

# Scientific Writing as Epistemology: A Psychology Department Assessment Case Study

Department of Psychology, Westmont College



## Student Learning Outcomes

- In our 2000 Self-Study, the psychology department members identified 43 student learning outcomes.
- A matrix was constructed to examine how these learning outcomes matched with the 6 Institutional Learning Standards (see Exhibit A, below).
- Our focus in the last 6 years has been on a small number of student learning outcomes.
- Based on these selected outcomes, a number of departmental Program Improvement Goals were developed. These include the following, the last of which constitutes the focus of the present analysis:
  - Students will understand the purpose and foci of the major,
  - Students will produce higher quality senior research projects, and
  - Students will experience fewer unintentional redundancies across laboratory courses.
  - Students will write well in a scientific writing style, properly acknowledging sources, paraphrasing accurately, and reflecting a deep understanding of the structure and basic epistemology of scientific method

## Focus and Rationale

- The purpose of this report is to describe what we have learned regarding writing well using a particular scientific style (APA style), paraphrasing, and acknowledging one's sources properly (#4, above).
- This Program Improvement Goal overlaps with several Institutional Learning Standards (i.e., Written & Oral Communication; Critical-Interdisciplinary Thinking, Active Societal & Intellectual Engagement; Christian Orientation; Research).
- Our interest in teaching APA style reflects a belief that when students learn to read and write in this genre, they also develop expertise in a particular way of knowing. Mastering the fundamental scientific writing genre develops an epistemology that extends across the various disciplines of psychology and into a variety of other fields in the natural and social sciences.

In an article on this topic, Madigan, Johnson, and Linton (1995) suggest that

"... APA style is not just a collection of arbitrary stylistic conventions but also encapsulates the core values and epistemology of the discipline. . . [It is] a model for thinking about psychological phenomena and serves as an important socialization experience for psychologists" (p. 428).

". . . Mastering APA style . . . [helps] students learn to reason empirically about human behavior. The empirical report provides an explicit model for the way that psychological knowledge should be constructed" (p. 434).

## Strategies for Change

- Require readings in the *APA Publication Manual* and the plagiarism policy in all General Psychology sections
- Include a statement about plagiarism in all syllabi
- Provide additional information about and examples of APA styles and plagiarism via the web and handouts
- Provide practice writing in multiple, short assignments throughout the semester (all courses)
- Provide both APA style and content feedback on papers (all courses)
- Standardize textbook and teaching content, including explicit teaching about paraphrasing and acknowledging sources, across sections of General Psychology
- Standardize writing assignments and grading rubric across sections of General Psychology
- Hold regular department meetings to discuss student work and outcomes and to evaluate the efficacy of strategies

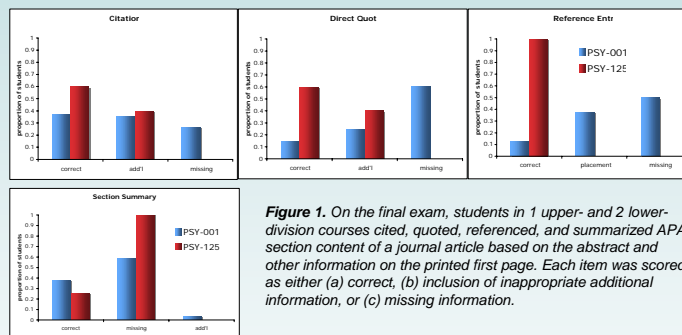


Figure 1. On the final exam, students in 1 upper- and 2 lower-division courses cited, quoted, referenced, and summarized APA section content of a journal article based on the abstract and other information on the printed first page. Each item was scored as either (a) correct, (b) inclusion of inappropriate additional information, or (c) missing information.

## Assessment Strategies

- Monitoring departmental impressions of student preparation for and performance on tasks in upper division courses
- Monitoring departmental impressions of student writing as it changes from lower division to upper division
- Evaluation of student reactions to peer review assignments (1 section of PSY-001)
- Monitoring and discussing grades and rubrics on writing assignments
- Measuring the incidence of plagiarism across General Psychology writing assignments
- Final exam questions assessing APA citation, quotation, and section-specific content knowledge; comparison of lower- and upper-division (see Figure 1, above; and see Exhibit B, below)

## Results & Discussion

- Students are better prepared for tasks in their upper division courses and perform better on those tasks than they have in the past. These include:
  - APA styles (e.g., editorial style, material in correct sections, evidence-based decision making, logical flow within and across sections of their papers)
  - statistics (knowledge and application of appropriate descriptive and inferential statistics) and methodology (experimental and correlational designs), and
  - computer skills (spreadsheet, graphing, SPSS, word processor, presentation software familiarity)
- Although General Psychology students perform as poorly as they always have on their first papers, nearly all improve in their writing and formatting skills by the third assignment.
- Students approach peer review skeptically but find that it helps them in acquiring greater familiarity with APA styles, by providing another example of writing in APA style and having to consult the *Manual* in their evaluation of another's paper.
- In courses where a standard grading criterion is used or where multiple drafts are graded, scores on the students' papers increase over the semester's assignments (18% average increase).
- As many as 90% of students plagiarize when they have no instruction; this figure drops to about 50% when instructed. By the second assignment, if they plagiarized, they could rewrite the assignment without plagiarizing. By the third assignment, rates of plagiarism dropped to zero.
- Based on the APA writing test results shown in the Figure 1, our students do improve in their APA style skills: upper-division students showed more correct citations, quotes, and reference entries and fewer incorrectly categorized section summaries than lower-division students.
- APA style and structure skills transfer well to other scientific writing genres, such as presentations and scientific posters (see Exhibit C, below)

## What Have We Learned?

- Many of strategies that the department is using are working: explicit teaching on plagiarism; explicit teaching and practice on APA style writing and manuscript structure; communicating expectations that students be able to apply their knowledge from one course to another
- The time involved in checking for plagiarism requires additional support. The department has opted for student graders and the use of turnitin.com
- To assess writing assignments across sections of General Psychology and other courses, common grading rubrics are useful (see Exhibit D, below)
- Peer review of early paper drafts is useful; it may be good to expand this strategy to other sections and courses

## References

- Annual Update, 2005-2006 (2006). Westmont College Psychology Department.
- Progress Report, 2000-2004 (2005). Westmont College Psychology Department.
- Irvine Futures Project Self-Study (2000). Westmont College Psychology Department.
- Madigan, R., Johnson, S., & Linton, P. (1995). The language of psychology: APA style as epistemology. *American Psychologist*, 50, 428-436.