Enhancing Team Dynamics in an Online Learning Environment

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ABSTRACT
The corporate world considers the ability of employees to work well within a team environment as a critical factor in success and expects potential employees to gain experience of team work during their university education. Although team projects have been well-incorporated into the traditional curriculum in higher education, the advent of online learning has created challenges in ensuring effective team dynamics. This research presents a case study implementing an online team learning approach designed to create a positive learning environment at St. Petersburg College. In the original online environment, both staff and students encountered a variety of concerns and ineffective team dynamics. These issues were addressed by the course team using a variety of formalized procedures, best practices and team documents. This led to improved student interactions, better quality of assignments, as well as lecturers spending less time on team management issues.

1. INTRODUCTION
The College of Technology & Management of St. Petersburg College (SPC) (Florida, USA) offers a variety of bachelor degree programs including Technology Management, Banking and International Business. Most courses include a combination of team and individual assignments. Because of the criticality of working effectively in team environments in the work arena, it is imperative that students develop effective team dynamic skills and practice these skills in an educational setting. However, while many students now have strong Internet skills, they have not worked in virtual teams and have little knowledge of how to effectively communicate virtually with other team members. This lack of team work experience creates ineffective team dynamics and can adversely affect both project completion and grades. In order to improve the efficiency of virtual teams, the Course team undertook a year-long process to evaluate the existing management and evaluation of student teams, review potential issue, and then develop processes, procedures and best practice in order to alleviate poor student group interaction.

2. LITERATURE REVIEW
It is critical to businesses that employees have a variety of effective skills in order to be valuable in their jobs. The ability to work well in a team environment is a critical factor in the success of employees, and producing employees with these skills has become important in higher education (Raybould & Sheedy, 2005). Ally (2004, p. 19) states that collaborative and cooperative learning in higher education has many benefits for students and should be actively encouraged. Working with others gives learners real-life experience of working in a group, skills they can transfer to the work environment. However, one of the main weaknesses of distance education has been the ability to effectively incorporate teaching of team leadership into the curriculum (Hurst & Thomas, 2004, p. 195). However, although there are issues with online team modality, cases studies have shown that it is possible to effectively manage this type of learning environment, leading to students gaining successful communication and subject skills.

In 2004, Athabasca University successfully implemented online projects through careful planning and using a variety of goals and best practice. (Hurst & Thomas, 2004, p. 211).

There are several best practices that teams should have in order to thrive. Boule (2008) states that virtual teams need clearly defined goals in order to be successful, and that goals increase both job efficiency as well as team identity. Although students can have some issues with online team projects, if they are managed efficiently, the students can gain valuable skills they can take to their work environment. They can also find positive aspects when taking part in online work teams. Goold, et. al. (2008) performed a study of a revised project management course which was converted from a face-to-face environment to an online mode. In this revised class, students were required to participate in online teams to solve project management tasks. The students indicated two positive aspects regarding online team work: it provides flexibility of time and place, and presentations could be recorded. However, they did mention issues to overcome, such as the difficulty in communications when students participate or submit papers to other team members at the last minute.

Boule (2008) indicates that project management tools can help members stay on task and be accountable to their team and themselves. Team building written directions and a set of management and expectations guidelines can be effective for the team to begin to self-manage their projects and creatively resolve communication issues. Bulu & Yildirim (2008) completed a study of the trust levels and collaborative communication behaviours of 32 students in an online learning environment. They found that online lecturers need to give special attention to the issue of trust in online learning in order to build better communication among group members. They also suggested that Course team provide management guidelines, such as project management, time management and conflict management. Both orientation and the guidelines could be provided at the beginning of class to ensure a more successful team experience.

One of the criticisms students often present when working within the team environment is that the assessment criteria are often viewed as unfair, especially if there is equal reward for unequal contributions (Freeman & McKenzie, 2002).

There have been attempts by other researchers to solve the problem of perceived unfairness with online team assessments. Freeman & McKenzie (2002) introduced a web–based template which aimed to improve learning from team assessment tasks and make the assessment fairer for students. Williams (et. al, 2006) researched collaborative online learning in higher education and found that teamwork orientation and group cohesiveness are important predictors of success in online learning. Therefore, when ensuring the success of student assessments, it is vital that students in a team environment have proper direction on how to cooperate and know what to expect when cooperating within this environment in order to succeed. Hilbert & Humphrey (2002) indicate that to ensure successful projects or team tasks, student teams should first set reasonable goals, objectives and measures to effectively manage the assignment. In this way, students assign equal duties and have personal input into team project management, thus leading to the perception that students share equally in the success of the assignments. Finally, Elliott & Higgins (2005) state that online assessments can be run effectively, and suggest that peer assessment can be one way to overcome the problem of 'free riders.' Thus, although team management of assessment can be an issue in an online learning environment, there are methods that lecturers can implement to achieve successful student learning.

3.   PRE-CASE STUDY OVERVIEW
3.1   INITIAL TEAM SETUP

Before 2006, there was little coordination among the course team during course development, leading to different approaches to team-based projects, little coordination and lack of best-practice. The original course development allowed lecturers a multitude of approaches when developing and managing team projects. One lecturer may, for example, have decided to create a team-size of 6-8 students, while other lecturers had 3-member teams. Some lecturers had a policy where they would allow students to opt out of a team project and do the assignment individually, and other lecturers did not allow this practice. Lecturers did not provide documentation or pre-activity assistance in helping students to set up team expectations or manage dysfunctional team dynamics when they occurred. There was no delineation of student duties and the process was a strictly "hands-off" approach to student team management.

3.2 ASSESSING TEAM DYNAMICS

Courses could either be taught in a traditional classroom-based setting or an online learning format, and both occurrences involved some measure of teamwork within the module. To discover the extent of team dynamics issues, an analysis was complete of the end-of-course student surveys for each module. The results of specific questions on course content as well as student write-in comments about the module were reviewed and the survey results were divided between traditional-based classroom sessions versus the online-only sessions. Differences in results between the two occurrences indicated that usually lecturers who taught the traditional classroom-based sections were able to personally interact with students and there were few problems with student teams. However, for the online-only classes, lecturers experienced significant problems with teams and often became referees in petty personality squabbles. Students often lost sight of the professional aspects of the assignment, and instead the teams broke down into territorial manoeuvring and personality grievances.

Another aspect of this analysis was to review the distribution of final grades for the traditional versus the online-only modules to see if there was a significant difference, and use the end-of course survey to suggest reasons for a difference. Table 1 shows the grade distribution results for 30 surveyed modules that had both a traditional occurrence and an online occurrence of the module for two semesters. The rows are divided into marks for online-only occurrences, traditional occurrences, total average score and the differences between online and traditional marks. There are three columns of results: a) average grades for team projects, b) average grades for individual assignments and the average overall grade for modules. It should be noted that there was an average split of 75 percent versus 25 percent for the number of individual versus team assignments per module, with most modules having a greater number of individual assignments for each module.

Table 1: Grade Distribution (on 4.0 scale)

	Avg. Team Mark	Avg. Indiv. Mark	Avg. Overall Mark
Online	2.68	3.17	3.05
Traditional	2.97	3.10	3.07
Average	2.82	3.14	3.06
Difference	0.29	-0.07	0.02

The grade distribution showed a consistent trend towards lower grades for team-based assignments, especially in the online occurrences of the modules, where students only received an average mark of 2.68 (out of 4.0), whereas marks for traditional occurrences were higher at

2.97. Team grades were always consistently lower than marks in individual assignments. Between the issues raised in the end-of-course surveys and the lower team marks for online modules, evidence suggests that team collaboration is lacking and poor interaction could be a factor in contributing to lower marks and problems with learning the course material.

One of the significant issues the students faced was a lack of understanding of how to communicate effectively in a virtual environment. Online classes had three forms of communications which the students could use: email, discussion groups or chats. Email ability was automatically included in each online class, and most students used this method to communicate with each other. Depending upon the course, each lecturer had the option to create discussion boards or instant chat rooms for each team group. Some lecturers did this and other did not, so there was little consistency in what the students could expect from course to course. Those students who had instant chats available in their particular course could ascertain if other students in their group were logged onto the system at the same time, and could then instantly chat with other available students. Other online case studies (Chen, et. al., 2008) have shown that this type of communication is effective for smaller tasks, but students may also want to engage in more robust communication methods that are available. Chen, et. al. (2008) performed a study of Management Information Systems (MIS) students in a virtual team environment and found that in this study, the team members realised that learner communication media such as email and discussion boards were effective for simple tasks. However, Chen indicated that richer media (phone calls or video conferencing) could be more effective for tasks requiring clarification and negotiation between students. At this time, although video conference technology was available to students and Course team, it had to be scheduled in advance, so its use was of limited value in a short 8-week module class. Students could use telephone calls on a one-to-one basis, but there could be an issue with costs, especially for students located internationally.

Some comments on the end-of-course survey indicated that difficulty in scheduling convenient times for virtual communication resulted in some problems for students. The majority of students in the program were working adults with jobs and family commitments. Surveys of incoming students who chose the online-only modules indicated that some chose this learning modality because of the flexibility of doing their assignments and of learning at convenient times for their schedule. Thus, trying to coordinate specific meeting times to engage in chats is difficult for such students, especially when the teams are larger than four students. Also, when students rely on email to communicate, there is a time-delay between when a student may email and when other students on a team may reply. Some survey comments revealed that students were upset when some team members emailed their portion of the assignment to the rest of the group very late, such as several hours before a paper was due. When this occurred, the students submitted late work did not give the rest of the group sufficient time to allow others to review their work in a timely manner. The rest of the team may not have had time to email back and forth questions and corrected work, and thus were forced to turn in a deficient piece of the project, adversely affecting the team grade.

The course team found through the surveys and informal student feedback that there were problems with student expectations of assignments, such as which member was responsible for a specific task. With little direction from the course team, students often stumbled and made assumptions that others were going to take care of certain portions of a project. Thus, when the due date arrived and a portion was not completed, the team members sometimes complained to the lecturer that "I thought someone else was going to do that."

Students allowed personality to become a factor in decision making and team dynamics. This was especially the case where two strong personalities collided and both tried to run the team. Another frequent problem was student resentment from more passive students when a domineering leader made decisions. During a course team meeting, three lecturers mentioned that they had situations where a team consisted of students who did not want to be a leader, and no one was willing to make decisions.

The course team faced problems with students "tattling" on students who would not carry their weight. At this point in the process, there was no penalty for individual students who did poor work, or even did not complete any work, as the entire team received the same grade. The course team often became involved in student complaints and found that they were spending an inordinate amount of time trying to referee team dynamics. This led the course team to believe that the team process needed to be re-engineered for greater efficiency.

4. CASE STUDY OVERVIEW

4.1 PROJECT ANALYSIS AND PROGRAMME DEFINITION
In the spring of 2007, a committee of key Course team members was formed to generate ideas on how to improve team dynamics, especially for online students. This committee met several times to analyse the problem and come up with some ideas to present to the rest of the Course team. In late spring of 2007, the committee and other members of the Course team defined a plan to implement a new team approach for online classes. The team broke the team improvement implementation project into three phases. The first phase was scheduled for summer of 2007, consisting of developing processes, procedures, forms and tutorials. The second phase of the project was scheduled to begin in autumn of 2008, entailing a pilot programme with several classes. The third phase was scheduled to be a full implementation across all classes in spring of 2008.

One issue the Course team discussed was the possible lack of academic freedom if this project was going to include such a structured methodology for the team concept. However, this reticence was overcome as the course team realised that they had significant input into designing this project. Also, although a structured approach was created, there was still room for individual creativity for each class. For example, lecturers could customize the number of points assigned to team forms and the final team project.

4.2 DEVELOP TOOLS
In the summer of 2007, several processes were defined and tools created to incorporate into the classes. First, a consistent set of classroom policies was developed for lecturers to implement across all classes. For example, prior to this time, some lecturers created teams of up to 10 students, while other lecturers created small teams of three students. In order to maintain a constant level, the course team met and decided to create teams averaging 3-4 team members. Teams larger than this number were deemed too large for effective team dynamics, and teams under three people ran the risk of one of the students dropping the class, and the "team" being left with only one student.

Classes in the College of Technology & Management ran on an 8-week module model, and students are required to fill a semester of learning into this time-frame. Thus, it is imperative that teams jell quickly and that there are no disruptions with an excessive number of students dropping out or being added to teams. The short duration of this model caused a student team

problems because during the first week, students were allowed to drop or add the module without incurring any academic or financial penalty. Thus, in the past, when team assignments were due at the end of the first week, there was often a large disruption in team members dropping or being added to teams, that there was a problem with teams getting assignments done the first week. Thus, the Course team changed the policy of not assigning any teams during the first week, instead, teams were usually formed in the second week and first assignments were due during the third week.

Three documents were developed to assist with student expectations of team dynamics, which was one of the major issues with the team success: a) team policy guideline, b) team expectations form and c) peer review form.

4.2.1 Team Policy Guideline
The first form developed for the students was a team policy guideline. This document explained the some overall tips and guidelines that the students could use to establish a more productive team environment, which would lead to better success in completing assignments. The document had a list of ten steps the students were to follow when working in a team. Students were given a step-by-step process on how to work within a team environment. This document was a general procedural document, with more details contained in other forms and tutorials. The document included the following procedures
1. Designate a Team Captain.
2. Agree on common meeting times (discussion board, email, chat room). Choose a method.
3. Agree on assignment responsibilities.
4. Team Captain submits Team Expectations Form to Lecturer via email.
5. Team members submit assigned responsibilities to the Team Captain.
6. Team members review assignment before submission to team assignment drop-box.
7. Team Captain submits assignment to team assignment drop-box.
8. If a team member refuses to cooperate on an assignment, his/her name should not be included on the completed work.
9. Team members, including the Team Captain, fill out the Team Members Peer Rating Form and submits to the Peer Form drop-box for grading purposes.
10. Lecturer grades Team Assignment and sends results to the Team.

4.2.2 Team Expectations Form

One of the most important methods for students to effectively manage teamwork was for students to agree on the assignment responsibilities and to complete a team expectations form. Because of the problem with students not understanding their responsibilities, this form was developed and given to each team member before the first assignment was due. The team was required to meet (either in-person or virtually) and discuss the expectations and responsibilities of each student for that specific assignment. Each team decided how to divide the work, and which team member was accountable for their portion of the project, as well when their individual portion was due. This division of labour would allow sufficient time for the team captain to compile the individual member pieces into one team project. If the team captain had question or needed to alter the document, the captain would have sufficient time as long as the team members submitted their portions by the agreed-upon time. The team expectations form was made an assignment submission requirement and students had to complete it for some minor points. Although the number of points given to students for completion of the assignment was minimal, merely creating a mandatory assignment indicated to students that this was an important portion of the team concept, and they would be graded on its completion.

4.2.3 Peer review form
Another important document is the peer review form, a rating of other team members for that week's project. The form is designed to rate the extent to which each team member contributed to the project and fulfilled his/her assigned responsibilities. Each student rates other team members on a rating scale consisted of three options:

1. Exceeds Expectations: Consistently went above and beyond—carried more than his/her fair share of the load.
2. Meets Expectations: Usually did what he/she was supposed to do, acceptably prepared and cooperative.
3. Fell Below Expectations: Consistently failed to complete assignments, unprepared, or no participation at all.

Although students were all given the same grade for the weekly team project regardless of their rankings, this form allowed the lecturer to intervene early if there were student issues. Also, it prevented one student from allowing personality to become a factor in ratings. For example, if two students did not mesh well, giving poor ratings to each other would cancel each others ratings out. Also, if a student only received a poor rating from one other classmate, it might just indicate to the lecturer that a personality issue emerged between two students. However, if all students on a team consistently ranked a student with poor ratings, then there would be a higher probability that the student was not meeting expectations, as opposed to there being a personality issue between two people. Each team member was required to fill out the form and submit it to the grading dropbox. If the student did not fill out this form, they would receive a zero grade for the entire team project.

4.2.4 Tutorials
Students prefer different learning modes; some prefer a visual or audio approach to learning while others prefer text-based information. The forms and guidelines above were text-based and appropriate for students preferring to read the directions. However, since other students prefer a more visual form of learning, Flash-based tutorials were created for each of the guidelines and forms. There were two tutorials created: a team assignment tutorial and a team peer review form tutorial. The team assignment tutorial was 15 minutes long, with the lecturer reviewing aspects of effective team dynamics as well as reviewing the team policies and expectations. The lecturer also gave information on how to complete the team expectations form. The second tutorial developed was a nine minute review on how to complete the team rating form, along with an explanation of why this form was important

4.3 DEVELOP PILOT AND IMPLEMENT FULL PROJECT
After the forms and tutorials were completed in summer 2007, the next phase of the project was to implement the new team approach on a pilot basis for selected modules. The Course team choose two courses for the pilot: MAN3303 (Leadership and Management Practices) and MAN3240 (Applied Organizational Behavior) for fall 2007. These courses were chosen because they both had a heavy emphasis on team projects, and they were usually courses that students took near the beginning of their studies for completing the Technology Management degree program. Thus, the students would be exposed to team processes and procedures at the beginning of their academic career and carry this knowledge forward into their future classes.

During monthly lecturer meetings during the semester, the Course team remarked that they perceived a marked difference in dealing with dysfunctional team dynamics. The end-of-course student surveys compared to the prior year also showed student complaints about other team

members decreased significantly as students knew what was expected of them at the very beginning of the class. Survey results from write-in responses showed that some students indicated they were able to follow specific procedures that were clearly outlined in the directions, as well as being given written documents and tutorials.

At the end of the module, the course team reviewed the course and analysed the student survey of instruction for both courses. The end-of-course survey results showed an overall increase in satisfaction levels among those questions directly relating to team assignments and group collaboration, and there were fewer 'write-in' complaints in these surveys. However even with an improvement in satisfaction, the Course team found a few minor points for improvement that they could make for the upcoming spring semester. One of the suggestions was for each assignment to give a recommended splitting of duties for each assignment. For example, the lecturer would create directions on some suggested ways that the team could fairly split up the assignments into four equal sections, and assign each section to a student. The Course team reviewed this idea and decided that this may make sense for some projects, especially for those assignments near the beginning of the module. It would made clear to the students that it was only a suggestion, team members could decide to divide the assignment into other portions as best fit their own team dynamics and skills.

Another suggestion gathered from student survey results and monthly lecturer meetings was to assign some individual points to each assignment grade based upon the team peer review form. For example, 20% of the assignment grade would be based upon the feedback from the team expectations form. If the student received all "exceeds expectations", they would receive the full 20%. If they received mostly "meets expectations", they grade may be only 15 of the 20%. Students who did not meet expectations would receive minimal points. The course team discussed this option, and was evenly divided on whether to implement some version of this. However, it was finally decided to not implement this individual grading piece during the next semester. Instead, the entire project would be monitored, and it would be reviewed in the fall of 2008. Although St. Petersburg College did not implement this type of grading throughout all Institutes in the organisation, it has been implemented in other schools. Grzeda, et. al. (2008) described an online organisational behaviour course where the students did receive participation points for individual contributions to some of the team assignments. However, it should be noted that a heavy reliance on this form of grading could defeat the general purpose of a "team" project.

4.4 PRELIMARY FEEDBACK
Classroom implementation was started in autumn 2007 and continued until the end of summer 2008. Future research by the current course team will be completed on formal student surveys to be compiled during the school year between autumn 2008 and summer 2009. However, informal feedback of students and the course team from autumn 2007 through summer term 2008 put the initial results in a positive light. In both MAN3303 and MAN3240, an email was sent to all online students asking for any feedback or suggestions on improving the class. A sample of six comments from surveys of 30 modules is listed below:

> *'I still don't like other team members affecting my grades, but at least this semester everyone did the work.'*
> *'As long as we can pick our team members, then it seems to work ok.'*
> *'Some other people still don't help much with the projects even if they are supposed to.'*
> *'It was nice having the ability to divide the work because others who were stronger in finance could do that part of the project and the rest could pick what they were good at.'*
> *'I didn't bother watching the tutorials – the directions were self-explanatory.'*

'The team expectations form was good because it basically was like a contract where we knew what we were supposed to do.'

The course team met several times during this process to discuss any issues. At first, the course team still dealt with students trying to bypass the new procedures and who expected the course team to immediately intervene on their behalf. However, the course team kept firm on pushing the initial and smaller issues back to the students to solve among themselves, and would only interfere for critical issues (such if a team member dropped out of the course). Thus, once students realized they were responsible for solving their own problems, they tended to not bring up petty issues to lecturers. The course team were thrilled with this result and found that on average, they seem to spend between one and two hours a week less on managing team issues, and thus this time could be spent on preparing lessons and other tasks. However, it should be noted that although the new process and documents did alleviate many smaller issues, there were still times lecturers did have to intervene. For example, there was a situation where two members of a five-person team dropped the course during the semester, so the lecturer worked with the remaining team members to modify the workload to a reasonable amount for a much smaller team.

One limitation of this research was that during this time-frame, only two modules (four occurrences) were included in testing, so it was a small population sample. However, after the initial success of this project, the course team discussed expanding these procedures for all classes that require team projects and anticipated complete implementation throughout the department by the summer of 2009. A formal survey of students and the course team was planned in later 2009. Also, it may be valuable to analyse grade point averages of the classes before and after starting another phase with a larger number of modules to determine if this methodology improves grades.

5. CONCLUSION

This paper argues that collaborative learning is critical to student success in both academia as well as in their future employment, thus course teams need to find effectively ways to ensure that team learning is a positive and effective experience in an online environment. We have argued that effectively managing teams in an online environment can pose specific challenges not found in the traditional classroom setting, and may require alternate methods.

We present a case study where the course team used a structured methodology when designing a productive online team experience. Initially, some lecturers were concerned about using such a structured process, and it presented the challenge of learning new methods of classroom management. The first step was for staff to work together to develop a series of documents that was used by students to manage team expectations and ensured some students did not shirk their assigned tasks. Additional forms helped students to efficiently peer review the work of their team-mates. Since this was an online teaching environment, Flash-based tutorials were developed for students to view. We suggest it was important for the course team to work well together to develop forms and processes that every staff would use; buy-in was thus a critical factor to success. We also propose that the course team have periodic committee meetings to discuss any issues. Throughout this discussion, we have created a generalised approach to developing a method to improve student collaboration, which leads to better class performance and learning.

Was this experience successful? There are several main findings to this case study. Firstly, at the end of this project, the course team found that, on average, they spent one to two hours less

each week handling team conflict. Secondly, the end of course student surveys showed a marked increase in student satisfaction with participating in the team experience, and there was much less conflict between students when completing assignments. Students also learned more effective ways of handling team management issues, and the skills they gained in this experience should be transferable to future employment. Thirdly, it was a relatively easy process for the course team to develop a series of processes and documents to help students with online team management. Finally, we believe that this approach led to a more effective learning environment for the students and contributed to improved grades and project quality.

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