

Experiences with Peer Review of Term Projects in Undergraduate Animal Science and Textiles and Clothing Classes

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Abstract

Students participating in cooperative study groups and making peer reviews of team members' term projects reported high satisfaction with the peer review process used in two courses offered in different disciplines - animal science and textiles and clothing. Sophomores, juniors, and seniors were grouped into three or four-member teams, and were given several opportunities to work together in laboratories, lectures, and out of class when preparing for exams and when writing their term projects. Approximately 90% of the students indicated the peer review process was helpful and resulted in a better paper than they would have prepared without peer review.

Introduction

"When students are learning science, language arts, math, or any other subject matter they can do so in cooperative groups, or work alone in competition with each other, or work individually without a tie to the other students. **COOPERATION** is the least used of these teaching procedures, yet is the **most powerful way to increase achievement, stimulate cognitive development, increase self-esteem, and promote liking for school**" (Johnson et al., 1994, p. 2).

Cooperative study groups and peer review of term projects are two types of interactive and collaborative learning activities we have used to increase cognitive level of learning in different classes in two separate departments. Our interests in using these teaching methods were stimulated by Sorensen et al. (1992) and Olien and Harper (1994) who identified several benefits of using cooperative and collaborative learning activities in their classes. These authors found that students enjoyed working together resulting in friendships, fewer class absences, and the students "seem to be more able to integrate terms, ideas, and concepts into a coherent body of information which they can apply to new situations" (Sorensen et al., 1992, p.33). Written exercises increased the opportunity for critical thinking, required the students to communicate and interact together and with others in the real world, and the students produced projects that went beyond the stated requirements. Elefson (1992) described the integration of

higher levels of cognitive learning in agricultural writing.

We independently observed that in our classes a majority of the students liked the use of these teaching techniques. Therefore, this study was designed to evaluate students' impressions of the usefulness of peer review of their term projects in two separate undergraduate courses.

Materials and Methods

Animal Science

In the animal science class 64 students were divided into four-member teams, and the team members were encouraged to work together in the weekly laboratories, to study together for the exams, and to review each draft of their team members' term projects. The term project assignment was to design a breeding program for any species of animal. Each student developed a one-page proposal containing: the title, goal, and a brief description of the animal enterprise, either for one already in existence or for one in some stage of planning, for which the breeding program was being developed. The second draft, due about the tenth week of the semester, consisted of a detailed outline of all animal breeding concepts that the student planned to present in the final report. The final report provided documentation about the degree of phenotypic and/or genetic change the breeding program would create in ten years and whether the plan would accomplish the desired goal. Students addressed a number of animal breeding concepts such as heritability, selection differential, genetic correlation, genotype, phenotype, environment, and genotype by environment interactions.

The drafts and final report were reviewed by all members of the study group and the author of each report was asked to identify which of the reviewers' suggestions were accepted or rejected, along with a justification. In addition, each student was expected to respond to two questions about the peer review process.

Textiles and Clothing

Soon after announcing the term paper assignment in the textiles and clothing class, a total of 72 students from 3 different semesters were divided into groups of three people. During a pre-announced class period each student gave a copy of the first draft of their paper to the other students in their group. Each student completed a peer review form addressing the items to be included in the paper: name and

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location of the company, description of the company's business, description of the company's organization and type of ownership, company history, target market, sales volume, and the company's products. When evaluating the paper the reviewer was instructed to consider the following questions: Does the writer use appropriate terminology? Did she/he use complete sentences? Is all information properly referenced? What changes need to be made? Does the referencing format follow the recommended style? Is the paper well organized?

Upon completion of the final paper the author was asked to answer the following questions: What major changes did you make as a result of suggestions provided by each of the peer reviewers? What major changes did you make as a result of reading your team members' papers? Did you disregard any of the advice offered by your reviewers? List the advice and the reason why you decided to disregard it. In addition, students were asked to rate the benefits of the peer review process.

Results and Discussion

The peer review process resulted in an overall improvement in readability, accuracy, content, and appearance of term projects. Furthermore, student evaluations were very similar and positive each time peer review was used in the two courses. Because student responses to the questions about the peer review process were not statistically different for the classes in animal science and textiles and clothing, the data were combined for 136 student responses to the evaluation questions. Combining the "very" and "somewhat" helpful and the "not very" and "not at all" helpful responses to the first question

(Table 1) resulted in a ratio of 89% favorable to 11% unfavorable responses which the authors interpreted as strong student support. These results supported the benefits of collaborative learning activities previously reported by Sorensen and Lunde (1993).

The "yes" and "maybe" responses from the second question listed in Table 1 were interpreted as indications the students thought they did have better papers, and by combining the "yes" and "maybe" responses the ratio of favorable to unfavorable student responses was 90% to 10%.

Several students said they discovered good subject material ideas in addition to better ways of expressing their ideas from reading teammates' papers. Students stated that having their peers review their paper encouraged them to prepare a better paper and that requiring projects to be submitted sequentially reduced procrastination. A problem for several students was getting together far enough in advance of the deadlines so the improvements could be added to their papers. Several students who thought they did not benefit from the peer review process simply preferred to work independently. Often these students wrote excellent papers and the peers could not offer significant suggestions for improving those papers.

Summary

Cooperative study groups and peer review of term projects are two examples of interactive and collaborative learning activities used to increase the cognitive level of learning in the classroom. The purpose of this project was to determine student satisfaction with the peer review process. The process was applied to a term project assignment in

Table 1. Student Responses to the Two Evaluation Questions About the Peer Review Process.

Question 1. Overall, do you find the peer review process helpful for writing your paper?

Very helpful	<u>51%</u>	Not very helpful	<u>10%</u>
Somewhat helpful	<u>38%</u>	Not at all helpful	<u>1%</u>

Question 2. Do you believe that, as a result of this process, you have written a better paper than you would have without the peer reviews?

Yes	<u>69%</u>	Maybe	<u>21%</u>	No	<u>10%</u>
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different classes in two separate departments. Peer groups, comprised of three or four students, were offered additional opportunities to work together such as during each laboratory period and during a portion of several lecture periods. In addition, the students were encouraged to study together when preparing for examinations. Within teams the students were each required to review their teammates' reports and to offer suggestions to the author who was expected to report which of the peer reviewers' suggestions were used or not used along with justifications. The peer review process has resulted in an overall improvement in readability, accuracy, content, and appearance of term projects. Furthermore, student evaluations have been very positive. Because of the increased cognitive level of learning and the additional cooperation that the peer review process created, these authors will continue it's use.

Literature Cited

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Student Academic Goals And Personality Type

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Abstract

As part of a self-assessment model in the University Foundations Course at the University of Nebraska, freshmen students were asked to rate the importance of 86 academic goals to their own college programs. At the same time, they completed the Myers-Briggs Type Indicator from which one of the four temperament types was identified for each student.

The goals selected or rejected by students of each temperament type were closely related to the general characteristics of their temperaments, but very different from those goals selected or rejected by students of other temperaments. These outcomes indicate once more the need to consider personality types in the development of educational programs.

Introduction

The relationships of psychological type to aspects

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of education have been described by many authors. Excellent resources are those of Lawrence (1993) and Golay (1982). A more general approach is provided by Myers (1980). McCaulley and Natter (1980) describe some of the early research in personality type and education. Kiersey and Bates (1978) and Kiersey (1987) built on personality types to develop the concept of temperaments. Provost (1984) gives specific cases of applications of psychological type to students of all 16 types.

Within the area of agriculture and natural resources, several studies have shown the applicability of personality type to learning and performance. Characterization studies have been published by Barrett, et al. (1985, 1987), Johnson, et al. (1993), and Zimmerman, et al. (1994). Borcher, et al. (1994) studied personality type and college testing. Writer's block was the subject of research by Nehiley and Sutherland (1995). The role of personality type in animal-judging courses has been addressed by McCann et al. (1989, 1991).

These and other studies indicate conclusively that students of different personality types approach their educations in very different ways. Their success in college