

Understanding Students' Online Learning Experiences in Virtual Teams

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Abstract

As distance education becomes increasingly popular, instructors and administrators are working hard to improve students' online learning experience. Although, the dynamics of online learning experiences in an educational setting have been well studied, the use of virtual teams presents a set of problems in relation to how physical, temporal and social separation of learners affect learners' learning processes. This paper is a case study reporting an action research project investigating the experiences of using virtual teams in a new Organisational Psychology unit at a regional Australian university. Online group challenges were identified with potential solutions to these challenges trialed during the action research cycle.

Keywords: Virtual teams, online group interactions.

Introduction

Proponents of group work contend that students can learn valuable lessons such as communication and problem solving skills which are transferable to the real work environment (Becker & Dwyer, 1998, Black, 2002, Haythornthwaite, 2006). Working in groups is thought to better enhance students' learning perceptions, problem solving skills and overall learning abilities than learning alone (Hiltz, Coppola, Rotter, & Turoff, 1999). This assumption is based on the theory of social facilitation. Social facilitation is the tendency that people often perform better in the presence of others than alone (Cook, 2001). Allport (1924) stated that people have, "an increase in response merely from the sight or sound of others making the same movement" (p. 262). Although, early research tended to focus on a co-action paradigm (e.g., physical presence of both individuals and observers), later research has found that the effect of social facilitation could also affect individuals who are passively observed (Dashiell, 1935). This is important when you consider that many virtual team members are being passively observed by other group members. A virtual team is a group of individuals who used information technologies to work across time, space, and organisational boundaries to achieve organisational goals.

Virtual teams are fast becoming a business-critical imperative for many organisations because of the popularity of the internet, intranet, instant messaging, online discussion boards, video, audio conferencing and other tools which have made it easier to communicate and coordinate people at a distance (Herman, 2001; Lewis, Shea, & Daley, 2005; Martins, Gilson, & Maynard, 2004; Townsend, DeMarie, & Hendrickson, 1996). Many educational institutions are similarly experiencing an increased use of information technology to communicate within and outside the classroom (Allen & Seaman, 2005; Le Cornu, Cameron, Catling, Cosgrove, & Langford, 2006). Therefore, developing learners' ability to work effectively in a virtual team setting may be considered to be an important pedagogical goal for many higher education institutions.

Although many distance education programs incorporate various versions of cooperative and collaborative task as part of a virtual team (Liu, Magjuka, & Lee, 2008; Zhang & Nunamaker, 2003),

formal online group activities among virtual teams have not been extensively researched. Many of the challenges associated with group work such as increased time, social loafing and free riding are not limited to face to face groups but may be exacerbated among virtual group members (Becker & Dwyer, 1998; Roberts & McInerney, 2007). Indeed, many researchers have confirmed the existence of social loafing and free riding (Albanese & Van Fleet, 1985; Brook & Ammons, 2003; Jassawalla, Malshe, & Sashittal, 2008; Jones, 1984; Liden, Wayne, Jaworski, & Bennett, 2004; Mulvey & Klein, 1998; Weldon, Blair, & Huebsch, 2000). For example, social loafing is the tendency for individuals to exert less effort when working in groups than working alone (Latane, Williams, & Harkins, 1979). Suleiman and Watson (2008) found that social loafing can be induced when there is "distance" between group members. According to Suleiman and Watson (2008), distance creates a feeling of isolation among group members and this inevitably led members to contribute significantly less effort in teams than when working alone. Chidambaram and Lai (2005) found that in addition to distance, the size of the virtual group was also an important indicator of whether or not group members "pull their weight". Free riding is another problem that might affect virtual teams. Free riding occurs when an individual shoulders less than their fair share of the work and yet shares in the benefits of the group (Albanese & Van Fleet, 1985; Jones, 1984). Social loafing and free riding both describe individuals who are not contributing their maximum effort due to either motivation or circumstance; inevitably this leads to decreased group participation (Kidwell & Bennett, 1993; Lin & Huang, 2009). While social loafing and free riding are important antecedents to reduced group participation within virtual teams, there may be other challenges or mitigating factors worthy of exploration. Therefore, the aim of the present study is to identify some of these challenges, to trial interventions and to investigate solutions to these challenges in a virtual team education module.

A Case Study using an Action Research Methodology

The use of action research as a methodology for investigating cases of educational practice is well established and is based on cyclical action planning intervention to improve educational outcomes, acting and observing and then reflecting on the outcomes from the intervention and so on (Carr & Kemmis, 1986; Dick, 2002; Kemmis & McTaggart, 2000; Maxwell, 2009; Walker & Haslett, 2002,). The benefit of such an approach is that it is inherently flexible within a structured approach to investigation that is considered rather than reactive. The social participatory nature of this methodology aligns well with the lecturer's intent in the unit as do the collaborative and practical aspects. The lecturer is free to engage recursively with students' raising issues rather than being constrained by observing them objectively. By reflecting critically on an issue, the lecturer and relevant students are free to investigate their reality and attempt to change it for the better (Kemmis & McTaggart, 2000).

This paper describes a single case involving the first implementation of a new unit of study and the lecturer's approach to using online tools to foster effective team work. The initial plans were formulated with the needs of the students, the learning design and the curriculum intent considered and translated into actions. Over the course of time for study in the unit, the actions and reactions of the students to their experiences of online group work precipitated the need for further action and reflection by the lecturer to ensure that all students had worthwhile experiences which contributed to their overall learning in positive ways. By using an action research approach, the decision-making, action and reflection of the lecturer is exposed and in the discussion below this enables the reader to identify how the lecturer used this approach as a basis for her problem solving with the participants' in the unit.

Basic Course and Structure

The Psychology in the Workplace Unit

The Psychology in the Workplace unit is a six-credit course unit available to all university students who have successfully completed a first year psychology or business unit. Unlike traditional on-campus students, distance education students at the regional university are mostly mature distance learners who may have highly demanding family and employment responsibilities. Given that many of these distance learners may reside across the globe and study in different time zones, the online learning approach adopted in the present curriculum was aimed to provide maximum flexibility and to afford a high level of cultural diversity.

Virtual Team Online Learning Portal

The virtual team environment was created through the Blackboard online learning portal. The Blackboard environment was created specifically to allow online team members to work collaboratively on their virtual team assignments. The teams were all provided with an online discussion board accessed by a unique identity code. Groups of five to six students were randomly allocated to a group (e.g., Lion or Platypus)

and each group was required to complete series of team assignments over the semester. For instance, on one of the online team assignments, group members were asked to view a video which depicted selected workplace communication problems. Students were asked to identify the problems and then as a group to develop an intervention plan to solve the identified problems. Group size was purposely kept small because studies have found that dilution effect (i.e., the larger the group size, the less motivated group members are in contributing to the group effort) are more pronounced in larger groups (Brewer, 2005; Karau & Williams, 1993; Kidewell & Bennett, 1993; Latane, 1981).

Group members were randomly assigned different roles in their group by the unit coordinator. For example, group members who were assigned the "Contributor" role were expected to kick start the online discussion and to provide a discussion of what they think the problem and solution might be. Group members who were assigned the role of the "Critic" are required to stimulate the discussion with a critical analysis of the problem under investigation. They might suggest alternative view points and negotiate with other group members as to why they think they have the better solution. Finally, students assigned the "Summariser" role were expected to sum up the group discussion making sure that the group has reached an agreed position in relation to an identified workgroup conflict/problem and a proposed solution for the problem. Students were then required to post their answers online for grading and for online feedback. In addition, all teams had access to various course documents, an online discussion board monitored by the unit coordinator, online files and documents exchange, online announcement, and the online grade book.

Students were also expected to write a 2000 word intervention plan based on a real world problem they identified with their group members. For example, group members were required to negotiate and identify a workplace problem encountered by one of their group members in real life. Then as a group, they had to develop an intervention plan to help solve the identified problem. A group based intervention plan was then submitted to the unit coordinator at the end of the semester. Additionally, students were asked to specifically state any positive and/or negative challenges they encountered in their virtual teams. These data were collected for further analysis by the unit coordinator. There were a total of 13 virtual teams consisting of between 4-6 members.

Development of the Online Course

Initial feedback early in the semester indicated that while many students think it was beneficial for them to interact online, they wanted to keep their online group discussion private. A number of them reported that plagiarism and/or the fear that their idea will be "stolen" by outsiders would create inequity issues. Moreover, some students were unhappy about their assigned roles in the group. The instructor acted quickly to address this problem by ensuring that each team had a private discussion board and that students can exchange their roles with another group member provided all group members agreed to this exchange.

Challenges Encountered and Potential Solutions

The development and delivery of the virtual team component of this online unit created multiple challenges. The next section will provide a description of several of the most difficult challenges encountered in this unit and how they were addressed by the unit coordinator.

Perceived equity issues. One of the main concerns students have was whether team members would contribute actively in the group assignments. Similar to the idea of social loafing and free riding, many students expressed concerns about equity issues in instances when some members fail to contribute their share of the workload or fail to "pull their weight" in the group. Despite assurances as explained in a class announcement on Blackboard and in the unit syllables that each and every student's contribution is visually evident and well documented on Blackboard, students continued to be concerned about this issue. Specifically, they were concerned about equity issues in terms of grade allocation for group members with lower levels of group contribution. The instructor addressed this concern by implementing a peer review assessment and introduced a number of preventive strategies. As a first preventive step, group members were asked to contact the instructor in the first instance if they felt any of their group members were missing or not contributing. In doing so, group members were provided with the opportunity for a team decision making process without having an outsider interfere in the process. The instructor then followed up and tracked the less "active contributor" by advising each one that his or her group contribution is a mandatory part of the unit requirement. This also served as a warning to students who may wish to social loaf or free ride. As part of the peer review assessment, group members were asked to evaluate team members' contributions. To achieve this, two mechanisms were put in place:

- (1) The first evaluation method required teams to decide, as a group, whether a given team member's contribution is sufficient to be awarded a credit for a given assignment; and
- (2) To list the names of group members who have contributed sufficiently to a given assignment.

To be given a credit grade, group members must have been awarded a credit for a given assignment *and* have their names listed on a given assignment. These two criteria must be agreed upon by all group members, including the inactive member. These two methods seem to effectively address the equity concerns students had with respect to team member contribution. However, when there was disagreement which occurred rarely, the instructor would assess the situation and considered whether the less "active" member should be awarded partial or no credit. This was done on the basis that the instructor had a full, detailed record of each member's contribution to specific assignment. In other words, the Blackboard system automatically generates a log entry for every access and contribution made over the course by each student. This contribution record log served to further motivate team members to be fair in their assessment of the less "active" member.

Another equity issue centered on difficult personality styles. In particular, the instructor fielded several complaints from students about domineering team members who stopped other members from having their fair share of say in the discussion. To overcome this problem, the instructor reminded group members that they had each have been assigned a role to play and that they must perform their respective roles. For example, team members with the "Contributor" role were expected to kick start the online discussion while team members who were assigned the role of the "Critic" were required to stimulate the discussion with a critical analysis of the problem under investigation. All group members then had to negotiate among themselves and reach a consensus with the "Summariser" whose task was to sum up the group discussion. Students were instructed to monitor and remind each other of their specific roles. These instructions were sufficient in addressing this issue.

A final fairness-related issue emerged over the course of the first online assignment. Some students were concerned about how soon group members should be in communication to work on a particular assignment. Specifically, some students expressed concerns about having to start on the assignment sooner than other group members. They were also concerned about how frequently members should check for new postings on the team's discussion boards. Some students thought that every team member should check the discussion board several times a day so that they could complete the assignment ahead of the scheduled due date while others thought that group members should check for new postings every couple of days and as long as the assignment was submitted in time, it should not be an issue. This issue created deep concern among students, especially among early to work members who felt that it is unfair for the quality of their group assignments to be penalised because of a rush job or lateness. This experience led to a team norm exercise where members were instructed to reach a consensus about when contributions from each group members were expected and when their group assignment had to be submitted. These consensus must be agreed upon by all team members and appear to have help teams manage their time coordination.

Social exchange. Some teams suffered from a general lack of team development and social exchange. Specifically, students complained that they simply did not know how to start communicating or contacting other group members. While they were clear about what their individual roles within the group entail, many students did not know what other group members expect of them or what other group members are like. In other words, they felt cut off from other group members because they could not connect a face to the name of each of the members. In contrast, more effective teams (5 out of the thirteen teams) reported that their teams developed cohesively over the semester and some had even decided they would continue to remain in contact with each other. According to Warkentin, Sayeed, & Hightower (1997), the difficulty in exchanging information, unlike in face to face interaction, has led virtual teams to concentrate more on task-oriented rather than socio-emotional information. This means virtual teams may require more time to develop relational links among members in order for the team as a whole to develop healthily (Chidambaram, 1996). Upon further investigation, the instructor discovered that healthy teams shared more personal information and exchanges of social discussions early in the course. These teams in effect introduced themselves to other team members very early on in the unit.

It was decided that one way to improve this would be to enhance student to student interaction at the beginning of the semester. To achieve this, the instructor redesigned the second online assignment into a

team development exercise. The first part of the assignment asked students to introduce themselves and to post at least 2 questions they might have about each of their group member. The second assignment then asked students to describe what their personalities are like, what their abilities are and how they can use both of these traits to help the group. These exercises aimed to facilitate information sharing, communication among team members and help establish team norms/rules.

Less active or missing in action team members. A number of active team members raised the issue that some team members never participated on the discussion board or in any of the assignments. Eight teams complained to the unit coordinator and expressed their frustration at missing or less active members in their groups. These teams felt that it was unfair to only have the active members of the group contribute while the less active member benefit from the work of these more active members. To remediate this, a list of all group member names and email contacts were provided to all team members. This information was also posted on Blackboard. Group members were encouraged to contact these “less active or missing in action” members and to motivate them to contribute, they were instructed to inform these members that their contribution or lack of contribution would be clearly visible to other team members and the instructor. If all these attempts fail, group members were instructed to proceed without the absent member.

In rare instances where a group may consist of only one or two active members, the assignment was revised so that team members could complete the assignment individually without the burden of having to wait for these less active or missing in action members’ contribution. The grading system was also revised to reflect that the assignment is an individual piece of work rather than a team assignment.

Benefits of Working in Virtual Teams

Although students encountered some initial challenges in their virtual team setting, benefits were also experienced. The following section described several of the most beneficial experiences students had while working virtually as a team.

Self discovery, empathy and self awareness. Five teams reported that although as a team they found it difficult to work virtually with other team members, they soon discovered the importance of being respectful, patient and trusting of other group members, especially with members who had very different personality or working style. They became increasingly aware over the semester that other group members (even though they could not see them physically) had different values, beliefs and ways of doing things. They reported that to have an effective virtual team meant many of them have had to respect these differences and empathise with other group members. Empathy refers to the ability to share in another’s feeling. Upon further investigation, the unit coordinator found that students who used and who received email emoticons generally expressed more empathy towards other group members.

Setting clear role boundaries. When it comes to managing and coordinating virtual team work, many students noted the importance of setting clear work boundaries and roles. This information informed the instructor of the effectiveness of assigning different work roles and responsibilities among virtual team members early in the course. In the absence of face to face contact, virtual team members are unlikely to have a convergent view on how the team ought to function, and what is expected of each other. Therefore, providing clear guidelines on the roles and responsibilities expected of each virtual team member is vital if the virtual team is to be effective in achieving its goals.

Communication via Blackboard. Finally, one important learning outcome of the virtual team was students’ willingness to use Blackboard as a communication tool. While two groups found it difficult to use the online discussion board, mostly due to lack of time coordination with other group members, the remaining teams reported that the online discussion board had greatly improved their ability to communicate effectively with other virtual team members. As stated by one team, “The online discussion board has greatly enhanced team members’ ability to communicate with each other on our own terms, in our own place and at our own time.” In fact, as online learning becomes more prevalent, learners’ willingness to engage in this mode of communication will be increasingly important (Allen & Seaman, 2005). Consistent with Ajzen and Fishben’s (1980) attitudinal model, having a positive attitude to an experience (e.g., using online discussion board) will increase the likelihood that the individual will engage in that activity again. Thus, it is beneficial for educators of distance learners to expose students to emerging effective and fun technologies to complete group based work.

Conclusions

As the results from the present case study indicated, getting long distance education students to work in a virtual team is a difficult task for the instructor. Often, students are considered paying customers by various higher educational institution and/or academia. Consequently, students-customers may try to negotiate course content, forms of assessment and assignment deadlines. This can create a culture of resistance where students-customers become defiant to novel approaches of teaching such as working in virtual teams. This resistance can affect students' motivation and cooperation; making effective virtual team work difficult. For unit coordinators who are interested in creating a virtual team work in their unit, our experiences may provide some helpful insights on how to handle many of the identified challenges which occurred in our course. Action research proved to be an ideal way to consider, act upon and re-consider problems as they arose in a collaborative approach with the particular students involved. The next group of students enrolled in this unit will benefit from these actions to the extent that some teaching strategies have been modified as a result of the experiences of the lecturer and students engaged in the unit. While the nature of our case study provides more detailed information than a statistical analysis, it is important to point out that the findings can only be generalized to a particular context (i.e., a regional university setting with matured-age long distance students). Researchers who are interested in using virtual teams in their classroom should consider using a variety of data collection methods such as interviews, field studies, and/or participant-observations.

Despite the above limitation, this article is useful in providing some strategies for instructors new to online group teaching especially given the demand for online learning in recent years. The ability for students to use emerging technologies effectively contributes to the values they would bring to employers and their communities. This trend is indicative of the new reality that being able to work effectively as part of a virtual team is becoming just as important as being able to work effectively in face to face team. Indeed, the increased reliance on information technology and the emphasis on virtual teamwork have led many prominent researchers in this area to proclaim the importance of information technology and its ability to, "transform the educational process in the 21st century" (Jones, Cramton, Gauvin, & Scott, 1999, p.3). In addition, global forces have also meant that organisations around the world are more likely to increase the use of multinational teams which include individuals from different countries. These realities have created the opportunity for the increased popularity of virtual teams which enable individuals from different locations and time zone to come together and work together (Bergiel, Bergiel, & Balsmeier, 2008). Therefore, higher educational institutions should prepare students with the requisite skills to function effectively in an increasingly virtual environment.

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