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Enhancing Team Learning Experiences in the Classroom

ABSTRACT

There are many different and effective ways to introduce teams and team learning into the management classroom. This paper discusses different ways we incorporated group and team learning in the classroom using a variety of activities. From our initial student survey, we developed a measure of teamwork and independent learning. Our findings indicate that when students perceive a fair work distribution in their teams, they are also more team oriented than students who perceive an unfair work distribution. Suggestions for enhancements to team learning, and future ideas for research are discussed.

Keywords: Groups and Teams, Team Learning, Student Perceptions of Team Effectiveness

Introduction

Working successfully in teams is a basic expectation in most organizations. In fact, according to the Society for Human Resource Management building a culture around productive and engaging teams is one of the top labor market trends for 2016 (Benz et al., 2015/2016). Teams can take a variety of forms, for example, production, professional or managerial teams and teams are inherent in an array of industries, from technology and manufacturing to the performance arts (e.g., music, film) and sports industries. As such, possessing effective teamwork skills is an important talent for the workplace. Moreover, well-functioning teams can improve employee satisfaction and work performance (Levi, 2007). However, poor teamwork skills can lead to decreases in performance and frustration among team members. Therefore, understanding the ways in which team learning can be fostered in our classes in order to better prepare our students for the workplace is a topic worthy of further study.

Using teams in the classroom to enhance student learning has long received attention in higher education (e.g., Borrego, Karlin, McNair, & Beddoesc, 2013; Favor & Kulp, 2015; Michaelsen & Sweet, 2008; Michealsen, Watson, Cragin, & Fink, 1982). Borrego and colleagues reviewed 104 studies to determine what teamwork skills instructors were trying to teach and what ineffective team behaviors were most commonly exhibited (Borrego et al., 2013). Among their findings were learning objectives that focused on basic teamwork skills including communication and collaboration. In addition, reducing social loafing in order to assure equal team effort was expended on projects was a key concern of instructors. Similarly, Favor and Kulp (2015) noted that adult learners who were enrolled in online courses were less likely to prefer team projects because of challenges with distributing the workload equitably, a finding that was much less salient to the adult learners who attended courses on campus. This suggests

that developing teamwork competencies such as effective communication and collaboration may be more effectively acquired when team learning is face-to-face within the classroom and emphasizes the fact that training students in specific teamwork skills remains an important pedagogical focus of instruction.

Given the importance of developing effective teamwork competencies, our goal is to examine the effectiveness of a course design that combines informal team-based class activities with more formal team-based projects and activities. Our purpose is to foster team learning by increasing students' understanding of team processes and building skills in collaboration. We aim to contribute to team learning pedagogies by examining both students' team learning experiences and independent learning experiences within the team. We also measure students' perceptions of social loafing and time management and its effects on teamwork and independent learning experiences. By offering a course design with team learning as its core, we seek to better prepare students for the demands of teamwork in the workplace. We also aim to contribute to the team learning literature by developing a measure of team and independent learning experiences.

To accomplish our goals, we provide an overview of team-based learning. This is followed by our learning objectives of our team-based learning approach and a brief description of the informal and formal team-based activities we use in the classrooms. We then examine the learning outcomes, outlining the measures we used and results from our student perception survey of team learning. Our discussion includes an analysis of the survey instrument, explanations of our results, comments regarding future course design and suggestions for expanding our work in this area.

Overview of Team-Based Learning

Designing curriculum as well as class activities to emphasize the learning and assessment of teamwork skills and collaboration is at the core of many management courses (e.g., Goltz, Hietapelto, Reinsch, & Tyrell, 2008; Kemeny & Stickney, 2014). Moreover, the Association to Advance Collegiate Schools of Business (AACSB) specifically addresses learning collaboratively in two of its accreditation standards: Standard 13 requires faculty to provide opportunities for students to collaborate and develop cooperative work skills, and Standard 14 expects students to contribute to the learning of others by actively participating in group learning experiences (AACSB, 2012). Furthermore, as noted above, working in a team environment is more and more commonplace in organizations and employers are expecting applicants to have basic teamwork skills. As such, there is clear motivation and interest to continue developing pedagogies that emphasize the development of teamwork competencies and learning in teams.

Going beyond team activities as independent learning experiences in the classroom, team-based learning (TBL) is a systematic teaching strategy where team activities are designed in a particular sequence with the goal of making small groups into teams (Fink, 2013; Michealsen, Knight, & Fink, 2004). Thus, TBL is a structured, small-group learning method that has been associated with a variety of positive student outcomes, including increased attendance, improved student preparation for learning, increased achievement, and development of student collaboration skills (Michaelson & Sweet, 2008). With TBL students and instructors adopt a learning paradigm as opposed to a more traditional instructional paradigm. This allows for variation in students' learning and keeps professors "fresh" in their classrooms.

TBL can be introduced into a variety of classes, including soil-management, western literature, health education, and introduction to psychology. Because TBL is a unique student-

centered instructional strategy, it emphasizes learning to use concepts rather than merely learning about them (Lane, 2008). Through TBL initiatives, students behave less like “empty vessels” and more like colleagues (Lane, p. 57).

In addition, when instructors use TBL in the classroom, the vast majority of class time is used for team assignments that focus on using course content to solve the kinds of problems that students are likely to face in the future (Michaelson & Sweet, 2008). A key design issue for creating effective tasks is how to best focus student knowledge, observation, and analysis toward a concrete action that makes thinking visible. Activities that require actions in the shape of clear decisions applied to complex scenarios, within a restricted framework of options, are most likely to channel student thinking toward higher-level goals (Roberson & Franchini, 2014).

Studies have also shown that students find TBL motivating, interesting, enjoyable, and fun (Haberyan, 2007). Similarly, research has shown that students learn most when they are more engaged in the experience rather than as passive participants (Kuh, 2008). According to Kuh (2008) high-impact activities such as collaborative assignments and projects, which foster deep learning, general gains, personal gains and/or practical gains increase student engagement.

According to Kuh (2008) high-impact activities that foster deep learning, general gains, personal gains and/or practical gains increase student engagement. Relevant to TBL and included in his study of ten high-impact educational practices for undergraduate college students’ success is collaborative assignments and projects.

Furthermore, many professors are using the “flipped” classroom techniques that are characteristic of TBL, where class time is devoted to team activities that require pre-class preparation. Wallace, Walker and Braesby & Sweet (2014) found that TBL initiatives can optimize and reward students’ pre-class efforts. More importantly, TBL and the flipped

classroom share a commitment to strategically designed learning opportunities to optimize the role of instructor toward guiding the student to deeper learning (Wallace et al, p.263). Using this method, instructors become better equipped to (1) assess and enhance student content acquisition from pre-class study, and (2) use the majority of class time for activities that enable them to discuss, take-risks, and make mistakes while developing their expertise. Therefore, in this paper we share a modified TBL teaching strategy that we have used to help students build skills in teamwork. Next we outline our learning objectives and describe the team learning approach of sequencing learning activities.

Learning Objectives and Team Learning Activities

The learning objectives for our classes were to help students understand the team process and to build their collaboration skills. Additionally we wanted to promote team learning as originally defined by Michaelsen, et al. (1982). That is, we wanted to provide a classroom experience that allows students “extensive use of problems, simulations, and experiential exercises to provide students with the opportunity to develop the ability to apply course concepts” (Michaelson et al, 1982: 14).

To accomplish this goal we first researched, developed, and introduced a brief team learning training that we disseminated in our courses in the Fall 2015. Following Michaelson & Sweet’s (2008) readiness assurance model, we chose a class at the beginning of the semester to administer a short, five question quiz on one of the early reading assignments in the class. On this day, when students arrived in class, they were given a short five questions multiple choice quiz on the selected reading to complete individually. Appendix A contains the short quiz we used in each of the following classes: Organizational Behavior, Developmental Psychology and Sustainable Business Practices. For Organizational Behavior, students completed a reading about individual behavior, personality, and workplace values; for Developmental Psychology students

completed one reading about different approaches to human development and one reading about a specific study (Children of the Garden Island); for sustainable Business Practices students read about systems theory and its implications for sustainability education (Porter & Cordoba, 2009).

After taking the quiz individually, students then formed small groups and completed the quiz together. Students tallied their distance scores for both their individual quiz score and their group quiz score, using the worksheet also provided in Appendix A. Students were asked to compare the scores and think of possible reason why their group scores were either the same, greater, or less than their individual scores. As expected, most groups had better group scores than their individual scores. Following this activity, we led a discussion about teams and team learning with a follow up handout summarizing our key points about working in teams (See Appendix B). We did this to set the tone for the variety of team activities that we completed throughout the semester. Later in the semester, we also used some of the same questions from their in-class quiz on students' exams.

At this point, we formed permanent teams of 3 or 4 students. Throughout the semester when we did in-class activities, we placed our students in these groups for each activity. We used a variety of team activities – informal group exercises, formal team-based learning activities, and a longer group project. Some group exercises included asking students to read short case studies and answer questions in their groups and report out to the class (Sustainable Business Practices), a short group activity about the effects of rehearsal on memory (Developmental Psychology), and a group competition to best apply the MARS Model of Behavior after viewing an episode of the television show, “The Office” (Organizational Behavior).

We introduced a few more formal (following Michaelsen & Sweet, 2008) team-based learning activities in class as well. An example of this in OB was student groups solving a case

called “A Tale of Two Floors: Leadership Lessons” where students were asked to read and prepare their answers to the case questions ahead of class. In class, they first applied the Path-Goal Leadership Theory, Fiedler’s Contingency Model and the Hersey-Blanchard Situational Leadership Theory to each leader in the case. Then they determined which leadership theory worked best for each leader. In Sustainable Business Practices, students prepared for the chapter about carbon offsetting by listing the pros and cons of the practice. Once in class, groups competed against each other in a debate with outside judges awarding prizes to the winning group.

We also used a longer group project with project management milestones (2 interim reports). In the Sustainable Business Practices class, the group project involved researching and analyzing a local company to determine how they could become more sustainable. For Organizational Behavior, the group project consisted of identifying the formal and informal aspects of an organization of their choice. In Developmental Psychology, students prepared a group paper and presentation on the indicators and interventions surrounding aggression. At the end of the semester, we collected data about students’ perceptions of their team effectiveness.

Learning Outcomes

In order to assess the two general learning objectives (understanding team processes and building collaboration skills), we designed a student survey that addressed students’ perceptions of the team-based learning experiences. Specifically, to assess the extent to which the various team activities helped students understand the team process, we focused on questions that tapped into student’s satisfaction with their group/team work and how much students’ learned from their group/team work. We also assessed collaboration through students’ satisfaction on team learning based on their perceived contribution to the group project.

We administered a 17 item survey at the end of the semester using a 7 point Likert scale with anchors of Strongly Disagree and Strongly Agree. Some examples of items were: “I learned a lot about the topics from my group project”, “In general, I like group work in my classes”, “I learned more in this class because of my group work”, and “Most of my learning was from my own research.” In addition, we asked students to indicate the percentage of work they did on their final group project as well as the percentage of work each additional teammate completed on their projects. The complete survey can be found in Appendix C.

Statistical results

To provide feedback on our learning objectives and to test the validity of our survey, we first performed a factor analysis of the survey items to determine if any underlying constructs existed. Given the results of the factor analysis, we present our descriptive statistics and report on the results from the one-way analysis of variance.

Factor Analysis of Teamwork Variables. Because the scale designed to measure student perceptions of their teamwork experiences was newly developed, we first performed a factor analysis to determine the underlying constructs measured by the individual items. We performed a factor analysis of these 17 items, because it is a useful way to ascertain whether groups of single items on a scale measure underlying constructs and thus warrant the reduction of several questions into a smaller number of factors (Hair, et al 1998). Because two of these questions, “Our group did most of the research for the project in the last 2 weeks,” and “Our group had big problems caused by one or more ‘freeloaders,’” were worded negatively, they were reverse coded prior to entering all the 17 items into the factor analysis. Preliminary analyses indicated that a three factor solution would best account for the relationship between the data, and a Principal Components Analysis was performed, fixing the number of factors for

extraction to three with a Varimax rotation. The rotated component three factor matrix can be seen in Table 1.

Insert Table 1 about here

As can be seen in Table 1, the first factor included ten items and represented a measure of positive teamwork experience. Chronbach's Alpha for this factor was a healthy .913. A second factor consisting of five items represented a positive independent learning experience within the context of teamwork-delivered assignments. Chronbach's Alpha for this factor was a moderate .618. These two factors were labeled Teamwork and Independent Learning, respectively. The two remaining items, "Our group did most of the research for the project in the last 2 weeks," and "Our group had big problems caused by one or more 'freeloaders,'" loaded on the remaining factor. We determined that these items were better left as single item measures because of the inherent differences between the two constructs. Consequently, freeloading in a teamwork context and the use of efficient time management strategies remained as single item measures of those constructs in subsequent analyses.

Insert Table 2 about here

Descriptive results. The means, standard deviations, Chronbach's alphas (for the two factors) and correlations are reported in Table 2. As mentioned above, we left the items, "Our group did most of the research for the project in the last 2 weeks," and "Our group had big problems caused by one or more 'freeloaders,'" as separate from the two identified factors. To determine whether the factors of Teamwork and Independent Learning related to participants

reporting that they worked in the last 2 weeks or had “freeloaders”, we ran correlations between the factors and two individual items. As shown in Table 2, the factor of Teamwork was positively correlated with students reporting that “freeloading” was less of a problem. These results suggest that students who enjoyed the project and working in a group (i.e., the factor of Teamwork) also reported that “freeloading” was not a problem for their group. The two individual items were also correlated such that students reporting less “freeloading” also reported not doing most of the project in the last 2 weeks.

Perceived Fairness of Work Divided. Students reported, in percentages, the extent to which themselves and their group members contributed to the project. We were interested in whether participants perceived this divide in work to be fair, and, more importantly, whether this fairness differed according to the different factors (Teamwork, Independent Learning, Last 2 Weeks, and “freeloaders”). We coded fairness as 0 (unfair: work was not divided evenly amongst members) or 1 (fair: work divided evenly amongst members) for all students. We then ran a one-way analysis of variance (ANOVA) with fairness as the independent variable and the two factors and two individual items as the dependent variables. The ANOVA results are reported in Table 3. We found an effect for Teamwork, such that those who reported a fairness in the work divided also reported significantly higher scores on the Teamwork factor than those who reported unfairness in the work divided, $F(1, 107) = 21.29, p < .001$. We also found an effect for the individual item of “freeloading”, such that students reported “freeloading” as being significantly less of a problem when they reported a fair divide in work load compared to when they reported an unfair divide in work load, $F(1, 106) = 14.19, p < .001$. We did not find effects for the Independent Learning factor ($F(1, 107) = 1.97, p = .163$) nor the individual item of whether the group did most of the work in the last 2 weeks ($F(1, 107) = .11, p = .743$).

Insert Table 3 about here

Discussion

Our results indicate that students had both positive teamwork experiences and positive independent learning experiences during their team activities. From our survey, two main factors emerged. The first factor represents a measure of positive teamwork experiences (Teamwork), the second a positive independent learning experience within teams (Independent Learning). The identification of a teamwork experience scale is a positive contribution to the field of team learning. Future studies of students' team learning perceptions could include additional items measuring these two constructs. The two additional single item measures indicating sub optimal project planning (completing most of the work for the group project within the last two weeks) and problems from "freeloaders" that were used for our analysis produced the most interesting results (discussed below). Single item measures are most certainly a limitation and these scales should be expanded in subsequent studies to include more items.

Students who believed the work was divided fairly amongst its members also reported experiencing more positive teamwork experiences and fewer problems with "freeloading." Research suggests that participants socially loaf (i.e., do less work when in groups than when alone) when their output cannot be identified with themselves (e.g., Williams, Harkins, & Latané, 1981). If students can receive neither credit nor penalty, then they will not put out the effort. However, it is the case in the current groups that students' efforts were highly identifiable, thus they could receive both praise and punishment for effort or lack of effort, respectively. The correlation suggests that when students reported fairness in the work divided, it was because they

could identify the effort put out by all individual members, including themselves, and no one loafed or “freeloaded”. This identifiability could be tested in future research.

An important aspect of team based learning is the use of a peer review system throughout team learning activities (Michaelson & Sweet, 2008). This process is something to be considered in subsequent class design. Almost half of our students reported an unfair work distribution after having worked with their groups throughout the semester. If we adopted a peer review process, those numbers might decrease (given the “freeloaders” might change their behaviors when called out). It follows that students would have a more positive view of their team experiences. Additionally, many employers use 360 degree and/or peer review processes. Peer review would prepare our students for another important aspect of their future workplaces.

A future study could have classrooms focus on one type of group activity mentioned in this paper. We used a variety of team experiences in our classrooms. It would be interesting to focus on only one type of team experience (i.e. project based learning, team based learning, in-class activities, broad semester-long group projects) in our course design to determine if team learning occurs better with one type of team activity versus another. Using the measures developed in this study would be helpful tool for educators to quickly assess teamwork and independent learning skills of their students.

Given the increasing emphasis on both assessment and assurance of learning in our business curriculums, the measures developed in this study can be examined for viability in a university’s assessment process. Our measures might complement the work of Kemery & Stickney (2014) and add to their multifaceted approach to assessing teamwork. Their measures included teamwork knowledge and peer and self-appraisals. Our measure of team and

independent learning could add another dimension to their analysis of student achievement. Future studies might incorporate both measures.

The findings in this study are good news for advocates of teamwork, collaboration, and team learning. When given a variety of team activities in their classes, the majority of students gain something from the experience. As our students graduate and move into collaborative work places, it is important for faculty to continue to develop curriculum that fits these needs. As mentioned earlier, collaborative assignments and projects are thought to have great impact upon students during their college years (Kuh, 2008). Additionally, AACSB standards require faculty to provide opportunities for students to collaborate and develop cooperative work skills, and expects students to contribute to the learning of others by actively participating in group learning experiences (AACSB, 2012). The study helps educators understand, implement and measure team learning experiences in our classes.

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APPENDIX A

Sample Questions from Fall 2015 team/group development exercise:

Sample Questions from Organizational Behavior

- Assisting coworkers with their work problems, adjusting one's work schedules to accommodate coworkers, and showing genuine courtesy toward coworkers are some of the forms of:**
 - role perception.
 - counterproductive work behaviors (CWB).
 - task performance.
 - organizational citizenship behavior (OCB).
 - job matching.
- According to the "Big Five" personality dimensions, people with low conscientiousness tend to be:**
 - uncooperative and intolerant of others' needs.
 - careless, disorganized, and less thorough.
 - more suspicious and self-focused.
 - poised, secure, and calm.
 - more resistant to change and less open to new ideas.
- Which ethical principle reflects the idea that people have entitlements that let them act in a certain way?**
 - Utilitarianism
 - Individual rights
 - Moral intensity
 - Distributive justice
 - Care
- Senior executives at CyberForm must make a decision that will affect many people, and the decision may produce good or bad consequences for those affected. This decision:**
 - has a high degree of ethical sensitivity.
 - is one in which decision makers should rely only on the utilitarianism rule of ethics.
 - has a low degree of ethical sensitivity.
 - has a high degree of moral intensity.
 - is one in which decision makers should rely only on the consequential principle of ethics.
- Etoni is a new employee who comes from a culture that values respect for people in higher positions and values the well-being of others more than goal achievement. Etoni's culture has:**
 - high power distance and a strong nurturing orientation.
 - high collectivism and a short-term orientation.
 - low uncertainty avoidance and high individualism.
 - low power distance and a strong nurturing orientation.
 - high power distance and a weak nurturing orientation.

Sample Questions from Developmental Psychology:

- Which of the following is NOT an example of one of Bronfenbrenner's five socially organized subsystems?**
 - microsystems
 - chronosystems
 - exosystems
 - minorsystems
- Proximal processes are:**
 - strange behavior of children in strange situations with strange adults.
 - parent-child activities.
 - enduring forms of interaction in the immediate environment.
 - child-child activities.

3. **The Ecological systems approach to human development considers the ecological environment:**
 - a. the mother's education level within a family structure.
 - b. a set of nested structures inside of one another.
 - c. a set of proximal processes.
 - d. strange behavior of children in strange situations with strange adults in a brief timeframe.
4. **In the Children of the Garden Island study, researchers noticed what trend as the children approached the age of 18:**
 - a. socioeconomic status and family stability had no influence on the children's development.
 - b. children who experienced stressful life events rarely recovered from them.
 - c. developmental outcomes for biological risks were dependent on the quality of the rearing environment.
 - d. resiliency developed in all 698 study participants, regardless of family risk.
5. **The main findings from the Children of the Garden Island study are:**
 - a. when a balance between stressful life events and protective factors is favorable, successful adaptation is possible for children.
 - b. other people in a child's life-grandparents, older siblings, day-care providers or teachers-play no role in child development.
 - c. even when an insignificant amount of nurturing is available, children can adapt to changes in their environment.
 - d. risk factors in the lives of children had no impact on increased vulnerability.

Sample Questions from Sustainable Business Practices:

1. **Which of the following is NOT one of the approaches to systems theory that Porter and Cordoba talk about in their article?**
 - a. interpretive
 - b. Complex Adaptive Systems
 - c. postmodern
 - d. functionalist
2. **Using appreciative inquiry into others' positions to develop a collaborative plan is an example of using which approach to sustainable education?**
 - a. Complex Adaptive systems.
 - b. Sustainable Education.
 - c. Functionalist.
 - d. Interpretive.
3. **An example of an activity or projects using the Complex Adaptive Systems approach would be:**
 - a. The Natural Step Program.
 - b. Interviewing campus stakeholders about their sustainability views.
 - c. Developing an environmental improvement plan.
 - d. Implementing a sustainability initiative on campus.
4. **A weakness of the interpretive approach to sustainable education is:**
 - a. it assumes eventual consensus and improved sustainability results.
 - b. it oversimplifies social and human factors.
 - c. it is well suited for today's turbulent marketplaces.
 - d. it was developed from the Frankfurt School.
5. **Which if the following statements is TRUE:**
 - a. Functionalists assume that all problems are linear and clear.
 - b. Functionalists assume that meaning is subjective, socially constructed, and not self-evident.
 - c. Functionalists are wrong.
 - d. Functionalists build and empower learning networks and bottom up processes.

Group Quiz Score Sheet

Items	<u>Step 1</u> Individual Answer X = Incorrect √ = Correct	<u>Step 2</u> Group Answer X = Incorrect √ = Correct		
Q1				
Q2				
Q3				
Q4				
Q5				
<u>Step 3</u> Number Correct	Individual Score:	Group Score:	Which is higher? (circle one)	Individual Group

Write down the following:

Ideas why the individual score is higher than the group's:

Ideas why the group's score is higher than the individual score:

Ideas why the group and individual score might be the same:

APPENDIX B
SAMPLE HANDOUT ON GROUP PROCESS AND PROJECT MANAGEMENT

Group Process

- Groups develop over time. Stages of group development are as follows:
 - *Forming* – discover expectations, test behavioral boundaries
 - *Storming* – influence goals, define team roles, establish norms
 - *Norming* – establish roles, agree on objectives, develop cohesion
 - *Performing* – task-orientation, efficient coordination, cooperation and trust
- When working in groups, consider the following:
 - Set ground rules and expectations upfront
 - Learn from each other
 - Learn from your past experiences in groups

Things to Remember about Group Work

- Everyone brings different skills and knowledge to your group. You can learn from each other.
- Have a plan and be ready to adjust it.
- “Check-In” and “Check-Out” before and after meetings – this provides an opportunity for all group members to have a voice and for the group to adjust their process to enhance the project.
- Use Peer Feedback – during and after your project. More about this later.

Characteristics of a Good Project Plan

- Provide many of tasks and many details
- Written down
- Alternate leaders for each task
- Reasonable deadlines and due dates for each task
- For group papers, assign “proofread/edit” as a task
- For group presentations, have a task for practicing your presentation

Example Plan:

TASK	LEAD	ASSIST	Notes:	Due Date
1. Group Meeting #1	Suzie	All	To establish ground rules, create a plan, assign tasks	9/25 @ 8pm - Library
2. Research on Topic 1	Martha	none	Share on google drive	9/30/15
3. Research on Topic 2	Fred	Judy	“	9/30/15
4. Research on Topic 3	Judy	none	“	9/30/15
5. Written Draft of paper	Suzie	Suzie, Martha		10/7/15
6. Group Meeting #2	All	All	Begin presentation	tbd
7. Proofread/Edit Final Draft	Suzie	Martha, Judy		tbd
8. Practice Presentation	All	All		tbd
9. Etc.				

APPENDIX C

Group Participation Survey:

Your responses are confidential, the information you provide will not be associated with your name in any report of the results. Please consider your group project as well as in-class group assignments in your class while completing the questions below. You are free to decide whether or not to participate. A decision not to participate will not adversely affect any interactions with the instructor, investigator, or any representative/employee of _____ College. It will not adversely affect your standing in the course. The instructor will not know who has participated and who has not participated in the study.

Please estimate the contribution of each member of your group (including yourself) to the total final project. (Percentages should total to 100%)

I contributed _____% of the total project.
 Group member 2 _____%
 Group member 3 _____%
 Group member 4 _____%
TOTAL = 100%

Please rate the extent to which you agree with each of the following statements:

Circle one of the numbers opposite each of the statements that follow.

	Strongly Disagree							Strongly Agree
	1	2	3	4	5	6	7	
1. In general, I like having group work in my classes.	1	2	3	4	5	6	7	
2. Most of my learning was from my own research.	1	2	3	4	5	6	7	
3. Our group did most of the research for the project in the last 2 weeks.	1	2	3	4	5	6	7	
4. Our group had big problems caused by one or more “freeloaders”	1	2	3	4	5	6	7	
5. I learned a lot from the work done by other members of my group.	1	2	3	4	5	6	7	
6. I learned a lot from other groups’ presentations.	1	2	3	4	5	6	7	
7. My group members became a cohesive team through working on this project.	1	2	3	4	5	6	7	
8. I learned a lot about the topics from the group project.	1	2	3	4	5	6	7	
9. I worked hard on this project.	1	2	3	4	5	6	7	
10. I enjoyed working with my teammates.	1	2	3	4	5	6	7	
11. I would recommend this project to other students.	1	2	3	4	5	6	7	
12. The instructions for the project were clear.	1	2	3	4	5	6	7	
13. I enjoyed working with my in-class groups.	1	2	3	4	5	6	7	
14. I learned more in this class because of my group work.	1	2	3	4	5	6	7	
15. The professor gave us all of the support we needed to complete the project.	1	2	3	4	5	6	7	
16. More classes should have team based learning opportunities	1	2	3	4	5	6	7	
17. The group work in this class was better than in other classes.	1	2	3	4	5	6	7	

Table 1*Rotated components with a factor load matrix for the three components.*

Questionnaire Item	Factor 1 (Teamwork)	Factor 2 (Independent Learning)	Factor 3
1. In general, I like having group work in my classes.	.751		
5. I learned a lot from the work done by other members of my group.	.415		
7. My group members became a cohesive team through working on this project.	.678		
8. I learned a lot about the topics from the group project.	.482		
10. I enjoyed working with my teammates.	.708		
11. I would recommend this project to other students.	.729		
13. I enjoyed working with my in-class groups.	.763		
14. I learned more in this class because of my group work.	.809		
16. More classes should have team based learning opportunities.	.838		
17. The group work in this class was better than in other classes.	.694		
2. Most of my learning was from my own research.		.342	
6. I learned a lot from other groups' presentations.		.678	
9. I worked hard on this project.		.686	
12. The instructions for the project were clear.		.582	
15. The professor gave us all of the support we needed to complete the project.		.733	
3. Our group did most of the research for the project in the last 2 weeks. ^a			.764
4. Our group had big problems caused by one or more "freeloaders". ^a			.572

Notes:^a These items were reversed scored before all analyses.

Table 2*Correlations between factors.*

Factor	Mean	SD	1	2	3	Cronbach's alpha
1. Teamwork	5.19	1.02	-----			.913
2. Independent Learning	5.43	.79	.326**	-----		.618
3. Last 2 weeks	3.39	1.63	.122	-.033	-----	-----
4. "Freeloaders"	4.87	2.03	.345**	-.029	.224*	-----

*Notes: * $p < .05$, ** $p < .001$*

Table 3*ANOVA Between the Factors and Fairness of Work Divided.*

Factor	Reported Fairness in Work Divided ^a	Reported Unfairness in Work Divided ^b	<i>F</i>	<i>df</i>	<i>p</i>
Teamwork	5.62 (.81)	4.80 (1.03)	21.39	107	< .001
Independent Learning	5.39 (.78)	5.59 (.70)	1.97	107	.163
Last 2 weeks	3.42 (1.65)	3.31 (1.63)	.11	107	.743
“Freeloaders”	5.56 (1.74)	4.15 (2.14)	14.19	106	< .001

Notes: Standard deviations are in parentheses. ^a n = 55 ^b n = 54.