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Rewriting Across the Curriculum: Writing Fellows as Agents of Change in WAC

Conducting Research in the Gray Space: How Writing Associates Negotiate Between WAC and WID in an Introductory Biology Course

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Abstract: With more frequency, writing associates (WA) are being placed into courses where the goals for writing include learning to write for a particular discipline. As WAC directors we negotiate the different expectations from professors and students that exist within this context. This article introduces a two-year case study of an introductory biology course where WAs are a required resource for helping students learn the genre of lab reports. The study uncovers how the mixture of expectations from the different participants pushes the WA into murky waters and that our attempts to provide clarity through the presentation of binaries may be adding to the murkiness. Using ethnographic methods and a coding rubric, the study sets out to uncover how peer tutors can help students develop their writing process in science. In particular, this article raises the question as to whether WAs should remain generalists or whether they need to become specialists when they are used as a required resource in a WID course. This article argues that by positioning the WAs as both generalists and specialists and by providing a space for them to blend the core principles of WAC with the goals of WID, we transform the gray spaces located within these binaries into symbiotic spaces where the students, faculty, WAs, and writing program feed off of each other to create a cycle of inquiry and dialogue.

In 2000, when I first became director of the Writing Associates (WA) program at Swarthmore College, I heard complaints from colleagues about the damage WAs[1] created when they were assigned to a course in which they lacked disciplinary knowledge. A college committee had recently evaluated the writing program by interviewing and surveying faculty from across campus. Some faculty felt that a lack of knowledge on what constituted evidence and a strong argument within a discipline sometimes led the WA to provide advice that was misleading to the student or not to provide enough feedback to clarify a student's thinking (CEP report, 2000).

At the same time that I heard these initial complaints from my colleagues, the new WAs debated with me the significance of the theory they read during the required training course and the theories' applicability to their work outside of the humanities. As they resisted the theories of the field, most of which originated from work done in writing centers, they also expressed apprehension about working with papers in unknown disciplines because they believed, as students who wrote in these courses, that there are subtleties of each field that would be useful to know as a WA.

As directors of WAC and writing fellows programs, we often need to negotiate the different expectations that exist in a course-based peer tutoring situation. The professor may be assuming the WA possesses skills or knowledge that the writing program does not deem as essential, or the students in the course may demand that the WA note errors in content and format in addition to aiding them with their writing. Peer tutors may feel stuck in the middle as they need to navigate the expectations of the professor they are assigned to work with, the expectations of the writing program director and program, the expectations of the students enrolled in the course, and their own expectations for what defines their work as successful. We attempt to ease the tension by creating protocols for the WAs by applying what we know from current research and theory to our own practice. A list of such guidelines might include:

- WAs should not work with the content of a paper but rather remain as a generalist who works only with the writing. They are not TAs or graders.
- WAs should not assume the responsibility the professor has for teaching writing to his students.
- WAs should not serve as proofreaders, making notes about formatting and sentence level issues. Instead they should work with students' writing processes.
- WAs do not need to have disciplinary knowledge because it is the writing rather than the content that they are working with in any given paper.

Even after we create and distribute these protocols we still hear from the WAs about the anxiety they feel when working as a required resource within a WID context. Asking them to remain as generalists who lack responsibility for the content and who lack disciplinary knowledge does not address the reality of the situation. The work of the WA does not fit within the binaries of generalist/specialist or content/writing, but rather the work takes place in gray spaces between these binaries.

Writing fellows programs challenge us to explore the gray spaces of the binaries that are our reality. Such exploration allows us to transform those spaces into symbiotic relationships between the different participants within a course. Writing associates can often do much as generalists to support student writers, and in many cases this is all that is needed; however, in the context of a writing fellows program we may be able to do more when we attach knowledgeable tutors to courses. In the context of this article, knowledge refers to both disciplinary and content knowledge as well as knowledge of current writing theory and practice. It is the combination of these layers of knowledge that creates the gray spaces the WAs must navigate. Due to the fact that professors request a WA for a particular course, the professor and students may hold different expectations for the WA's role in their writing process than those they hold for the writing center. It is true that some of these expectations will never be met because they go against WAC philosophy; however, by assigning a WA with some specialty we can negotiate and influence the writing pedagogy within a particular course. This placement develops a sense of mutual understanding and respect between the writing program and faculty across the curriculum by acknowledging a professor's belief in the connection between disciplinary knowledge and writing.

In the WA program at Swarthmore we see some of the limitations of maintaining a generalist or specialist approach while we see some of the possibilities for influencing the culture of writing when we combine elements from both models. By positioning the WAs as both generalists and specialists and providing a space for them to blend core principles of WAC with the goals of WID, we transform the gray spaces located within these binaries into symbiotic spaces where the students, faculty, WAs, and writing program feed off of each other to create a cycle of inquiry and dialogue:

- WAs help students to see disciplinary writing, such as a lab report, as conceptual, consisting of an argument with evidence rather than as a formulaic piece of prose. WAs work with both the students' writing process and product to empower them as writers within a discipline.
- WAs negotiate the tension they feel around questions of content. By working through these tensions they may raise questions of inconsistencies that they discuss within the program and with faculty across the curriculum.
- WAs engage faculty in a cycle of reflective practice with their writing associates where questions lead to dialogue, which leads to research, which may lead to changes in practice as well as more questions.

Through analysis of the current debate around generalist tutoring, describing the context of a small liberal arts college's writing program, and then presenting data from a two-year case study of an introductory biology course, I wish to illuminate the gray spaces that WAs navigate and illustrate how having WAs themselves explore these spaces helps them become agents of change.

The Gray Spaces Between the Binaries

Over the years, our WAs working in the sciences often have described science WAing as "check listing" or "too focused on format." When I first started to teach the WA training course and throughout individual meetings with the WAs, I listened to their concerns and thought that there may have been a gap between the course content of the training course and the reality of WAing in the sciences. Operating within a narrow definition of a course-based peer tutor, I saw the WAs as generalists who should not be asked to correct improper format or to make sure the students meet the many guidelines required to succeed on these writing tasks. From what I was hearing, it sounded as if the science faculty's expectations may have been compromising the writing program's philosophy of how peers can help each other with their writing process. I was about to talk with colleagues in biology and chemistry when I had a discussion with one of our Chemistry WAs, Kathleen Kristian[2] in the spring of 2003.

Each spring I meet with WAs for a reappointment meeting when we discuss the feedback they have received and their goals for the next year. On the course feedback form there is a question that asks students which strategies the WA used to help improve their writing. Reading over Kathleen's course feedback, I saw that several students mentioned a chart that Kathleen had used to illustrate how to write a chemistry lab report.

When I met with Kathleen I asked her which chart the students were referring to and she said, "Jill you know them, they are the ones from 1C." What she was referring to were the argument boxes from Williams and Colomb's (2001) *The Craft of Argument*. The graphic is used as a form of post-outlining to show writers how to better organize their writing. Kathleen had discovered during her conferences that the students did not understand the purpose of the lab report and therefore did not see it as a form of argumentation. Through the use of the argument boxes, she

used the language of the lab report to show students that even though the lab report follows a particular format, it still needs to contain an argument.

Kathleen was a chemistry major who, left to her own devices, took what she knew about writing a chemistry lab report with what she had learned about writing strategies and combined them to help a group of students. By showing students that the lab report was not just an exercise but rather a form of argumentation, she operated within the gray space of WAC and WID, combining the disciplinary expectations of the lab report with WAC's goal of using writing as a tool for learning. Additionally, she educated me on science writing and how it compared with writing in other disciplines. She showed me how the WAs could wind up as proofreaders if they did not take what they learned from the training course and adjust it for work in the sciences. By listening to and asking questions of Kathleen I discovered at that moment that the situation with the WAs in the sciences was not a matter of whose expectations were right or wrong. Kathleen, through her navigation of the gray spaces, used her knowledge of the discipline, her status in the course, her expectations for the written product, and her communication with the students to create a relationship between the lab report, the students, and herself as the WA.

As WAC evolves to create a space where the disciplinary norms of writing are addressed (WID) and to explore Thaiss's (2001) notion of writing in the course (WIC), it seems important to question whether writing fellows programs have changed or need to change alongside WAC. The main question to address is whether WAs should remain generalists or whether they need to become specialists when they are used as a required resource in a WID course. Within this initial question lies a set of embedded or implicit questions about the role of content in writing and peer tutor practice. The debate raises the question of how much the peer tutor should address the content of a student's paper. A generalist approach or pure tutoring assumes that the tutor works with the writing, in particular the process of writing, rather than addresses the ideas of a paper, whereas specialist tutors, because of their knowledge and experience with the content, focus their attention on crafting an effective final product.

Often when this debate emerges we see it presented in a polarized fashion, boiled down into two options (Hubbuch, 1988; Kiedaisch & Dinitz, 1993; Walker, 1998; Soven, 2001; Soliday, 2005). Either we hire peer tutors based on the belief that content cannot be separated from writing, or more often than not, we advise WAs not to work with the content and to focus instead on the writing. Polarizing generalists and specialists minimizes the potential of these tutors and fails to acknowledge a level of complexity that tutors must navigate — how to work with the ideas of writing while emphasizing the process.

> This polarization accepts the status quo of tutors' qualifications, ignoring the fact that in some cases generalists can be specialists and vice versa. In addition, focusing on whether to hire generalist and/or specialist tutors put tutors in labeled boxes, an over-simplification which subverts opportunities to explore tutors' abilities to work with all clients. (Walker, 1998, 28)

Walker's claim that we are limiting the potential of the WA by labeling him as generalist or specialist is one worth exploring through research. We need to delve into the gray spaces to see how a WA with knowledge of a discipline can assist students effectively with argumentation or the more global issues of their writing. WAs learn from the tension they feel between this binary and can use those insights to transform how the writing program communicates with course professors about writing. Kathleen probably would not label herself as either a generalist or specialist but would prefer that we focus on what she did to help the students in chemistry see the lab report as containing an argument.

Throughout the generalist-specialist debate, knowledge and status have often been seen as deficits in the peer tutoring situation. Some have argued that for peers to maintain the same status as the students they work with, they need to be ignorant of the content of the paper. There is fear that content knowledge, if possessed by the tutor, would give him or her a higher status, and passivity on the student's part would increase (Hubbuch, 1988). Haring-Smith (1992) has also raised the concern that this status level could confuse students into thinking that the WA's role resembles that of a TA. Ideally, the WA and student would be seen as equals, but the reality is that students may perceive the WA as having some level of authority or knowledge just by the nature of her position in the course. The WA has been hired and trained to support students with their writing. The disciplinary knowledge she has may increase her status, but this increase may not necessarily be a negative. In most cases WAs gained their knowledge by taking the same course in which they later serve as WAs. They have experience with the process of producing the writing assignments and can empathize with the students they work with. It is true that WAs have insider knowledge on what the final product should resemble, yet they also understand what may be needed to accomplish that goal. The tutors in our program learn how to use their content knowledge with effective peer tutoring strategies to keep students engaged in their writing process. They know what questions to ask and have learned to be active listeners.

Thaiss and Zawacki (2006) argue that WAC instructors should help the students in their courses find their passions about learning in general and learning in the discipline. WAs can help with this goal as they facilitate a conference in which they use their own knowledge and passion for a discipline to bring out this same enthusiasm in the students. Clearly Kathleen's insider knowledge of the content of a chemistry lab report and her knowledge of the purpose of the writing assignment, gained from her own experiences writing the lab report the previous year, allowed her to instill confidence in the students she worked with during conferences. From reading Kathleen's feedback from the students, it was obvious to me how much Kathleen had changed these students' view of the lab report.

Assignment of knowledgeable tutors should not be seen as a panacea to the peer tutoring situation, but its contributions should not be discredited. Communication with the professor of the course and training from the writing program should go in tandem with the increase of disciplinary knowledge. The relationship the tutor maintains with the professor can help to educate the professor on WAC philosophy and how to use the tutor most effectively in the course so as to eliminate the perception that the WA is a TA. In our program, WAs are required to meet with the professor at the beginning of the semester. They are trained on what should be covered during this meeting, including the questions to ask and the responses to requests from faculty that might be inappropriate. For example, a professor may ask her WAs to read the texts that the students will be writing about in their papers. Our WAs are trained to acknowledge the request but then inform the professor that they cannot meet the request, as it compromises the philosophy of the peer tutoring situation. More often than not, this exchange leads to a further discussion between the WA and professor on the connection between content and writing and the place where the WA feels most appropriate supporting the professor's students.

Through these conversations, the WA serves as a resource for the professor, helping the professor take responsibility for the teaching of writing. The WAs provide feedback on the professor's assignments and how his students engage with the assignment. After hearing the professor's expectations for any given assignment, the WA can share both the expectations she had as a student in the course and as the WA in order to show the professor how he might adjust the assignment to meet his goals. Had the WA not had this disciplinary experience, it might be more difficult for the professor to understand and hear feedback from the WA as the WA may be seen as an outsider; however, with an understanding of both the disciplinary

knowledge and the writing process, the WA may be seen as an expert whose insights the professor values. This role of expert creates another layer as now the WA finds herself positioned between student and professor. As clearly stated from the beginning of WA training, the WA does not serve as a TA, yet she is placed in a position of authority and expertise granted to such a position. If we allow the WA to work through these challenges we may see her develop a symbiotic relationship where she works with the professor rather than for her.

WAs may feel the tension between generalist and specialist tutoring or WAC and WID, but we do not have to add to the tension by presenting them as competing philosophies. The gray spaces allow knowledgeable or informed tutors who subscribe to the fundamental goal of a WAC philosophy to use their knowledge of both the content and writing pedagogy to help empower a student writer. They do not have to play dumb in fear that they will step over the line and give direct feedback that will add passivity to the tutor dynamic. WAs acquire credibility by not ignoring content and by using the strategies advised for peer tutors.

My discussions with Kathleen and others led me to explore what occurred within the gray spaces of peer tutoring by focusing on the WAs working in the sciences, where students such as Kathleen constantly navigate not only the gray spaces between generalist/specialist and WAC/WID, but also the tension between perceptions of humanities and science writing. In the next section I will describe the local context of writing and then turn to the Biology Writing Project that began to answer my questions about the gray spaces of WAing.

The Gray Space in Context

The Writing Associates (WA) Program at Swarthmore College, a small liberal arts college with only undergraduate students, began over 20 years ago when the college first adopted a WAC philosophy. When faculty from across the disciplines signed on to take more responsibility for the teaching of writing, they asked for resources to help with these efforts. Modeled after Brown's fellows program, our Course WA program was created in response.[3] Professors from 20-25 different courses across the college request to have a WA assigned to their courses. The WAs have as diverse backgrounds as the requests we receive. They have majors from across the disciplines and in many cases they are majoring within two different divisions.[4]

Prior to my arrival at Swarthmore, the WA Program followed Haring-Smith's (1992) recommendation that tutors remain generalists in order to keep their distance from the content. For some time I was not sure what I thought about the content question. Most of the literature suggested that WAs remain generalists, yet through observations and conversations like the ones with Kathleen, I started to see the benefits of having WAs assigned to a course where they did have some disciplinary knowledge. I was not alone, as Soven (2001) documents a shift of thinking in a survey she conducted at the beginning of the new millennium in which directors articulate the importance of disciplinary knowledge in the course-based tutoring situation. Now when assigning WAs to courses I do look at the majors of the WAs and the courses they have taken in order to place them in a course where they have some knowledge of the course content or experience with the professor making the request. It is not always possible or desirable to assign a knowledgeable WA to each course. There are times when a faculty member requests generalist WAs to guarantee that the WA will not address the content of a paper, though this request is not made often.

At Swarthmore, our writing culture has not been articulated explicitly. This is not to say that faculty members have not thought about or do not believe in the importance of writing. Professors assign some type of writing assignment in most courses and students write an

average of 60 pages per semester. We do not have a first year composition requirement; rather, students must take three courses that have a W designation.[5] All W courses require revision and ask students to look at their writing process in order to improve on the clarity of their thinking and the articulation of this thinking. Due to the fact that departments maintain control of these courses and dictate the goals for writing, many of the courses could or should be labeled as writing in the disciplines (WID) courses, where the main goal for assigning writing is for students to learn how to write as members of that discipline.

Within our campus culture, power and agency rests within departments. There are few university requirements and for those that do exist there is some latitude given to departments as to how to accomplish these goals. The faculty as a whole discusses all major decisions about the curriculum rather than being ordered by the administration. Shifts in college culture occur because of actions emerging from the ground up rather than in a top down fashion.

The Bio Project

Since the inception of the WA program, the biology department has requested Course WAs for their two introductory courses, Bio 1 & 2. As in other courses, the professors set two due dates for each assignment that the WAs will work with during the semester. For the first due date, the student submits a first draft that will be reviewed by the WA. The WA picks up the papers from the professor, reads them, provides written comments, and then meets with each student for a conference. After the conference, students revise their papers and submit both the first and revised drafts to the professor on the second due date. The WA does not attend the class.

Bio 2 is a team-taught course with an enrollment of 100-120 students. The course has a W designation:

> Biology 002 encompasses a writing-intensive component focused on laboratory data collection and analysis that is written as laboratory reports. The reports are structured similarly to papers published in biologically oriented journals. Students will focus on many elements of composition, from scientific ideas through language mechanics to expression, organization, and argument. (Bio 2 syllabus, 2006)

The WAs in Bio 2 work with three full lab reports. The complexity of the reports increases throughout the semester until for the final lab report the students design their own independent research project on an aspect of animal behavior.

The professors provide written guidelines to help support the students with their writing. Students are required to purchase Jan Pechenik's (2006) *A Short Guide to Writing about Biology* to supplement what the professors provide in a lab manual and handouts on each writing assignment. Until recently whether an explicit goal or not, the materials designed to aid students with their writing focused on the finished product rather than the process for writing that product. Little time was spent in class talking about the required writing with most of the teaching of writing taking place through written documents and through the use of WAs.

The professors teaching the course had been satisfied with the work of the WAs:

> Since I taught here before there were Writing Associates I remember very much what happened in that first year or two when we had Writing Associates, and essentially it meant that students gained two to three years sophistication in their writing. …Cuz there was a period there where you know, students who had Writing Associates in

their freshman year were then sophomores, and they were writing as well or better than seniors. And so, it was just very clear that this is an enormously useful thing. (interview between student researcher and biology professor, 2005)

Even though the department was satisfied with the WAs' relationship with the course, some WAs experienced frustration and anxiety. During training some WAs questioned how writing was being taught in the natural sciences, if at all, and shared the belief that the focus might be too product based before students understood the process of writing a lab report. These student-generated questions, along with my own question as to why writing and WAing in science is perceived as different from other disciplines, led me to share these insights with a colleague in the biology department. Together we discussed approaches for researching these observations in more depth. These discussions led to a larger research project where we looked at what happens when writing is assigned in an introductory science course and when WAs are a required resource. I wanted to look at this question from the perspective of the students taking the course, the faculty teaching it, and the WAs working as the main resource or mode of support for the students' writing. This project also included looking in more detail at the following:

1. How do students write and revise a lab report? Is it product or process based? How do students use the provided resources? Are they a help or hindrance?
2. What is an error in a lab report? What are the common challenges in writing a lab report? Do they change over the course of the semester?
3. What expectations do the professors have for including writing in the course? How do these expectations inform the actual assignments, the teaching of writing and the evaluation of these assignments?
4. What is the role of the WAs? How do they engage with the content and writing for the course? How do they inform the teaching of writing?

With the assistance of several WAs, we took these questions and began to design a research study. Using ethnographic methods (Table 1) we set out to capture as many data as possible in order to understand the role of writing in the Bio 2 course.[6] Our method of analysis was two-fold: 1) we created a coding rubric to measure how the lab reports improved between drafts and over the three lab reports and 2) we used grounded theory (Strauss & Corbin, 1990) to see what patterns around writing process emerged from the data we collected. All the interviews and conferences were transcribed.[7] After sharing preliminary results from the first year of data collection with the Bio 2 faculty, they requested we teach a workshop[8] in the lab based on our results. We decided to collect another set of data that spring to see if any differences existed between the two years.

Table 1

	2005	2006
Copied both WA copy and final draft of three lab reports	52 students	94 students
Surveyed students three times throughout the semester	All	All
Audio-taped WA		

conferences for three rounds	11 students	31 students
Interviewed students, WAs, and Bio 2 instructional staff and faculty	11 students, all WAs and instructional staff and faculty	31 students, all WAs and instructional staff and faculty

We would not have created this research study if the WAs had not been navigating and questioning the gray spaces of their practice. Because the WAs were able to see both sides of the situation from operating in the spaces between generalist and specialist and between WAC and WID, they were able to help all involved to see the inconsistencies between the goals for writing and actual practice. By placing biology majors or students who have taken introductory biology as WAs for these courses, we have been able to create a dialogue with the biology faculty. The professors respect these students because of their knowledge as writers of the lab reports and as WAs who are now charged with helping others to write these same reports. The students are perceived as disciplinary insiders and as a much needed resource for the course. This combination of factors made gaining access to complete the study rather simple.

The data analysis from this research project is ongong, so it is premature to present a complete picture of what we have learned from the research thus far. Instead, I wish to present two snapshots from the project to demonstrate how both the research and process have worked together to create a space where all participants are actively thinking and exploring best practices for teaching and aiding students with their development as scientific writers.

The Research Process as Insight

We began our research trying to identify how the students' writing progressed over the term. Through the discussions I had with my colleague in Bio, she suggested we conduct an error analysis in order to see whether the number or type of errors decreased over time. She was interested in showing the WAs that their efforts working with student writing decreased the number of "errors" a student committed. As a qualitative researcher I was a little skeptical of this method of analysis, but I thought it might be a good place to start both the research and a conversation with the biology faculty who were more comfortable with quantitative research methods.

We first had to define what constituted an error and how we would appropriately measure its existence in the lab report. Because I had not written a lab report since my first year of college, I had to rely on the three research assistants, who also were WAs for the course, to explain the different sections of the lab report as well as the content of the lab. I came to these discussions with my knowledge of rhetoric, argumentation and evidence from the humanities and social sciences, but I had as much knowledge of what belonged in a discussion section of a lab report as I did about the gall fly, the subject of the first lab report. I had read over the 54 guidelines the Bio 2 faculty provided to students and became overwhelmed before I hit guideline 14. Over the course of a semester, the four of us met weekly to interpret the faculty guidelines, to understand the aspects of the lab report, and to apply what we knew about writing in general, and argument in particular, to the structure and purpose of the lab report. Our goal was to create a coding rubric that we would use to assess each lab report (Appendix 1). By gathering quantitative data and combining it with qualitative data, we hoped to shed light on the gaps that existed between the faculty's goals for the writing and how they taught and evaluated that writing. We started

creating criteria with yes/no questions, but soon realized there were gradations in many categories (Appendix 2). Using pilot data we found examples for each criterion, as it was important to norm our evaluation for future coding of the data.

The creation of the coding rubric serves as an example of how WAs inform research and practice through their work in the gray spaces. The construction of the coding rubric informed the WAs' practice as it helped them to understand what constituted strong writing of a lab report. By examining a variety of labs, the WAs began to see for themselves that the writing of a lab report is not as formulaic as it is presented in the written guidelines. These WAs took what they knew from writing in biology and from the theory they explored during the WA training course and applied both to the construction of the coding. They utilized this new lens, that the lab report contains an argument, during their WAing and shared their insights with the faculty and students they worked with in the course. Taking preliminary results from the coding, the WAs showed the faculty and students how their perceptions of the written product may be influencing their teaching and writing process. In turn, the faculty have begun to reassess how they approach the teaching of the lab report, which has raised new questions for the WAs and faculty to discuss together.

The process of creating the coding rubric also informed what I do as a WAC director. Throughout these discussions, I was the generalist trying to apply what I knew about argument and writing to my understanding of the lab report. To reach a better understanding of the genre of the lab report, I needed the WAs to map what they had learned about argument during the training course onto what they knew about the biology lab report. If I had tried to interpret the lab reports without this information, I would have missed the subtleties of the genre and perhaps jumped to the wrong conclusion about the text. As the WAs and I socially constructed the coding rubric, the WAs shared with me knowledge and insight as writers and WAs that I have used to facilitate discussions around writing pedagogy with faculty across campus. I use what I have learned to ask more questions of the biology faculty in order to help them apply process theory to the practice of lab report writing.

The coding rubric allowed us to talk with the biology department in their own language, and it gave them a tool for assessing student writing that was different from the guidelines they had been using. This change was something they were interested in but perhaps did not have time to develop on their own (Gladstein, Glick, and Machado, 2007). However, over the past couple of years the faculty have changed their guidelines to better represent their goals. They are also expanding their curriculum, in consultation with the WAs, by creating in-lab activities and writing assignments designed to emphasize the importance of both the structure and the content of lab reports.

Argument as Product and Process

The relationship created between the biology faculty, WAs, and writing program also involves the students writing in the course and their lab reports. A significant gray space that the WAs negotiate in their work in biology exists within the lab report itself. As Kathleen discovered in her conferences for chemistry, the format of the lab report seemed to be driving the students' writing process to the point where argument became non-existent. WAs felt this tension as they believed the guidelines for writing the lab seemed to be supporting this idea that format comes before argument. Here is a sample of the guidelines from the spring of 2004:

Introduction (pp. 216-223 in Pechenik, 4th ed.)*15 points*

14. __Give specific and sufficient background information (facts, natural history, previous experiments published in the literature) so your reader, assumed to be a person with a good general background in biology, can understand why your question is interesting and relevant to the real lives of organisms. Restrict your background material to that which is directly relevant to the question your study is addressing.
15. __In a sentence or so explain your general method for addressing the question.
16. __Include a sentence or two describing how you will use your data to answer your question, and, based on your reading of the literature and/or your own logical argument, your prediction(s) for the outcome(s). Your prediction(s) need not match the actual outcome(s), but should be reasonable based on what you already know.
17. __Be sure to cite your sources, which may include the manual, the textbook, and your professors as well as journal articles or books from the library. See Blackboard for instructions on how to use electronic databases to locate sources.
18. __Use the format for citations described in Pechenik (pp. 70-79).

Even though the guidelines refer to content that could be labeled as the argument, such as #14 referring to background information, the manner in which the guidelines are written implies that the writing of the assignment involves following this step-by-step process. The WAs received these guidelines to help them with their work, but in actuality the guidelines added pressure as their use did not seem to connect with how the WAs saw their roles.

> This was my first semester as a Bio WA, and WAing for Bio is a pretty different experience from WAing for a humanities course. It feels like there's a lot more pressure on the WA to catch all errors, which makes it difficult to prioritize among problems and approach the papers from a process-oriented standpoint.(survey response, May, 2006)

This response represents the type of reflection I hear from the WAs in our program as they begin to negotiate the tension they feel working as a required resource in a WID course. They often feel that they have to choose between process and format when the reality includes a blending of the two. Once the WAs discover the gray spaces between the binaries, they begin to share these insights with the students they work with in the course. This approach then allows the students to see these same gray spaces as they develop a writing process for the lab report.

One of the first questions we explored through the bio project was whether the lab reports contained an argument. We knew from talking with the faculty that they valued scientific argument, but we also thought that format trumped argument in the materials they shared with students on how to write a lab report. After creating the coding rubric, we needed to decide which criterion, when analyzed, would help us define argument in these lab reports and help us assess how students' scientific arguments evolved over the course of the semester.

Through preliminary analysis of the coding data and conference and interview transcripts we created three categories of how the students see and engage with argument in their writing of the lab report (Appendix 3). There were students for whom neither the way they approached writing the lab nor their finished product showed signs of an argument; there were those whose labs did contain aspects of an argument, but the student didn't consider the argument something that had to be developed during the process of writing; and there were those who saw the crafting of an argument as an important part of the writing process itself.[9]

As we looked at the first lab reports, the most glaring issue we saw was the lack of cohesion throughout—the text read "like bullet points" with a perceived lack of engagement on the part of the writer. The students were writing for the guidelines rather than to create a cohesive argument. We now had data to illustrate the tensions the WAs had been sharing for several years. In this one situation the WAs had to navigate between generalist and specialist, between WAC and WID, between content and writing, and between science and humanities writing. The bio project gave them the data and insight to turn this tension into a symbiotic space where they could use their insights to inform student perspectives on the writing of the lab report.

The WAs, by having their insider knowledge, are able to meet students where they are with their writing process and over the course of the semester help students to see how they need to change their process in order to create a stronger product. Bill was a first year student who planned to be a natural science major and was taking Bio 2 as his first course in the department. We assigned his first lab to category 2, argument as product, because even though Bil's lab contained aspects of an argument, he didn't see argument as part of his process.

> Jill: So how did you get started with it? You know, like—
>
> Bill: Oh, well—
>
> Jill: 'Cause you started before you met with Bob [the WA].
>
> Bill: Um, well, the bio instructors supply us with this manual that kinda tells us what to expect—you know, different parts of the lab report, what goes where, so I kinda followed that as my outline. I also talked to a lot of professors and a lot of people who had taken Bio 1…and uh, yeah, I pretty much started with a really rough draft and I just focused in on different bodies of my report.

In his interview with me, Bill acknowledges that his process was driven by the format assigned by the professors rather than by his understanding of the lab or the presentation of an argument. He sees the writing of the lab report as a formulaic process. Bob, Bill's WA, sees many students coming to conferences with this view in their minds and understands the rationale for this perspective because of his own previous experiences writing for the course:

> Yeah, I think a lot of it is format, but it's not even just format, it's kind of like, what kind of information is really crucial to a lab report, it's not always straightforward if you haven't done it at all(interview 2/2005).

Bob understands the different perspectives of the situation that Bill is now first experiencing.He can see why format seems to be the driving force for some students when there is more involved, such as argument. He uses this information in his conferences to facilitate a discussion separate from the format of the paper:

> The way I like to do it is, just talk about the content, just as kind of like a way to start talking about this stuff to, like I'll just ask them how they interpreted their results, and just kind of have a discussion about, so, to keep it a little bit more open-ended, and not just about the paper, but to make it more about the concepts (interview 2/25).

I interpret Bob's use of 'concepts' as the space where writing and content are connected. Bob helps the students he works with to find a way through the guidelines to a more conceptual understanding of the lab report. Because of his training as a WA, Bob has learned how to

facilitate this dialogue in order to inform Bill about the written product and his writing process.

The research project has opened up a line of dialogue between the biology WAs, the biology faculty and instructional staff, and me as the writing program director. The symbiosis taking place between each of the participants including the writing itself thrives as WAs help faculty feel more confident with the teaching of writing. They help the professors to better articulate the importance of writing in the introductory biology courses.The clarity the professors find feeds back to the WAs as the professors now can explain to the WAs the goals for writing and how the WAs help students to meet these goals. I too have learned from this symbiotic relationship as I take what I learn from these discussions and feed it back into my own teaching of academic writing outside the sciences as well as into the training of the WAs.

Thriving Through a Symbiotic Relationship

Writing Associates can educate us on how theory lines up with practice. Through their questioning and experiences we can learn how to better communicate with our colleagues across the curriculum as the WAs provide us with the knowledge they have gained from both writing for a professor and working as his WA. They serve as agents of change within a college's culture of writing through their understanding of the theory and practice of WAC/WID, from their reading of theory during their initial training, and through their experiences as course-based writing tutors and writers. In order to better support our tutors, we need to acknowledge the tension they feel between the theory and practice and allow them to explore the spaces in between.

For our program, providing a space where students can raise questions and then research them allows the WAs to voice the gaps they see between the theory and practice. It may not be possible to conduct a research study of the same scope as the bio project with other departments and courses; however, the WAs are able to facilitate dialogue with the professors they are assigned to work with during a given semester and then share these conversations with others. For example, we are in discussions with our foreign language faculty, as WAs are assigned to courses in French and Spanish. The WAs and faculty have shared questions about how best to help students learning to write about literature in a second language.Because I do not have knowledge or expertise in this area, I rely on the WAs to educate the faculty about generalist principles but with knowledge and status as students who have both WAed and written for these courses.

Up to this point the research has not asked what the tutors themselves think about the gray spaces they need to navigate such as the generalist/specialist debate. As directors we may hear of the tension they feel when placed in a WID context, but more research is needed to see how the WAs negotiate these spaces and what can be learned from them.Dinitz and Kiedaisch (2003) encourage us to listen to our tutors as they try to make sense of theory and practice as they feel the tutors themselves may contribute to the evolving theory. The WAs who work with the introductory biology courses continue to reinvent themselves based on their experiences as WAs and in some cases as researchers.By operating between generalist and specialist they are able to draw on the theory of both areas to see how it contributes to their practice.When WAs share their reflections and tensions, the program and curriculum benefits, as the WAs provide insight into inconsistencies between goals, assignments, pedagogy, and evaluation of these assignments.They are respected for their role as majors within a particular department or as former students while also being seen as knowledgeable in effective approaches to working with student writing. Through different experiences they have learned and discovered which questions to ask about the teaching and learning of writing within a discipline.

Last year the writing program was once again reviewed. The faculty are pleased with our program and issues of content knowledge were not raised. Over the past few years, our program has evolved to allow our WAs to better communicate with the professors and students they work with each semester. We have not compromised our core philosophy of WAC and feel that we have created symbiotic relationships that allow us to accomplish our goals within the local context.

Acknowledgements

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Notes

[1] Our program uses the term writing associate rather than writing fellow. I do not know who chose this terminology or why. My guess is the college wanted to make a distinction between the WA and other fellowships on campus.

[2] Kathleen has given permission to use her real name. All other names have been replaced with pseudonyms to protect the identity of students. This is in compliance with the consent form each student filled out at the beginning of the project.

[3] A year later, some of the WAs started the writing center in order to provide a space for all students to get assistance with their writing even if they did not have a WA assigned to a course. Due to our history, it is the Course WA program that influenced our writing center philosophy, which is different from other programs. See Gladstein, 2007 for more description of how our Writing Center works with the Course WA program.

[4] The curriculum is divided into three main divisions: natural sciences, social sciences, and humanities. It is not uncommon for a student to be a double major in different divisions such as biology and classics.

[5] W courses are approved by the college's curriculum committee.' A professor submits a proposal to the committee explaining how the course will meet the criteria of a W course.' Criteria can be found at www.swarthmore.edu/writing.

[6]Before gathering data we received permission from the college IRB and the Biology department. Students completed a consent form giving us the right to copy their lab reports; they also informed us if they wished to be a part of the sub-group that would have their conferences audio taped and would participate in interviews. All the students in the class were asked to complete three anonymous surveys.

[7] We are in the process of transcribing and coding the data. This article represents a stage in our process of analysis.

[8] The Bio 2 faculty for the first time since I had arrived at Swarthmore dedicated an entire lab period to the teaching of the lab report. Some WAs and I came into each lab and presented a workshop on how the different sections of a lab report formed an argument and on how to use language in the lab concisely. By collecting another set of data our goal was to see if conference

content changed and/or if students writing changed when explicit instruction was provided during class.

[9] We are in the preliminary stage of this data analysis. As we process the data we hope to see whether these are truly categories or perhaps stages of development of a writing process of the scientific genre.

Appendix 1: Coding Rubric

Abstract	WA	Final	Explanation/Comment
Does not state purpose of research			
Does not mention methods			
Does not mention results			
Does not mention main conclusions			
Does not include relevance to outside world			
Introduction			
Refers to previous studies (0-3)			
Indicates purpose and importance of study (0-3)			
Has hypothesis with rationale (0-3)			
Description of how experiment informs biological concept or mechanism (0-3)			
Does not include brief mention of methods			
Materials and Methods			
How much detail is presented about data collection? (0-3)			
How much detail is presented about data analysis? (0-3)			
How much rationale is included? (0-3)			

How logical is progression of process? (0-3)			
Results			
Does not state qualitative results in beginning (0-3)			
Does not properly state quantitative results (0-3)			
Includes interpretation of data			
Discussion			
Analysis of results (0-3)			
Does not state connection between lab and broader bio context (0-3)			
Does not suggest further research needed (0-3)			
Does not connect conclusion with primary literature (0-3)			
Has a central point/argument (0-3)			
Overall assessment			
Logical progression of ideas throughout lab (0-3)			
Overall conciseness			
Overall clarity			
Lab presentation of an argument (0-3)			
Uses hourglass format (0-3)			

Appendix 2: Example of How Gradations Evaluated

Analysis of results (0-3)

> 3: Verbally re-states results and talks about what data mean in context of question/hypothesis,

compares/contrasts to other results, indicates relative importance of each result to central point.

2: Verbally restates results and talks about what data indicate (mean) in context of question/hypothesis, compares/contrasts to other results but does not indicate importance.

1: Does more than just restate results, but does not show connections between other results or importance to acentral point. Not enough depth or appropriate analysis.

0: Restates results only with no discussion.

Appendix 3: Categories of Argument

No Argument	- Process: - Lacks understanding of expectations for lab writing - Makes no explicit or implicit mention of argument - Focuses more on structure than on content - Product: - Failure to understand experiment - Poor organization - Key pieces of analysis missing - Rationale absent
Argument as Product	- Process: - Aware there should be an argument but just asks what to include to create one - Wants to know what is needed in each section - Product: - Key pieces present but not well connected - Some rationale present
Argument as Process	- Process: - Realizes she must understand the experiment before writing about it - Wants to know how to revise or what sources to use for help - Sees lab as unified - May explicitly talk about argument - Product: - Rationale clear - Purpose explicit - Analysis thorough - Experiment well connected with broader context

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