitions, read aloud
Grammar (62)	ESL (2), Non-specific (51), parallelism (9)	Article misuse, capitalization, comma splice, commas, editing, ESL support, faulty parallelism, fragments, grammar, italics, lengthy sentences, lists, LOC, mechanical edits, mechanics, minor edits, parallelism, polishing, proofreading, read aloud, revision, sentence fragments, sentence levels, structure, SVA, team writing, verb consistency, verb tense
Meeting the assignment (68)	Analysis (3), audience (26) instructions (17), missing information (9), relevance (13)	Advisor’s comments, addressing feedback, appropriateness, assigned length, assignment fulfillment, assignment prompts, assignment requirements, comprehensiveness, committee comments, connect sources and topic, connect topic and OT, critical review of a study, dissertation, gaps in lit., instructions, instructor feedback, IRB comments, faculty comments, faculty liaison, following instructions, following template, interview questions, PLA intro, prompt not answered, reach out email, relevancy of content, research design, resume, rubric review, template, writing off-topic
Misaligned material (27)	Aesthetics (7), Unrelated (5), process (15)	Accountability, appointment cancelled, coding, font, images, meet with statistician, positive feedback, MS Word, PPT appearance, PPT

		format, research needed, research paralysis, research process, research support, search strategies, technical difficulties, visual impairment issues, website format, website review
Organization (105)	Headings (43), introduce ideas (2), paragraphing (36), section elements (12), structure (5), thematic presentation (7)	Body paragraphs, break up, capstone proposal, chapter 3, content, combine ideas, combine like ideas, data analysis, differentiate between project elements, group like content, group like ideas, heading document, heading levels, headings, headings development, headings jumping, introduction needed, introduction of ideas, lit review, more detail needed, move info to end, moving content, organization, paragraph organization, paragraphing, presentation of information, redundancy, restructuring, separation of ideas, section elements, sequence of ideas, sporadic presentation, structure
Paragraph (35)	Analysis (3), development (5), structure (14)	Add explanations, add structure to intro, conclusions, connecting ideas, discussion section, disorganized, elaboration, explanation needed, insufficient analysis, inter-paragraph, introduction, language development, missing explanations, missing topic sentences, organization, paragraph development, paragraph disorganization, paragraph organization, paragraph progression, paragraph reorganization, paragraphs, PIE, PIE vs. MEAL, reading
Planning (42)	Ideation (25), outline (17)	Approach lacking, body paragraphs, brainstorming, conclusion, content lacking, incomplete document, introductions, lit review development needed, outline, outline for development, paper planning, PLA, preliminary draft, probing questions, process, project design, read together, team writing, website content, writer's block, writing community
Style (65)	Active language (34), concise writing (6), direct language (15), emphasis (3), nonspecific (1), voice (4)	Action verbs, active verbs, authorial voice, conciseness, concrete language, dense language, dense paragraph, discussion post, emphasize key ideas, excessive hedging, interrogatives, introduction, language development, long sentences, paragraph structure, passive voice, repetition, simplify language, specificity,

		straightforward wording, style, too fancy, verbs – action, verbs – active, verb stacking, vague writing, voice, word choice, wordiness
Style guide related (108)	AMA (6), APA (39), format (60), nonspecific (2), Vancouver style (1)	Acronyms, AMA, APA, appendices, citation, citing own work, evidence table, direct quotes, extra spaces, figures, format, formatting, heading levels, headings, in-text citation, quotation guidelines, references, sentence case, student v. pro, style guide related, table format, table notes, table placement, template, title page, Vancouver style, website citation
Synthesis (46)	Argument & evidence (2), citation (4), objectivity (2) paraphrasing (11), support (6), thematic presentation (11), unintentional plagiarism (9)	Literature review, long paraphrase citation needed, over-citation, signal language, synthesis, too many in single source location
Word choice (32)	Bias-free language (1), consistency (1), elevating language (11), jargon (3), repetition (18)	Anthropomorphism, article for publication, audience, colloquialisms, elevate language, language development, phrasing, population, repetition, repetitious ideas, research project language, vary sentence starters, word choice, wording

Note. This table is organized alphabetically by main categories identified from in 1,041 coding entries.