

Helping Ecology Students to Read: The Use of Reading Reports

BY EUGENIA ETKINA AND DAVID EHRENFELD

To succeed, college students must be able to interact with written text (Simpson and Nist 1990). In recent decades, researchers have noted that college students often find it difficult to understand what they read (Doyle 1983, Anderson and Armbruster 1984), which some educators attribute to the impact of television and computers. As Sven Birkerts (1994, p. 119) puts it,

Next to the new technologies, the scheme of things represented by print and the snail-paced linearity of the reading act looks stodgy and dull. Many educators say that our students are less and less able to read, or analyze, or write with clarity and purpose. Who can blame the students? Everything they meet with in the world around them gives the signal: That was then, and electronic communications are now.

Whatever the cause, the most significant results of this shift in the way students react to the printed word appear to be a decreased tolerance for long reading assignments; impatience with detailed, closely reasoned analyses of complex and controversial subjects; poor comprehension and retention of the material read; and, perhaps most ominous for science education, a deterioration of the ability to read critically. A survey of 6000 freshmen done annually at Rutgers indicates that during the past 10 years, the amount of casual reading students do has decreased by almost 80 percent. Experience in introductory English courses has shown that today's Rutgers students do not possess the ability to read critically. Only 10 percent of surveyed students (all humanities majors) do casual reading (Kurt) Spellmeyer, Rutgers University, personal communication). If, as we believe, these changes are real and not transient, the implications for teachers are clear: The messages that we hope our assigned readings will convey may be altogether different from what the students perceive.

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This paper gives the results of cooperation between a biology professor (D. E.) and a professor of science education (E. E.). Specifically, we describe a simple and effective assessment technique that completed the critical feedback loop between the professor and students, to their mutual benefit. The biology professor learned how his students were interpreting and misinterpreting the assigned readings; the students learned how to improve their ability to understand and evaluate what they read.

Course overview

For 25 years, D. E. has taught a midlevel, three-credit undergraduate course at Rutgers University called "Conservation Ecology." The 35–40 students are mostly juniors and seniors majoring in natural resource management, biology, human ecology, environmental science, or related fields; some, however, come from the social sciences and the humanities. The demand for the course always exceeds the space available. The only prerequisites are 1 year of biology and the permission of the instructor. The brief permission interview, unusual for a course this large, serves to weed out prospective students who are not comfortable doing large amounts of reading and writing, as well as those who have mistaken ideas about the content of the course.

Conservation Ecology is run as a seminar, without formal lectures and with extensive student participation. The class meets once a week for 3 hours. Discussions revolve around the readings, which are numerous and sometimes lengthy. There is one take-home midterm exam based on an assigned book that is not discussed in class. In lieu of a final exam, there is a term paper on a topic of the student's choosing. Paper topics must be approved by the end of the first month of the semester, a progress report is due at the end of the second month, and the paper is handed in on the last day of class. Acceptable term papers have ranged in length from 15 to 75 pages, with approximately 10–60 citations from the literature. The paper is the most important component of each student's grade, but class participation, the grade on the midterm, and the quality of the reading reports (see "A model for change," below) are also taken into account.

The purpose of Conservation Ecology is to acquaint the students with the many and varied threats to biodiversity and to the integrity of both natural and human-dominated ecosystems. The topics covered include such subjects as the ecological effects of modern agriculture, agricultural sustainability, new and reemerging infectious diseases, the