Team Projects in Online Learning: Best Practices in Design, Implementation, and Evaluation

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Abstract

This chapter provides an overview of the emerging best practices in the design, implementation, and evaluation of team-based assignments in online learning, followed by suggestions for further research. As online learning has proliferated in higher education over the last decade, more students and instructors encounter the need to incorporate teamwork in the virtual learning environment. Team-based assignments are of high

value in developing critical analysis skills, increasing engagement, and decreasing isolation, among other benefits; they also raise multiple challenges to implement effectively. A review of the literature notes several emerging best practices in curriculum design, instruction, and evaluation of teamwork in the online learning environment. Curriculum designers need to provide a supportive structure, clear expectations, and sufficient time for teams to engage in both the processes associated with socialization and trust building, and to complete the "product" assigned to the team. Instructors should engage early and often as teams go through their formative stages, and remain actively available as teams complete their work, should intervention be required. Finally, evaluation strategies that take into account individual contributions as well as the quality or completeness of the final team product are critical to encouraging the perception of fairness on the part of students. Overall, the benefits of including team projects in the online learning environment outweigh the challenges, making it worth the time and effort to include them in the curricula.

Introduction

Online learning has proliferated in higher education over the last decade (Mortgagy & Boghikan, 2010; Revere & Kovach, 2011; Prinsloo, Slade, & Galpin, 2011). Several factors drive the inclusion of team-based assignments for students in the virtual learning environment. In many fields, such as business, management, and leadership, developing skills as team members and team leaders is essential to achieving desired learning outcomes. The need for authentic assessment leads more academic leaders, faculty, and curriculum designers to incorporate teamwork in the learning activities and graded assessments for courses in these and other content areas. Students in online courses can feel isolated, and teamwork is one way to encourage and even enforce collaboration and communication.

Online team-based assignments serve multiple purposes, but they also cause multiple challenges. Team members must get to know one another and communicate in a virtual environment, in which they rarely or never meet in person. The instructor must monitor group progress, and evaluate teamwork fairly so that students who contribute the most to the success of the team project are recognized, while those who do not contribute

are not able to benefit from the work of others. Another complication is the ever-changing array of technology tools available to assist in collaborative efforts; as soon as students and faculty become comfortable with one, new tools arrive that supersede their predecessors.

There is little direct research to help instructors and curriculum designers meet these challenges, but a review of the literature notes several emerging best practices that can be applied to team-based assignments in the online environment. These basic best practices can apply regardless of the choice or availability of specific collaboration tools, as they focus on the fundamental elements of supporting teamwork in a virtual environment. This paper provides an overview of the emerging best practices in the design, implementation, and evaluation of team-based assignments in online learning, followed by suggestions for further research.

Context: Student Engagement and Achievement in Online Learning

The inclusion of team-based assignments in online learning is taking place in the broader context of the need to improve the levels of student engagement and learning in online courses. Researchers and accreditors are recognizing the importance of engaging students as a prerequisite to higher-level learning (Alden, 2011; Association to Advance Collegiate Schools of Business, 2010; Prinsloo, Slade, & Galpin, 2011; Revere & Kovach, 2011), and a consensus is developing that higher levels of engagement in the learning environment and academic activities lead to greater achievement of learning outcomes. Collaborative teamwork is viewed as one important method of increasing engagement for online students, yet educators still encounter challenges in determining how best to engage students through this modality (Revere & Kovach, 2011).

In order to make learning experiences effective, especially collaborative learning experiences, designers and instructors need to focus on the ways in which these experiences connect to real-world applications, or the means by which instruction goes beyond "knowledge acquisition" and moves students to "knowledge application . . . and engaged discovery" (Revere & Kovach, 2011, p. 114). Supporting or even requiring higher levels of student-to-student interaction also has been shown to lead to higher levels of performance and satisfaction on the part of students (Alden, 2011; Revere, 2003).

Advantages of Team-Based Assignments in Online Learning

Increasing student engagement. Collaboration is one way to increase student engagement. In fact, researchers are discovering that students themselves want access to the means to collaborate with other students and faculty in their online course work as they do in face-to-face course work (Revere & Kovach, 2011). Group work can encourage students to connect with one another, facilitate the development of learning communities, and provide opportunities for students to "explore and expand their existing knowledge base together" (Revere & Kovach, 2011, p. 117); it can also help overcome the tendency for students who do not connect on a campus to feel isolated and disconnected. Students who participate in cooperative team learning tend to have higher motivation and a higher sense of classroom community (Yang, Cho, Mathew, & Worth, 2011).

Increasing relevance. Many students are in or plan to enter fields in which teamwork will be a regular way of doing business. The contemporary workplace is often structured around cross-functional teams, and many times, those teams operate with the support of online tools (Alden, 2011). Ensuring that students in online courses get exposure to and develop proficiency in team participation and leadership skills is one way to augment the relevance of their learning to the demands in the professional world.

Implementing authentic assessment. In addition to supporting a relevant curriculum, team projects and assignments provide instructors and program leaders with evidence of student achievement that lends itself to authentic assessment of student learning. Instead of asking students to read, reflect, or discuss the elements of team participation and leadership, students are required to actively engage in them, and to demonstrate their proficiency in the relevant knowledge, skills, and abilities (Green, Edwards, Wolodko, Stewart, Brooks, & Littledyke, 2010).

Enhancing critical analysis skills. As students co-create the team's project, they are joining together in a socially based construction of new knowledge and skills (Koh, Barbour, & Hill, 2010). By evaluating and assessing the contributions of each team member, the team collectively strengthens its members' skills in the areas of judging, valuing, supporting, or opposing different viewpoints. This supports the development of improved critical analysis skills and facilitates team collaboration, both of which will be valuable to graduates in a professional capacity. Elder & Paul (2010) point out that critical thinking skills are associated with the practices of clarifying purpose, establishing perspectives, and verifying assumptions leading to valid conclusions, all of which will be useful to the student in an academic team as well as in the workplace.

Developing virtual communication skills. Virtual projects require team members to develop a number of communication skills to compensate for the lack of traditional communication cues (Kirstein, 2011). Without body language, facial expressions, and voice inflection, students must learn to communicate with each other in a highly contextual manner where the bulk of the message is relayed in text-based communication such as email. Communication in such a virtual environment is a skill set that is learned and refined through experience, and these skills will serve graduates well as they enter the increasingly virtual workplace. In fact, this advantage of team-based assignments is specific to the online learning environment. While the other benefits accrue in face-to-face learning, providing a virtual environment for students to develop these skills mimics the conditions in which they are likely to find themselves in their professional environments. An argument could be made to include virtual learning "labs" for any student who is preparing to enter a profession that demands high levels of virtual communication skills.

Challenges of Team-Based Assignments in Online Learning

Lack of clarity. Because there is little or no face-to-face interaction and often limited virtual communication, online projects often lack a level of clarity in regards to how the goals of the team's project relate back to the course outcomes. This limits the extent to which the students see value and relevance in the projects themselves and, also, whether they feel a sense of motivation to overcome these obstacles in order to complete the project (Koh, Barbour, & Hill, 2010).

Additional factors that affect the clarity of team projects have to do with the project's deliverables and the roles of the individual team members. Unless the instructor is very clear about the specific deliverable the team is expected to produce, unresolved questions can impact a team's performance and cohesion and can lead to unproductive conflict. Yet, even more challenging is a lack of clarity about the role of each team member and what he/she is expected to contribute. Scherling (2011) indicated that teams often consist of a variety of personality styles, each of which may approach the team's task from a different perspective. Some will be highly motivated and may come off as pushy, whereas others may be content to let other team members do the bulk of the work. How teams deal with unclear expectations of each other's contributions can have a significant effect on the quality of their outcomes.

Using asynchronous collaboration and communication. In many online courses, students will not have the opportunity to meet in person. They might be geographically dispersed and/or have schedules that prevent face-to-face sessions. This means they will need to complete the tasks associated with the team assignment primarily using asynchronous collaboration, in which team members make their contributions at different times from different locations. In some cases, teams will be able to hold synchronous (same-time) meetings, though at a distance, using conferencing tools such as Skype.

This reality constrains the means of communication to text, for the most part; students must post drafts of papers or comments in an online discussion board, blog, or wiki. Therefore, they need to be able to communicate effectively in writing (Alden, 2011). Written communication can be informal, but must be accurate and precise. Asynchronous communication also requires clear task assignments and deadlines. Students may find it challenging to document group decisions, or even to come to a clear decision, when team members make contributions at different times.

Ensuring fairness in evaluation. Perhaps nothing is more potentially frustrating to the students and the instructors than determining fair means of evaluating (grading) student contributions to team projects. In some cases, instructors will assign the same grade to all team members, basing the evaluation only on the quality of the final "product" the

team constructs. In the other extreme, grades are awarded only for individual contributions, leaving the team's final product out of the equation. Students do not want their grades unduly affected by poorly performing team members, but they also want the quality of their final product recognized and, if warranted, rewarded. The most common practice, therefore, is a combination of individual and team grades (Alden, 2011).

Best Curriculum Design Practices

In order to maximize the benefits and address the challenges of team assignments in online learning, curricular designers can implement several research-supported practices. First, the course documents should clearly define the team-based project and its deliverables; students should have a clear idea of what will be expected of the team. The method of evaluation for team members should also be clearly stated in the syllabus, as this will help to define the roles and actions of the team members early in the process (Koh, Barbour, & Hill, 2010). The team's task should be extensive enough so that every student has both significant work and a unique role as a member of the team (Lynch, 2010). The design of the project may even provide mechanisms for communication, including the tools that are available to the team as well as how the team can expect to interact with the instructor.

But a significant consideration of the design process for courses with online teams is to account for both process and project. Too often, sufficient time is allocated only for the team to complete its project without taking process time into account. Teams rarely hit the ground running; they need time to develop into a productive working unit. During this key phase of a team's experience, the team members will need to learn each other's strengths and weaknesses and develop a plan for how they will work together. The instructor may need to remain highly involved at the outset to make sure the team gets off to a good start. It may even be wise to assign a pre-project to help facilitate the team formation process so that it is largely in place before the team needs to turn its attention to its main project. Such a pre-project could include the development of a team charter that governs how the team will work together and what each member's role will be. Regardless of what process or pre-projects are decided upon,

the design of the course needs to allow sufficient time for team process in addition to that which has been allocated for the project.

The importance of effective team interaction cannot be underestimated; perhaps the one factor, more than any other, that affects how well a team accomplishes its task is the level of trust that exists among the members. Trust is a key factor on any team and, like many other team aspects, trust evolves through a process (Beranek and French, 2011). Initially, trust is assumed through benevolence; team members believe that all members intend to make a substantial contribution toward the team's success. Trust is further built upon familiarity as team members get to know each other; following this, trust is reinforced based on observed results. In online team projects, trust can be slower to develop given the limited scope of social interactions that the team members experience (Beranek & French, 2011). Curriculum designers can build activities into the course that help facilitate the development of trust. These can include social activities that help develop familiarity and smaller projects that help the team members understand what they can reasonably expect from each other.

Best Instructional Practices

Instructors can choose from an array of strategies and tactics that will support students as they engage in team projects in online environments. Instructors need to be highly involved in the team as it forms and should remain involved in the team throughout its existence. At the outset, the instructor can provide coaching on the team formation stages (forming, storming, norming, performing) and conflict resolution. Sull (2012) suggests providing each team with a list of potential problems and the most common ways to address them. Scherling (2011) suggests that the instructor include tasks that will promote the development of interpersonal skills and conflict management as a part of the team's work. As a part of this effort, the team needs to consider expectations and the ways its members will address differences in work styles or team members who fail to perform. This is also the time when team members should be considering their roles (leader, contributor, scribe, etc.) and making conscious decisions regarding their method of participation. All of these activities are part of what has been referred to above as the team's process.

To highlight the importance of allowing the team to develop its process, Grinnel, Sauers, Appunn, & Mack (2012) describe three stages of a team's work that include socializing the team members, working on the individual tasks that make up the project, and managing the individual pieces of the project to completion. They measured the amount of effort that was dedicated to each of these steps at different points in the team's process. In the early stages of the team's project, the majority of all interactions and efforts were dedicated to socializing the team members with a smaller amount of time dedicated to the team's work. Over time, more effort was shifted to the actual project work they were assigned. This analysis demonstrates the importance of team process: until those processing steps are completed, the work required to finish the project will not receive the team's full attention.

During the early stages of the team's process, the members will decide how they will be led. Some teams may elect to appoint a single leader for the life of the project, but both Sull (2012) and Palsolé & Awalt (2008) suggest using rotating team leadership. This can be facilitated by asking the team to divide its project into logical sections and to appoint a different leader for each section.

As the team begins its work, the instructor can help the members establish good communication patterns so that nobody feels excluded. This may require a structured approach to help the team draw out the more reserved members and control those who may be overly active (Sull, 2012). Initially, the instructor may be very involved in the team's process but his/her involvement can taper off as the team starts to connect and develop effective working practices. The instructor should remain at least a limited part of each team until the conclusion of the project to provide rapid responses to inquiries and to intervene if problems occur.

Other suggestions for ways the instructor can help facilitate a team's development include (1) providing examples of good interactive processes so that teams can use them as a model; (2) providing a structured and fair way to allow team members to evaluate the contributions of their teammates; (3) allowing team members to evaluate the entire group process once the project is complete; and (4) integrating opportunities for self-reflection to allow team members to identify what has been learned through the team process and project. In short, instructors can best support online teams when they ensure that teams operate

in a fair, productive, and equitable manner that aligns with the learning needs and motivations of each team's members.

Best Evaluation Practices

Grading student work in team projects in online learning requires creating a balance between recognizing the individual member's contributions and assessing the quality of the final "product." Alden (2011) evaluated common evaluation practices using seven criteria: validity of grades, ease on students, ease on faculty, encouragement of active participation, perception of fairness, utility for formative feedback, and impact on group dynamics (pp. 12–13). Based on results of surveys of faculty and students, Alden's findings show that students favor "records review," the analysis of actual log-ins, postings, comments, and other records of each individual student's contributions in the online environment as the method of evaluation for group work or teamwork. Faculty, on the other hand, showed a slight preference for portfolio reviews. Neither group favored the "shared grade," in which all team members receive the same grade. It seems both faculty and students want the results of teamwork to be included in the evaluation, and also want some means of ensuring that each team member's contributions are recognized and evaluated.

Instructors who want to apply these practices should take into account that both means of evaluation are time-consuming. Whether reviewing the "trace records" of student work in the online environment or evaluating the quality of artifacts included in a student portfolio, faculty will invest significant time and effort. Using automated reports from the online learning management system can assist in records review; and using clear and concise rubrics will make portfolio evaluation less burdensome (Alden, 2011; Revere & Kovach, 2011).

Other means of evaluation should be considered depending on the specific learning goals of the course. For example, if a learning goal emphasizes understanding of team dynamics, peer review might be appropriate (Alden, 2011). If the team is working on a cooperative project where each team member is responsible for a unique contribution to the team, then portfolio review may be the best option. However, if the team's project requires careful and close integration and collaboration, where team members jointly work on most or all sections of a project, then the shared grade may be appropriate.

Conclusion

As online learning becomes even more popular in higher education, the need to encourage student engagement and foster deeper learning in this modality will continue to grow. Team projects are an important component of most higher education programs, meeting the needs for student engagement as well as preparing students for the demands of the workplace. Yet, effective academic teams don't just happen, they take careful planning and diligent observation on the part of instructors and curriculum designers. Teams need time to establish proper social patterns and working practices in order to be ready to work on the actual project they have been assigned. Both the design of the course and the actions of the instructor can be important factors in ensuring that the development of team process is an effective and useful exercise that will lead to a successful online academic team project.

Further research on the most effective ways to design team projects for the online environment might follow discipline-specific pathways. Are there types of team projects that are more suited to management, leadership, education, science, or liberal arts disciplines? Additional exploration of instructional strategies that help students bridge the experience of teamwork in the online learning environment to the realities of virtual teams in the professional environment would also provide helpful context for faculty. Much work can be done to improve methods of evaluating teamwork to ensure these methods are responsive to academic demands (grading and fairness) and honor the spirit of authentic assessment.

Online academic team projects are here to stay and rightfully so. They provide students with a number of important skills and prepare them for the likelihood that they will become members of several global virtual teams at many points throughout their careers. The use of virtual teams is on the rise because they provide the benefits of multinational cooperation without the difficulty and expense of domestic and international travel (Kirstein, 2011). Considering the demands of the emerging global economy and the virtual nature of an increasing percentage of workplace activities,

it is important that online academic programs play a role in preparing the workers of the future for the challenges they will face. It is equally important that such projects be designed and facilitated by instructors to help ensure student success.

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