IV. THE PROGRAM IN WRITING AND RHETORIC

Program History

Stanford’s composition requirement is one of the oldest at the University and has evolved over the last thirty years in line with our continual assessment and reassessment of the needs of our students. Until 2003, students were offered two paths to complete the requirement. Students with demonstrated competency before matriculation could take a one-quarter class that assumed higher-level skill. All other students completed two-quarters of instruction, though until 2000 a high grade in the first quarter exempted a student from the second. In 2003, the current curriculum was adopted under the Program in Writing and Rhetoric (PWR). Students no longer receive any exemption based on AP testing or SAT scores. Rather, the requirement for all students now extends to three quarters, (ideally) spread over the first three years. Currently, the freshman courses emphasize writing and research-based argumentation, the sophomore courses emphasize writing, research and oral presentation, and the third course is a “writing in the major” class that varies by subject but requires deeper research, an introduction to the standards and styles of a field, and guided drafts and revision as part of the writing process. (See Appendix 20a for further history.) Below we report on a study of the first year course, on writing in the major, and then on a longitudinal study that assessed the overall effect of writing instruction on campus. (2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.10, 4.7)

Principles of the Program in Writing and Rhetoric

The Program in Writing and Rhetoric is a unit housed within the Office of the Vice Provost for Undergraduate Education (VPUE) and maintains a strong connection to the Department of English. Starting as a freshman composition requirement that was administered by the English department in the School of Humanities and Sciences, Stanford’s writing requirement has evolved into a rhetoric-focused, research-based curriculum that now plays an integral role in students’ experience throughout their undergraduate years. PWR aims to support undergraduates’ communication abilities, both written and oral, from their arrival on campus through graduation. In addition to implementing the carefully structured writing, research, and speaking curricula, the Program established the Hume Writing Center in 2001 (just after the current requirement was voted in by the Faculty Senate). The Center provides tutorial and other support for undergraduate writers at every stage of their academic careers.

The methods of PWR are grounded in research on the development of writing abilities, working from the premise that consistent instruction, extensive practice, and detailed response lead to improved writing. A rhetorical perspective and guided, substantive revision serve as the basis of the writing process PWR presents to students. Students are directed to analyze the specific situations in which they write and present their work, carefully considering audience, purpose, and other key factors that will help them shape their ideas for maximum effect. Revisions of each major assignment, with the aid of feedback from the instructor, peers, and in many cases Writing Center tutors, help students refine their sense of the rhetorical situation, which in turn helps them make effective choices about how best to advance their arguments. (See Appendix 20b for Principles and Goals Statement of the Writing and Rhetoric Requirement.)
Students are required to take the following three courses before graduation:

- **PWR 1** instructs students in how to understand and construct a rhetorical stance; develop a supportable argumentative thesis; discover, evaluate, and use effective support for an argument; make appropriate organizational and stylistic choices; and understand the expectations of a wide range of audiences. The assignment sequence requires students to use the library and archival resources to carry out an in-depth analysis of one particular source; to put several sources into conversation with one another in a more complex analysis; to present a research proposal; and to work to draft, review, and revise a research-based argument. (See Appendix 20c for sample PWR 1 section titles, descriptions, and syllabi containing assignment sequences).

- **PWR 2** extends students’ experience performing these essential academic activities, with additional attention to the oral presentation of research. In this course, students learn to apply key rhetorical elements from PWR 1 to oral and multimedia presentations focused on original academic research.

- **Writing in the Major (WIM)** courses build on students’ experiences in PWR 1 and PWR 2 by providing students with focused opportunities to develop writing abilities in the context of their chosen fields, including the use of discipline-specific formats and styles. In WIM, students may complete a series of short assignments or a larger project. The core of students’ work in WIM is the process of rewriting: reinforcing the writing processes learned in PWR, all WIM courses incorporate drafting and revision guided by the instructor. This process includes individual feedback and coaching from specially prepared teaching assistants. (See Appendix 20d for sample WIM course titles, descriptions, and syllabi containing assignment sequences.)

The pedagogy in all three courses demands consistent attendance and focused work. Especially in the PWR courses, faculty act quickly when students are having difficulties, communicating with the advising staff and individual advisors as well as with the Academic Director in the student’s residence and, when appropriate, with the academic advisors located in the Athletic Department. Instructors also collaborate closely with Undergraduate Advising to provide information for the mid-quarter report on academic progress, connecting struggling students to appropriate resources. This structure gives students every opportunity to complete their writing requirements in a timely manner, allowing them to move forward with a strong grounding in writing and research.

Stanford’s writing programs also support undergraduates in writing and rhetoric outside of the classroom, through open houses that allow students to meet with instructors and preview courses; through the full range of services provided both through the Hume Writing Center, and the Technical Writing and Oral Communications Programs in the School of Engineering; and through its partnership with other VPUE units, including Undergraduate Advising and Research and the Center for Teaching and Learning.

**Evaluation of the Writing and Rhetoric Requirement**

PWR continuously engages in systematic efforts to evaluate the quality and impact of its curriculum. The program incorporates a wide range of evaluation and assessment procedures, including regular use of student evaluations in PWR 1, PWR 2, and WIM courses; the review of teaching methods; pedagogical uses of technology; and surveys of students and PWR instructors. PWR also prepares an annual review for presentation to the Committee on Undergraduate Standards and Policies in May of each year. (Annual reports can be found at https://wasc.stanford.edu/standard4.)

As part of the writing program’s ongoing assessment efforts, in September 2001 Stanford began a five-year longitudinal study of writing, following 189 randomly selected students throughout their undergraduate
careers and through their first year after graduation. Students in the study were asked to contribute all of their in-class writing and as much out-of-class writing as possible to an electronic database, which now holds over 15,000 pieces of student writing, including samples of email in eleven languages, blog postings, private journal entries, poetry, multimedia presentations, problem sets and lab reports, and essays and honors theses across the disciplines. The purpose of this study was to capture and analyze a snapshot of the writing students in this cohort did both in and out of the classroom during five years and to assess development across the years.

In 2003, preliminary analysis of the data indicated that student-writing had not continued to develop as students advanced in their studies. In fact, we found a mid-college dip in the amount of writing and in writing ability. The Faculty Senate had already approved an expansion of the writing requirement to two quarters, anticipating that students would benefit from consistent instruction through their undergraduate years; these findings bolstered the case both for the expanded requirement and placing the second course in the sophomore year. With regard to the specific content of the curriculum, the Senate mandated only that PWR 2 include aspects of oral communication and presentation and that it continue to develop writing, rhetoric, and research abilities. We thus had an opportunity to develop PWR 2 in concert with the ongoing findings of our longitudinal study paired with the best current research in writing development. In addition, we hoped that many students would take WIM courses in their junior years, thus creating a vertical sequence of writing courses that reinforced writing ability each year.

As part of the WASC process, we initiated two new studies focused specifically on First-Year Writing and Writing in the Major. In the following sections, we present the findings of each study. In addition, we present some summary results from the prior Longitudinal Study of Student Writing at Stanford.

**First-Year Writing**

Our assessment focused on the core mission of PWR 1, which is to assure that our students are able to construct an effective research-based argument. For this study, we developed a random sample of 275 members of the freshmen class who would complete PWR 1 across the academic year. In this group, 50 students had been flagged by Admissions as potentially needing more support. The flag could represent any number of constraints faced by the student. They could have weaker composition foundations based on evaluation of their high school transcripts or standardized test scores, they could be time-constrained athletes, or they could be students with particular non-academic needs. The flagged group was oversampled in the study population. The final population we studied was evenly distributed by gender. The racial/ethnic distribution consisted of a sample that was 10.5% African American, 19.9% Asian American, 12% Hispanic, 3.3% Native American, 42.4% White, and 10.8% unknown. Approximately 7% of the students were from outside of the United States.

**Rubric Development**

In the fall of 2008, a working group composed of the associate director and assistant directors of PWR and two lecturers from the program developed a holistic scoring rubric to assess the two writing samples collected from the Study of Writing cohort. The group identified four pedagogical domains based on rubrics developed by the National Conference of Teachers of English and the Conference on College

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27 The development of this rubric required that it be applicable to the different kinds of writing, and to accommodate the different types of essays of varying length and type, used in the PWR curriculum. Attention was given to the development of the rubric in order to establish inter-rater reliability. The rubric was tested repeatedly in order to assure inter-rater reliability across these different types of writing samples.
Composition and Communication.28 The working group and additional PWR instructors conducted blind readings of the essays. This initial assessment suggested that one holistic score for each essay did not provide enough information about the quality of writing, and ultimately a finer grained scoring system composed of a 4 x 5 matrix of four domains and five scale points was adopted. (See Appendix 20e for sample rubrics.):

- Domain A: The student establishes an argumentative purpose
- Domain B: The student marshals evidence and offers support for the argument
- Domain C: The student structures and organizes the argument, and
- Domain D: The student establishes ethos/voice to support the argument.

To establish a baseline, during the first week of class students were asked to write an argumentative essay of approximately three pages (1000 words) in response to a prompt and to submit them online. Toward the end of the quarter, the same group of students completed a project that required them to develop a polished and persuasive 12- to 15-page research-based essay. Writing prompts for the two assignments spanned a number of topics, including but not limited to news media and developments in technology, the rhetoric of satire, and the tension between patriotism and global citizenship. (See Appendix 20f for course section themes.)

Because learning to revise is central to the PWR 1 curriculum, in both the first and second assignments students could revise their essays up until the final due date. However, due to the limited time allotted for the first assignment and the nature of the second assignment (which integrates revision formally into the writing process as part of the PWR 1 curriculum), we believe that fewer students took opportunities to revise their first assignment as compared to the second one.

Before scoring the essays, twenty-five PWR instructors participated in rater training and calibration exercises. Raters were randomly assigned to essays and two raters scored each paper separately. When scores were found to differ by more than one scale point, a third reading took place. (See Appendix 20g for detailed information about the reliability and validity of the scoring process.) Essays were graded on four dimensions: purpose, evidence, structure, and ethos as well as a general assessment.

**Results**

Means for the whole group are presented in Figure 8. The results of this study show statistically significant improvement for each of the writing traits.29 Although the group mean differences from pre- to post- are modest, the improvement is noteworthy, given that PWR 1 is only a ten-week course and that sustaining improvement in writing is labor- and time-intensive. Since the course stresses how to marshal evidence and use sources effectively, these were the expected areas of greatest improvement and the results confirm this expectation. The results also suggest that by the time the students undertook the major assignment, they had gained the necessary skills for making a research-based argument. We found smaller improvements in sub-sections of our assessment in which students had been especially strong in the pre-test. We hypothesize that many students come to Stanford with experience with asserting a thesis, organizing an essay, and establishing an appropriate voice, and that the greatest benefit of PWR I may be in domains not covered in the high school curriculum, specifically the use of sources to support an argument.

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28 There are no national standards for assessing college writing similar to those for foreign language assessment, so our group put a considerable effort into adapting existing rubrics.

29 Significance levels for the writing studies have been set at $p<.01$. The subset significance scores were: purpose $t(224)=5.41$, $p=.000$; evidence $t(224)=9.76$; structure $t(224)=6.76$, $p=.000$; and ethos $t(224)=6.07$, $p=.000$. The holistic reading score was $t(224)=7.52$, $p=.000$. 
Consistent with our expectations, the average scores of the flagged group on the pre-test were lower than the average score of the non-flagged group. We were surprised, however, to find no difference in the median pre-test scores between these two groups. The reason became evident when we examined the data at the level of individual students: the non-flagged group student scores varied considerably more than did the scores in the flagged group. This pattern persisted in the post-scores. When we looked only at the means in the post-scores, it appeared that the flagged group lagged in writing growth. Analysis of change in the median scores, however, leads to a different conclusion. The change in the median scores for the two groups in the post-test were about identical and, in fact, there was more growth in the area of argumentation in the
flagged group than in the non-flagged group. (See Tables 1-3 in Appendix 20h for the data from the group as a whole and the two sub groups.)

Figures 9 and 10 suggest why the better measure of growth in PWR may be comparing changes in the median score and not focusing on average change. Figure 9 takes the holistic scores from Figure 8 and plots each student score, separating flagged students for closer examination. Figure 10 presents the pre- and post-test change. Both figures reveal enormous variability among our students in writing ability. The blue and red areas include 70% of students in each group. As is apparent from the figure, the initial test found a number of students both above and below this cluster as evidenced by the length of the “whiskers” in the box and whisker plot. (See Appendix 20i for scores on each sub-category by student group.)

In the pre-test, the flagged group had a mean score of 2.6 and this increased to 2.89 in the post-test. The remaining students began with a pre-test mean of 3.3 and this increased to 3.83 in the post-test. But as the figures illustrate, using the mean change does not capture the full story. In the post-test, the median change in the scores for both groups of students were almost identical. The higher mean score for the non-flagged students was an artifact of a small number of outliers. This dispersion suggests that the better statistic of change is the median—it gives us a better picture of how the majority of students are performing in PWR 1. The data also point out another effect of PWR 1, which is to reduce the variance among the highest and the lowest students; at the end of the class, few students fell in the lowest categories. Note the compression in the size of the colored boxes.

Figure 11 presents additional analysis of our student sample. Using SAT verbal scores as an additional measure allowed us to ask whether or not growth in writing varied by initial preparation. On the horizontal axis of Figure 11 are the verbal SAT scores for the test group; on the vertical axis is the same metric as above—that is, the Holistic post-essay score minus the pre-essay score.\footnote{See Appendix 20j for differences in Verbal SAT scores for the flagged and non-flagged groups.}
This display of data indicates that students progressed in writing at about the same rate, no matter their background at the start of the class. As we noted above, PWR courses are heterogeneous and students enroll in the course with different levels of writing sophistication. Given this variability, we had wondered whether or not the curriculum was appropriate for the total population. The line on the graph gives us the rate of growth. It is almost horizontal, illustrating that the rate of increase in writing skill was about the same, no matter the preparation. We attribute this ability to assure growth for all students, even for those students on the low end, to multiple avenues of assistance offered during the class. As demonstrated in our analysis of foreign language instruction, we find that our students progress in their writing ability regardless of their preparation and ability prior to entry at Stanford. In other words, the PWR curriculum is effective in improving student writing. (The plots for the other sub-scores are found in Appendix 20k).

**Evaluation of the Writing in the Major (WIM) Curriculum**

Writing in the Major (WIM) is the third part of the writing requirement. Departments establish these classes with the guidance and certification from the Writing and Rhetoric Governance Board. WIM courses take different forms, depending upon the discipline. In science and engineering classes, they are often associated with reports of experiments, projects, or research proposals; in the humanities they often entail longer research papers; and in the social sciences they may be a combination of either argumentative essays.
or experiments. In all cases, the oversight committee sets an expectation for the level and amount of work, and for the process of criticism and revision. VPUE provides additional resources to departments and programs in support of their WIM courses.

**Procedure and Sample**

In the fall of 2009, sixty-five upperclassmen from two WIM courses, Judicial Politics and Constitutional Law (Political Science) and Poetry and Poetics (English), were selected to participate in our study. These classes were selected to represent different clusters within the disciplines of the humanities and sciences. The students in the sample were evenly distributed by gender. The racial/ethnic distribution consisted of a sample that was 14% African American, 15% Asian American, 20% Hispanic, 2% Native American, 43% White, and 6% unknown.

During the first weeks of the fall term, students in both classes were given their first writing assignment. In English, students completed a five to six page close reading of a major nineteenth- or early twentieth-century poem, focusing on that primary source rather than consulting secondary sources. In Political Science, students completed a slightly shorter essay (three to four pages) assessing the validity of Frederick Douglass’ claim that slavery is unconstitutional in his speech, “The Hypocrisy of American Slavery.” Students were given a week to complete their essays.

Toward the end of the quarter, the same group of students completed a second essay. This time the English class had the option of completing another (six to eight page) close reading of a single poem or writing an essay comparing two poems. They were also allowed but not required to bring in secondary sources. The Political Science students were asked to write a five to six page argumentative essay about the constitutionality of slavery, referencing sources that they had read throughout the quarter.

**Rater Training and Scoring**

Six experienced PWR instructors participated in rater training and calibration exercises and scored papers following the same scoring protocol as in the PWR 1 study. In identifying anchor papers to guide the scoring, we found that, with one modification, the rubric we used in scoring the PWR 1 essays worked well for evaluating the WIM essays. The single modification made was to change the cell descriptions for the Use of Evidence domain to focus on students’ ability to work effectively with primary sources instead of secondary sources, since the assignments for these courses all asked students to develop close readings of primary sources (poems in English, a speech by Frederick Douglass and the Constitution in Political Science). Two readers independently scored each paper. (See Appendix 20g for detailed information about the reliability and validity of the scoring process.)

**Results**

As in the PWR 1 study, we were interested in ability level of students at the beginning and end of the course. In addition, we were interested in whether the initial scores of these students were at or below the averages we found with students completing PWR 1. Given our finding in 2003 that student ability level dropped after completing first-year writing, we were interested in whether the inclusion of PWR 2 during the sophomore year had eliminated this slump. As with our PWR 1 study above, we looked closely at five scores: the four sub-sections of our rubric—purpose, evidence, structure, and ethos as well as a holistic reading.

31 Douglass, Frederick, “The Hypocrisy of American Slavery” (Speech given in Rochester, NY, July 4, 1852).
Table 1 compares our pre-test scores with those of the average scores of our students at the end of their PWR 1 course. The scores on the pre-test compared favorably with the post-test average in our PWR 1 study. Although these are different students, the rubric scores are comparable and suggest that the average student skill level was about the same for the students entering the WIM course.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Post-PWR</th>
<th>Pre-WIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishes argumentative purpose</td>
<td>3.17</td>
<td>3.36</td>
</tr>
<tr>
<td>Marshals evidence/offers support for argument</td>
<td>3.38</td>
<td>3.48</td>
</tr>
<tr>
<td>Structure/organizes argument</td>
<td>3.18</td>
<td>3.28</td>
</tr>
<tr>
<td>Establishes ethos/voice to support argument</td>
<td>3.21</td>
<td>3.27</td>
</tr>
<tr>
<td>Holistic</td>
<td>3.19</td>
<td>3.32</td>
</tr>
</tbody>
</table>

Table 1: Post-PWR Scores Compared to Pre-WIM Scores

As well as retaining the levels of writing skill found at the end of PWR 1, our WIM students showed a statistically significant improvement in four of our five scoring categories. In the fifth category, evidence, students showed progress, but that change was a bit shy of statistical significance. In essay purpose, structure, and ethos as well as the holistic reading, students’ essays were significantly better than at the start of the class. The data strongly support our intent that writing ability should continue to improve over the course of a student’s Stanford career and that the third writing requirement is a positive part of our curricular requirements (Figure 12).

Figure 12: WIM Scores

32 The findings were: purpose t(64)= 3.73, p=.000; structure t(64)= 3.29, p=.002; ethos t(64)= 4.33, p=.000 as well as for the holistic reading score t(64)= 3.98, p=.000. The differences between the pre and post means for evidence were approaching significance t(64)= 2.34, p=.020.
Longitudinal Study of Student Writing at Stanford

The Stanford Longitudinal Study of Student Writing provides a third data source. The study, begun in 2001, aimed at an understanding of the range of writing Stanford students did both in and out of the classroom. This study concluded in 2006, and its findings have informed curriculum changes made throughout the five years of the study and beyond.

Procedure and Sample

In September 2001, a random sample of 189 students was selected to participate in the study, amounting to roughly 12% of that year’s class. These students agreed to submit the writing they did for all of their classes, in all disciplines, along with as much of their out-of-class or extracurricular writing as they wanted. This resulted in over 15,000 pieces of student writing. From this analysis, 190 “source based argument” papers were selected from forty students for at least three out of the five years of the data collection period of the general study. We selected these assignments because they were all examples of general academic writing across disciplines and therefore allowed for comparability across time. The racial/ethnic distribution of the sample consisted of 10% African American, 27.5% Asian American, 2.5% Hispanic, 50% White, and 12.5% who self-designated as “other.” The gender distribution of students was 57.5% female and 42.5% male.

To score the writing, a 10-category, criterion-referenced scoring rubric (with a 4-point scale) was designed, enabling readers to assess students’ levels of writing performance on “identifiable qualities germane to good writing.” These categories were selected based on the research literature on writing development in higher education. (See Appendix 20l for sample Scoring rubric.) The ten domains included:

- Facts and Data
- Theory and Concepts
- Alternate Perspectives
- Claims and Evidence
- Telling and Transforming
- Focus
- Rhetorical Awareness of Readers
- Introduction of Sources
- Treatment of Sources
- Rhetorical Awareness of Source

Rater Training and Scoring

Twenty college writing instructors with an average of 10 years of teaching experience participated in rater training and calibration exercises prior to scoring papers using the 10-category rubric. Raters were randomly assigned to essays early and late in the student’s career and two raters scored each paper. In order to maintain consistency across ratings, table leaders periodically checked scoring. When scores were found to differ by more than one scale point, a third reader scored the essay. In total there were 280 readings; the inter-reader consensus rating was 86.6%.

Results

As with our other two studies, the analysis of these essays focused on the change in ability level over time. To determine change we compared scores on our 10 dimensions. Comparisons were also made between the first and the last years (Year 4 and 5); the first and the middle years (Year 2 and 3); and the middle years (Year 2 and 3) and the later years (Year 4 and 5). We chose to combine years due to the small number of data points within some of the cells. The mean change in scores for each of our dimensions is presented in Figure 13.

33 Brian Huot, “Reliability, Validity, and Holistic Scoring: What We Know and What We Need to Know.” College Composition and Communication. May 1990.
In order to investigate group mean differences between the first and the last year papers, scores from the first year papers were compared to the average of papers from years 4 and 5. Looking at the change across all 10 categories, we found a statistically significant improvement from the first year to the last year in half of our categories, including theory and concepts,\(^34\) claims and evidence,\(^35\) telling and transforming,\(^36\) rhetorical awareness of readers,\(^37\) and treatment of sources.\(^38\) No significant differences were found for rhetorical awareness of sources,\(^39\) control of facts and data,\(^40\) alternate perspectives,\(^41\) focus,\(^42\) or introduction of sources.\(^43\)

To determine if there were differences between the first and middle year papers, we compared the first year scores to the average of the second and third year scores. Significant differences between the first and

\(^{34}\) t(83) = 3.04, p-value = 0.003  
\(^{35}\) t(83) = 6.72, p-value = .000  
\(^{36}\) t(83) = 4.09, p-value = .000  
\(^{37}\) t(83) = 3.29, p-value = 0.001  
\(^{38}\) t(83)= 3.71, p-value = .000  
\(^{39}\) t(83) = 2.27, p-value = 0.026  
\(^{40}\) t(83) = 2.23, p-value = 0.028  
\(^{41}\) t(83) = 2.42, p-value = 0.017  
\(^{42}\) t(83) = 2.38, p-value = 0.019  
\(^{43}\) t(83) = 1.42, p-value = 0.158
second year means were found for only one of the dimensions: claims. No significant differences were found in the other dimensions.

Finally, for the middle and later years we compared the average of the second- and third-year papers to the average of the fourth- and fifth-year papers. Between the middle years and the last year there were significant mean differences for eight out of the ten categories, including theory and concepts, claims and evidence, telling and transforming, rhetorical awareness of readers, and treatment of sources. The other areas showed less difference.

**Interpretation of Studies**

Our data indicate that our writing and rhetoric curriculum is serving its intended purpose: by stressing the importance of re-writing drafts and marshalling research-based evidence in defense of an argument, the writing curriculum improves writing and research skills. The results of these studies are consistent with many of our fundamental principles: PWR 1, a course carefully grounded in rhetorical theory and best practices of writing instruction, effectively introduces students to college-level writing, research, and argumentation. These findings reflect the view of students, who regularly evaluate their PWR 1 course as being effective (with average scores consistently above 4 out of 5 in course evaluations). Students enter PWR with a wide range of abilities, and students improve as writers, no matter their initial level of preparation and experience. In addition, the variability in ability level found among entering Stanford students declines over the duration of the class.

The WIM study indicates that student writing ability, relatively high at the start of the study, continued to improve as a result of the assignments. Given the finding in the five-year longitudinal study that student skill level was not consistent over their years on campus, we see the inclusion of a second writing course, PWR 2 (taken in the sophomore year), as an effective bridge between PWR 1 and WIM. In contrast to the longitudinal study findings of a slump in the second year, we found constant improvement in student skill level through the WIM class.

In sum, small class size, a carefully articulated assignment sequence, frequent teacher-student conferences, and systematic revision based on meticulous feedback from instructors and peers are characteristics related to improvement in writing as well as student satisfaction. The Hume Writing Center, which did not exist at the time of our last WASC evaluation, also provides consistent support for student writers throughout their undergraduate careers, helping build and maintain a strong culture of writing at Stanford.

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44 t(111) = 3.11, p-value = 0.002
45 Facts and Data t(111) = 2.22, p-value = 0.028; Theory and Concepts t(111) = .172, p-value = 0.864; Alternate Perspectives t(111) = .2495 p-value = 0.864; Rhetorical Awareness of Sources t(111) = 1.41, p-value = .162; Focus t(111) = 1.78, p-value = 0.078; Rhetorical Awareness of Readers t(111) = .5065, p-value = 0.614; Introduction of Sources t(111) = 1.46, p-value = 0.146; Treatment of Sources t(111) = 2.55, p-value = .0121; or Telling and Transforming t(111) = .8275, p-value = .410
46 t(85) = 3.64, p-value = 0.000
47 t(85) = 3.94, p-value = .000
48 t(85) = 2.96, p-value = .004
49 t(85) = 3.27, p-value = 0.002
50 t(85) = 3.81, p-value = .000
51 Rhetorical Awareness of Sources t(85) = 6.48, p-value = 0.000; Alternate Perspectives t(85) = 3.43, p-value = 0.000; and Introduction of Sources t(85) = 4.00, p-value = 0.000. However, no significant differences were found for Facts and Data t(85) = 1.63, p-value = .11 or Focus t(85) = 1.35, p-value = .18.