"How Do You Know That Works?": A Mixed Methods Approach to Writing Program Assessment

Amy A. Lannin, Jonathan Cisco, Jes Philbrook, and
    Maxwell Philbrook

Abstract

Writing Program Administrators know the importance and effectiveness of multidisciplinary writing instruction, but convincing different stakeholders that such a pursuit is worthy of campus-wide investment is often a challenge. This article shows how one large university writing program approached its own program assessment in an effort to convince multiple stakeholders of the program's effectiveness to improve critical thinking and writing across the disciplines. The authors conducted a mixed-methods case study of two writing intensive (WI) courses in order to explore student writing and student/faculty perceptions of their WI experiences. The authors found that students significantly improved across written drafts and held highly positive feelings toward their courses and their WI experiences. Students identified the benefits of WI courses, such as the value of authentic writing assignments, the critical thinking required of their assignments, and the improvement of their conceptual thinking. The authors argue that ongoing program assessment using a variety of methods can show the effectiveness of multiple layers of writing program work.

Introduction

"It works!" is the ready answer we share when asked about writing across the curriculum at our large university. However, as new leaders in this established WAC/WID program, we soon wished for an expanded explanation of the successes. This need was truly apparent when the Campus Writing Program (CWP) leaders were invited to share the updates of the nearly thirty-year-old program with the Faculty Council. We shared facts and figures about the more than 400 Writing Intensive (WI) courses approved by

the eighteen-member Campus Writing Board that annually reach 14,000 students across all undergraduate programs on our campus of nearly 40,000 students. Then, an engineering professor on the Council asked the perennial WAC question, "Does it work?"

That moment in a Faculty Council meeting helped launch our program assessment; we wanted to approach assessment from our own inquiry rather than from a mandate. This would keep ourselves open to the process and the writing experience of our students and not completely focused on the end as it measures up against a pre-determined rubric or outcome (Gallagher). We wanted to more systematically review WI courses at the student level, understand aspects of the program that might not be working well, and offer data to those outside of the field (like our engineering professor) that this program does work.

Questions of the program's effectiveness had certainly been central to our thinking since each of us began in our CWP positions. We were aware that, on average, students successfully complete (C- or better) 2.5 WI courses on the way to graduation. We also had steady involvement and support of committed WI faculty. But our analysis of the program's work had not included any student writing samples and minimal student input regarding their WI experiences. The student voices and words were missing from our CWP data.

Research Questions and Foundations

In conducting this assessment, we set out to study the effectiveness of a small sample of WI courses to answer the question of "Does this work?" More specifically, the following research questions guided our inquiry:

- How do students' WI experiences align with WI Guidelines?
    - How is writing in WI courses helping students think critically about course content?
    - How are WI courses supporting students' writing in the disciplines?
- How are Writing Intensive courses helping faculty reach the learning outcomes of their courses?

We recognized that these questions are complex and that information we provide on the effectiveness of this program needed to reach a variety of disciplinary audiences. This assessment project builds on studies and reviews about this university's well-known Campus Writing Program (Rice; Townsend et al.; M. D. Patton). Rice uses snapshots to understand the work of the program through network assessment. Townsend et al. pro-

vide a historical macro view of the program, highlighting the struggles and successes of nearly thirty years of existence. In her micro-level case study, Marty Patton focuses on one department, Civil Engineering, to examine the writing assignments, instruction, and experiences of writers so as to build on WAC/WID theories. Our current study is along the lines of Marty Patton's micro-level look into particular WI courses.

Assessment is "an important and valuable component both of program management and of an effective educational environment" (Yancey and Huot 8) and so we seek to make program assessment part of our writing culture so as to see more clearly what is happening in our program, share our findings as part of our educational goals, and seek ways to improve upon what we are doing. Models of program assessment, such as Michael Carter's and Chris Anson and Deanna Dannels's at North Carolina State University provided the basis of a team approach to assessment that includes faculty in the analysis of WAC program features. Based on Carter's process for program assessment, three values anchored our work:

1) student centered, i.e., it should place students at the center of the process by focusing on student learning outcomes;

2) faculty driven, i.e., it should encourage broad faculty investment in and responsibility for teaching and assessing program learning outcomes; and

3) meaningful, i.e., it should provide data and the means for faculty to make valid and appropriate improvements in their programs. (Carter 8)

We sought student input, faculty collaboration, and useful results. As Walvoord stresses, assessment plans should be kept simple, sustainable, and ongoing. We sought to create assessment that was a natural part of our work each year, much like an annual report with meaningful student data included.

Condon argues that WAC programs need to consider the purpose of program assessments, to demonstrate to administration that the investments are paying off in student learning, despite the fact "that writing itself seems more consistent with chaos theory than with the epistemology expressed in positivism" (29). Knowing that our potential audiences are of varied backgrounds, we chose research methods that would speak to a broad range of stakeholders to "employ multiple measures, some quantitative and some qualitative" (Condon 46).

In explaining program assessment through the lens of an ecology model, White, Elliot, and Peckham describe the "humility" needed in

such an assessment due to the limits of what we can learn, because "only an informed instructor, watching a student develop over time, can hope to make a valid claim about the totality of the writing ability of that student" (32). By collecting several samples of student writing over the semester, and talking with students and instructors about their teaching, we hoped to gain a better understanding of teacher and student day-to-day work in a WI course. From an ecological model perspective, we were looking at what can be observed, knowing that there is much more that we cannot see and that these are snapshots into this time and place, not a final statement of constancy.

Working on assessment projects with faculty from across the disciplines provided us with a more detailed focus on students' learning experiences in WI courses. Faculty involved in this study had the particular goal of making changes to teaching, writing assignments, assessments, and adapting to online teaching. Thus, the purpose of the assessment data is more than just numerical finding. The purpose of the data was also about the process involved, as faculty and writing program representatives read student writing, assignments, and rubrics together, and as we look collectively at survey and interview data.

We offer one perspective on how WPAs can conduct assessment of writing at the program or department level, even without large amounts of funds or people. The study—which we view as a pilot study—focused in-depth on two WI courses. In this report, we provide a description of our writing program, the background of the study, the data collected and analyzed, the findings, and the implications.

The Campus Writing Program

Campus Writing Program (CWP) provides support for faculty to design and teach WI courses across campus. Our mission is to

> support faculty as the primary agents of Writing Across the Curriculum (WAC) theories and practices in educating students through principles of "writing-to-learn" and "learning-to-write." We believe that teaching by these principles will enhance students' critical thinking abilities and better engage them in complex problem solving while they learn to communicate with clear, effective language in discipline-specific ways. ("About CWP")

We have found, largely through this study, that these principles of writing-to-learn and learning-to-write are not distinct dichotomies but synergistically influence one another.

All undergraduate students are to take two WI courses, and one must be an upper-level course in the major. Faculty submit WI course proposals for each semester they would like to teach a WI course. These proposals are reviewed by CWP Coordinators and then by one of the sub-committees of faculty on the Campus Writing Board (CWB). WI Faculty are supported with workshops and consultations regarding the design and teaching of writing in the disciplines as well as financial support in the way of funds to supplement teaching assistants for courses exceeding 20 students. There are also funds for which faculty can apply to pursue a WI project, such as creating or revising a WI course.

The writing program is comprised of a director who is on faculty in English Education and two program administrators from English and from Literacy Education. All CWP staff have PhDs and teach WI courses in their academic departments. CWP also has 1–2 graduate research assistants each year, usually from the Departments of English or English Education. This blending from different colleges and backgrounds mirrors the work we do and regularly brings together faculty and graduate students from very different disciplines. This cross-disciplinary approach is a hallmark of the work CWP achieves and a richness noted by WAC scholars (Bazerman; Cornwell and Stoddard). This richness also appeared in our research, as we bring different disciplinary approaches to the work. Thus, in this study we experienced a process of interdisciplinary research, which is in line with Ed White's admonition that "program evaluation ought always to be the responsibility of a *team*, representing different discourse communities" (199).

Methodology

Our program assessment used a mixed-methods methodology to not only learn about the perspectives of faculty and students but also to examine student writing. [1, 2] Specifically, we used what Creswell calls a *multistage evaluation design* through two case studies, with the "bounded system" (Merriam 40) of our case study being the two WI courses from which we gathered data. *Program* or *activities* refers to the individual courses in which the participant students were enrolled.

Participants consisted of students and faculty. A total of 57 students enrolled in one of two 3000-level WI courses participated in the study: Genetics and Society (24 students) and New Products Marketing (33 students). Because these were upper-level classes, the majority of the students were upperclassmen and had enrolled in a previous WI course on campus. We used purposive sampling to identify two established WI courses and

faculty members in different disciplines to obtain a more generalized view of our writing program (Patton). The two instructors also participated. The professor of the first course, Genetics and Society, is an associate professor in Biological Sciences. The professor of the second course, New Products Marketing, is a teaching professor in Agricultural Economics. Both professors hold PhDs and taught WI courses prior to this study.

Our data were collected from a number of sources, and all data collection procedures were approved by and in accordance with the university's Institutional Review Board. Over the course of the study, we collected data from faculty interviews, student interviews, syllabi and writing prompts, student papers, and surveys:

- We interviewed both faculty WI instructors after each of their respective courses ended for the semester. Each interview lasted 60 minutes and followed Seidman's open-ended interview format. As per the semi-structured approach, the faculty members were encouraged to elaborate on their responses. The following questions guided the interviews: How did your WI course go over the semester? Can you compare learning in your WI course to learning in a course that uses minimal to no writing? In your opinion, in what ways can writing impact one's learning?

- Five students agreed to a sixty-minute in-depth interview while enrolled in the course. We followed the guided questions above, changing only the reference to the students taking the course, rather than teaching a course. All interviews were audio-recorded and transcribed.

- We collected and reviewed the most recent syllabi and writing assignments of the two courses. Assignments for the Genetics and Society course consisted of a series of microthemes pertaining to scientific controversy. The writing assignments for New Products Marketing included short business memos and larger marketing business plans. We used syllabi and assignment prompts to help identify and contextualize our qualitative analyses of student papers and interviews and the initial development of our rubric with which we assessed the papers.

- We analyzed and scored student papers from both courses. In the Genetics and Society course, 20 students agreed to share their written work for 3 of the 7 microthemes with 2 drafts for each paper. This gave us approximately 120 separate student papers for analysis. In the New Products Marketing course, 13 students agreed to share their written work in the course for the two major assignments, a Promotional Plan and a Competitive Analysis on a product of their choos-

ing. The sample from this course gave us approximately 50 separate students' papers for analysis.

- To supplement the interviews, 14 students responded to an anonymous emailed survey via Qualtrics. The survey mirrored the open-ended guiding questions in the interview and included Likert-scale instruments that asked students to rate their feelings on writing in their disciplines. The survey included a thermometer score (0–100) of students' feelings about WI courses on campus.

We conducted both quantitative and qualitative analysis on the collected data. The quantitative data consisted of the sample student papers and their assigned scores; the qualitative data included faculty interviews, student surveys, and interviews.

The quantitative analysis was used to see if student writing improved over time. We used paired-samples t-tests to determine 1) how much the paper scores increased from rough draft to final drafts and 2) if the increases in scores were statistically significant (Wooldridge). Like all inferential statistics tests, paired-samples t-tests hold assumptions of the underlying data, including that the distribution of the differences in the dependent variable (e.g., paper scores between rough and final drafts) be approximately normally distributed. This is particularly important in the realm of writing assessment, which may suffer from smaller sample sizes and thus be at risk for violating statistical assumptions (Elliot et al.) As sample sizes exceed 30, normality becomes less of a concern and can typically be addressed visually via Normal Q-Q Plots; with our limited sample sizes, however, it is necessary to directly test for normality using the Shapiro-Wilk test. In the Shapiro-Wilk test, a significant level exceeding .05 indicates normally distributed data. All of our Shapiro-Wilk tests satisfied normality and indicated that the data do not violate the assumption of normality necessary for paired-sample t-tests. So, while our sample size is small, it assumes a normal distribution.

To grade the papers, we gathered five writing program staff and graduate students, all with experience with WI courses at our institution and with scoring writing in large scale assessments (such as Advanced Placement writing assessments and National Writing Project Analytic Writing Continuum System). Our Writing Program staff developed a rubric that was used to assess the student writing against the WI Guidelines, rather than course outcomes (See Appendix A for full rubric). We read and assessed each draft of the assignments with two overall scores: 1) analytic scores on five traits (focus, development, organization, style, and editing) and 2) a holistic score (0–100).

To maintain consistency while scoring papers, our five scorers held norming sessions before they assessed each type of paper and assignment according to the rubric, focusing both on trait-by-trait scores and overall holistic scores. The scorers discussed and reassessed scores that differed by more than 10 points on a 100-point scale. The group's inter-rater reliability, as measured by a two-way consistency intraclass correlation coefficient, was .763 for single measures and an average measure of .942, $p < .0001$, indicating a high level of consistency among the scorers.

The primary purpose of the qualitative data was to compliment and contextualize our quantitative results. We used a grounded theory design to analyze the qualitative data (Glaser and Strauss). Grounded theory design allows wide-variety of data sources, with the researchers being the "primary instrument(s) of data collection and analysis" (Merriam 29). We used a constant comparison method by first identifying patterns in one data source and comparing those patterns with other data sources (Glaser and Strauss; Merriam).

Our analyses consisted of three phases using Dedoose software. In Phase I, a team of two researchers began open coding of the student surveys, student interviews, and the instructor interviews. Phase I ended with a consultation from a separate team, two members of the writing program staff who acted as a counterpoint to the coders' initial data investigation. In Phase II, the coders began axial coding as codes across the data began to emerge. Some codes became obsolete while others combined into separate codes. In Phase III, the data and axial codes were cross-checked with student papers, class assignments, and course syllabi. For example, during Phase I analysis of student and faculty interviews, we identified open codes related to procedural versus conceptual thinking and wrestling with disciplinary debates. In Phase II, we determined that students and faculty may have all been referring to the more general theme of critical thinking. After reviewing student papers, class assignments, and course syllabi during Phase III, the research team determined that faculty and students believed that their writing intensive courses promoted critical thinking toward conceptual thinking. In sum, our qualitative data analysis was a cumulative process in accordance with grounded theory methodology.

Collecting data from this large scope of sources and conducting both qualitative and quantitative analysis allowed for a richer description of how our program is working. We can point to data collected using quantitative research methods to show that our students' writing is improving. But to make these results more persuasive to a variety of audiences, we can also point to our qualitative results to show *why* it is working.

Findings

The quantitative and qualitative data and analysis provided new and deeper insights about our program.

Quantitative Findings

Our quantitative assessment of student writing showed us that students were doing good work. In general, rough drafts and final drafts were of high quality in both courses. For example, rough drafts for Microthemes 5, 6, and 7 hovered around a B to B+ average (87.9%, 86.8%, 86.9% respectively), and rough drafts for the Competitive Analysis and Promotional Plan papers tended to have B averages (85.7% and 86.5%, respectively).

To contextualize our discussion even further, the survey assessed students' perceptions of their WI courses; students reported they had high positive feelings toward their experiences in these courses. We asked all of the students to rate their "feelings toward your writing intensive experience" on a scale of 0–100 to not only capture their current WI experience but also any previous experiences in courses they took. The closer the thermometer score was to 100, the warmer or more positive the students' feelings. Across both courses, participants rated their feelings toward their WI courses at 79.6, indicating high positive feelings. When the single bottom outlier was removed, the resulting score was 86.7, indicating what we would view as very positive feelings toward WI experiences.

In the Genetics and Society course, we found that student improvement between rough and final drafts was inconsistent for all papers analyzed. Depending on the assignment, students' scores tended to increase on both analytic and holistic rubrics, though these improvements varied. The results of the paired samples t-tests, which measure the statistical significance of improved scores from rough to final drafts, are shown in tables 1 and 2, including the average scores for rough and final drafts. Using the analytic rubric to assess Microthemes 5–7 showed us that students significantly increased their scores from rough draft to final draft by 3.2% for Microtheme 5 (SD=5.19), 2.3% for Microtheme 6 (SD=6.91), and 5% for Microtheme 7 (SD=3.6). The increases for Microthemes 5 and 7 were statistically significant at 95% confidence or above, $t(14) = 2.29$, $p < .05$ and $t(9) = 4.19$, $p < .05$, respectively. Using the holistic rubric, we saw significant increases for Microtheme 6 and 7 of 3.2% and 5.4% at 95% confidence or above, respectively. Further analyses indicated that students' scores may have increased longitudinally from Microtheme 5's final drafts to Microtheme 7's final drafts at nearly 99% confidence, $t(8) = 3.8$, $p < .001$; however, we are hesitant to identify this as a solid finding, given the

small sample size for this analysis ($n = 8$), along with the varied topics of the microthemes themselves.

Table 1
Results of paired samples t-test on mean difference of rough draft and final draft scores using analytic rubric. Average rough and final drafts are also shown.

	Average Rough Draft	Average Final Draft	Average Score Increase	Std. Dev	n	95% CI for Mean Difference		t	df
Microtheme 5	85.63	88.8	3.17	5.19	14	0.17, 6.17		2.29*	13
Microtheme 6	86.77	89.11	2.34	6.91	20	-0.86, 5.58		1.51	19
Microtheme 7	84.84	89.89	5.04	3.6	9	2.27, 7.81		4.19**	8

* $p < .01$ ** $p < .001$

Table 2
Results of paired samples t-test on mean difference of rough draft and final draft scores using holistic rubric. Average rough and final drafts are also shown.

	Average Rough Draft	Average Final Draft	Average Score Increase	Std. Dev	n	95% CI for Mean Difference	t	df
Microtheme 5	84.93	87.86	2.93	8.33	14	-1.88, 7.74	1.32	13
Microtheme 6	86.3	89.5	3.2	6.79	20	0.23, 6.38	2.11*	19
Microtheme 7	84.89	90.33	5.44	3.5	9	2.75, 8.14	4.66**	8

* $p < .01$ ** $p < .001$

Table 3

Results of paired samples t-test on mean difference of rough draft and final draft scores using analytic rubric. Average rough and final drafts are also shown.

	Average Rough Draft	Average Final Draft	Average Score Increase	Std. Dev	n	95% CI for Mean Difference	t	df
Competitive Analysis	85.86	89.99	4.12	6.19	13	0.38, 7.86	2.40*	12
Promotional Plan	86.51	89.06	2.54	3.17	14	0.71, 4.38	3.00**	13

* $p < .01$ ** $p < .001$

Table 4
Results of paired samples t-test on mean difference of rough draft and final draft scores using holistic rubric. Average rough and final drafts are also shown.

	Average Rough Draft	Average Final Draft	Average Score Increase	Std. Dev	n	95% CI for Mean Difference	t	df
Competitive Analysis	84.46	87.46	3	8.9	13	2.38, 8.38	1.22	12
Promotional Plan	86.62	90.23	3.62	3.57	13	1.46, 5.77	3.65**	12

* p < .01 ** p < .001

The New Products Marketing course's discipline-specific writing assignments tended to show more consistent improvement, as shown in tables 3 and 4. Using the analytic rubric to assess the Competitive Analysis and Promotional Plan papers showed us that students had statistically significant increases of 4.1% (SD=6.2) and 2.5% (SD=3.2) at 95% confidence and above, with $t(13) = 2.4$, $p < .05$ and $t(14) = 3$, $p < .05$ respectively. Similar

results were found using the holistic rubric for the Promotional Plan paper, with a significant increase of 3.6% (SD=3.6), $t(13)$ = 3.7, p < .01.

Our quantitative results indicated that students were composing strong work in both WI courses, even in rough draft form. Student participants' also strongly approved of their WI courses. We feel this was particularly noteworthy, given that students were asked about their WI experiences while completing final papers and projects in those courses. Finally, our quantitative analyses found general improvement from rough draft to final draft in both courses, though we saw more consistent improvement with discipline-specific assignments.

Qualitative Themes: Qualities of the WI Experience

While our quantitative analysis showed us that students reported positive feelings toward their WI courses and demonstrated improvement on their papers over time, our qualitative results showed much more complex findings. The grounded, inductive analyses of student surveys and interviews of both students and faculty revealed qualities of the WI experience that impacts student learning (See list of themes in figure 1). These qualities include the development of critical thinking toward conceptual understanding, teaching practices that foster a learning environment, and opportunities for peer interaction. WI Courses help students reach the learning outcomes of the Campus Writing Program through authentic writing assignments that support students' writing in the disciplines.

Qualitative Themes and Qualities of WI Experience
Writing Impacts Learning

- Students and faculty believe writing intensive courses promote critical thinking toward conceptual learning

- WI Faculty exhibit a reflective stance in their teaching, which fosters student learning

- WI courses promote faculty-to-student and student-to-student interaction, which enhances the learning environment

WI Courses Help Students Reach the Learning Outcomes of the Campus Writing Program

- Authentic writing assignments support students' writing in the disciplines
- WI courses are effective and worth studying in more depth

Fig. 1. Qualitative themes and qualities of the writing intensive experience from student and faculty participants

Writing impacts learning. As a WAC program, we promote the uses of writing to learn practices, regularly providing faculty with copies of John Bean's *Engaging Ideas.* In workshops, we engage faculty and teaching assistants in writing activities to support writing to learn, such as informal in-class writing and revision strategies to promote the messy process of thinking through drafts of writing. Participants in our study, students and faculty, shared this view and affirmed the vital role of writing to impact learning.

Students and faculty believe writing intensive courses promote critical thinking associated with conceptual learning. Many of the student participants expressed how their writing assignments in their WI courses forced them to think more deeply about course content. Whether the students discussed the rigor of microthemes concerning genetics and society or the discipline specific requirements of writing promotional plans, the participants discussed the power of critical thinking in their writing. For instance, one student stated:

> As far as retention, I remember things I wrote about better because I had to come up with ideas. I had to form the thoughts that I was going to give in the paper. So, the act of doing that helps you to think and remember things better. (Student interview)

That "act of doing" (Dewey) and its importance was echoed by the instructors. In particular, the Agricultural Economics instructor argued that critical thinking was inherent in all of the assignments:

> They really have to think about the market and their competition and their customers. But they can't really state any facts about any of that. They have to think about the general situation of the market. They have to come up with there's no right or wrong answer about who their customer is. It's more about, "I believe my customer is . . ."—these segmentations, this demographic group, in this location, with this lifestyle, and why. It's not like they can look it up on Wikipedia. They have to really reason it out. (Instructor interview)

Our analysis identified that critical thinking was a foundation upon which each of the course instructors built their assignments. This encouraged students to think outside of rote content, better comprehend that content, and apply their knowledge to authentic assignments. Perhaps most importantly, without being prompted, the student participants identified this quality of critical thinking in writing.

In our discussions with the student participants regarding their WI courses, students often contrasted their WI experiences with their other courses that were not Writing Intensive. Students analyzed these courses

in terms of comprehension and retention of content material. One student enrolled in the New Products Marketing class contrasted bullet-point thinking with conceptual thinking:

> One thing I really liked about writing intensive courses is that it challenges you to think about the topics instead of kind of memorize the facts and definitions. And you get a deep understanding of what it means to promote a product instead of a definition of product promotion, definition of marketing. . . . Instead of "memorize these definitions, memorize these facts," Writing Intensive really allows you to kind of think of it in a new light . . . conceptual thinking instead of just like bullet-point thinking. (Student interview)

Such outcomes align with the *Framework for Success in Postsecondary Writing's* habits of mind: openness, engagement, flexibility, and metacognition (CWPA, NCTE, and NWP). These outcomes enable students to become more skillful, critical thinkers.

Writing Intensive faculty exhibit a reflective stance in their teaching, which fosters student learning. Teaching a WI course requires commitment on the part of a faculty member. Despite no extra compensation or course release, we find consistent support from our faculty in their own attention to teaching practices, their assignment designs, and their interest in getting feedback. A surprising finding was the degree to which our two instructors reflected on their own teaching practices, particularly how their own experiences as students, teachers, and professionals affected how and what they taught. This focus on teaching practices shows how student learning is fostered in a WI course. The effectiveness of the instructor is vital to student learning, and our study gave us a glimpse into one of the ways this seems to happen.

The biology instructor, a woman in a male-dominated field, consistently tied her pedagogy to her own experience as a learner, researcher, and woman. She discussed at length how her course design, particularly the peer review process, was a function of reflecting on her own educational experiences:

> So minority students find themselves excluded from these groups, or just socially not part of the network, and so they try to work things on their own. And they may work very, very, very hard at it, but they don't even know that other students are all talking to each other . . . I was in a similar position being a female at a mostly male engineer school. I didn't realize that all the other students were get-

ting together to work on problems until I was a senior. And I thought it was cheating to talk to other students about the problems. (Instructor interview)

The New Products Marketing instructor, on the other hand, connected his pedagogy to his extensive experience in the corporate world. As a high-level executive and consultant, this instructor felt frustrated by new recruits who, despite being intelligent, were unable to appropriately write or present in a business setting. He thus focused his course to provide only enough content necessary to practice these skills through real world scenarios:

> If they can grasp and apply [the content through this method], then two years from now they're going to remember a lot more than if I just gave them a book and said, "Here, read this." I think one of the best things I did was give them real world scenarios. I mean, when you give them that context, they "get it." They know what to do. They get what they need to do. You never have those issues with "I'm not quite sure what you mean here" when you give them a scenario. (Instructor interview)

Whether it was the inclusive and interactive environments of the extensive group work we saw in the biology course or the late-night emails from a company's CEO requesting an end-of-the-day report, both instructors used reflective teaching practices to provide their students with useful and meaningful content through writing assignments.

WI courses promote faculty-to-student and student-to-student interaction, which enhances the learning environment. In addition to contrasting WI and non-WI courses in terms of comprehension and retention, some students argued that the interactive nature of WI courses (e.g., receiving feedback on multiple drafts) encouraged learning relationships:

> I think obviously the writing intensive courses are more interactive. [In most non writing intensive courses], there's not many homework assignments, and basically just exams or one assignment, and I just think [writing intensive] is more interactive. You kind of learn more about the work that you are submitting because you are getting feedback and there's constant communication with your professor or TA. (Student interview)

As this student identified, the social nature of a WI course also enhances the learning of the content. One way such interaction happens is through peer review of student writing. Our analyses of these two WI courses found that proper peer review strategies were often a highlight of the entire course. Both courses established a thorough peer review process, comprised of in-

and out-of-class group meetings and discussing both group papers and individual writing.

Student participants typically focused on the compounding effect peer review had on their ideas:

> Here you really got feedback directly from the other students that were also writing the paper. I think that's very beneficial, not only for helping you write your own, helping your writing style, but also helping you to develop more ideas and think about the assignment. (Student interview)

The compounding effect referred to affected ideas and, as one student mentioned, the organization of thoughts, which resulted in major structural changes to that student's paper. Peer review also exposed students to alternative or contrasting ideas on the subject. One student wrote:

> We got the chance to discuss them [microthemes] with a group of peers, and that allows you to, not only forces you to explain your position to other people, but you also get to hear other people's position. (Student survey)

The role of peer review was a topic that emerged in both the student and the faculty interviews. Both instructors discussed how much time and effort was required for properly establishing workable peer review in their classrooms. The biology instructor formed groups through a series of in-class surveys meant to identify students' strengths, weaknesses, and interests, whereas the New Products Marketing instructor insisted that the groups mimic the randomness of the corporate environment. Regardless of the initial process, however, both instructors were adamant that strong peer review strategies were essential for students who would otherwise not be involved:

> [Peer review] happens to be particularly effective for minority students who otherwise get excluded from the informal study groups that form [outside of] our courses . . . if you can get that going, that helps all the students. It helps the strongest students. It helps the weakest students. And I think it works in everything from calculus to genetics in society. (Instructor interview)

The strategies and effectiveness of peer review thus became another surprising finding in our analyses, both from the students and the instructors. Though our initial impressions were that the courses used effective peer review strategies, we did not expect that the students themselves would focus on it as an essential quality to their WI experiences. Students echoed Elbow's assertion that writing is a generative act in the context of peer

review, as it enabled them to enhance their own ideas, add to others', and restructure their ways of thinking and comprehending the content. Instructors viewed peer review not as a minor thing to initiate another level of review, but an essential process that mimics what good writing is all about. The knowledge we gained from these interviews allowed us a way to counter some faculty's assumption (expressed during training workshops) that students review their fellow students' papers with indifference, providing minor edits and some praise, but little meaningful feedback.

WI courses help students reach the learning outcomes of the Campus Writing Program. As mentioned previously, this program assessment was site-based, locally-controlled, and context-sensitive, as Huot asserts assessment should be (171). We looked at how the writing samples aligned with the CWP outcomes. In addition to the quantitative findings, the qualitative data provided by participants in our study helped us to see how the writing experiences aligned with learning outcomes.

Authentic writing assignments support students' writing in the disciplines. Student participants shared how the writing assignments in their courses were not just about writing; rather, many of the assignments provided an authentic writing experience, an experience that in some way mimics discipline specific writing and thinking practices. This was particularly the case with the Agricultural Economics course. In that course, students wrote not only competitive analyses and promotional plans, but also SWOT analyses (Strength, Weaknesses, Opportunities, Threats) and memos written to company CEOs. One student shared how the authentic assignments encouraged writing to learn:

> I had to write memos for Ag Econ, and I feel that these assignments helped me to better understand the material I was writing about. I believe it will also help me in future memos that I will have to write in my professional life. (Student survey)

Another student echoed the student above by discussing how authentic writing assignments encourage discipline specific thinking:

> Writing intensive courses kind of change you. This is how you're supposed to think in [a] business environment, this is how you formulate your thoughts to convey your idea to maybe in a call center, or a colleague. So, [WI courses] kind of keep going back to the conceptual thinking but kind of really broadens your perspective on how you're expected to think. If I was trying to learn the way someone is thinking, if I am the boss and one of my employees is writing to

> me—It helps me to know that they understand better through writing instead of just kind of yes/no or black and white type of thinking. (Student interview)

From these and other student responses, we see that the authentic writing experiences encouraged what several participants identified as *conceptual thinking*, a means by which writing allowed students to view the complexities of disciplinary language and thought. Such a focus on authentic writing experiences is a hallmark of many WI courses. The value that students placed on the relevant writing assignments in their discipline fits with what Hilgers et al. found in their students' preference of the WI courses in the major due to the relevance and the expectation that these courses were part of professional preparation. In a study of 2,101 college-level writing assignments, Dan Melzer also found that writing assignments as part of a WAC initiative demonstrated a greater range of authentic writing for the discipline.

WI courses are worth studying in depth. The increased rigor of WI courses might presuppose that students would prefer non-WI courses; we found the opposite. Although the student participants unanimously agreed that WI courses were more difficult and more time-intensive, many were also quick to discuss how much more they learned when compared to their other courses. For many, the divergence from bullet-point thinking to conceptual thinking, though difficult, was a means through which to make the content their own, paired with a supporting environment that provided meaningful feedback to works in progress.

Students tended to compare this aspect of their WI courses to other courses:

> In some of the non-writing intensive courses, it seems to me that [in] . . . non-writing intensive courses, the professor really just pushes the facts . . . this is what you need to know . . . this is what you are required to be successful. (Student interview)

This divergence from black and white thinking to conceptual thinking through authentic assignments seemed to be a key variable in determining why the students placed such value on their WI experiences.

This feedback from a small sample of those involved in our WI program demonstrates the rich findings that await as we continue to study courses, faculty, and students' experiences. Similar to Wendy Strachan's in-depth study of the Simon Fraser University's WI pilot program, WPAs have opportunities to look into aspects such as professional development, student writing, and student learning.

One of the surprising aspects of this project was the direction interviewees went when asked about their WI experience. For both students and faculty, this was a chance to reflect on the processes and practices of writing and teaching of writing. Interviews seemed to help students be more aware of their writing experiences, much like the participants in Hilgers et al.'s study at the University of Hawaii, and they helped instructors reflect on their own learning and how that has influenced their teaching. The findings align with the values of the study by maintaining a student-focus, involving WI faculty, and providing meaningful data toward program quality and continued improvement (Carter 8).

Limitations

Several limitations affect the generalizability of this study. First, the sample sizes for the student papers were small. While our analyses met the assumption of normality for paired-samples t-tests via the Shapiro-Wilk test for each dependent variable, the sample sizes should be noted. Furthermore, our study suffered from selection bias in that students self-selected to be part of the study. Finally, our study is limited with regard to the types of papers we analyzed. While we are confident that the Promotional Plans and Competitive Analyses measured authentic writing experiences, the microthemes in the Biology course varied and were difficult to compare with each other. Despite these limitations, we believe our mixed-methods approach to assessment enabled us to begin answering questions related to both our students and our program as a whole. The methods provide some transferability to other writing programs seeking to assess their programs in similar ways. Below, we return to our questions and discuss how our data may provide answers.

Concluding Thoughts

In conducting this program assessment, we sought to understand more about our own program, how it worked within the institution, and how our assessments worked when placed in a larger conversation. Our quantitative and qualitative findings showed us that our program does indeed work **at** the campus level, as well as easily being assessed using national standards. The findings also provide us with valuable information to share with our faculty during workshops and seminars about how students saw and valued writing, the strength of the writing produced, and how faculty across campus were shaping assignments to meet WI guidelines. As one might expect, faculty gravitate toward these findings when we share them in our faculty workshops. Clear evidence of writing improvement from draft to draft,

along with student reflections on their WI experiences, provide our faculty more confidence and context as they approach their next WI course, and provide all WPAs with a potential mechanism to use to measure the success of their own WI courses.

Notes

1. This study was conducted under University of Missouri Campus IRB #1207058.

2. We believe a mixed methods analysis, in addition to mimicking the interdisciplinary nature of our work as writing program administrators, holds several benefits to a purely qualitative or quantitative design (Creswell and Clark). A purely qualitative approach would enable us to identify the unique ways in which students think about our university writing program, but we would not be able to share more generalizable findings to a quantitatively-geared audience; a purely quantitative approach would enable us to see a more macro level view of our students' experiences, but we would be unable to identify those unique characteristics nor contextualize quantitative responses.

Appendix A: Analytic and Holistic Rubric

https://goo.gl/nyDfpF

Works Cited

"About CWP." *Campus Writing Program*, Campus Writing Program, 10 September 2014.

Anson, Chris M., and Deanna Dannels. "Profiling Programs: Formative Uses of Departmental Consultations in the Assessment of Communication Across the Curriculum." *WAC and Assessment*, special issue of *Across the Disciplines*, vol. 6, 2009.

Bazerman, Charles. "The Disciplined Interdisciplinarity of Writing Studies." *Research in the Teaching of English*, vol. 46, no. 1, 2001, pp. 8–21.

Bean, John C. *Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom*. 2nd ed., Jossey-Bass, 2011.

Carter, Michael. "A Process for Establishing Outcomes-Based Assessment Plans for Writing and Speaking in the Disciplines." *Language and Learning Across the Disciplines*, vol. 6, no. 1, Jan. 2003, pp. 4–29.

Condon, William. "Accommodating Complexity: WAC Program Evaluation in the Age of Accountability." *WAC for the New Millennium: Strategies for Continuing Writing-Across-the-Curriculum Programs*, edited by Susan H. McLeod, Eric Miraglia, Margot Soven, and Christopher Thaiss, NCTE, 2001, pp. 28–51.

—, and Carol Rutz. "A Taxonomy of Writing Across the Curriculum Programs: Evolving to Serve Broader Agendas." *College Composition and Communication*, vol. 64, no. 2, 2012, pp. 357–382. Print.

Cornwell, Grant H., and Eve W. Stoddard. "Toward an Interdisciplinary Epistemology: Faculty Culture and Institutional Change." *Reinventing Ourselves: Interdisciplinary Education, Collaborative Learning, and Experimentation in Higher Education*, edited by Barbara Leigh Smith and John McCann, Anker Publishing, 2001.

Creswell, John W., and Vicki L. Plano Clark. *Designing and Conducting Mixed Methods Research*. 2nd ed., SAGE Publications, Inc, 2007.

—. *Concise Introduction to Mixed Methods Research*. SAGE Publications, 2015.

Council of Writing Program Administrators, National Council of Teachers of English, National Writing Project. *Framework for Success in Postsecondary Writing*. Council of Writing Program Administrators, Jan. 2011.

Dewey, John. *Experience and Education*. Collier-MacMillan Canada Ltd., 1938.

Elbow, Peter. *Writing With Power: Techniques for Mastering the Writing Process*. 2nd ed., Oxford UP, 1998.

Elliot, Norbert, Alex Rudniy, Perry Deess, Andrew Klobucar, Regina Collins, and Sharla Sava. "ePortfolios: Foundational Measurement Issues." *The Journal of Writing Assessment*, vol. 9, no. 2, 2016.

Gallagher, Chris. "Trouble with Outcomes: Pragmatic Inquiry and Educational Aims." *College English*, vol. 75, no. 1, 2012, pp. 42–60.

Glaser, Barney G., and Anselm L. Strauss. *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine Transaction, 1967.

Hilgers, Thomas, Edna L. Hussey, and Monica Stitt-Bergh. "'As You're Writing, You Have These Epiphanies': What College Students Say about Writing and Learning in their Majors." *Written Communication*, vol.16, no. 3, 1999, pp. 317–53.

Huot, Brian. "Toward a New Theory of Writing Assessment." *Assessing Writing: A Critical Sourcebook*, edited by Brian Huot and Peggy O'Neill, Bedford St. Martins, 2009.

Melzer, Dan. *Assignments Across the Curriculum: A National Study of College Writing*. Utah State UP, 2014.

Merriam, Sharan B. *Qualitative Research: A Guide to Design and Implementation*. John Wiley and Sons, 2009.

Patton, Martha Davis. *Writing in the Research University: A Darwinian Study of WID with Cases from Civil Engineering*. Hampton Press, 2011.

Patton, Michael Quinn. *Qualitative Research and Evaluation Methods*. 4th ed., SAGE Publications, 2015.

Rice, Jeff. "Networked Assessment." *Computers and Composition*, vol. 28, no. 1, 2011, pp. 28–39.

Seidman, Irving. *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences*. 2nd ed., Teachers College P, 1998.

Strachan, Wendy. *Writing-Intensive: Becoming W-faculty in a New Writing Curriculum*, Utah State UP, 2008.

Townsend, Martha A., Martha D. Patton, and Jo Ann Vogt. "Uncommon Conversations: How Nearly Three Decades of Paying Attention Allows One WAC/WID Program to Thrive." *WPA: Writing Program Administration*, vol. 35, no. 2, 2012, pp. 127–59.

Walvoord, Barbara E. *Assessment Clear and Simple: A Practical Guide for Institutions, Departments, and General Education*. 2nd ed., Jossey-Bass, 2010.

White, Edward M., Norbert Elliot, and Irvin Peckham. *Very Like a Whale: The Assessment of Writing Programs*, Utah State UP, 2015.

White, Edward M. "Language and Reality in Writing Assessment." *College Composition and Communication*, vol. 41, no. 2, 1990, pp. 187–200.

Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach*. 4th ed., Cengage Learning, 2008.

Yancey, Kathleen Blake, and Brian Huot. "Assumptions about Assessing WAC Programs: Some Axioms, Some Observations, Some Context." *Assessing Writing Across the Curriculum: Diverse Approaches and Practices*, edited by Kathleen Blake Yancey and Brian Huot, Ablex Publishing, 1997, pp. 7–14.

Amy Lannin is Director of the Campus Writing Program, a large WAC/WID initiative at the University of Missouri, an R1 institution. In addition, Lannin is an assistant professor of English education in the College of Education. Through collaboration with several institutions in the Missouri Writing Projects Network, Lannin has led efforts in STEM Literacy and Cross Content Literacy programs funded by the external and state department of education grants. Since 2015, she has served as editor of Literacy Research: Theory, Method, and Practice*, the annual publication of the Literacy Research Association. She has a chapter in Finer's and White-Farnham's edited book,* Writing Program Architecture: Thirty Cases for Reference and Research *published by Utah State University Press in 2017.*

Jonathan Cisco is the Assistant Director of the Campus Writing Program at the University of Missouri, an R1 institution. In addition to training faculty in disciplinary reading and writing pedagogies, he currently teaches Reading and Writing in the Content Area courses to preservice teachers at the University of Missouri. His research focuses on literacy in higher education using mixed methodologies.

Jes Philbrook is Writing Instructor and Coordinator of Doctoral Writing Assessment in the Writing Center at Walden University, an online, R3 institution headquartered in Minneapolis, Minnesota. Jes is also a doctoral candidate in English with a focus

in Rhetoric and Composition at the University of Missouri, where she served as the graduate assistant in the Campus Writing Program. Her other works can be found in Forum: Issues about Part-Time and Contingent Faculty.

Maxwell Philbrook is Writing Instructor and Coordinator of Social Media Resources in the Writing Center at Walden University, an online, R3 institution based in Minneapolis, Minnesota. Additionally, he is a doctoral candidate in English at the University of Missouri. His dissertation explores how the circulation of texts and arguments is influenced by transnational pressures, and how critical literacy practices can provide useful tools for reading this global circulation.