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Supporting Students in Developing Writing Skills: Inclusion of Underrepresented Students in Graduate Online Education

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Abstract

Institutions and faculty expect students seeking graduate education come prepared for the rigors of graduate writing. If not fully prepared, students must avail themselves of the writing, services, and resources provided by mostcolleges and universities. While selective institutions commonly expect excellence in academic writing, for online institutions with open enrollment that do not require entrance examinations and serve a higher percentage of underrepresented students, the type of writing support traditionally available may be insufficient for students'successful inclusion as they seek to completetheir dissertation. At a regionally accredited private-for-profit online institution, where over 50 percent of the students self-identified as belonging to underrepresented populations, a central challenge that arose was the mastering of general writing skills. This pilot study aimed to diagnose the level of general writing skills of doctoral students. The goal was to identify students at risk for not completing their dissertation due to the lack of general writing skills and refer them for targeted intervention. The conceptual framework for the pilot study posed that a foundational linguistic structure underpins process-based strategiesfor teaching writing, and those skills could be scored using a rubric. Sample papers voluntarily submitted by students were scored with a rubric during in-residence workshops. Results indicated that the rubric was useful in identifying a well-defined subset of students that fell below a threshold of writing proficiency, making it possible for faculty and administrators to refer students for personalized, targeted intervention.

Keywords: Doctoral writing in online education, dissertation completion, writing support for underrepresented graduate students, inclusive practices for the success of doctoral students.

Supporting Students in Developing Writing Skills: Inclusion of Underrepresented Students in Graduate Online Education

Online schools have created a new landscape in what is currently available for educational opportunities, particularly in graduate programs. Prospective graduate students are no longer limited geographically in terms of where they can earn their degrees, and thus, greater opportunity is extended to a larger demographic of students. By 2014, 5.8 million exclusively online students were enrolled, comprising 14 percent of all higher education enrollments. Of these students, 12.6 percent were registered exclusively in graduate programs (Poulin & Straut, 2016).

The number of online programs continues to grow while overall enrollment declines (Poulin & Straut, 2016), and these programs attract a diverse population. By 2017, the proportion of all students enrolled exclusively online grew to 15.4 percent, or about one in six students, (Lederman, 2018). Of graduate students enrolled in exclusively online institutions in the fall of 2017, 2.2 percent were enrolled in public institutions, 8.0 percent were enrolled in private not-for-profit institutions, and 16.1 percent were enrolled in private for-profit institutions (Ginder et al., 2018, p. 10). These data show that for-profit institutions enrolled twice as many students as private not-for-profits and 7.3 times more than public institutions. Because online programs serve more non-traditional and minority students due to their open enrollment policies, they gain a larger share of underrepresented students, and retaining basic writers at open enrollment institutions is a challenge, (Webb-Sunderhaus, 2010).

At the private for-profit institution where this pilot study was conducted, over 50 percent of the students self-identified as belonging to underrepresented populations where a central challenge that arose was the mastering of basic writing skills. Although underrepresented students may have the language proficiency required for a course of study, they may not have the necessary textual knowledge, genre knowledge, and social knowledge for a particular setting (Kamler & Thomson, 2006, p. 102).

There is little research on the obstacles that students in online, open enrollment universities confront related to doctoral-level writing, and even less on the specific challenges for underrepresented and non-traditional students (Bass et al., 2007). Webb-Sunderhaus (2010) describes the writing challenges of a four-year, open-admission institution where equality of access has not equaled equality of success but does not discuss the issue of remote learning. Educational research into developmental writing at the graduate level has tended to concentrate on students for whom English is their second language (Biggs et al., 1999; Cho, 2004; Irwin, 2019), and not on underrepresented populations of American students who have English as their first language. Strategies for teaching writing vary between novice and expert, as they do between native tongue and second language writers (Lavelle & Bushrow, 2007).Wang & Li (2011) 07-Jan-21 1:37:00 AMreport that foreign students, for example, wish to receive more specific, culturally sensitive feedback. However, the prevailing assumptions that students that have undergraduate degrees are "competent writers," as suggested by Biggs et al., (1999, p. 296–297) constitutes a different type of problem. Perhaps as a result of such assumptions, students do not receive adequate instruction to write their dissertation (Cotterall, 2011).

The scant research in the area of online doctoral writing may be due to the many variables that confound pedagogical methods and retention and completion issues. Uncertainties about the graduate-level writing development process have led researchers to look at psychometric factors to categorize, measure, and predict outcomes, although these methods have just begun to shed light on the array of critical processes at play in advancing graduate writing skills (Lavelle & Bushrow 2007; Cuthbert & Spark, 2008). While it was not possible to disentangle the many variables for this study, salient issues were identified in order to place the work in context of the literature.

Whereas all graduate students face multiple challenges with writing, the problem is exacerbated for underrepresented students in online graduate programs. Such programs are more likely to be structured as shorter, asynchronous sessions, and are characterized for the lack of reduced face-to-face interactions with peers and instructors. The online modality provides novel opportunities to teach writing to all students, but a more diverse student population also signifies more students pressed for time because they work and have families while pursuing degrees (Lavelle & Bushrow, 2007). Students returning to graduate programs after a long academic hiatus might also need to strengthen basic writing skills, or have skills that were not solidified in earlier stages of their academic education (Kamler & Thomson, 2006).

All graduate students face complicated and extremely inconsistent definitions of academic writing, literacy, and scholarly writing (Lea & Street, 1998; Ondrusek, 2012), as well as constantly shifting disciplinary requirements and expectations for dissertations and writing conventions (Hale et al., 1995; Cooper & Bikowsky, 2007; Lavelle & Bushrow, 2007; Yeh, 2014; Storey & Hesbol, 2016). In general, graduation rates of doctoral students are alarmingly low (Cassuto, 2013), and "shocking to faculty is that many graduate students not only do not write like scholars, but they also may not think like scholars" (Cuthbert & Spark, 2008, p. 39). While a plethora of self-help books exist to assist students with quick advice, these focus on tools and techniques rather than the discursive practices necessary to become a scholar (Kamler & Thomson, 2008). Advice books reduce the dissertation process to formulaic axioms and can be more detrimental than helpful to students' development of writing skills, (Kamler & Thomson, 2008). Other factors that contribute to the gap found in the success of doctoral students are the differing levels of self-efficacy, emotional intelligence, and anxiety during writing (Bloom, 1981; Huerta et al., 2016).

Adding to the challenges outlined above, an emerging body of research indicates that technology-mediated cognitive processes often seen in online programs rely on text-based learning environments. Graduate writing programs and initiatives that report improved outcomes offer strong face-to-face components to help students improve their writing skills (Ferguson, 2009). Successful approaches include feedback and critiques from peers and professors on successive drafts in physical environments where writing can be discussed and developed.

The practical and psychological value of such approaches is well documented (Caffarella & Barnett, 2000; Ferguson, 2009). Writing advice that stems from research calls to "reduce isolation by persuading students to seek and utilize social support, such as organizing themselves into writing groups" (Johns & Swales, 2002, p. 18).

Social embodied practices are recognized for helping form "academic identities" (Ferguson, 2009, p. 295), "deep writing approaches" (Lavelle & Bushrow, 2007, p. 809), and give scholarly writers a "lively writer's voice." (Kamler & Thomson, 2008, p 512). Therefore, students would be better served when institutions adopt a systematic approach to develop scholarly writers, (Kamler & Thomson, 2008).

With insight on the value of social interactions to develop scholarly writers, it becomes more important to better understand the burgeoning virtual environments to help students develop higher-order thinking processes (Garrison et al., 2009; Yeh, 2014). Academic writing requires, among other things, the acquisition of meaningful understanding of subject matter, along with critical inquiry abilities. Effective methods for teaching writing, such as a dialogical approach to giving feedback to students, may no longer be viable in online environments that lack opportunities for synchronous personal contact between students and faculty.

Fruitful graduate writing programs often include a strong face-to-face component. Writing groups are said to provide opportunities to learn the language by offering participation in human interactions and allowing students to acquire expertise by performing that expertise in front of peers and faculty (Ferguson, 2009). Diagnostic paths for measuring how beliefs and expectations about writing impact outcomes are being used (Lavelle & Bushrow, 2007). However, there is more work to be done to craft tailored pedagogical strategies to cater to different styles and approaches to writing. Students are said to benefit from short-term writing courses, but no single method of writing instruction is suitable for all students (Cuthbert & Spark, 2008). Open enrollment means that institutions can enroll students that come with varying levels of writing proficiency. This scenario demands that faculty meet each student wherever they are in their academic writing development. Despite the fact that technology-mediated environments present pedagogical challenges, new ways to support a diverse student population are also possible and must be pursued.

The expansion of online environments gives rise to novel pedagogical and collaborative practices. Online environments provide distinct opportunities for delivering effective written and peer feedback to students and for leveraging group resources to develop deeper and more comprehensive insights on their writing development (Shih-Hsien, 2016; Irwin, 2019). Because online programs rely on technology to deliver information and facilitate learning, more research is needed to understand how to balance the benefits of the broader access to education that technology can afford, with the challenges that a more equitable access-to-success model represents. One advantageous aspect of teaching and learning in virtual environments is the capability that digital platforms and tools have to capture and synthesize student performance data at the institutional, programmatic, course, and individual level. These forms of data collection make it easier for faculty and administrators to understand trends, identify problems, and take action based on empirical data.

No single study can address the many complexities of academic writing development as mentioned above. This pilot study aimed to isolate the problem of writing by directly assessing students' papers and then rating where their skills fell on a proficiency scale to refer them to faculty for targeted support. The expectation was to uplift the performance of a subset of students at risk of not completing their dissertation. Given the large percentage of underrepresented students in the doctoral programs due to open enrollment policies, this pilot study took a blind approach toward inclusivity. It hinged on broader research indicating that writing challenges often stem from disadvantaged learning environments associated with underrepresented populations, including historically underserved students, such as first-generation students, racial and ethnic minorities, and low-income students (Kuh et al., 2006). Institutions would benefit students by placing a systematic attention to writing, but it is also important to offer individualized support to students who experience real difficulties with writing because they have somehow missed on the 'basics' (Kamler & Thomson, 2006, p. 145)

This pilot study sought to explore the nature of the writing problem in an open enrollment online institution with more than 50 percent underrepresented students, and in that manner, it provides a contribution to the body of improvement research on the development of writing for all doctoral students in online programs. Through diagnosing the foundational writing skills of *all* doctoral students, the study reaches the large number of underrepresented students to address the inclusion concern.

By bolstering foundational writing skills, it was also expected that the effectiveness of existing process-based writing support strategies would improve, thus alleviating faculty and dissertation supervisors' challenges in addressing the wide range of writing skill levels found at an institution with such diverse student population.

The Linguistic Framework

The conceptual framework was anchored on the notion that a foundational linguistic structure underpins process-based strategies for content mastery in writing. The focus on patterns of writing dates back to the nineteenth century's Scottish philosopher and educator, Alexander Bain (Brittanica.com, 2019; Rogers, 1965). Bain identified *description*, *narration*, *exposition*, and *poetry* as writing patterns that "derived from the writings of the 'masters' of vernacular literature," thus providing a foundation for future composition programs (Applebee, 2000, p. 99). Today, writing that is characterized by well-developed structural knowledge is usually described holistically as logical, free of technical errors, and well-organized.

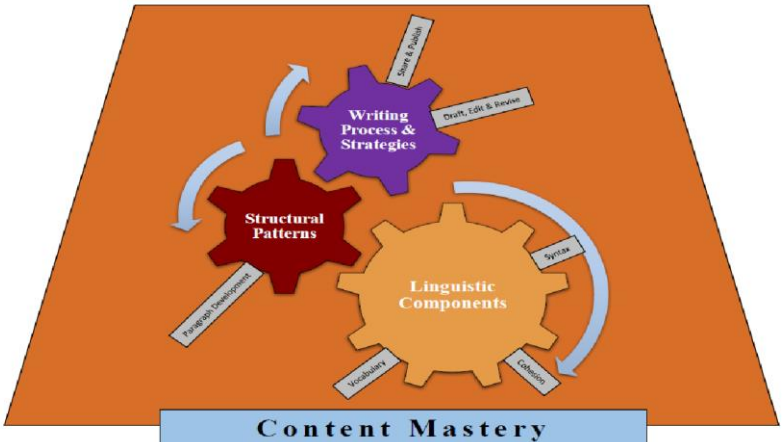
The *linguistic* and *structural* aspects of good writing reflect an emphasis on what writers produce. What often confounds the problem of writing is that writing can also be understood as something that evolves over time through an iterative cycle of generating ideas, drafting, revising, editing, and sharing. *Advanced* writers should excel in *writing processes* (prewriting, revising, editing) and in *strategies* that support these processes. However, these strategies are often general and only successful for students who possess a foundational command of the *linguistic* and *structural* aspects of writing. Based on this foundation, as (Applebee, 2000) suggests, students would be better prepared to apply the very important cognitive skill that is critical thinking to content knowledge on a topic.

Two levels of knowledge production can be observed in the process of writing, the higher ideational level, where the larger content topic knowledge is developed, and a lower rhetorical level, where sentence, format, and mechanics are crafted (Biggs et al., 1999). While the two levels cannot be extricated, the lower level serves to create meaning in the ideational process (Biggs et al., 1999). The linguistic framework of this study can be related to the lower level of Biggs construct because the focus on the quality of ideas ("what I intend to say") inherent in the structural elements of sentences and paragraphs concerns the aim of this study. Relatedly, the notion of "functional grammar" as a linguistic approach to teach doctoral students' foundational skills is a useful concept for the linguistic framework of this study because "it does not emphasize correct usage of formal rules but proposes a view of language as social practice. It interprets the linguistic system functionally in terms of how language is organized to make meanings." (Kamler & Thomson, 2006 p. 101).

A Conceptual Model for Achieving Content Mastery

To express content mastery and fully benefit from the support resources allocated to the *process* of writing, students must gain facility in the foundational, *linguistic components* of writing, which include effective use of *syntax*, the use of longer communication units (sentences), greater elaboration of subject and predicate, more embedding (from analyses of grammatical transformations), wider use of adjectival dependent clauses, more use of dependent clauses of all kinds, larger variety and depth of *vocabulary*, and increasing precision of expression (Loban, 1976; Applebee, 2000). Writers who master the linguistic components of written language manage an increasing degree of structural complexity at the sentence level.

Figure 1. Academic Writing Proficiency Model



Once students have a firm grasp of linguistic components and structural patterns, they can benefit from standard writing support resources to draft, edit, and revise their writing.

Figure 1 above shows that mastering content, which leads to writing at the doctoral level, necessitates the development of skills considered foundational because they lead to good paragraph development (understanding of syntactic structures, acquisition of specialized vocabulary, and appropriate use of cohesion mechanisms). Once students have a firm grasp of these structural elements, they can benefit from standard writing support resources that help them improve their writing. Common methods for helping students hone their writing skills include processes and strategies such as drafting, editing, and revising. Importantly, this study did not delve into critical thinking in writing because of the narrow scope of the rubric used and the specific function it was designed to play as diagnostic instrument. Control of the linguistic aspects of writing also includes the development of cohesion between sentences and cohesive harmony (Halliday & Hasan, 1976; Rentel & King, 1983; Cameron et al., 1995; Crowhurst, 1987). Gaining command of larger writing units and structural patterns in writing is understood as paragraph development (compare/contrast, comment, and elaboration). The approach to supporting students with writing was to diagnose students' writing proficiency in the four linguistic domains as acupuncture points to improve their writing.

Method, Tools, and Procedures

A quantitative approach was taken to understand the state of writing at an online graduate institution, seeking to narrow the focus on students that most needed support by conducting a pilot study. The goal was twofold: a) Diagnose graduate students' writing proficiency using what was termed the General Assessment of Written Language (GAWL) rubric, and b) Define an adequate level of support for students who met a specified threshold based on GAWL rubric scores and an associated rating scale.

The General Assessment of Written Language Rubric (GAWL)

The GAWL rubric was used to score papers. (See Appendix A).The rubric was part of a broader initiative for the institution in the Strategic Academic Literacy Plan, a comprehensive multi-year roadmap for infusing various literacies in the graduate curriculum. The GAWL rubric was aligned with the Written, Oral, and Multimedia Communication domain of such a plan. The GAWL rubric consisted of four foundational linguistic categories or criteria: *syntax*, *inter-sentential cohesion*, *vocabulary*, and *mastery of content*. The number of categories was restricted to four, balancing the need for specificity in the results with the ease of interpreting those results for students during the feedback.

The Digital Rubric

To deploy the rubric across multiple workshops, a digital version of the GAWL rubric was embedded in the Learning Management System (LMS). The instrument had three main functions: a) Communicate expectation consistently to all students, b) Allow faculty to score and use standard feedback with links to resources to practice their skills, and c) Collect data that could be aggregated over time to obtain longitudinal figures.

Procedures

The pilot study for assessing student writing samples ran for twenty-one months. In order to identify students whose academic writing did not meet the threshold of performance, which jeopardized their future success in their doctoral program, a total of thirteen faculty members and three administrators took part in webinar training sessions on how to score student literacy skills in a writing sample using the rubric. Students in years one, two, and three in their doctoral program were asked to upload a writing sample of their choosing generated during their doctoral program course work to a corresponding in-residence workshop. A fourth optional workshop was available to students who sought continued instruction and support beyond the third workshop. When students came to campus as part of their in-residence requirement, they met with a faculty member to discuss the results of their GAWL rubric score against their writing sample. A subset of students who demonstrated a need due to disability or special circumstances attended the virtual in-residence workshops offered in a synchronous video conferencing modality.

Rating and Proficiency Levels

The GAWL rubric was based on a four-point scale for each category with four points signifying *Advanced*, three points signifying *Proficient*, two points signifying *Basic*, and one point signifying *Below Basic*. Students could score a total of sixteen points for 100 percent total weight, as shown in Table 1.

While percentages were not visible to students in the rubric, they allowed evaluators to equate the rubric scores with institutional grading policy. Corresponding to a C+ in the institutional grading policy, it was recognized that the 56 percent threshold provided adequate reference for determining the proficiency threshold. Translating back to points, 56 percent of the total score corresponded to 8.96 points out of the 16 possible.

Table 1. Rating Matrix

	Advanced	Proficient	Basic	Below Basic
Category	Pts	Pts	Pts	Pts
Syntactic Complexity	4	3	2	1
Relationship between Ideas	4	3	2	1
Vocabulary	4	3	2	1
Mastery of Content	4	3	2	1
% Score Range	87.5% to 100%	<87.5% >62%	<62% = 50%	<50%
Point Range	14 to 16	11 to 13	8 to 10	1 to 7
Color Code	Green	Yellow	Orange	Red

After defining a threshold of proficiency, four levels of attainment were established that would support the range of scores. Scores from 1 to 7 points corresponded to the *Below Basic* level (color-coded red), scores from 8 to 10 points corresponded to the *Basic* level (orange), scores from 11 to 13 points corresponded to the *Proficient* level (yellow), and scores from 14 to16 points were placed in the *Advanced* level (green). Equal weight was assigned to each category for ease of scoring and interpretation. The equal weight was sufficiently sensitive to capture signals of proficiency in the distinct linguistic domains.

A common problem of practice faculty faced was explaining to students with precision and consistency why their papers were assessed at a specific level and what they could do to improve their writing. To provide broader context for the descriptions of the rubric criteria (*appropriate syntax*, *inter-sentential cohesion*, *vocabulary*, and *mastery of content)* a detailed explanation was provided of what each level of writing ability could look like depending on points earned. The levels of performance were aligned with descriptions of academic writing skills as expressed by letter grades *(A, B, C,* and *D)* adopted from Wake Forest University's (WFU) (*Academic Writing at WFU*, n.d.). The level's descriptions also proved to be useful for training faculty to score the papers, because they provided nuanced and consistent language for giving feedback regarding students' overall academic writing ability.

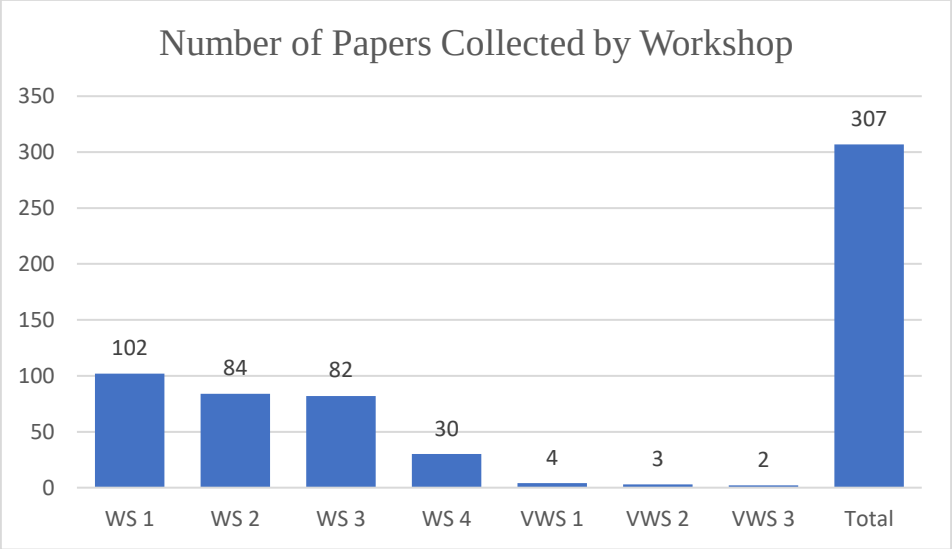
Data Collection

From digital rubrics embedded in the LMS, data was collected that faculty generated from scoring student papers regardless of demographics or grade point average (GPA) standing over a period of twenty-one months.

In-Residence Sessions

A total of twelve in-residence sessions took place during the pilot. Each session offered three to four workshops geared toward students taking the course for the first, second, or third time, per program requirements. An optional fourth workshop was also available to students who desired additional support, for a total of forty-three workshops. Nine of those workshops were offered as virtual in-residence.

Figure 2. Number of Papers Collected by Workshop



Sample Size and Faculty Scorers

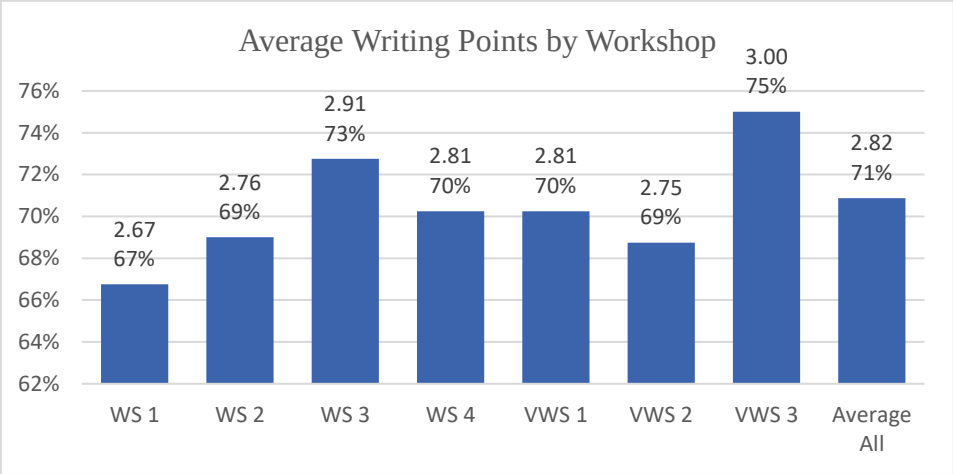
Sample papers received and scored amounted to *n=307* for *N=348* students who attended the in-residence sessions, representing 88.5 percent of those enrolled. Thirteen faculty members participated in the pilot study scoring. Three full-time faculty scored 29 percent of the papers *(n=90)*, while ten adjunct faculty scored the remaining or 70.7 percent of the papers *(n=218)*.

Results

The purpose of the pilot study was to identify the level of writing skills of doctoral students, and to refer students for targeted intervention. Results of papers scored allowed evaluators to isolate four groups of students according to their performance level, giving insight into the types of linguistic writing challenges they faced. In the spirit of blind inclusivity results of the pilot were not correlated to demographic data or GPA standing.

Figure 3 below shows that writing scores increased from Workshop (WS) 1 to 3, per trend data collected for all workshops from August 2016 to March 2018, with scores that were 3 percent higher from one workshop to the next: WS 1 (66 percent), WS 2 (69 percent), and WS 3 (72 percent) representing an overall increase in writing skills of 6 percent by the third required workshop, as defined by an aggregate score on the rubric across four categories. However, the small sample size for workshops WS 4—and VWS 1, VWS 2, and VWS3—render the data equivocal, though there is a clear upward trend in the first three workshops. Additionally, most data points represent unique instances of students' writing scores rather than individual progression. Figure 2, above, shows the number of students enrolled in each of the workshops.

Figure 3. Average Writing Points by Workshop



The average point score for combined linguistic categories for the three on-site in- residence workshops in the pilot study, shown above, was 2.76 points of a possible 4 points, or 69 percent proficiency level. This percentage is above the 56 percent threshold of proficiency defined in Table 1.

While it was useful to understand the overall aggregate growth of writing skills across the workshops, the chief concern was to identify students within the intervention range at the *Below Basic* level of performance gathered from all workshop levels. Figure 4, below, shows how data gathered with the GAWL rubric was visualized using the Rating Matrix shown in Table 1 to determine the level of proficiency. Students in the Below Basic level of writing represented 45 percent of the papers evaluated *(n=14*).

Figure 4. Categorizing and Visualizing Data Collection

Syntax	Idea Re	Vocab	Conten	Total
1	1	1	1	4
1	1	1	1	4
1	1	1	1	4
1	2	1	1	5
1	1	2	2	6
1	2	1	2	6
1	2	2	1	6
3	1	2	1	7
2	2	2	1	7
1	2	2	2	7
2	2	2	1	7
2	2	2	1	7
1	2	2	2	7
1	2	2	2	7

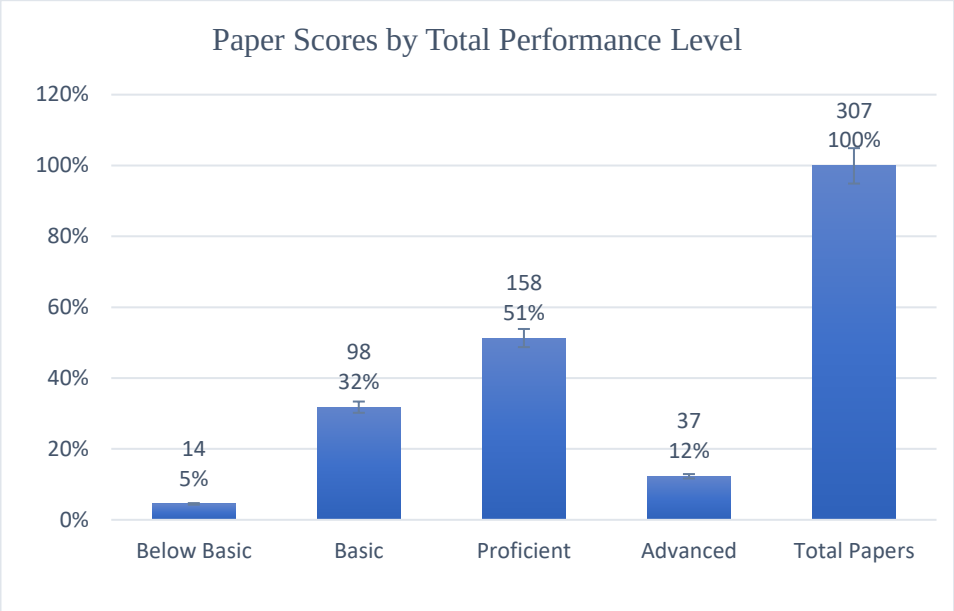
Students with scores in the *Below Basic* level were prioritized for immediate intervention, referral to faculty, and writing support services. To help students, faculty, and support groups understand the level of writing performance and target personalized intervention, the points allocated to the distinct categories of the rubric, along with annotated comments on each paper and summary feedback from faculty scorers, provided detailed and personalized information.

The second group of identified students consisted of those who scored at the *Basic* level of writing skills as measured by the GAWL rubric. In this group of students, 31.8 percent of papers were at the *Basic* level *(n=98)*. These students also had referral priority to faculty and to writing support services, though no immediate intervention was recommended. In both instances, students in the *Below Basic* and in the *Basic* levels could benefit from faculty feedback and related activities linked from the rubric.

The third group of students observed were those who scored at the *Proficient* level. These students comprised the largest group, with 51.3 percent of all papers *(n=158)*, while the fourth group observed, at the *Advanced* level, only comprised only 12.3 percent of scored papers *(n=37)*.

All students received detailed feedback that included comments on the paper, a score for each linguistic level, and a summary of the feedback. The summary feedback provided in the rubric, visible to students from their grade book tool, alerted them of the areas that needed attention.

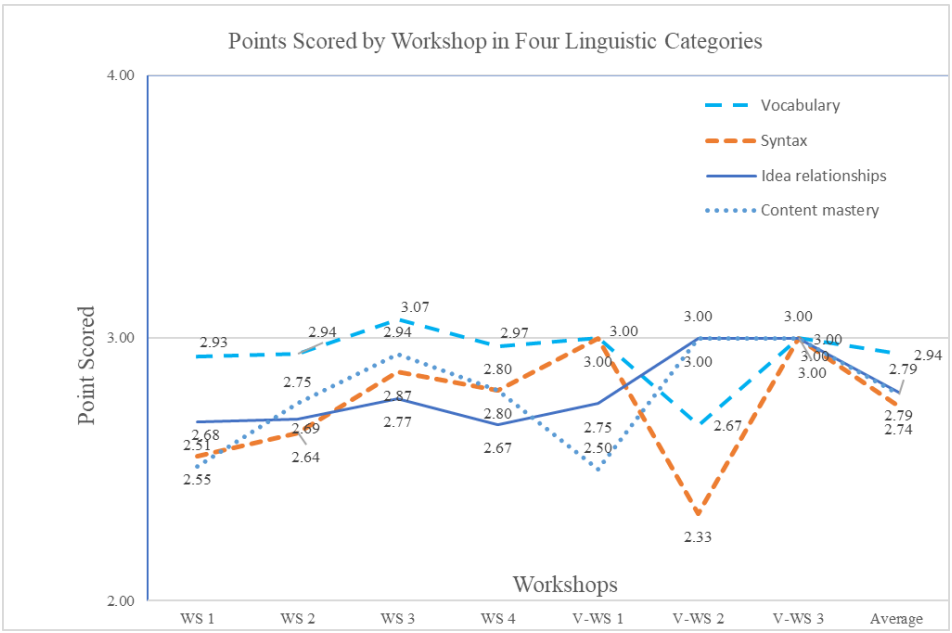
Figure 5. Performance Level by Linguistic Category



A fourth workshop was available to students as an option to improve and advance their dissertation process.

Virtual in-residence workshops (VWS) have the lowest average scores in three linguistic categories, including *Content Mastery* (VWS 1), 2.5 average points; *Syntax*, 2.33 average points; and *Vocabulary*, 2.67 average points (VWS2), but have the highest score for *Idea Relationships* at 3 average points (VWS2). These results may reflect the unique writing challenges that students who chose the virtual modality may face. The small number of students enrolled in the virtual workshops *(n=9)* was insufficient to generate reliable trend data.

Figure 6. Average Score for Workshops by Linguistic Category



Trend lines in the chart above indicate that students began with a higher level of vocabulary versus syntactic development, content mastery, and idea relationships. However, the performance in all categories improved over time, especially in WS1, WS2, and WS3, where the *n* sizes were sufficient for interpretation with eighty-seven percent of all papers submitted in those three workshops.

Despite the overall workshop-over-workshop upward trend, the category of *Idea Relationships* lagged behind the growth of skills in the other linguistic categories.

Rubric Validity and Reliability

Rubrics are commonly used in higher education across and beyond the curriculum to assess multiple measures of learning, and improve learning outcomes and pedagogy as well as for collecting learning research data (Jonsson & Svingby, 2007). To be effective, rubrics must be fit for purpose, and they need to be valid, reliable, and fair (Allen & Knight, 2009). Reliable scoring of performance assessments can be enhanced by the use of rubrics, especially if they are analytic, topic-specific, and complemented with exemplars and/or rater training (Jonsson & Svingby, 2007). Although rubrics do not facilitate valid judgment of performance assessments, they have the potential to promote learning and/or improve instruction because they make expectations and criteria explicit and facilitate feedback and self-assessment that promote met cognition (Jonsson & Svingby, 2007).

Several considerations were taken for implementing a reliable rubric and scoring process while acknowledging it as diagnostic instrument rather than one for high-stakes assessment of student performance.

For fairness, all doctoral students attending in-residence workshops were asked to submit a paper of their choice from a previous class that was four-or-more pages long. Although students were encouraged to submit their best work, papers were not graded. Unlike writing evaluation processes that necessitate all students to be given the same prompt and guidelines to write the paper so as to have fair and consistent evaluations and results, scoring with the linguistic approach does not necessarily require scorers to consider the paper's length, format, or evaluation of specific content. Distancing from typical parameters for scoring writing proficiency is possible because the linguistic approach focuses on recurring structural elements that can be discerned as patterns of an individual's writing as recurring in a few pages. Students were offered written feedback and the opportunity to discuss the results of their scores with a faculty member in person during their in-residence workshop or via telephone at a later date.

Best practices of rubric design were used to structure the rubric. For validity of the rubric's construct, criteria was drawn from the literature cited in the linguistic framework described earlier comprised of four linguistic domains (*appropriate syntactic complexity, relationships between ideas, vocabulary, and mastery of content area*). Writing proficiency was expressed as the accumulation of points (4 *Advanced*, 3 *Proficient*, 2 *Basic*, 1 *Below Basic*). Holistic labels of graduated academic writing proficiency (*advanced, proficient, basic, and below basic*) were correlated to descriptions of the grades A, B, C, and D, published as guidelines of academic writing by Wake Forest University's (WFU) Department of English, (*Academic Writing at WFU*, n.d.). Such descriptions provided useful illustrations of writing expectations that could increase student metacognition. Notably, WFU's web page included a remark that such criteria for grading was "…Used in many colleges and universities. They are included here to help Wake Forest students understand the standards that Wake Forest professors generally use as they evaluate student writing." The WFU expectations served to benchmark academic writing standards for this study.

Increased reliability of the rubric was sought through a process of continuous improvement. The cycle included training sessions for faculty to use the rubric, double scoring a sample set of papers, meetings with faculty after each session to discuss the scoring activities, and planning and implementing improvements. The process required adherence to the pilot study's stated purpose and goals to support students in improving their writing skills, and all the above measures were taken to ensure the integrity of the process.

Implications and Future Directions

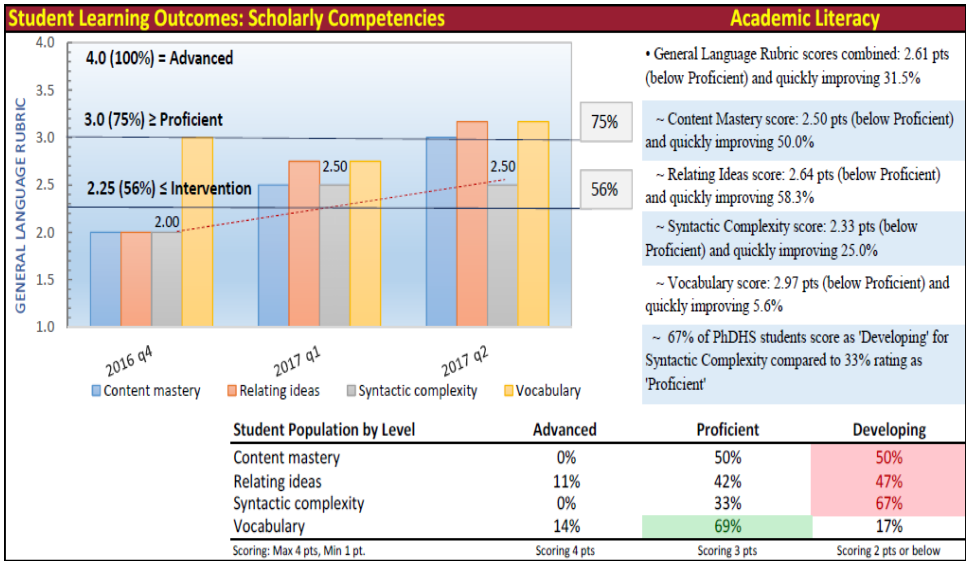
Persistent anecdotal accounts by faculty at the institution where the pilot study was conducted pointed to the problem of doctoral writing as a consequence of the institution's inclusive policy of open enrollment. While the correlation between writing levels of development with student demographics or GPA standing was not performed, the goal was to reach all students, and by extension the large percentage of underrepresented students who are more likely to be at risk of not completing their dissertation due to insufficiently developed academic writing skills.

The aim was to identify the group of students that needed immediate support to improve their writing skills, and results obtained from the pilot study yielded the desired information. Using the GAWL rubric, it was possible to pinpoint four linguistic categories as acupuncture points that could be addressed to help students strengthen their foundational skills to help them become proficient and advanced academic writers.

The rubric allowed faculty to focus on structural issues and use specific language to explain scores and provide feedback, and at the institutional level, insight was gained on doctoral level in-residence workshop-over-workshop learning gains in each linguistic category, though results of the pilot study also exposed several challenges.

A major challenge addressed successfully was socializing the results of the scoring efforts to gain further buy-in from faculty. The pilot study was conducted within and in collaboration with personnel from the assessment department. With their support and expertise, data collected from the digital in-residence rubrics was incorporated in the assessment reporting cycle. Reports were shared with various faculty governance groups, who found the data to be useful. Results were also socialized with deans and program leads, to provide insight into the state of the quality of the program and the key issues that impact dissertation completion. Figure 7 depicts an example of an annual assessment report that shows quarterly results for one program.

Figure 7. Sample Annual Program Assessment Report



Despite taking steps forward to understand the state of general writing skills using the GAWL rubric, the logistics of connecting students to writing support were complex. While some students availed themselves of the faculty support offered during their campus visit, others did not, perhaps because no grades were assigned with the submission. As a result, not all identified students received support from faculty during the face-to-face in-residence sessions or via telephone to discuss how to improve their foundational writing skills.

Limitations of the Study

The initial effort to diagnose writing skills with this pilot study and provide targeted support for doctoral students was opportunistic, exploratory, and pragmatic. The local problem of practice had been ill-defined as argument by faculty that some doctoral students could not write. After a series of informal analysis and writing support initiatives had proven insufficient to improve outcomes for a subset of students, a group of faculty and administrators sought to define the problem of writing with more precision and provide timely interventions for students at most risk of not completing their dissertation. An opportunity to score papers for all doctoral students and offer face-to-face feedback presented itself in the in-residence workshops. Because of these circumstances, the pilot study had many limitations regarding validity, reliability, and generalizability of the rubric and scoring process.

Future validation of the GAWL rubric could be conducted by standardizing and benchmarking the rubric, and by correlating it with standardized or nationally normed instruments such as the Test of Written Language (TWL), or other similar mechanisms. Forthcoming samples requested from students could also be standardized by comprising a common prompt and guidelines for all papers.

Even though the pilot study addressed inter-rater reliability by double scoring papers and by calibrating ratings between scorers through peer discussions, for increased reliability, formal statistical analyses could be conducted. More training for faculty could be offered to improve preparation for scoring papers using the rubric. Calibration of the rubric would also be important, including determining more precise scales for each linguistic category.

For the potential improvement of the process, several proposals were advanced that included the following initiatives: a) scaling interventions by leveraging existing tutoring resources from the writing center to target the specific linguistic domains, b) working with the curriculum committee to introduce the rubric in existing assignments in entry-point courses to provide early writing support, and c) designing an online training course for faculty to score papers using the GAWL rubric. In addition, a plan was drafted to continue gathering data to track the progress for individual students over the three or more years they might take to complete the doctoral program. Because the pilot study took place over twenty-one months, only a handful of students attended more than one workshop during that interval.

Discussion

The focus on developing academic writing skills to support the success of underrepresented graduate students stemmed from the informal analyses and anecdotal accounts of student performance by faculty over several years. As the institution sought to address these challenges, a systematic approach for supporting all students in graduate education emerged as a major leverage point to foster inclusion.

In the pilot study, a gap analysis was conducted that revealed the specific writing challenges for students at risk of not completing their dissertation to support their success in an open enrollment university. As seen by the analyzed data, this gap occurs because some students simply do not possess the requisite writing skills and struggle with the high demands of a dissertation, which calls for substantial skill in academic writing. Scoring results and feedback to students provided additional self-awareness of their writing moving into the dissertation phase of their program. Students were often not aware of the gaps in their academic writing proficiency based on their grade point average (GPA) alone. During the pilot, students received several forms of feedback, including a score representing how their writing was rated against the rubric, annotated comments on their writing, a personalized summary with recommendations for improvement, and links to exercises provided via the rubric's automated feedback to help them learn more about each criterion.

Faculty scorers and administrators were part of the webinar training to score student writing skills using the rubric. Baseline outcome data were collected using a digital rubric tool embedded in the online course shells. Results from scoring writing samples of 307 doctoral student papers met an expected pattern of gradual improvement of academic literacy skills as the students progressed through the workshops. More importantly for the study, results shed light on the specific needs of a subset of students who lacked foundational writing skills.

There are more opportunities than ever for students to earn a doctorate degree. During the emergence and proliferation of online graduate programs, institutions highlighted the benefits that technology afforded in providing broader educational access to underrepresented students. "For-profit higher education was the first sector of colleges to extensively experiment with and embrace online largely, and online students continue to make up a sizable portion of their enrollments" (Lederman, 2018).

In the last decade, all sectors increased their focus on the importance of linking access to success, a trend that will continue to grow as the diversity of the student population increases, accrediting institutions sharpen the focus on completion, and federal funds decrease. To improve student success, and in particular, the success of the growing number of underrepresented students, researchers and educators can benefit from a more specific understanding of the writing challenges students confront to develop solutions that have measurable impact on student success.

Many at-risk students perform well in their classes but are less successful in earning a doctoral degree because they abandon their program or linger in the dissertation writing phase. Open enrollment universities serving a large share of underrepresented populations often include in their mission that they seek to meet the academic needs of diverse groups, yet the traditional writing support that students receive in online open enrollment doctoral programs does not address the specific challenges some students have to contend with to complete their dissertation.

After conducting this pilot study, it was possible to increase the level of specificity of the writing challenges students face in order to continue to grow as academic writers. The unique obstacles that online environments pose for providing direct and synchronous interaction between faculty and students call for increased attention to pursue a more inclusive model of assistance for doctoral students.

Novel pedagogical approaches that work well in virtual environments might be used, and technological tools that facilitate data collection and analysis may also be leveraged.

Results of the pilot study also indicated that when instructors are equipped with the narrative tools to discern where their students need the most assistance to write a dissertation, they can better target their needs because they can provide specific feedback that is tailored to the individual and that includes clear expectations for improvement. Given the high percentage of underrepresented students, this individualized approach to improving writing can boost completion rates for that population. With the amount of debt attached to attaining a doctorate degree and the clear gap present for students that lack the necessary writing skills to complete their dissertation, interventions that help students complete their degrees become an ethical issue.

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Appendix A

The General Assessment of Writing Language Rubric (GAWL)

	Advanced 4	**Proficient 3**	**Basic 2**	**Below Basic 1**
Appropriate syntactic complexity	Syntactic patterns and intra/intersentential cues link complex idea logically and clearly	Syntactic patterns and intra/intersentential cues are adequate but leave gaps in logical progression of ideas and clarity	Syntactic patterns and intra/intersentential cues are not consistently present; use of choppy, simple and predictable sentences	Syntactic patterns and intra/intersentential cues are not present; use of choppy, simple, predictable, and often incorrect syntactic patterns
Relationships between ideas	Contains complex conceptual connections among related details and themes; each sentence and paragraph builds tightly and logically on the previous one; varied sentence structure is used to enhance meaning and effect	Explicit conceptual connections are not always clear, therefore the connections within and between paragraphs, though adequate, do not create the same level of intellectual progression; varied sentence structure adds a level of meaning periodically	Insightful conceptual connections are not expressed; therefore, connections within and between paragraphs are unclear; author lists ideas as they come to mind; contains no compelling or apparent progression of ideas	Connections between and within sentences and paragraphs are haphazard, loosely arranged, arbitrary, or absent, no clear consistent progression of ideas is identifiable; it is difficult to identify what the writer is trying to communicate; elaboration is unrelated to the topic.
Vocabulary	There is clear focus characterized by precise vocabulary; vocabulary is appropriate in tone to the purpose; use of language is academically sophisticated, paired with meaning and energy, creating a distinct voice	Vocabulary, while communicating meaning, lacks sophistication and precision; lack of consistent recognition of fine-grained differences in similar words chosen to communicate	Vocabulary is somewhat meaningful but does not communicate important differences between words/concepts; words are adequate for general communication but lack sufficient sophistication for academic writing	Vocabulary choice is awkward, ambiguous,and may be incorrect; basic words or phrases are repeated
Mastery of content area	The depth of specific information—facts, evidence,	Establishes a clear and intellectually sophisticated focus but does not support	Displays some understanding of the topic but argument or point	Resembles a rough draft; may reveal a loose focus with some relevant

	concrete and abstract reasoning, quotations, examples—provide substantial details that teach the reader; offers insight that goes beyond the obvious; chooses words aptly to express sophisticated ideas	with the same level of substantial information; writer tends to summarize information, leaving the reader *generally* well informed but not with the same degree of expertise	of view is too broad or vague to establish a compelling focus; does not go much beyond the most obvious or general ideas associated with the topic; tends to only identify themes and topics instead of explaining their significance	information, but ideas are unclear and connections between them loosely arranged; no clear sense that the author understands the aspects of the topic; ideas on the page appear to have been moved from a source directly to the page without vetting or organization