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Building Learning Communities Utilizing Team-Based Learning in an On-line Environment

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Abstract: Colleges and universities today are finding themselves under increasing pressure to change the practices of teaching. Rapid advancements in technology and demands of a knowledge-based society quickly change expectations and standards in higher education. Technology brings alternative ways to organizing and conveying information. The paradigm of predominantly linear process of learning is shifting to set new trends in online education with applications of differing teaching and learning styles. One of the challenges is to create dynamic learning communities that are learner-centered rather than teaching-centered. This paper discusses the importance of rubrics and components of team-based learning in online education utilizing results of a survey that was administered in an undergraduate Marketing class conducted at a Midwest University's Business Administration Program. The paper proposes strategies for building effective learning communities in online environments by utilizing rubrics and other team-based learning strategies that can improve the online experience. Our contribution is to evaluate the effectiveness of various tools and components of team-based learning to assist faculty creating student-centered learning goals and outcomes to build dynamic online learning communities. Our findings confirm that rubrics and survey results support current literature on the effectiveness of team-based and small-group learning and the importance of rubrics in online education.

INTRODUCTION

Higher education has been transforming itself from the Industrial age to the Information age. Dolence and Norris (1995) report that the traditional classroom, seat time-based education, has been changed to a "network learning" environment where knowledge navigation, distance-free learning, fusion of learning and work, and achievement-based outcomes are some of the key elements of an education in the Information age (Table 1).

TABLE 1
HIGHER EDUCATION: A VISION FOR LEARNING IN THE 21ST CENTURY

Industrial Age	Information Age
Classrooms, libraries, and laboratories	Network
Teaching	Learning
Seat time-based education	Achievement-based learning
Information acquisition	Knowledge navigation
Distance education	Distance-free learning
Continuing education	Perpetual learning
Time out for learning	Fusion of learning and work
Separation of learners and learning systems	Fusion of learning systems

Dolence, M. G. and Norris, D. M. (1995). Transforming Higher Education: A Vision for Learning in the 21st Century. Ann Arbor, MI: Society for College and University Planning

Fogel (2007) summarizes the differences between the old and new paradigm of teaching and learning (Table 2). A comparison of the old and new paradigms indicates that the shift occurs at multiple levels by altering the concepts of knowledge, students, faculty purpose, relationships, teaching, and assumption about who can teach and how teaching can be effective. In the old paradigm, knowledge has been transferred from faculty to students.

TABLE 2
COMPARISON OF OLD AND NEW PARADIGMS OF TEACHING

	Old Paradigm	New Paradigm
Knowledge	Transferred from Faculty to Students	Jointly constructed by Students and Faculty
Students	Passive vessel to be filled by Faculty knowledge	Active constructor, discoverer, transformer of own knowledge
Faculty Purpose	Classify and sort Students	Develop Students' competencies and talents
Relationships	Impersonal relationships among Students and between Faculty and Students	Personal transaction among students and between faculty and students
Context	Competitive and individualistic	Cooperative learning in classroom and cooperative teams among faculty
Assumption	Any expert can teach	Teaching is complex and requires considerable training

The new paradigm of teaching requires educators to consider new meanings and methods of learning and teaching models that are suitable for a society of the Information age (Fogel, 2007). In the new paradigm, knowledge is constructed jointly by students and faculty. Rather than being passive vessels to be filled by faculty knowledge, students in the new paradigm become active constructors and discoverers of knowledge. The purpose of the faculty in the new paradigm is to develop student competencies. Relationship building among students and faculty is a key component in fostering cooperative learning and teamwork in the Information age.

Online team-based learning (TBL) is a relatively new teaching approach that makes extensive use of intensive interactive team activities in the classroom to deepen learning. Online education will continue to grow. With the advent of entire academic programs being offered online, students have an increasing number of online courses from which to choose. Therefore, online learning communities keep on growing in their importance. Faculty are often being pressed into teaching online, each one left to develop their own course, sometimes in isolation from other online instructors. Yet the availability of teaching resources has drastically increased, and the quality of those resources has improved.

TEAM-BASED LEARNING (TBL)

TBL is an instructional strategy where students work in small groups to enhance/deepen learning (Michaelsen, Fink & Knight, 2002). In the on-line environment, learning is enhanced via the social and academic interaction of the group absent the traditional face-to-face class. As teams become interconnected and unified, their communication skills will improve and they can divide the workload and support each other. "Student teams can give individuals insights and understanding that could never be achieved alone" (Johnson & Johnson, 2004, p. 9).

According to Michaelsen and Sweet (2009), "the four essential elements of TBL consist of: (1) appropriately created and managed teams, (2) students held accountable for the quantity and quality of their individual and team work, (3) regular and timely feedback, and (4) team assignments that promote learning and team development" (p. 8). When the four essential elements of TBL are successfully implemented, cohesive learning communities can evolve. TBL may provide an opportunity for students to develop problem solving skills that are aided by regular feedback from the instructor and team members. Problem solving occurs in team settings where "individuals share tasks and contribute to resolving problems that are not well defined" (Hunt, Haidet, Coverdale, & Richards, 2003, p. 13). TBL provides opportunities for students to recognize gaps in one's knowledge. These gaps are exposed during team discussions and reporting which can become a strong motivator for continued learning.

The instructor needs to monitor how the groups are being formed to make sure that the group will succeed and be cohesive. Students should be in the same group for the entire semester. Students must be accountable to both their faculty and their group. Individual learning, group development, and group cohesiveness are limited when there is a lack of preparation (Michaelsen & Sweet, 2009). A grading system that is best for a TBL course is one that provides incentives for group and individual work. Although team-based learning can be effective, there are also challenges. Some of the challenges are cultural differences, technical challenges, and participation challenges. According to Miller (2009) "cultural differences can become a challenge when the differences are not realized and for which no preparation has been taken" (p. 6). To overcome cultural differences students should talk about their culture at the beginning of the class and discuss openly any cultural factors that may influence the way they learn and participate in the class. The instructor should instruct students to be sensitive to the other students so they do not offend anyone. Technical problems can be a challenge in any online class. In some cases the technical support is not adequate. Participation problems are obvious in team-based learning. No matter how much an instructor stresses the importance of participation there are still going to be some who do not participate.

Working in online groups can be extremely frustrating when group members fall behind or do not complete tasks they were assigned by the group. Students must identify and discover specific roles to allow the group to operate effectively. Students must be able to trust the members of the group or success might be limited to one person doing all the work, or not completing the assignment at all. Developing a sense of trust has been found to be related to group success (Morgan, Cameron, & Williams, 2009). Immediate feedback helps individuals retain the material. The last essential element of TBL is assignment design. Instructors first have to make sure that the assignments are focused on learning, and second that the assignments concentrate on further development of the teams.

Thompson and Ku (2010, p. 132) note that teams that collaborate more during their online classes "initiated more interactions among team members, generated more new ideas through discussions, and solved problems more independently with less guidance from the instructor, and ultimately retrieved better learning results." This indicates that TBL in online learning can help students generate ideas, improve independent thinking, and solve problems. In addition, TBL could assist passive learners to become active participants in online discussions. For example, in most online classes, students are required to participate in weekly discussions by posting responses to topical questions and responding to other classmates' posts (Fogel, 2007). To complete these tasks, students need to understand and apply the concepts learned so they can have a productive discussion in the class. This is different from a face-to-face class where some students tend to hide and don't engage in class discussions (Gomez, Wu, & Passerini, 2009).

Teaching an online class can be very difficult for some teachers to accomplish. Faculty need to make sure the students feel connected and part of the class. Faculty should oversee the discussions and help students focus on the topic by encouraging student participation and an ongoing exchange of ideas.

"Communicating with students and building relationships with them are among the hardest but most important parts of online teaching (Ash, 2011, p. 32)." Developing an online course is a long process which includes extensive planning and organization. Faculty should provide as much detail as possible about discussions and assignments so expectations are clear. Teamwork assignments must be nurtured by faculty to assure member participation and effectiveness of accomplishing tasks. The use of teamwork deepens the learning experience and promotes active learning. Doing this in the classroom extends the business world practice of working in teams to the students who will need to develop these skills in order to be successful (Gomez, Wu & Passerini, 2010). As the business world continues to expand globally, team-based virtual teams have become an increasingly important factor that schools must consider when designing online classes.

Research shows that the success of online classes depends on two main factors: course design and student interaction and collaboration (Grezda, Haq, & LeBrasseur, 2008). According to Kearsley (1998), "the single most important element of successful online education is interaction among participants" (p. 3). If you are developing an online course, being able to incorporate meaningful and appropriate interactions must be a major goal. One way to get students interact with each other is through group projects and team based activities. To assure that students understand the importance of collaboration and have motivation to participate in online groups, there are specific strategies that instructors may use. For example: making sure that students know the expectations for participation; that students are clear on what they are supposed to do; that there is relevance to the real world; that the student groups are formed early so there is a chance to develop cohesiveness; monitoring the groups and giving feedback; and allowing sufficient time to complete the tasks.

The social interaction between students is critical in the success of the team meeting its goal. In the online setting, the social interaction of virtual groups highlights the importance of a sense of community (Grzeda, Haq, & LeBrassuer, 2008). Conrad (2005) defined community as of "a sense of connection, belonging, and comfort that develop over time among members of a group who share a common goal" (p. 2) and has been linked in to a sense of safety, trust, and sharing. Trust is especially important, as team members must be able to rely on others to do their part. The difficulty of this is magnified in an online environment due to the lack of interaction between members. Trust has been identified as being the most critical factor of effective team process and performance on a project (Liu, Magjuka, & Lee, 2008). To alleviate some of these difficulties in online courses, we recommend the use of rubrics.

RUBRICS IN ONLINE DISCUSSIONS

A rubric is a scoring tool that lists the criteria for an assignment. The rubric must present as clearly as possible the criteria for grading each task the instructor is requiring. Well-written rubrics help students understand what they are expected to accomplish in an assignment, improve student performance as well as monitor it, and help define quality. Rubrics assist in making the evaluation and feedback process more effective, more objective, and more likely to result in deeper student learning. Using rubrics help students with peer assessment (judge the quality of their own and others' work) and reduce the amount of time instructors spend evaluating student work.

As faculty become involved in online instruction, the construction of online rubrics can be overwhelming. There are many examples from which to choose such as the one generously posted by the University of Illinois at the Illinois Online Network, and others. Palloff and Pratt (2005) provide practical guidance for faculty, concentrating on collaboration and creating online learning communities that enhance critical thinking. Faculty should create rubrics that measure learning objectives that are most important while ensuring that grade integrity is maintained. Sadler (2009) points out that grade integrity is the extent to which each grade awarded is strictly commensurate with the quality, breadth and depth of a student's performance. He argues that there needs to be a proper match between assessment and the

course objectives one hopes to accomplish. By achieving this match will give a rubric 'fidelity.' The author concludes by recommending that rubrics continue to be used for the assessment of online discussions but that a more consistent approach be taken to the construction and definition, and that current practices need to be changed to improve the validity and fidelity of rubrics.

According to Elliott's (2010), there is an inconsistent approach to rubric creation, particularly in terms of validity, reliability, and 'fidelity.' He recommends that the current practice must be changed to include more validity and fidelity, arguing that a 'good' rubric measure should, among other things, be expressed clearly and simply; should be tied to course objectives; should be free of bias and use terminology consistently; should reward the learner's final level of competency and not reward non-achievements such as effort or participation. Rubrics should be expressed as criteria that exemplify different levels of performance and cognition across various levels, using holistic and analytical markings and rewarding the learner's final level of competency (Palloff & Pratt, 2005).

Rubrics must be used carefully. Bali and Ramadan (2007) found that the use of assessment criteria is commendable and that using a rubric allows one to assess online discussion activities more objectively, particularly with respect to specific learning objectives. Researchers have looked at various rubrics in online courses. According to Elliott (2010), the purpose of some rubrics appears to be confusing, and their validity and fidelity are sometimes low. He recommends faculty to continue using rubrics, however advises them to use the following eight criteria for developing effective rubrics:

1. Use criteria which recognize performance or cognition.
2. Employ holistic and analytical marking that reward the learner's final level of competency.
3. Apply valid measures of the course objectives.
4. Criteria should exhibit high levels of fidelity and not reward non-achievements such as effort or participation.
5. Be expressed clearly and simply to maximize reliability.
6. The rubric should use terminology consistently.
7. The criteria should be free of bias.
8. Should recognize and reward the unique affordances of online writing.

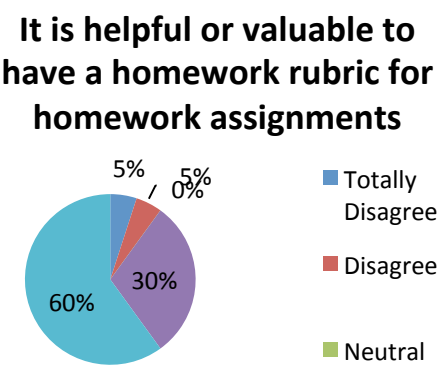
SURVEY METHODS

The study utilized an online survey that respondents completed voluntarily in an online Marketing class of an undergraduate Business Administration Program at a Midwest state university. The survey questions asked participants to rate their opinions (using a Likert scale) on the value of rubrics in online discussions, the extent to which they found the rubrics helpful and valuable in homework assignments, evaluating one's own work in online discussions and homework assignments, and the extent of the value of team-based learning components in online discussions. The survey also asked respondents to indicate the minimum and maximum ideal size of group discussions in online classes. In addition, three open-ended questions inquired about recommendations for designing homework rubrics, discussion rubrics, and team-based learning facilitation in online classes. A total of 20 responses were collected and analyzed for this study.

RESULTS AND FINDINGS

The survey was given to students in an online Marketing course in the undergraduate Business Administration Program during the Fall Semester of 2011. The results indicate that respondents have several important concerns and opinions about the rubrics and what they consider useful to help their learning. The instructor surveyed students to ask if the rubric was valuable, and if the students used the rubric when evaluating their own discussion postings.

Respondents rated the level of helpfulness and value of having a rubric. Of the 20 responses, 90% of the students agreed that it was at least somewhat helpful to have a homework rubric, and 80% of students found that it was at least somewhat helpful to have a rubric for online discussions. See Exhibit A and B for results. In evaluating a particular classroom rubric for homework and online discussions, 90% of the respondents agreed that the rubric they were using for homework was clear and understandable, and 80% of the respondents agreed about the online discussion rubric. Participants indicated that they found the rubric useful when they were completing their work, with 50% using the rubric for evaluating their own online discussion work, and 55% using the rubric for evaluating their own homework assignments.



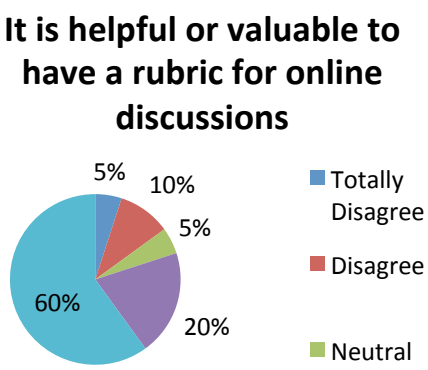


Exhibit A: Homework Rubric

Exhibit B: Online Rubric

One of the suggestions for the rubric was to not have a word limit for posting, because such word limitations could make the postings superficial. Other changes included wanting to do fewer postings and to not be required to post on two different days. When asked if students learned from their fellow classmates during online discussions, 60% agreed that they had learned a great deal from their teammates, with only 20% disagreeing.

Over two-thirds of the students had comments that described how they learned from each other, with the majority talking about differing perspectives and points of view. See Exhibit C for results. One student added that online discussions are frustrating because they are only opinions; another mentioned that they never read the postings from other students just in case the other students are incorrect.

The majority of respondents (65%) thought that doing the assigned homework out of the textbook was the way they learned best, with exams being the least helpful part of an online course. See Exhibit D for results. The majority of respondents (60%) desired online discussion groups of no more than ten participants, and the ideal range of participants was considered to be between 7 and 10. See Exhibit E for results.

When asked for specific ideas for improvements, one suggestion was to limit the online discussion groups to small teams but allow the class to see everyone's discussions. The main opinion regarding this was that if you happened to be in a group that wasn't quite as effective as another group, you could still observe the learning that other groups were experiencing.

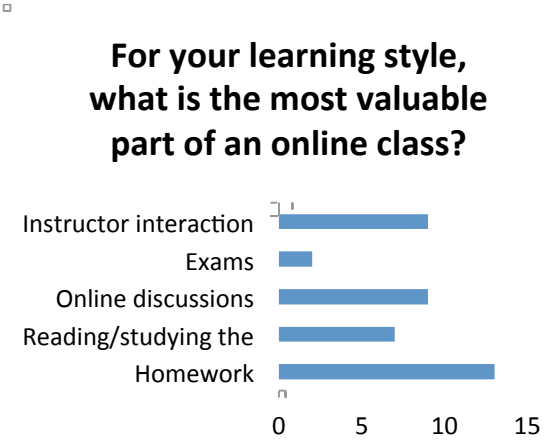


Exhibit C: Learning From Team Members Exhibit D: Value of Learning Components

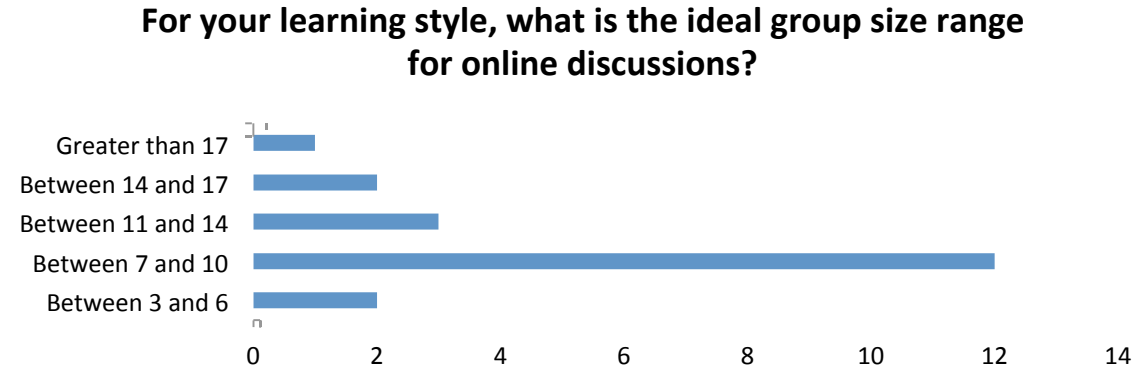


Exhibit E: Ideal Group Size Ranges

Responses to the open-ended questions indicated preferences for utilizing components of TBL as follows:

- Divide the course into small, permanent groups
- Develop teams based on experience, student expertise, geographic location of students, and other diversity factors
- Incorporate assignments and tasks that encourage preparation and application of course material
- Timely feedback from the instructor and from team members
- Using well-constructed rubrics for guidance and evaluation.

According to our results, students prefer no more than 10 in their discussion groups, with a preferred range of 7 to 10. Interestingly, we found that several students complained when the group reached as few as 4, arguing that they do not have enough different ideas to make responses meaningful. Our results confirm previous studies on small group participation. According to the University of Missouri, St. Louis, 5 to 6 team members, and no more than 8 are recommended in online groups. The Illinois Online Network notes 5 to 10 participants as ideal; as such a number is not overwhelming for the instructor or the participants. In the use of discussion groups for the sciences, researchers indicate 8 to 15 members as ideal for small groups (Cann, Calvert, Masse, & Moffat, 2006). The Virginia Commonwealth University (2009) recommends 4 to 6 participants as ideal, and notes that effective group size can be anywhere from 3 to 10. It appears that instructors vary in their preferences to group size.

CONCLUSION

This study confirms previous research in that frequent interaction in online classes seems to be an important factor in assuring effectiveness of learning and teaching in online education. An online learning community exists only if its members are active. As a facilitator, faculty must guide, engage, and focus all participants in class discussion along constructive paths to learning. Our survey results found that students prefer a small group environment, especially in an online setting. Rubrics can be helpful tools for both instructors and students in clarifying expectations and evaluations. By incorporating components of rubrics and TBL in online environments, true learning communities can be created to facilitate comprehension and application of course concepts. Assessment in online education should include learning outcomes by using credible and valid measurements. Faculty should design and customize questions based on course content and outcomes to be measured. If the design does not go through reliability and validity statistical analysis, it is considered informal assessment. This form may consist of instructions to the student and questions that are indicators of assessing learning outcomes, instructional strategy, and open-ended student comments. By having a feedback loop to evaluate instructional effectiveness in online teaching, higher educational institutions can assure that the practices used achieve the desired outcomes in student learning and behavior. Institutional support for faculty development is necessary to achieve excellence in online education. At the present, many institutions provide technical support and software training for faculty. However, faculty development needs to include training on teaching tools, rubrics, and TBL methods that facilitate online learning outcomes. This training is essential in assisting faculty making the transition from a teacher-centered classroom to a learner-centered dynamic online learning community.

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