"As You're Writing, You Have these Epiphanies": What College Students Say about Writing and Learning in their Majors

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This study draws on the perceptions and experiences of upper-division students enrolled in writing-intensive (WI) classes in their majors at a large state university. During extended interviews, students reported confidence in dealing with the writing requirements of their majors and predicted success in future job-related writing situations. The primary bases for this confidence are their experiences with a significant number of WI assignments and their ability to engage a variety of resources and use the knowledge thereby obtained. Students particularly valued research-related writing assignments in the major as opportunities for professional skills development and identity building. The authors discuss findings as they relate to the ideologies of writing across the curriculum and writing in the disciplines. The authors argue for greater attention to students' readiness to make connections across assignments, courses, and disciplines; they also suggest greater attention to a field's inquiry methods and strategies for solving problems.

"As You're Writing, You Have These Epiphanies"
What College Students Say About Writing and Learning in Their Majors

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The movement known as “writing across the curriculum” (WAC) has evolved throughout its 30-year history. Early on, its advocates emphasized writing as a tool for learning in potentially every context. More recently, some theorists have emphasized the particulars of different contexts and the different demands those particulars place on writers.

In its earliest forms, WAC was part of an effort to use writing to improve student learning across the board (Britton, Burgess, Martin, McLeod, & Rosen, 1975; Emig, 1971). Emerging more or less parallel to the whole language movement and the process movement, WAC was seen positively by some as a restoration of writing’s place in
learning, but by others as a revisionist attack on traditional educational values such as rules and correctness.

Whole language, the process movement, and WAC all initially were concerned with what were assumed to be basic underlying processes we humans use to find or construct meaning. WAC typically emphasized writing processes (prewriting, drafting, revising, editing) and products (journals, learning logs) that could be adapted to any course. In its infancy, WAC offered a generalist-epistemic approach to learning (Ernst & Newell, 1969; Newell & Simon, 1972; Polya, 1957). At least metaphorically, the emphasis in WAC was on “across,” on general processes.

More recent studies of learning and the rise of cognitive science shifted attention from general cognitive skills to skills functioning in contextualized ways (Detterman & Sternberg, 1993; Perkins & Salomon, 1989; Petraglia, 1995). The teaching of general cognitive skills came to be seen as useful only when accompanied by self-monitoring practices that attended to the particulars of varied contexts (Perkins & Salomon, 1989).

Although studies of learning were bringing new attention to contextual differences, composition studies were seeing a renewed interest in rhetoric (e.g., Covino, 1988; Lunsford & Ede, 1984) and an emerging interest in both academic disciplines and professional work sites as rhetorical situations (Bazerman, 1981, 1992; Gotswami & Odell, 1985; Herrington, 1985; McCarthy, 1987). Theorists questioned the assumption that first-year writing courses or WAC courses should emphasize general writing skills (Anson & Forsberg, 1990; Odell, 1993; Rorty, 1989; Russell, 1995). Practitioners shifted attention from general goals and general processes to the particulars that define situations as unique, underscoring the postmodernist view that every setting is best seen in terms of its “situatedness.” Thus, “writing across the curriculum” seemed to shift toward “writing in specific contexts” or disciplines (WID). This frame of reference generally continues to influence reform movements in writing pedagogy, although many teachers and some theorists continue to emphasize writing as a widely applicable tool for learning (Sorcinelli & Elbow, 1997).

This broadening of emphasis and understanding suggested new sites for inquiring into the effects of WAC instruction. As long as WAC was seen primarily as part of an educational reform effort, WAC outcomes were studied primarily through studies of pedagogical and teacher change. Indeed, up to this day, the most typical evidence of WAC effectiveness involves statements by teachers, often
supported by submissions of revised syllabi and assignments that privilege process approaches to learning.

The more recent emphasis on context has spawned significant research on the processes related to learning to write within the academy. Haas (1994), Herrington (1985), McCarthy (1987), and Walvoord and McCarthy (1990) documented the experiences of undergraduates; and Berkenkotter, Huckin, and Ackerman (1994), Kogen (1989), MacDonald (1994), Matalene (1989), Myers (1985), and Reynolds, Matalene, Magnotto, Samson, and Sadler (1995) looked more specifically at how graduate students and professionals are enculturated into particular worlds of writing and writers. Most of these studies, however, were not designed primarily to provide evidence of WAC’s effects on the behaviors or thinking of students. In fact, Ackerman (1993) raised important questions about claims of student learning associated with WAC and noted the dearth of studies involving students.

This study was shaped in part by a realization that the history of our own writing program at the University of Hawai‘i, although shorter than that of the WAC movement, has paralleled it in certain ways. Our program was devised after a lengthy needs-assessment conducted in the mid-1980s (see Hilgers & Marsella, 1992). The program is built around a graduation requirement of five writing-intensive (WI) classes. When the WI requirement was being phased in (1987-1989), entering freshmen were required to take two, three, or four WI classes to graduate. Beginning with the fall 1990 class, five WI classes were required for a bachelor’s degree. (See the Appendix for graduation requirements and a description of WI criteria.)

Although the program is only a decade old, and although the requirement has remained constant, the culture that fosters WI instruction has changed. At the time the program was developed, primary faculty interest was in writing as a mode of learning. Because most of the initial WI classes were developed for first- and second-year students, professors gravitated toward techniques associated with Moffett (1968, 1981), Fulwiler (1987), Elbow (1981), and the like—scholar practitioners very much concerned with writing as a tool for learning. Although the occasional professor would resist this approach because of its apparent distance from course-content concerns, most embraced it at least in theory—in part because professors interested in WAC also wanted to improve teaching.

However, a growing concern during the 1990s has been the special demands of writing within individual majors. (Our campus offers the
bachelor's degree through 89 programs; WI courses are typically offered by 75 to 80 programs each semester.) The focus of faculty workshops has become more and more weighted toward inquiry methods of different fields and writing as an artifact of the culture in which it occurs. This reflects the theoretical shift evident in the growing prominence of social constructivism, discourse studies, and even cultural studies.

Furthermore, by the third and fourth years of the program, students were demanding more and more WI courses in their majors. The faculty accommodated this demand; today, approximately 70% of the annual 1,000 WI classes on campus are linked to requirements in the various majors. Indeed, from the program's planning phase, the WI requirement was intended to foster writing experience in the major. The original proposal required that students take two WI courses in their majors; that later was changed to "two upper-division courses" to accommodate students who switch majors late in their college careers. The emphasis on writing in the major is further reflected in graduates' transcripts: Of the 5.9 WI courses now taken by the typical graduate, 3 are from that student's major.

A second prominent feature of our program also parallels a current feature of the WAC movement: WAC offerings are idiosyncratic and nonstandardized. In perhaps half of our majors, specified upper-division courses regularly are offered as WI. In other majors, WI courses are proposed by instructors on a semesterly basis. In both situations, professors have a great deal of latitude in what and how they teach, as long as their practices ultimately conform to the hallmarks of WI courses. Similarly, the order in which students take courses, including WI courses, is far from standardized. Furthermore, beyond majors in which the curriculum is highly structured (e.g., architecture), there is no obvious pattern of sequenced WI assignments either within majors or across lower- and upper-division offerings.

In sum, just as WAC offerings are peculiar to the contexts of sponsoring campuses, our students' WI experiences are peculiar to their individual histories (Marsella, Hilgers, & McLaren, 1992). Across experiences, however, are two somewhat common elements: quantity of writing and size of WI classes. Students do 16 or more pages of writing in at least five of their post-English-100 courses, and their WI experiences occur in classes of 20 or fewer students.

This study was designed to take advantage of the peculiarities of our program and the ways in which its history relates both to the his-
tory of the WAC movement and to the issues prominent in discourse studies today. The specific queries in which we engaged were:

1. How does disciplinarity affect students' understanding of writing tasks?
2. What do students nearing completion of the university’s WI requirements report that they know about writing?

METHOD

The findings reported here derive from analyses of data elicited via extended interviews. The overall justification for our approach to the research project remains what it was in this study’s direct predecessor (Hilgers, Bayer, Stitt-Bergh, & Taniguchi, 1995, pp. 62-64). Once again, we turned to our students as “consumers” of WI classes. Two members of the research team, Hussey and Stitt-Bergh, used a sequence of open-ended questions to gather information from the students.

In pilot work and in the previous study, we found that most students never had been prompted to reflect on their writing experiences across courses. They typically submitted end-of-course evaluations and sometimes wrote short self-assessments at the end of a course, but most had not been asked how their writing related to anything beyond the assignments of a particular course. We believed that encouraging students to be more aware of themselves as writers, and more consciously attentive to how they undertook assignments, would aid our investigation. Therefore, in the current study we decided to ask students to participate in two interviews, one at the beginning of the semester and one near the end. The first interview planted the seeds of reflective attention (Gere, 1991; Schon, 1987) that we planned to harvest during the second interview. It also functioned as a “get-to-know-you” session in which the student became comfortable with the interviewer and with a tape recorder.

Questions in the first interview focused on reasons behind the interviewee’s choice of major, important or key learning experiences in the major, attitudes toward writing (in general and in the major), and the student’s current WI course in the major. At the end of the first interview, students were asked to select a focal assignment—one assignment from their current WI class that they valued or found
interesting—and to consider the following questions as they worked on the assignment:

1. When you first got the assignment, what did you think you had to do?
2. Whenever you worked on the assignment, what decisions did you make?
3. Where in your draft(s) did you have difficulties? (You can mark these areas with post-it notes or an asterisk.) What were these difficulties?
4. Where in your draft(s) was it easy for you to write? (You can mark these areas with post-it notes or an asterisk.) Why were these areas easy to write?

Students called to schedule the second interview after they had completed the focal assignment.

Most of the questions for the second interview involved the student-selected writing assignment: its importance, initial thoughts it provoked, goals and decisions it evoked, difficulties it presented, and feedback the student’s work elicited. The final questions of the second interview explored the student’s view of writing in his or her major, expectations for writing after graduation, and experiences with the WI requirement in general.

Participants

After students had registered for classes, we identified from computer records a random sample of 246 students who met the following criteria:

1. Had junior or senior standing.
2. Had declared a major in a specified area.¹
3. Had completed at least four classes in their declared major.
4. Had completed at least three WI courses;
5. Were currently enrolled in at least one WI course in their declared major.

At the beginning of the semester, our office sent students who met the criteria a letter inviting them to participate in the study. The letter, which also described the goals of the study, offered participants $30 for two 90-minute interviews.

Thirty-nine recipients called to schedule an interview. Two of the 39 did not show up for the first interview. Three did not show up for
the second interview. Thus, 34 students completed both the first and second interviews and submitted their written assignment, notes, and assignment guidelines (where available).

Data Analysis

Each interview was transcribed by a trained student employee not involved in the study. The two interviewers then used subsets of transcripts to develop a preliminary set of categories that might allow coding of data across interviews. Once a relatively comprehensive and stable set of categories had emerged, the full set of transcripts was coded (using the software program NUD\*IST, 1995). At that point, the full research team reviewed both individual transcripts and composite coded data to see if the preliminary categories were comprehensive and parsimonious. Additions, deletions, and modifications of the codes were made at that time. Some codes were eliminated. For example, “Knowing the audience” in the “What was difficult” category was deleted (and responses were recoded) because only two students had mentioned it. Others were added. For instance, “ESL-related” emerged under “What was difficult” because many of the second-language speakers we interviewed believed that writing in a second language presented problems unique to them. Other codes were modified. For example, the category “Suggestions to improve the WI program” initially included “Instructor’s attitude, personality, and/or training.” Our review of both transcripts and composite data showed that most students were concerned about instructor training, not attitude or personality. Thus, the subcategory was redescribed before transcripts were recoded so that “training” comments remained and the few personality comments were recoded as “other.”

To ensure consistency in coding, the interviewers read and coded a sample (at least 25%) of each others’ transcripts. Agreement was high (over 80%). To further examine validity and reliability in the coding, we brought in a third reader who was unfamiliar with either the coding scheme or the study and trained him in the coding scheme. He coded a random 25% sample of the transcripts. His codings overall agreed with codings assigned by the primary reader 80% of the time. Where a specific code was assigned differently more than 30% of the time, identifiers associated with the code were discussed and the code descriptor was modified. All transcripts were then recoded using the modified code descriptors.
COMPOSITE PORTRAIT OF INTERVIEWEES

Analysis of each interviewee’s records yielded the following composite:

- All interviewees except 1 met the selection criteria. (Transcript data used for selection were tentative. One student who had enrolled in three WI classes had failed to complete one of them successfully. Thus, 1 participant had completed only two WI classes before the interview.)
- Interviewees had completed an average of 4.3 WI classes, from an array of offerings in more than 30 different departments, before the first interview.
- Interviewees’ mean grade point average was 3.1 (on a 4-point scale).
- Sixty-one percent had completed at least one WI class in their major before the first interview.
- Forty-four percent had completed at least two WI classes in their major before the first interview.
- Twenty-three percent were enrolled in two WI classes in their major during the semester the interviews were held.
- Sixty percent were between the ages of 23 and 29, 20% were under 23, and 20% were over 29.
- Seventy percent were women.
- Thirty percent spoke English as a second language.

Demographically, the interview group contained a significantly larger percentage of women than did the overall undergraduate population (70% versus 56%). Although the group also reflected a higher percentage of interviewees who spoke English as a second language (30% versus 21%), this difference was not significant.

The distribution of interviewees by college and majors is shown in Table 1.

FINDINGS

How Does Disciplinarity Affect Students’ Understanding of Writing Tasks?

All interviewees were enrolled in at least one 300- or 400-level WI class; in these classes, most writing assignments involved research or
Table 1

*Distribution of Interviewees’ Degree Areas*

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business administration (accounting, finance,</td>
<td></td>
</tr>
<tr>
<td>management information systems, marketing, travel</td>
<td></td>
</tr>
<tr>
<td>industry management)</td>
<td>7</td>
</tr>
<tr>
<td>Arts &amp; humanities (art, English, history)</td>
<td>9</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>2</td>
</tr>
<tr>
<td>Natural sciences (botany, chemistry, zoology)</td>
<td>6</td>
</tr>
<tr>
<td>Social sciences (communication, economics, psychology, speech)</td>
<td>10</td>
</tr>
</tbody>
</table>

experimentation. For more than half of the interviewees, the focal WI class was the capstone course in their majors, and the primary assignment was a lengthy research project. Thus, it is not surprising that 94% of the interviewees chose as their focal task a formal writing assignment that involved doing research.

During the first interview, students typically described taking WI classes in a desired discipline as “more” when compared to taking WI classes as part of their general education or graduation requirements:

- I spend more time and effort writing in mechanical engineering because the classes are more enjoyable. (mechanical engineering major)
- There’s more attention to specifics in zoology such as knowing what makes up a nerve cell, whereas outside my major the instructors are getting at general concepts. (zoology major)
- In psychology, I always try to get more references by checking the bibliography or works cited when I’m reading journal articles and I have to write, but I won’t go this extra step for courses outside my major. (psychology major)

Other students reported “more stress,” “more difficulty,” “more technical understanding,” and “more reading” in their WI classes in the major.

As we now detail, students generally had vested interests in WI classes in their majors. Because they wanted to succeed in their respective fields, they valued these WI classes more than WI classes outside their majors. When writing in their chosen fields, students were aware that the body of existing knowledge and the conventions of the field were factors in how they researched and wrote. Their perception that specific writing and research tasks were preparing them
for their future careers cast a high-stakes aura around writing in the major. They regarded their experiences with research assignments as indicators of probable success in the field.

The Writing Task as a Content-Driven Problem

For all interviewees, the most frequently mentioned issues involved deciding what content to include and how to present that content. Students struggled to determine what information was considered "widely shared knowledge" and therefore did not need to be included, and what information needed to be interpreted and explained in detail. The interviewees also were aware that they had to present their content in ways appropriate to their discipline, but they were unsure what those ways were:

- I had some preconceived notions that the formal lab report was like an English paper. You read whatever you think should be in there. You know, write about opinions rather than what's actually there. I realized that this is not just some book on Shakespeare where you can put your opinions in. It's more how this experiment worked or how this data should be. I had to learn how to be more specific with what I wrote in this course. (chemistry major)

- I knew that adult interactions were important up to this point, but I just had to decide why, and that was hard. Trying to actually sit down and say, well, why really is it that they're important? ... Finding evidence to support what I wanted to say was the most difficult part. I brainstormed for a couple of days and it was like I was going in circles. I was writing down ideas and different thoughts, but it wasn't really directly related to what I was trying to say. There was a point where I was going through the book and I was trying to find information on why is it important for peer interaction. Is it because they have the same level of thinking or is it because they're aware of their own mental stage? It's like why or why not. ... I just kept trying to find evidence in the book. (psychology major)

- The final paper you just have to put all four papers together. I think the final paper is a kind of challenge because this is a kind of thing that never happened to me before. We wrote four separate topics, and the final paper, you combined all the papers together. I think maybe you just have to staple all the papers after you revise. But he said, no, he wants a paper with only one topic. ... How can you go from one time frame to another time frame because you may be talking about
1971-1973, but usually you talk about the '70s then you jump to the '80s? (economics major)

- I had to decide if some information was minor. Should I stick it in or should I leave it out and make it easier for myself? One book had more [information], and two of the books had the same information. Should I add what the third book said or was it just extra stuff? Should I focus on the main uses? (English major)

As newcomers to a discipline, the interviewees lacked thorough knowledge of their fields. However, they were learning that the discipline itself—its body of knowledge and research methods—determined what content they included and how content was organized, developed, and supported.

The Writing Task as a Window Into a Discipline’s Methodology

One of the benefits of disciplinary-based research assignments to students was that the assignments helped them learn how to do research. Many or even most of the problems they reported in doing the assignment involved finding information, analyzing data, evaluating the quality of primary and secondary sources, sifting and integrating information, and so forth. From a disciplinary perspective, these are the sorts of skills that often are treated quite directly in the typical graduate methodology course. In contrast, our undergraduate interviewees often associated these problems with the writing assignment itself, in part because very few of their majors provided discrete treatment of methodology issues. After completing the research assignment, students saw themselves as having learned not only about the paper’s topic, but about the nature of research in their disciplines:

- This project gave me an idea of what the researchers have to go through to decide what to vary in other people’s experiments and not to draw too general conclusions regarding other people’s research. I guess it just kind of gave me the idea of what the researchers do and go through. (psychology major)

- [This assignment] helps me to understand basically why you need to research and all this kinds of stuff and what type of research is out there. People actually pay money to do research for that kind of stuff.
Some of the stuff I thought was so out of the way. Like why would someone want to do research on something so specific that it answers only one question but it can't solve a lot of other questions? [This kind of assignment is important because] just looking at that one article, it's like, "That's stupid." But if you look at other articles that surround it, it's all part of that research. You can show that with this one research you can find out about calcium flowing and then from there you need calcium to move the muscle so without muscle movement you would have diseases like multiple sclerosis and stuff. So, maybe finding out if water flows to that muscle, you can find a cure for multiple sclerosis. It's all a part of a whole. (chemistry major)

- I learned a lot more about these historians that I had studied in class and it was interesting. I was having fun looking up more information about the subject. It was interesting how the opinions about the historians differed. I learned more about their background and how people have analyzed their writing and stuff like that. So, it was really interesting. Now I have a better understanding of what modern history is and that there's not a consensus and it's changing and stuff. I didn't realize how much history changed so much and what the influences were because ... actually I barely even touched the subject of modern history because it's gone through so many changes and there's so many major influences. (history major)

These students' experiences were different from those of entering freshmen (Hussey, Bayer, Hilgers, & Jones, 1995) who viewed research papers as an exercise in information gathering. Students in this study—in upper-division Wi classes in their majors—had acquired a sense of apprenticeship and discovery by participating in a scholarly process that led to a better understanding of investigation methods in a subject area.

The Writing Task as Shaped by Audience Expectations

Part of the difficulties students had dealing with the content and how to present it related to their understanding of the audience. Eighty-two percent of the interviewees saw the instructor who had given the assignment as a primary, or even the exclusive, audience:

- The first [lab report] that I had written was more a specialized genre like for a symposium. I got shot down for that. I got smart and next I asked the TA what it was that he wanted me to write about. So now I know basically what he expects. (chemistry major)
• I knew I was putting in a lot of information into this report because I had to. I knew who I was writing for and I knew what he was looking for. (zoology major)

• I kept thinking if I were the reader, how the writing would make sense to someone else. At the same time there is another motive. I wanted to demonstrate to the teacher the structure of my thinking and my general grasp of the subject. (art major)

Although almost all realized that seeing the teacher as the primary audience was important, 56% of the interviewees also described one or more nonteacher audience(s). Several students had been told by their instructor to write for a hypothetical audience. For example, the mechanical engineering students were instructed to address their memos to “Mr. I. M. Boss.” But even in cases in which the instructor did not provide a hypothetical audience, more than half the students created their own. In the professional schools, interviewees often referred to their audience as an individual they believed had specific content knowledge such as a CEO, coworker, or technician. Psychology and chemistry majors often talked about “specialists,” and many in the humanities spoke of an “all-purpose” or “generic” reader:

• I’m thinking that this is a business proposal. You are writing to your CEO. He’s supposed to know what is turnover rate already, he’s supposed to know this and this and this. Do you have to explain to your CEO in situations? He knows everything. You go directly to the point and tell him okay, look, this is our problem. What I’m going to do is this. (travel industry management major)

• I know when you’re writing a certain paper, you’re to assume that the audience doesn’t know anything, but then to me that shouldn’t be because when you’re writing for a specialist, like on schizophrenia, you’re not going to explain what schizophrenia is from the very beginning. But, it’s important to know that when you’re talking about anorexia nervosa, [to] say which, because there are so many diagnostic criteria for one disease. (psychology major)

• It’s always better, I think, to write in a way that anybody can pick up your writing . . . and still be able to follow it. If you think of that somebody as someone who has no knowledge of the subject, that’s better than assuming the reader knows something. They may have some background, but you really don’t know the extent of their knowledge, and if you presume too much, they may not know what you’re writing about. (history major)
Students' conceptions of their audiences played a fundamental role in the choices they made as they worked on their writing. They were aware that the content and how they presented their content depended on the discipline and for whom they were writing.

The Writing Task as an Opportunity to Pursue Personal Goals

Sixty-eight percent of the students claimed they had established their own goals for their focal assignment, goals ranging in nature from creating a "neat layout" to satisfying a burning curiosity about a particular topic. Only 23% of the students stated that getting an "A" or "good grade" was their sole goal. In part, students felt the assignment related to personal goals because most (65%) were allowed to choose a topic that interested them. Furthermore, the fact that the assignment was in their majors, rather than in a general education course, created a presumption of its relevance to personal interests and career goals. The following responses were in answer to the questions, "What were your expectations for writing this assignment? Did you have any goals or purposes for writing this assignment?"

- Well, the topic of this paper relates to politics, economics, and culture in Malaysia. It's interesting to know what a new technology can do on people in general. So, like for example, culture. In Malaysia, it's a multicultural country and it's like with new technology going into the country, there are some people who are not too happy with this because they feel it is against their culture to view certain programs. So, I'm interested to know what their feelings are. (communication major)
- I was curious to know how loud the motorcycle really is and whether it could damage your hearing when you ride it. (mechanical engineering major)
- I wanted to do something different, challenging...I wanted to write an analysis because that film really meant something to me. (psychology major)
- Well, the purpose was that it was due. But I was kind of excited about it because I never really sat down and tried to figure out what the semicolon was for. Another thing, too, was having the chance to read the other person's paper. So I thought I'd brush up on stuff because you kind of go by what you know as far punctuation is. (English major)

The power of writing to give voice to and provide substance for a personally meaningful argument may well be a power that students
do not want to give up, once they have experienced it. At the same time, there is a parallel power in the constructs of a genre or a field, a power that results from a collective decision on what is important. Thus, when a student encounters writing assignments that require conformity to external expectations—whether seen as emanating from a professor or from expectations of practitioners within a discipline—the priority attached to personal interest or personal goals can become problematic. This tension is illustrated by one comment from a history major:

I had to throw out so much stuff, and it was so overwhelming . . . because it was a lot of information. After class, [the instructor] told me to touch on education. But I told him I couldn’t see the logic in it and that’s why I struggled because I couldn’t see what education and family systems have to do with my paper . . . . I was trying to write this paper to please me, so I told him that I’m writing about women, not so much the family and traditional stuff. But he said it would be interesting. So I said OK because it was going to cost me a grade. Later, he wrote that it was an interesting paper, but it was disappointing to me. What I noticed is that when instructors tell you to add more [information] which has nothing to do with what you want to do, you resist. So four chapters out of the paper is me and the other two are what the professor wanted.

This excerpt from an English major also reflects how personal goals conflicted with instructor expectations:

He teaches us each character should be a reflection of whatever the central argument is. But, I sort of just ignored that. . . . [The professor] always told me that you can’t have characters talking on and on. At some point I can say that they talked about this and this for the rest of the evening. But I never did that. . . . In this story, I used a lot of dialogue. I get bothered when I don’t get the right sentence of what people would say. It’s really important to me. I like to fool around with dialogue because I’m fascinated by the way other people talk. . . . I guess it comes back to like I want to keep this story the way I remembered it. With the central argument, the whole story would naturally change.

Thus, the focal assignment within the major created a situation in which some students had to struggle with and find some approach that allowed them to achieve personal goals and at the same time meet professor and disciplinary expectations.
The Writing Task as Preparation for Postcollege Employment

Sixty-five percent of the interviewees perceived that writing instruction in their majors was preparing them for thinking and writing in the work force or in graduate school. Students deemed the writing assignments in their majors—program proposals, formal lab reports, critiques of histories, case studies, engineering memos, and so forth—as valuable because they perceived that the reading, drafting, thinking, and revising required to complete the writing tasks were relevant and applicable to their future careers. Forty-seven percent linked the ability to communicate clearly, logically, concisely, and persuasively with professional publication and work-related tasks such as writing reports (e.g., in finance, management, chemistry, psychology) and making presentations (e.g., in marketing, history, engineering):

- With marketing, what I feel, you have to convince a lot of people. So, I feel that marketing is a lot of convincing and a lot of sales, depending on what area of marketing you get into. Communication—verbal, nonverbal, written—requires very good writing skills. (marketing major)
- Writing in [mechanical engineering] is learning to communicate with either your peers, your boss, or the people that work for you. You have to be able to communicate clearly and concisely. Generally, they want something straightforward and to the point, nothing flowery. And they want it in a memo form with maybe a lab report attached to it. (mechanical engineering major)
- A really important part of being a psychologist, I think, is, well—It’s emphasized that you do studies or you do research or do journal articles. That’s the emphasis in psychology. It seems to me that any time you take a point, you can argue it and create experiments to prove your point or disprove others’ points. When you do so—of course, if you’re going to publish a journal article, you need these writing skills. (psychology major)

Although 65% of the students anticipated that writing would be a part of their careers or graduate work in general, 55% took this one step further and claimed that the writing experiences in their courses paralleled the writing tasks in their anticipated professional lives. They described types of writing assignments they were learning and perfecting in their majors and noted that they would be doing these same types after they entered the professional world:
• If I was to be a chemist, I would need to write reports and my reports would be similar to these. I would have to know how to write these type of papers to convince someone that my results are good or that this is what they need to know or this is what they need. It may be published, or it may be—say like you’re working for a chemical company and you need to impress on someone that this chemical is going to be the wave of the future or is going to be the next AZT or something. (chemistry major)

• I guess it helps to polish my writing skills and express my ideas about my major because when I go to work I will have to write reports like that. If I start working on papers in my major now, I can get myself to be more familiar with the terms and how to approach the reader. (finance major)

• I think most times [on the job] the [management and information systems] major has to talk with the customer and if we need to generate a program, we need to write up a user guide. So writing up a report or a user manual is very necessary for us. Because, for example, if we try to write about the Access program, we need to write up a user manual for the user and then they just look at it . . . [The professors] give assignments like that for us to do. So, we have to know how to write up in a professional way and be more confident in writing so that we can write up a report to our customer. (management and information systems major)

• If I want to research something, then I’m going to have to do all the data and the calculations like we did here and be able to write a report in this format. If I find something that I can patent, then I’m going to have to be able to distribute a report and the best way to go about that is by getting it published like in the Journal of the American Chemical Society thing. You want to be able to get your report in there to show everyone else, hey, this is what I got. You have to be able to communicate in such a way that the other people will be able to follow what you’ve done and it’s got to be coherent and it’s got to be a certain format most importantly. (chemistry major)

Overall, the interviewees understood writing in the disciplines as a communicative, frequently persuasive, action. Furthermore, they saw content, method, and audience issues as context- or discipline-related. They also extrapolated from their own experiences how writing functions in their particular fields and in the world outside the university.
WHAT DO STUDENTS NEARING COMPLETION OF THE UNIVERSITY’S WI REQUIREMENTS REPORT THAT THEY KNOW ABOUT WRITING?

Many of the interview questions were designed to gather information about students’ understandings of how they completed the focal assignment. Most students articulated, and dealt with, problems associated with process, both the process of getting the assignment done and the process of doing the required research. The interviewees also made general statements about the perceived benefits of writing.

Writers Engage Multiple Resources

Although all interviewees “problematized” their focal assignments, as a group, their subsequent actions revealed no general patterns or sequences. For example, students who sought out their instructors did so for different reasons and at varying stages of their work. Indeed, each student typically created his or her own fluid script and modified it frequently. None of the students viewed writing as a linear process in which he or she regurgitated facts or recorded his or her thoughts on paper. None of them described writing as merely drafting and revising. Instead, students viewed “writing” as a set of problems to be solved and goals to be reached. In solving problems and seeking goals, they backtracked, changed tactics, and engaged multiple sources of information and advice. The sources can be described in four categories: stable texts, persons, previous experience, and emerging texts.

Stable texts. The one resource engaged by all the interviewees is what we call “stable texts” (to be distinguished from the “emerging text” that the student is producing and also consulting). The first type of stable text is what the students called “readings”: books, journal articles, newspaper articles, class notes, web sites, CD-ROM compilations, and so forth. Seventy-six percent of the student writers talked about readings as playing an important role in their writing process:

- The first thing I did was compare the results to the science data, and there was no published data on the material he gave us, so I searched in the library for things because if you can find a book on whatever you’re doing, then you can make other qualitative comparisons. (mechanical engineering major)
• I came to my decisions by doing current research like in *The Honolulu Advertiser* and the *Honolulu Star-Bulletin*. And I went in to locate information on the computer at Hamilton Library. What the governor felt, other politicians [about legalizing prostitution]. (economics major)

• I started thinking about my other classes, so I brought out one of my old books and I started looking through my notes, then I said, oh, Henry VIII was interesting but my old professor didn’t really go into depth, so I think I’d like reading about that. (history major)

• I always keep searching through my notes and look for common ideas and as I go along I’ll just cross off whatever I already put in the paper so that I don’t get confused. That way I can make notations about where I got my information. (zoology major)

The second type of stable text students mentioned—the “assignment sheet” or “paper guidelines”—is privileged because it emanates from the assignment giver. Eighty-two percent referred to such texts to help their decision making:

• I followed it [the assignment sheet] exactly in the beginning, in the first couple of memos. Towards the end, I guess, I didn’t really look at it anymore because I had the outline more or less memorized. (mechanical engineering major)

• [The instructor] makes comments like, aren’t I repeating myself on these? I had actually gotten this from the handout, the formulas, etc. So, I was following the handout that we got. I think he probably knew that. I think that his point was just because we had it really spelled out for us, maybe we’re not supposed to spell it out as much as the handout that we were given for the lab in here. (chemistry major)

Because assignment sheets were associated with instructor expectations, and ultimately with course grades, they were consulted again and again. Students sometimes found the language in assignment guidelines problematic: “Fuzzy” and “sort of ambiguous” were typical descriptors. A simple verb such as *interpret*, readily glided over when read in the clause “we interpret this to mean,” becomes problematic when it becomes a procedural command on an assignment sheet, as in “Step 4: Interpret the data.”

At the time of the second interview, 94% of the students had received written comments from their instructors—the third type of stable text they consulted. Twenty-five of these students followed their instructors’ suggestions when writing their final draft or their next assignment in a series. Seven did not apply the feedback because
they saw no reason to do so (e.g., it was on the final draft) or because they did not agree with the instructors’ suggestions:

- Like he wrote this—I guess these words gave me the idea to help me write a conclusion because I didn’t know how to sort of speculate at the end. He said that you can say, “This suggests that.” I didn’t think you could give opinions in theses. I thought the conclusion was just a summary of what you wrote before, that’s what my friends told me. But he wanted me to make my own speculations, but I didn’t really know how to do that. (history major)

- He changed the sentences so we’ll work on making this kind of sentence instead of making the sentences wrong. We followed what he told us to change in the first report and then we’d apply all the things he told us to change in another report. (management information systems major)

- I did take into consideration what he said and I did change it according to how he wanted it, but that’s because I wanted to get the A and he told me to revise it the way he wanted it and then I’d get an A. But I didn’t agree with some of the things. Some of them were good things that I realized I had done wrong. But, some of the other things, like using “therefore,” he circled practically all the therefore. I’ve always written papers that way, so I thought it was okay. The hard part about it was he didn’t tell me why and then even if it was wrong I’ve gotten away with it for a long time. (speech major)

- [His feedback] made me very aware of plagiarizing. He told you to not be so la-di-da with the experiment. He said to state everything about it, state what you know, state what you don’t know, and if you don’t know it, state why. [The feedback is] going to help me to write the third paper. The third paper, I feel, is a little bit easier than this one. This one was pretty hard. I don’t know if it’s because I’m used to writing what they want, so that makes it feel easier, or what. . . . A lot of the feedback was helpful in having to focus more as to what I’m supposed to write. (zoology major)

**Persons.** A desire to better understand the assignment sheet, grading criteria, or written feedback was one of the most frequent reasons students sought out a personal resource: the course instructor. Fifty percent of the students met one-on-one with their instructor to clarify assignment directions or teacher expectations:

- When I first got the assignment I thought it would be a difficult paper to write because I’d have lots of research to do. I thought it would be even more difficult because the instructor wanted lots of current scholarly
material which I couldn’t find. He explained to me that secondary sources wouldn’t be as valuable as primary sources. So I talked to the instructor and he advised me to abstract information from books about past telecommunications and about the present situation from newspapers and journals. I also had questions about the abstract and he said the abstract is like answering the question of the paper. Tell the reader what you are going to examine. (communication major)

- I thought maybe after my first draft I’d go to talk with [the professor]. I realized that he wanted something very innovative, very creative. I realized after speaking with him that he kept giving me lots of hints like when he pointed to parts of my draft and said “This is boring stuff.” (travel industry management major)

- He expected us to write a clear, organized paper. . . . Students who are not sure how to write a paper properly, we ask him and he advises us about the structure of the paper. (communication major)

Another personal resource, less authoritative than the course instructor but also less intimidating, was a peer or group of peers. Fifty-nine percent of the students talked with their classmates or friends about their focal assignment or received feedback from them on written drafts. Some instructors encouraged peer interactions in class, especially as students were trying to find research topics or methods. Others provided in-class opportunities for peer feedback on emerging texts. Students, in person, on the telephone, or via e-mail, exchanged hints on how to handle one or another part of the assignment:

- The professor gave me some ideas on how to restate sentences, and I asked my friends questions, like “What do you think this means?” That’s how I got my conclusion. Like if I read something about Henry VIII that he fooled around so much, we’d talk about possible reasons. My friends and I always do that even when they’re the ones writing papers. Sometimes we go bowling or eat out or go to someone’s house. We usually end up talking about our upcoming papers, what they’re on. If someone needs help, then we get together and try to help the person. (history major)

- Every time I show my draft to my boyfriend, we just end up arguing over semantics. Like for me it means one thing and for him it means another thing. He just doesn’t know. Some lay terms may mean something different in psychology. If I just want to make sure it’s grammatically correct, then I’ll ask him. (psychology major)

- We’d meet with lab partners during the week after the experiment and just brainstorm about what the experiment was about and to interpret the experiment itself. (zoology major)
• After everyone wrote up their parts to the report, we tried to combine it into one report. Everyone shared ideas on parts that were redundant, parts that were good. We’d try to delete redundant sections or make adjustments on how paragraphs would flow to other paragraphs. We made a lot of changes. (economics major)

• When we came together as a group, the ones working on different projects, we gave each other feedback. Some people changed my grammatical mistakes. If the sentence was not good, they’d change it. (management and information systems major)

Previous experience. Sometimes before (and sometimes after) consulting with instructors or peers, 71% of the student writers turned to their own accumulated knowledge about the topic or about the format and discipline-specific conventions of the assignment:

• You’re likely to put your personal feelings and your objective feelings into the paper without thinking that there may be another possibility. If I believe like China didn’t have the technology to produce steel, one thing will be like because I read all the books before that and I have heard people talk about it in my own country. I really have relatives during that period and I already have something that’s planted in my mind that it’s not efficient because they don’t have the technology to produce steel and everyone donates their iron just for this. (economics major)

• I had to see what every other person said because one of the books that I had was a little older and I know from doing other papers that the [Modern Language Association style guide] always updates things. Like now, they say you put one space after the period, not two. So, you know if I had gone back to the book I used in high school it would have been two spaces. (English major)

• For a business proposal, you shouldn’t write too many flowery things. You should go right to the point. . . . [Headlines are] part of the business format. It stems out, rather than you put everything. Because later on that’s where I’m going to tie it in with mine. Like my corporate balance analysis, I can bring out one-by-one because I’m going to talk about how much is the turnover rate, how much you’re going to save, how much the revenue is going to increase, that kind of thing. (travel industry management major)

• I knew the discussion part is just what went on in the experiment, explain about the data, explain why you got that data, and like I said before, trying to influence the person to realize that this is the wrong or right data or however you want to influence that person . . . you explain
the theory in the introduction because you bring up the subject and it’s like writing a paper. (chemistry major)

Of course, students reviewed what they already had internalized about writers’ strategies as they worked to extend or improve their emerging texts. Forty-seven percent of the students consulted stored rules of thumb and assorted prescriptions for achieving success through writing:

- I’m not very good with grammar so I stick with the main points and try not to overemphasize or give opinions. I try to keep it short and specific and I won’t elaborate because I tend to make more mistakes. (history major)
- One thing I learned through my English classes is that you have to grab your reader in the first paragraph. If you read someone’s paper that’s really boring, you’re going to read it and by the time you’re done, you’re not going to know what you read. Where if you have someone tell you a story, at a personal level kind of way, you’re going to remember exactly what that story was. (history major)
- When I used to write, I think it was for my philosophy class, well, those classes, you can’t just write. You have to read first. You have to read like 20 books before you can even start on a paper. I realized how like this person sees it one way and you really get different pictures. You realize how important the original text is—It’s important that you read it through other people’s perspectives, but it’s not the same as the original’s. I really like reading the second literature because it’s almost like you’re having a dialogue with the other person about your favorite book or author. It also gives you an insight that you never would be able to have on your own. But, it’s very different from the original and I guess that’s how I learned to be suspicious. Especially when there are so many bad ones written on him—You get really mad because it’s really distorted. I just learned not to trust other people’s opinions because they have their own agenda too. (psychology major)

**Emerging texts.** Forty-four percent of the students stated that they reread their written drafts to guide them or to make sure that they were being “correct” and making sense:

- I’ll finish the paragraph and I’ll just keep reading the paragraph over and if I know I don’t like it or parts of it, I’ll just keep changing it until it ends up into something that I feel sounds the best way I could say it and makes sense. Sometimes, as I was going along and writing the rest of
the paper, I would find things that I would say, so I would go back to
the intro and think maybe I should change the way I said this part. (bot-
any major)

- As I was writing the paper in the computer I kept looking back to the
thesis statement and saying, "Okay, did I cover this point?" "Yes,"
"Did I cover the next point?" "Yes," "Did I cover the third point?" etc. I
sort of went through that sort of progression and it was paragraph by
paragraph. I had to follow that same order in the paper so the first part
of [the thesis statement] should come in the beginning, the second part
should come after that, etc. I tried to follow that format. (art major)

- I will review and review [the data and analysis] until I'm satisfied. I'll
go into my conclusion and then look at that part many times until I'm
satisfied and then turn it in. (management information systems major)

- I went back and I read through it and tried to see if I could fit more in-
formation in and stuff like that. (communication major)

Figure 1 summarizes the types of resources students sought out to
complete their writing assignment.

All of the resources previously mentioned potentially influenced
both what a student put into a paper and how the student went about
writing the paper. However, it is important to distinguish between
resources that students engaged and additional determinants of the
students' final written text. The shape of the final text, as well as
which resources the student consulted, often was determined by exigencies and parameters not fully under the student’s control. More than half of the students reported making decisions based on computer center hours, photocopying costs, availability of library books, and so forth:

- I read one book on Laotian textiles that seemed like the only book in English that was around. I was thinking that there’s just not enough here for me to write a 10-page paper on. I was either going to have to write everything in that book or I was going to have to change my subject. (art major)
- The original literature I could not get my hands on. . . . They weren’t in the library and I didn’t want to order it because it was too late in the semester. (psychology major)
- The lab paper we’re writing up now is supposed to be an experiment using turtles, but turtles are expensive and we are using a frog heart. But really, a lot of the information that I’m reading in journals is about the human heart. It’s really hard to pull this one together. (zoology major)

Although our data did not allow us to determine whether conversations with instructors and peers, written feedback, and so forth, are more significant than such exigencies in shaping a student’s decisions, we can say that the external constraints are unavoidable and often become apparent only after a student has problematized a writing assignment and made certain decisions. The constraints change with each subsequent decision. Furthermore, the closer the assignment due date, the more these factors weigh in determining subsequent behavior.

Finally, we found we could grossly quantify the number of different resources each interviewee reported engaging. The average number associated with the focal assignment was 5.7. However, students who had taken a larger-than-average number of WI courses usually reported consulting a greater number of resources. For example, the 5 interviewees who had taken seven WI courses talked of consulting 6.8 resources on the average. And the single student who had taken 12 WI classes described 8 different resources.

Writing Promotes Learning, Thinking, and Confidence

Throughout the interviews, interviewees made summary and general statements about the perceived benefits of writing. First, the stu-
udents generally agreed that writing about something leads to learning. Ninety-one percent claimed that by completing their focal writing assignment, they learned about the topic or subject:

- When I just made the outline, the paper meant nothing to me and I thought this was going to be a hard paper to write. But, as I was writing—I had read all the stuff and gone to all the classes and knew all the information—but as you’re writing, you have these epiphanies and things come to you. It just all seems to fit together. (psychology major)
- It really brings the whole experiment together when you write it up and when you get to see the results, you actually get to see what it is that you did. Once you analyze the data and write it all up and it’s a finished product, you can flip through it and see, oh, now I know why I did this. It shows this about this. (mechanical engineering major)

Forty-seven percent of the interviewees believed that, overall, writing is the best way for them to learn:

- When you write an idea or concept and branch off from there into a full essay, it’s very different from regurgitating facts because when you’re writing something you have to think about how you connect things. (history major)
- I think the writing that I do best is the reflection type. It gives me an opportunity to stop and think through things that I normally wouldn’t spend much time thinking about. When I actually write, the ideas become clearer and I can define things for myself. So I think I learn a little bit more about myself through writing. (communication major)
- I can’t learn a lot without writing because I may not pay attention in class. But if I need to write, I have to keep my mind on the paper. (finance major)
- I think that good old-fashioned writing is a good way [to learn]. In the end, it really is indicative of what you know about your subject. It’s the best way to find out if you know your subject. I think that’s why so many teachers choose essay exams. Because they really want you to think and to write something coherent. (history major)
- I think that the writing really puts the icing on the cake where I can really put into perspective what it is I’m supposed to be seeing, what’s actually going on, and being able to put that time into thinking about it. (chemistry major)

Second, 35% of the students claimed that writing assignments influence how they think (although “thinking” was not well defined).
Often, the ability to think was linked to writing as a way to "organize" and "refine" ideas, become more "analytical," and probe "deeply." Several students also observed that an ability to write seemed to undergird speaking. Experiences with writing helped students internalize conventions of argumentation:

- [Writing] helps me organize my thoughts... Now, when I'm talking to someone, I tend to think "Okay, what are the major points that I want to make in this conversation?" Like if I'm kind of like having some sort of debate. Like if we're all sitting around talking about politics or something, I think about what major points I want to make, what's my back-up for it. (history major)

- I think it helps me to organize my thoughts. You can relate the knowledge or the things that you learned in a more organized format rather than just talking. (travel industry management major)

- [Writing] helps you get a perspective of what you studied. When you read something—Okay, you read it and you sort of understand it, but when you actually have to write about it and tell someone else, in writing, it forces your mind to think of it in a new way. You have to organize your thoughts, you have to make it into some sort of order rather than just thinking on the vast subject. And it forces you to refine your thinking to even more than just having these general ideas. When you have to try to convince someone in writing, it forces you to think a lot sharper... it forces you to be even more analytical. (history major)

- I would say that [writing] has helped me think. If I don't write something, I wouldn't really think of a topic that deeply. If you had to research a topic and you had to think about the consequences about it, it would help me think more about the subject. (communication major)

Finally, students claimed that their writing experiences helped boost their confidence in themselves. When directly asked, 76% of the interviewees reported feelings of confidence when writing in their majors:

- I think all the classes and all the writing that I've done here has made me a better writer, but I think maybe after I finish school or whatever, all the writing that I have to do after is going to change and get better. I've reached the point where I'm a good writer now because I think it constantly changes. (communication major)

- If it's performing an experiment for some reason and writing up results on it, I think I'm pretty well prepared to do that. I haven't had to do like
a term paper. Anything really long, a big research paper, I'm not sure I would know how to do that. (mechanical engineering major)

- I really have some confidence in my writing ability. Not necessarily because of what I feel. I'm always dissatisfied, but I've gotten enough positive feedback so that I think I'm okay with writing or other people think I'm okay anyway. (history major)

- I know what the format is like. I know how to do research. I know how to do citations. I know the rules and guidelines about writing. (transportation major)

Overall, the interviewees were resourceful, involved, and often deliberate in their writing decisions. They learned to approach writing assignments as problems to be solved and perceived connections between writing and learning.

**DISCUSSION**

"WAC is uniquely local," Walvoord (1996, p. 68) wrote in her review of more than two decades of the WAC movement. The WAC program at the University of Hawai'i is a local response to faculty and employer perceptions of students' and graduates' writing abilities. Our graduation requirement—five classes designated WI, with a minimum of two from upper-division offerings—reflects two assumptions: writing should be used frequently, and experience with writing should occur throughout a student's college career. Although we have no specific writing-in-the-major requirement, we, as noted in our introduction, have the functional equivalent of WID in that the typical graduate takes an average of three WI courses in his or her major. Thus, upper-division students' experiences—with a variety of writing assignments in a variety of classes, including some in the major—are relevant to issues involving both WAC and WID.

When we add up the findings from this study, the most prominent term in the sum is confidence—particularly students' confidence that they can deal with the writing requirements of their majors and their chosen professions. The range and persistence of this finding quite frankly surprised us; not having completed our data analyses when the frequency of comments about confidence became apparent, we initially were not certain that the confidence was well founded. Yet, when we look at the aggregate of student experience, we find that the confidence may have a substantial base. First, students typically had
to write in a variety of circumstances and for a variety of real and hypothetical audiences. Second, students either were instructed in, or discovered on their own, different ways to go about doing these writing assignments. Third, they knew how to engage a variety of resources to solve writing problems. Fourth, students became adept using at least embryonic forms of rhetorical problem solving. With rare exceptions, assignment guidelines did not prompt students to “think rhetorically,” at least in the global sense. Nonetheless, students did construct audiences (most prominently in professional and science courses), set goals, ask questions about arrangement, and, occasionally, select among alternative approaches. Fifth, students on the brink of graduation were engaged in writing assignments that they believed prepared them for future employment or an advanced degree: More than 80% of the students reported preparedness for writing in their chosen fields.

This was far more than Hussey et al. (1995) found when studying a parallel group of high school students nearing graduation, whose sole rhetorical strategy was typically to “find out what the teacher wants and do that” (p. 3). Also unlike high school seniors, whose typical resource to guide writing was the model five-paragraph theme, students in this study, after multiple WI experiences, were looking to, and accessing, multiple resources. The very fact that they would consult more than one resource suggests that they were operating with rather sophisticated plans for accomplishing both their research and their writing assignments.

A second inescapable finding from this study relates more specifically to our question about the effects of disciplinarity. Our data were not broad enough to document robust differences between WI classes outside and in the major. However, we did find that, whatever the major, students clearly preferred writing experiences involving its courses. True, this was tied to their vision of future work. But it was more than that. It was almost as if doing writing assignments in the major involved making an investment in who the student desired to become; writing, in other words, seemed to be part of professional identity-building. This aspect may prompt student motivation that instructors often report to be missing in general education courses.

Overall, then, WI courses, particularly those in the major, are providing students with rich opportunities to do what professionals do—to observe, gather data, make analyses, and write reports. The in-the-major WI courses also provide students with process-driven structure for doing extended pieces of writing. We hypothesize that a
research-related piece of writing is more likely than, for example, a “personal reaction” piece to involve students in the task of sorting through multiple goals. Again, the experience of having multiple goals contrasts positively with the sole archetypical goal of the precollege student, which is to “please the teacher.”

The findings from this study extend beyond our research questions; they also help us see more clearly how our local program objectives are being met. Because our local objectives are part of the larger dialogue on approaches to writing instruction, it seems appropriate to include in this discussion some of what this study tells us about our situation.

The development of the WAC program at the University of Hawai’i was guided by three implicit objectives:

1. To give students opportunities to experience writing as a set of tools for learning.
2. To guide students toward proficiency with the common written genres of their chosen field.
3. To help students situate what they know about writing rhetorically, thus providing them with ready access to writing strategies that may be adapted to meet new needs.

Analyzing our data made us keenly aware that we are well on our way to meeting the first two objectives, but falling short of the third.

Anyone familiar with the literature of WAC knows the emphasis on write-to-learn strategies such as those described by Fulwiler (1981), Walvoord (1986), and many others. In our interviews, students did not mention write-to-learn activities except in infrequent reference to what they had done in lower-division WI (and first-year writing) courses outside their majors. On one hand, that did not surprise us, because the primary focus of this study was a student’s experiences with a writing assignment in the major. On the other hand, we were surprised because so much of the training we provided in workshops for our faculty, particularly during the early years of program development, involved the traditional canon of write-to-learn strategies.

Does this mean that our interviewees, involved with relatively traditional research products, were not “writing to learn”? The data reported previously provide little evidence, but the drafts and reading notes that students brought to the second interview showed that students did do exploratory writing, although they may not have
labeled it as such. In other words, although instructors of WI courses in the major seldom assigned conventional “write-to-learn” activities, students frequently incorporated exploration into their multifaceted approaches to accomplishing their final drafts. Several of the transcript excerpts illustrate how the writing of a first draft was in part an exercise in exploration and discovery. And the evidence that students perceived themselves as learning content is clear.

It is important also to note that instructors often facilitated exploration and discovery through their construction of a writing assignment. They set multiple deadlines; they invited or insisted on multiple drafts, consultations, reflection, and “re-visioning” of the assignment. What they less frequently did—at least from our examination of assignment sheets—was to connect explicitly the discovery methods that are often implicit in a genre’s conventions with the processes in which writer-researchers engage. Nonetheless, a few students appeared to be discovering such connections on their own—often through repeated efforts with assignments in the same genre.

The very fact that students often used genre labels when talking about assignments provides some evidence that our second objective, genre proficiency, plays an important role in WI instructors’ design of writing assignments. Another indicator, students’ references to discipline-specific conventions, further suggests that at least some students had a sense of how writing functions in their disciplines. Indeed, students’ successes with particular genres, especially when accomplished in an environment that included instructors’ reminders that “you will be doing this again if you get a job in this field,” led students to the kind of confidence we discussed previously.

Overall, then, we see in our data evidence that students clearly gain from our program’s combination of WAC and WID approaches. Students get both the variety and quantity of writing experiences associated with WAC and the experiences with particular contexts and genres associated with WID. Nonetheless, we are led to ask “Is this enough?” Is it enough to provide students with experiences in at least five WI classes and to hope that the attention to and frequency of writing will help them to attain the habits of effective writers?

Our interviewees, although confident in their facility with certain genres, seemed unaware that their understanding of genre was limited by the context of a specific classroom, a “controlled circumstance.” Furthermore, the difficulties interviewees experienced in
discovering appropriate inquiry processes and in solving content problems suggested that they had an essentially superficial understanding of genre: They were versed in format and stylistic conventions and they knew that the writing in their majors was different from other writing they had done, but they generally lacked an understanding of the underlying values and epistemologies that different genres (or even a particular genre) represented. We are, in other words, suggesting that what we have is not quite enough. We are coming up short of our third objective, which is to help students learn strategies they can successfully apply in future circumstances.

However, another aspect of our experience with this study may hint at an approach that offers promise of making our WI requirement more likely to accomplish this third objective. We found that instructors apparently provided little direct instruction on connections between genres and methods of inquiry; only a few students described instructors helping them to understand how researcher-writers develop arguments, interrogate sources, validate findings, and write up results. At the same time, we found that the students are quite ready to see such connections: They frequently seemed to “discover” what they had learned about inquiry methods during the interviews with us. In other words, it may take just a little pointed prompting to help students recognize connections between writing and inquiring, between genres and epistemologies.

What more might it take to help students achieve proficiency as writers, thinkers, and problem solvers? It might take little more than providing experiences that encourage awareness of what they are doing as they write, and, furthermore, awareness that how what they are doing, even in apparently disparate situations, is ultimately working to solve potentially related sets of epistemological or rhetorical problems.

What would this require of instructors? First, they must help students to situate each new research and writing task among prior experiences and thus to “discover” familiar strategies they might employ or adapt to accomplish the new task. Second, the instructors must foreground the processes of inquiry and validation that professionals in the field might use to accomplish the new task. Third, they must help students come to see connections among inquiry methods, the recording of findings, and the processes of composing a final report. All three of these involve changing emphases far more than changing
course content. Ultimately, they require attention to a field’s methodology and epistemology—to the generation of research questions, selection of sources, the design of arguments, and the choice of reporting language. Granted, many students will “see” the connections only as they accumulate a wide range of writing and problem-solving experiences. But a mentor’s attention to problem definition, alternative solutions, and strategies for crafting an effective solution can help students make connections within an assignment and across assignments.

What would this mean for our particular WAC/WID program? In addition to helping professors foreground aspects of inquiry processes, we might have to ask individual departments to promote a certain amount of sequencing across assignments and even courses—to move from a smorgasbord approach to a fixed-menu approach in at least some majors. Ultimately, it might require greater coordination among faculty members and greater coherence in the curricula of certain majors.

We leave our data with renewed confidence that a hybrid of WAC and WID, with special attention to the ways of writers in each student’s chosen major, is well worth the investment our faculty and students are making in WI classes. Nonetheless, we will work to heighten awareness through faculty workshops and to help students acquire a set of habits that will still be useful in approaching problems 25 years from now. In working to improve how WI courses are connected and taught, we will be guided by scholarship in learning, developmental psychology, and rhetoric; and we will continue to ask our students about their experiences.

APPENDIX
Writing-Intensive Requirement

Students who entered the University of Hawai‘i (UH) system as freshmen in fall 1990 or later must complete, before they graduate from the Mānoa campus, five WI courses (designated “WI” in each semester’s schedule of classes). At least two WI courses must be from courses numbered 300 and above. Students who entered the UH system as freshmen in 1987-1988 must complete, before they graduate from the Mānoa campus, two WI courses; in 1988-1989, three WI courses; and in 1989-1990, four WI courses (at least two of which must be numbered 300 and above).
Hallmarks of WI Classes at the University of Hawai`i

1. The course uses writing to promote the learning of course materials. Instructors assign formal and informal writing, both in class and out, to increase students' understanding of course material and to improve writing skills.

2. The course provides interaction between the instructor and students while students do assigned writing; in effect, the instructor acts as an expert and the student as an apprentice in a community of writers. Types of interaction will vary. For example, a professor who requires the completion of long essays may review sections of the essay, write comments on drafts, and be available for conferences. The professor who requires several short papers may demonstrate techniques for drafting and revising, give guidance during the composition of the papers, and consult with students after they complete their papers. (Many professors now use e-mail to provide at least some of this interaction.)

3. Written assignments contribute significantly to each student's course grade.

4. The course requires students to do a substantial amount of writing—a minimum of 4,000 words, or about 16 pages. This may include informal writing. Depending on the course content, students may write analytic essays, critical reviews, journals, lab reports, research reports, reaction papers, and so forth.

5. To allow for meaningful professor-student interaction on each student's writing, the class is restricted to 20 students.

NOTE

1. The majors we specified (e.g., art, business, engineering, history, premed, psychology, speech-communication) attracted the largest numbers of students on campus. We hoped that this specification would increase the likelihood that we would have more than one person per major as informants, because we needed a sample of more than 1 if we were to do any cross-checking of student perceptions within a given major.

REFERENCES


Thomas L. Hilgers, a social psychologist, is professor of English and director of the writing-across-the-curriculum program at the University of Hawai‘i. His assessment

Edna Lardizabal Hussey, Head of Epiphany School in Honolulu, coordinated assessment at the University of Hawai‘i at Mānoa Writing Program. She has coauthored a chapter on self-assessment (in press) with Hilgers and Stitt-Bergh and has published teacher-research articles. She teaches writing-intensive courses on curriculum and instruction in the University of Hawai‘i College of Education and codirects the Hawai‘i Writing Project.

Monica Stitt-Bergh coordinates writing placement and the designation of courses as writing-intensive in the undergraduate programs of the University of Hawai‘i, where she also earned her master's degree in composition. She has authored and coauthored several technical reports for the Mānoa Writing Program, as well as a report in Research in the Teaching of English.