

Using Peer Evaluations and Teams in Online Classes

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Abstract - Students should have the ability to work together in teams, plan effective strategies for identifying appropriate issues within specific problem situations, research the answers to the associated technical questions presented by those situations, and develop the ability to review and comment on the solutions of others working on the same types of problems. Structuring online classes to address these issues effectively can be challenging for the instructor. This paper will discuss the use of peer evaluations and teams in online classes. The paper involves two upper-level undergraduate courses, using a combination of teams and peer evaluations. The paper discusses the pros and cons of administering a team-based case-study course via the Internet. The innovative aspect of this case study method is the unique use of teams to analyze and critique other team members before the instructor ever participates. The paper also discusses the pros and cons of peer evaluations online.

Index Terms - Distance Learning, Online courses, Peer evaluation by students, Online Teams.

INTRODUCTION

Modern organizations demand that employees be able to work together effectively in teams. The electronic age places demands on employees that require excellent communication skills in a number of media. New technology available in the modern workplace may mean that today's student will be working on a virtual team tomorrow. These skills should be acquired by students before arriving in the workplace. These are some of the reasons that technology students are required to be able to work on teams and to have good communication skills.

Students should have the ability and experience to work together in teams, plan effective strategies for identifying appropriate issues within specific problem situations, research the answers to the associated technical questions presented by those situations, and develop the ability to review and comment on the solutions of others working on the same types of problems. New millennium students should be introduced to and prepared for the technology of the modern workplace.

The authors teach two upper level (400-level) courses in Organizational Leadership and Supervision (OLS) in the online format. One is a course in labor arbitration and the other is a course in conflict resolution. The OLS program is part of the Manufacturing Engineering Technologies and Supervision (METS) Department in the School of Technology

at Purdue University Calumet, a campus located in Northwest Indiana near the Chicago metropolitan area.

The two courses use a combination of teams and peer review to engage the students in the courses and as a teaching tool to enhance student learning. These methods also serve to prepare students for the demands of the workplace. This paper will discuss the pros and cons of administering a team-based case-study course via the Internet, as well as the pros and cons of peer evaluations done online.

Furthermore, as a program in the school of Technology, the OLS program supplies classes for ABET programs. Consequently, the faculty are familiar with ABET requirements for program outcomes for technology programs.

The TAC ABET criteria 2000 (TC2K) specifically require that program outcomes demonstrate that graduates of the program have the ability to function effectively on teams and an ability to communicate effectively. For example, see the ABET criteria for 2000, Program Outcomes (Criterion 2, e. and g.). See page T1A-5.

Structuring online classes to incorporate teams and peer review can be challenging for the instructor. This presentation is intended to share the results of several semesters of online experience using the team and peer review methods. It is the authors' opinion, based on preliminary data and anecdotal evidence, that the use of online teams and the use of peer evaluations both contribute to the ability to work productively on teams and enhance the ability to communicate effectively.

BASIC METHOD

The authors use Blackboard as the course management system for their online courses. Blackboard allows for the creation of teams or groups, and each group may have intra-group email, discussion boards or forums, and file exchange. Each group can also use the virtual classroom for synchronous chat. The program creates a group communication page where these features are available. Both authors use the group pages in Blackboard, whether for online teams or for peer evaluations.

One of the courses, a labor arbitration course, uses the case study method including peer review as part of its instructional design. In the labor arbitration course, the instructor assigns the students into groups or teams upon enrollment into the class. Each team consists of three members. The three-member team was arrived at after three semesters of experiences and student surveys in courses with different team sizes revealed that this was the optimal size for group work of this nature. See discussion below.

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The conflict resolution class uses peer-evaluated papers as part of the instructional design (but not true teams). The instructor does not create peer review groups until close to the end of the semester, when paper topics have been chosen or assigned. Because of the limited class size in online classes, the peer review groups were limited to about five to six students, depending on exact class size. See further discussion below.

LABOR ARBITRATION COURSE

First, the students are presented with an actual arbitration case containing the essential background facts. These real-life cases have been “sanitized” to remove references to identifiable parties. These complicated cases deal with either just cause or contract interpretation. The facts are presented from three perspectives. First, the facts are presented from a neutral point of view, then the Company’s point of view, and finally the Union’s point of view. This is the same experience a labor arbitrator would have who is actually making an award on these facts. Moreover, these same facts would be available to practitioners if they were officers of a company or a union that had ongoing cases in a grievance procedure. Thus, these cases are designed to present the actual experience of preparing for a labor arbitration.

Once the facts have been appropriately presented, these advanced labor relation students are then instructed to analyze a given case using input from their fellow team members. The most effective and pedagogically sound technique (based on the instructor’s experience with the course and data from student surveys) has been to direct the student teams to thoroughly research and discuss the case. Then they are to determine for themselves what constitutes the relevant issues in each case. The best analysis is usually done when the teams can perform the discussions in person, but equally insightful work has come from teams that utilized on-line contacts exclusively.

Moreover, there does not seem to be a problem regarding the quality of the decisions, whether the teams are self-picked or assigned at random. The instructor has noticed from student surveys, however, that students generally prefer to pick their friends who have similar class schedules for membership in the teams. The instructor has experimented with both assigned teams and self-chosen teams.

Each team is required to not only determine independently what is relevant in each case, but each team is also required to research and justify why the issues are relevant. They must use several appropriate authoritative sources as justification (e.g., Elkouri & Elkouri) for their decisions.

The award must be researched extensively in the library to withstand challenges of faulty logic from the other teams. Each team must have its award posted on line by a deadline date in order that a critical evaluation by all of the other teams can be made. The critical evaluations must also be posted on line by a deadline date so that everyone has access to the comments by all teams.

The critiques of the teams’ awards are supposed to identify flaws that would cause one party or the other to lose the case if these facts were presented to an arbitrator. The criticism of the awards must be supported by adequate documented research. The teams are asked to identify one commendable and one improvable point and support those contentions, again using references from authoritative sources. After the teams have finished the evaluation of the awards, the instructor’s job is to then review not only the case awards but also the critiques of those awards. The reviews emphasize omissions as well as problems in logic that are especially important in the case if one side or the other is to prevail.

Each team receives a lengthy critique, but it is normally done utilizing a numbered “critique sheet” that lists the common mistakes in writing awards. For example, the instructor might suggest that the team “used facts not in evidence,” “overlooked important and relevant issues,” or “failed to provide justification for a decision.” The problems are identified from a rather extensive list, and this technique cuts down significantly on the instructor’s need to rehash every problem area for every team. More importantly, it allows everyone to review the instructor’s comments regarding all of the awards and the critiques of those awards. The entire list of critiqued problems is placed in an easily accessible part of the course, like the announcements section. However, each team receives an individual assessment of its work using the numbered critique items.

TABLE I
SAMPLE CRITIQUE COMMENTS

SampleComments
1 Used facts not in evidence
2 Overlooked important and relevant issues
3 Failed to provide justification for a decision
4 Relevant issues not researched sufficiently
5 Grammar, spelling and appropriate sentence structure lacking
6 Failed to meet deadline

The importance of this procedure is that the students know that in future cases they must not make the same mistakes that the other teams have already made. Once the instructor’s evaluation is completed, the students are given the full text of the original award so that they can see how their analysis matched the arbitrator’s award for that set of facts.

The innovative aspect of this case study method is the unique use of teams to analyze and critique other teams before the instructor ever participates. According to student survey information, 75% of the students relate much better to other students’ opinions than to an instructor’s opinions until they become totally familiar with the process of analyzing cases. After a short learning curve, the students then prefer a straightforward professorial analysis of their work rather than their peers’ evaluations. However, the learning process is accelerated significantly in the early stages of learning with teams because students can experiment with their ideas without fear of an instructor contradicting them. Students are

able to work independently on cases one whole grading period earlier (approximately four weeks).

PROS AND CONS OF TEAMS IN ONLINE COURSES

Pros

Based on student surveys, our experiences, and anecdotal data, students tend to have a better understanding of the process and a better retention of the material with teams than when traditional classroom teaching is used. In most cases, the ideal number would be three students per team. This number seems to promote a well-rounded discussion of the issues without the opportunity for some individuals to opt out of the process. Student surveys indicate that the three-person team is best.

The benefits of team analysis of case studies are many. One important thing is that the team members quickly learn the importance of another individual's opinion. They also find out how helpful it is to see the analysis of the conflicting aspects of cases and conflicting aspects of research materials through another person's eyes. In arbitration as in law, there is usually more than one way to view the relevant issues of a case. As a result, individuals learn how to solve complicated labor relations problems with the help of forced consultation with team members.

They also learn where to obtain the relevant information, and they learn how to test their ideas before moving forward. Thus, the training that results from the use of teams in identifying issues, researching those issues, and finally defending those issues is extremely valuable for students as well as for labor relations and human resource practitioners. The use of the Internet allows the teams to exist in various locations and makes them independent of a restrictive class schedule.

Students also develop critical thinking and analysis skills in reviewing another's work, as well as the ability to tactfully communicate the important points of their analysis.

Cons

The biggest single problem is the dysfunctional team member who has difficulty working with the other members of the team. Nonetheless, a comparison of grades between teams and traditional classes indicates that a greater degree of learning occurred when teams were utilized.

The biggest drawback in some teams is that the members tend to divide the work to such a high degree that no one student learns the necessary fundamentals of every step of the process. Still, the better students tend to do the majority of the work themselves and tend to learn more through discussion of the issues. To cut down on some team members not doing their part, the individual members are asked to grade each other after each case. The student ratings are sent directly to the instructor via the email. Anyone not performing properly is warned once and then dropped from the team after one additional complaint. In general, peer grading has been effective in getting students to perform their fair share of the work.

One problem for the instructor is maintaining the stability of the teams. Changes in personnel can require that the instructor assign and reassign team memberships frequently until class enrollment is stable. The establishment of teams does not permit a flexible enrollment period, since students must be assigned teammates and be ready to begin work from the first day of class. The best course design would only make team assignments after enrollment is stabilized.

CONFLICT RESOLUTION COURSE

Course Structure

The conflict resolution course is designed to include traditional written assignments and tests as well as the peer-reviewed paper. The course requires five quizzes, one short written assignment of one-two pages, one medium written assignment of three to five pages, and one lengthier research paper assignment (eight or more pages).

The research paper is assigned for completion near the end of the semester, with some time reserved for each student to read and evaluate other group members' papers before the end of the course. Typically, papers are due to be posted about ten days before the end of the course. Each student then has the remaining time to read and review approximately four to five other student papers. Evaluations are to be posted by the end of the term. This group size (five to six students) was arrived at by balancing the time constraints of the requirements of peer review with the desire to expose the students to as many of their classmates' papers as practicable. It was judged a fair task to require that students review four to five other papers in the time allowed by the course. The peer review group in this course is not a true team, as the group is not asked to accomplish any tasks by working directly together.

It is expected that each student will read the evaluations of his/her work posted by other group members, although this is not required by the instructor (no grade for this is given nor revisions based on critiques required). The instructor also reads the comments posted by the students in evaluating student work. The course grade includes not only a grade for the individual paper, but also a grade for the peer evaluations of other students' work.

At the time that paper topics are chosen or assigned, the instructor creates groups of students who will be evaluating each other's work. The group assignments are made on the basis of paper topic, so that each group includes a mix of research topics. Paper topics are required to be selected and reported to the instructor well in advance of the paper due date. If duplicate topics are chosen, those group members with duplicate topics are assigned to different groups. If too many students choose the same topic, the instructor may elect to have some of the later-choosing students select another topic. This avoids groups with too much overlap of topics. Part of the process is intended to expose the students to as much research on other topics as possible, so duplication of topics would not serve this purpose.

In order to structure the student's evaluations, guidelines for what must be included in each evaluation for each paper are posted for all students. Students are given the various aspects of the papers which must be evaluated, and an appropriate scale for scoring.

The guidelines for peer review of papers generally require that students evaluate:

- Writing appropriate to academic level
- Correct grammar, spelling, and punctuation
- Reliable sources consistently cited
- Clear and organized explanation of topic
- Statement of how the topic applies to the course
- Evidence of effort or originality

Students are also asked to identify one commendable point and one improvable point for each paper.

The instructor of this course has found that without appropriate guidelines, student comments tend to be unstructured and of little value to their peers.

PROS AND CONS OF PEER EVALUATIONS IN ONLINE COURSES

Pros

There are several positive aspects of requiring peer evaluations. The students get to learn not just from researching and writing their own papers, they also get to learn from each other as well. Students engage in higher level critical thinking, analysis and evaluation skills as well. In addition, students begin to think about how to judge the work, and in turn about how their own work might be judged. They also learn how to appropriately convey their judgments of others' work. The author would also like to think that students gain a new appreciation for the job that instructors do in grading and evaluating papers.

Cons

It is the authors' experience that students tend not to know how to evaluate work in an appropriate way without guidance. Comments tend to be "I liked it, I didn't like it", and not helpful, critical or evaluative. The affective, like/dislike language is easy for students but without more is of little or no value to the recipient.

Language used by peer evaluators in online classes becomes extremely important, because of the lack of external cues in an online class in moderating what can be construed as critical comments. The recipients of the reviews have no context to assist them in interpreting what might sound unnecessarily harsh or critical without the softening effects of tone of voice or body language. Having the students use a rating scale can help them make their comments more objective.

The instructor of this course is considering rearranging the scheduling of course work to accommodate rewrites of papers, so that students can incorporate the suggestions of their peers. Currently the schedule of the course does not permit this. It is the authors' opinion that the student learning

would be enhanced by giving the students the opportunity to make revisions in papers, incorporating constructive criticism by their classmates.

THE IMPORTANCE OF COMMUNICATION AND INTERACTIVITY IN ONLINE CLASSES

One of the keys for effective online learning is communication and interactivity. [1] Communication of all types is important: instructor-learner, learner-learner individually, and learner-learner in group settings. [1] Learner-learner interaction among members of a group can be an extremely valuable and essential resource for learning. [1] Individual interaction can be enhanced through peer group interaction, including interaction through asynchronous e-mail and synchronous chat.[1]

It has also been found that communication is pivotal in an online community. [2] Communication, collaboration, interaction, and participation are four cornerstones in a learning community framework. [2]

Key to the learning process is the interactions among students themselves, the interactions between faculty and students, and the collaboration in learning resulting from these interactions. [3]

The literature on communication, interactivity and community in online courses emphasizes the importance of communication in the online environment. Students who work together in teams, and who are participating in peer review of each others work, are engaging in communication, interaction, and collaboration, all of which enhance the online learner experience. Student comments on the outcomes of the methods support the literature in this area. Available student evaluations follow.

STUDENT COMMENTS ON THE PROCESS

Students are asked as part of the course evaluations the following questions:

As a result of this course, my ability to communicate effectively can be rated as: and

As a result of this course, my ability to function effectively on teams can be rated as:

These questions are based on the ABET criteria referenced on page T1A-1.

These questions are rated on a five-point Likert scale by the students during a course evaluation given at the end of the semester. The course evaluation is given as an anonymous online survey. Blackboard allows the instructor to create these anonymous online surveys as an assessment. The program keeps track of who has taken the survey, so that each student can only take it once, but no individual responses are available since the program automatically collates the data.

Below is Table II, which shows student evaluations of the dispute resolution class. Only one semester (Fall 2003) of this data is currently available. As you can see from the table, students rate their abilities to communicate effectively and to function effectively on teams fairly high. On the ability to communicate effectively, 75% of the students responding rated their ability as good to excellent. On the ability to

function effectively on teams, 82% of the responding students rated their ability as good to excellent. This latter response is interesting, since the students do not work on teams in the purest sense in this course (they are not working together to produce a single product), but do peer evaluations of individual work in groups.

TABLE II
STUDENT RATINGS IN CONFLICT RESOLUTION CLASS

Question	Excellent	Good	Fair	Poor	Not Applicable
1. ability to communicate effectively	31%	44%	19%	0%	6%
2. ability to function effectively on teams	38%	44%	12%	0%	6%

For the labor arbitration course, evaluation results for Fall 2003 are displayed in Table III. On the ability to communicate effectively, 71% rated their ability as good. On the ability to function effectively on teams issue, 43% rated their ability as excellent, and 29% rated their ability as good. However, 14% of those responding rated this question as "Not Applicable". The authors attribute this to the possibility that the students so responding do not recognize virtual teamwork or online teamwork as actual teamwork. Of course, it is also possible that those responding are the students who had problems or issues in working well with teams. Online courses do tend to attract students who are comfortable working on their own.

TABLE III
STUDENT RATINGS IN LABOR ARBITRATION CLASS

Question	Excellent	Good	Average	Poor	Not Applicable
1. ability to communicate effectively	0%	71%	14%	0%	0%
2. ability to function effectively on teams	43%	29%	0%	0%	14%

CONCLUSION

Both the team technique and the peer evaluation technique have definite advantages for students in online course, resulting in increased interaction and accelerated learning. The disadvantages for students can usually be overcome by providing a very structured outline on how problems and issues can be handled.

In addition, the authors have found that it is insufficient just to have students read the instructions without retaining them. The instructions and requirements must be ingrained in the students' minds so they know exactly what is expected of them. We have found that the only sure way to do this is to test students on course requirements. They must pass a randomly generated set of questions with 100% accuracy before being permitted to proceed in the course.

These techniques could be adapted for any subject matter which uses case studies, problems, or papers. Both of these techniques can be valuable for exposing students to others' ideas and work, and in helping them learn to make critical evaluations and analyses.

Both processes, however, can be labor intensive for the instructor, and can involve an increased administrative workload. The instructor must arrange and supervise the teams or groups to make sure they are working smoothly, help the group members handle any problems, and deal with the administrative issues caused by late enrollees or withdrawals from the course. The instructor may also have to grade not only papers, but all the student evaluations of papers, also resulting in increased workload for the instructor. However, it is the authors' opinion that the benefits of these techniques for students far outweigh the burdens of additional tasks for the instructor.

The authors recommend that further research be done in comparing the assessment of student performance when given the opportunity to incorporate peer comments in revised papers in the conflict resolution class. There is also the further opportunity to compare instructor evaluations to student evaluations. More detailed statistical analysis could also be done on comparing students who have worked in teams versus traditional independent work.

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