Achieving Change in Students' Attitudes Toward Group Projects by Teaching Group Skills

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Despite the many positive benefits which can be derived from group assignments, faculty members frequently report that students generally dislike being assigned to a group project. This paper reports a quasi-experiment which presented students with information about the relevance and importance of group skills during the time in which they were working on an assigned group project, and then measured the students' attitudes toward group projects. The reported study demonstrates that instructors can alter students' perceptions of group work by incorporating instruction about group skills into group assignments.

INTRODUCTION AND LITERATURE REVIEW

Group assignments are considered a well-established approach to helping students develop teamwork skills (Campbell and Ellingson, 2010) and have been documented as enhancing student learning. (Freeman, 1996) Marketing courses from Principles of Marketing through Advanced Marketing Management require that students actively engage in group activities as one means of achieving both the teaching and the assurance of learning objectives stated in course syllabi.

A number of empirical studies have concluded that activities such as study groups, group research projects, and group presentations of project results enhance the depth of students' understanding of assigned course materials (McKeachie, Pintrich, Lin, & Smith, 1986; Kimber, 1996; Bacon, 2005). Studies also have shown that group skills are valued by employers and that the experience of participating in group projects as a student transfers effectively to career activities (Colbeck, Campbell, & Bjorklund, 2000; Coleman 1996).

Despite the documented benefits of participating in group projects a considerable number of business students tend to express negative opinions about being assigned to participate in group activities. The most frequently expressed complaints regarding group assignments center around the negative interactions that take place between group members. Students point to group experiences that reportedly involved personality conflicts, poor communication, and low levels of individual commitment to the group. A prevalent manifestation of these reported negative intra-group interactions focus on a member, or members of a group who continually shirk their assigned responsibilities. These unproductive group members have been called, aside from terms unrepeatable in the current context, "free riders" or "free loaders." Quite frequently the so called free riders are considered responsible for initiating viral intra-

group conflicts that the student group members may not be equipped or empowered to resolve. Such conflicts impact the day-to-day performance of the group and almost certainly impact the individual evaluations of members by other teammates and in the end, the overall project outcomes (Gottschall & Garcia-Bayonas, 2008).

The problem of negativity toward group projects is especially acute for students in the earlier phases of their business degree programs where the mastery of fundamental concepts evolves into a focus on the application of these concepts to specific situations. The situation to be addressed by the group may be, for example, a case study or a research project. Both of these assignments depend in part on creating a cooperative environment which, even if not completely free of differences between and among the members, encourages efforts on the part of the group members to manage or resolve conflicts which have bearing on group discussions and on the analyses and presentation of the final results. In summary, the premise which initiated the pedagogical experimental method reported on in this paper was the observation that students were frequently assigned group projects without really understanding the behaviors required of an effective member of a team and without experience in dealing with conflicts that arise in the course of the activities of even successful work groups.

While group work can have significant positive effects on student learning and student success, the effectiveness of group work is dependent upon how instructors structure group assignments. More specifically, the group assignments should have four characteristics (Johnson & Johnson, 1994; Slavin, 1983 & 1989):

1) Provide instruction on interpersonal skills.
2) Foster interdependence among group members.
3) Align individual goals with group goals.
4) Encourage reflection on the group process.

Colbeck et.al (2000) reported that many faculty members assign projects that focus solely on content without attending to the structure of the assignment. For example, many instructors seem to assume that group skills are best learned by repeating group experiences. Thus, these instructors may think that the very act of being in a group (when repeated over multiple assignments and/or classes) sufficiently enables students to learn group skills. Other faculty members seem to assume that group cohesion is a function of geography, time availability, or the diversity of skills. These instructors may assign groups based upon where students live (e.g., place students who live near each other in the same group), students' schedules (e.g., place students who have similar course schedules in the same group), or students' majors (e.g., make sure each group has one accountancy major, one marketing major, etc.).

The present paper is based upon the premise that training in group skills can and should be deliberately integrated into courses that require group projects. The paper suggests a method for structuring group assignments that allows students to learn group skills alongside the content on which the assignment focuses. Further, data are presented that demonstrate the effectiveness of this method in achieving positive changes in students' attitudes toward group work and in their attitudes toward intra-group interactions.

A METHOD FOR TEACHING GROUP SKILLS

By far the great majority of business students will at some point be engaged in group projects. Their opinions about the value of group projects may be derived from first-hand experiences or, in other instances, may have been learned from hearing about the experiences of others who have had first-hand experience with group assignments (Campbell, 1963). The reasons or rationalizations that underlie the negative attitudes regarding group projects offered by students should not be minimized or summarily dismissed. Rather these expressions of dislike for group projects should be accepted as attitudes which can, to some degree, be changed by the application of a careful and incremental program of behavior modification. An attitude has three major components (Campbell 1963). These are the cognitive component which refers to the extent of knowledge an individual has about the attitude object. The

second component is the affective aspect which indicates the intensity of positive or negative feeling an individual expresses toward the attitude object. In many instances the affective component presented as the intensity of liking or disliking the attitude object is used as the defining measure of an attitude. The third component is the behavioral aspect. This aspect takes into account the actions an individual will direct toward the attitude object. In this study the student sample were exposed to positive information about the benefits of group work at the same time they were working on group projects. The combination of cognitive and behavioral influences was expected to influence positive changes in the affective component of the students' attitudes toward group work and group projects. The investigators reasoned that having learned about the appropriate skills and behaviors relevant to effective group performance students would develop more positive attitudes about the benefits of positive intra-group interactions (Festinger, 1957; Campbell, l963; Kiesler, Collins, & Miller, 1969). These expected outcomes were stated as the hypotheses to be tested within the study.

An Outline of the Study

The study reported upon took place in the context of a course within which group work, in the form of presentations and written reports was the predominant method employed to assess each student's progress and learning. The course was altered to meet the four structural criteria presented earlier. More specifically, early in the term, the course was altered to include a selection of readings and in-class exercises that focused on group work, the individual's behavior in a group setting, and his/her responsibility to the work of the group. These readings and exercises were designed to provide instruction on interpersonal skills and foster interdependence among group members. The readings and in-class exercises were revisited later in the term to encourage the students to further reflect on the potential benefits of group activities. Lastly, the grading policy of the course was used to align individual goals with group goals. Seventy percent of each student's final grade was dependent upon the instructor's evaluation of performance of their group and the group members' evaluations of the contribution of each member to the overall performance of the group. The course restructuring discussed above reflected the four characteristics of group assignments previously outlined. The following section provides further details regarding the manner in which assigned text materials and the materials introduced to underscore the relevance of group activities were integrated into the course.

Integrating Group Skills Instruction within the Course

Instructional material regarding group activities was integrated into the course through the following steps:
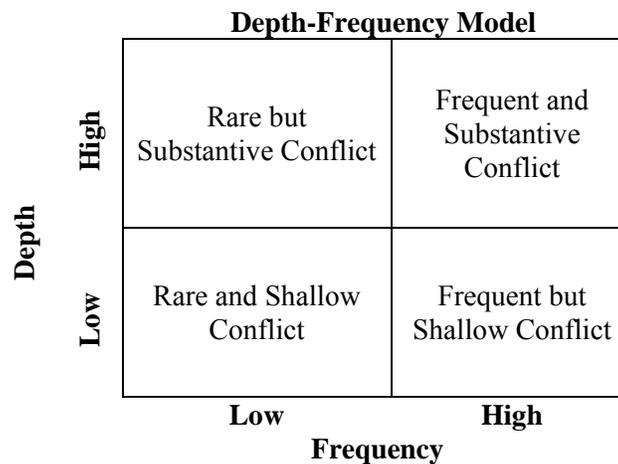1. At the beginning of the term, the instructor
   a. Assigned students to groups;
   b. Explained the impact of group work on student learning and on student success; and
   c. Explained the grading policy to communicate the emphasis placed on group work in the course.
2. Required that students read a text on group dynamics and effective group behavior. For example, the authors assigned Lencioni, P. (2002) *The Five Dysfunctions of a Team: A Leadership Fable.* Other books are available (Corey , Schneider, Callahan, & Russell, 1997; Smith & Berg, 1997; Levi, 2010)
3. Lead a class discussion on the book, and had each group of students engage in a series of exercises aimed toward helping them better understand the personalities and work styles of the individual members of their group (see Figure 1 for an example).

Each exercise was introduced to the class as a whole. Afterward, students were given time to break up into their groups and complete each exercise (each exercise takes between 20-30 minutes). At the end of the designated time, students reconvened in the classroom and the next exercise was presented. This approach forced the group members to concentrate on one exercise at a time. A respite between each of the exercises allowed time for the materials to be discussed in some further detail.

4. Revisited the group exercises a few weeks later. By that time the students were expected to have developed a better understanding of each the individual members of their group. As a result of the discussions and first-hand experiences, the measured outcomes were expected to be (a) more data-driven, and (b) the data collected to be more meaningful.
5. Administered, at the end of the term, a survey designed to collect information about each individual's contribution to their group. The results of the survey were used to determine the grade on the group assignment that was posted for each student.

FIGURE 1
SAMPLE TEAM-BUILDING EXERCISE

1. Draw the depth-frequency model on a piece of paper and write your name on the top.
2. Pass the paper to a teammate who then places an "X" on the chart to indicate their perception of the listed person.
3. Continue until everyone has reviewed everyone else's paper.
4. Return sheets to original owners who review their own charts and indicate to the team's aggregate opinion of their style.
5. Discuss implications of collective results with special attention paid to areas of clear similarity and clear differences.

Depth-Frequency Model

	Low Frequency	High Frequency
High Depth	Rare but Substantive Conflict	Frequent and Substantive Conflict
Low Depth	Rare and Shallow Conflict	Frequent but Shallow Conflict

ASSESSMENT OF EFFECTIVENESS

The effectiveness of the innovation was assessed through a survey administered at the beginning of the term (Time 1) and re-administered at the end of the term (Time 2). The Time 1 survey included a number of items that were grouped into two scales. The first scale was designed to measure attitudes toward group work. The second scale measured attitudes toward intra-group interactions (see Tables 1 and 2). Both scales were operationalized using multiple items. When tested, both proved to meet the level necessary to satisfy the reliability criterion. In addition to a series of items that measured the students' perceptions of the book readings and accompanying exercises, the Time 2 survey used the same two scales used at Time 1.

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TABLE 1
TIME 1 MEASUREMENT SCALES

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Scale	Items	Reliability
Attitude Toward Intra-Group Interactions	I was satisfied with my group's overall performance.	.728
	I was satisfied with how the group members interacted with each other.	
	The group was very cohesive (we stuck together).	
	There was good communication among group members.	
	The group members were supportive of each other.	
	I was very committed to the group.	
	I generally got along with other group members.	
	We were generally an optimistic group (as opposed to being pessimistic).	
	My group was innovative/creative as compared to other groups in the class.	
	My group developed a closer relationship than other groups in the class.	
Attitude Toward Group Work	I think there should be fewer required group projects	.904
	Groups are a useful part of the learning environment (reverse scaled).	
	Groups take more time than they're worth.	
	I think I could learn more effectively if I didn't have to work in a group so much of the time.	
	Eliminating group work would diminish the learning experience (reverse scaled).	
	I get more out of my courses than I would if I didn't have group projects.	
	Projects that are worked on as a group are more easily accomplished than if we each worked alone.	
	We should be required to do more group projects.	

The effectiveness of the course restructuring was assessed through a two-step data analysis process. First, it was necessary to demonstrate that the students' perceptions of group work in general had improved, and it was necessary to be able to demonstrate that the group experience within the present class was indeed superior to their prior experiences with group projects. This required that the scale means from Time 1 be compared to those of Time 2. The results demonstrated that the Time 2 measurements were significantly more positive than Time 1 measurements for both scales (see Table 3). Second, it was necessary to see if the data supported the hypothesis that the team-building exercises were instrumental in creating more positive student attitudes. Correlation analysis was used for this, and the team-building exercises were shown to be positively correlated with the respondents attitudes toward group work ($R = .579$; $p =. 001$) and attitudes towards intra-group interactions ($R = .479$; $p = .008$) (see Table 4).

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TABLE 2
TIME 2 MEASUREMENT SCALES

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Scale	Items	Reliability
Attitude Toward Intra-Group Interactions	I was satisfied with my group's overall performance.	.743
	I was satisfied with how the group members interacted with each other.	
	The group was very cohesive (we stuck together).	
	There was good communication among group members.	
	The group members were supportive of each other.	
	I was very committed to the group.	
	I generally got along with other group members.	
	We were generally an optimistic group (as opposed to being pessimistic).	
	My group was innovative/creative as compared to other groups in the class.	
	My group developed a closer relationship than groups I've been in for other classes.	

	I think there should be fewer required group projects	
Attitude Toward Group Work	Groups are a useful part of the learning environment (reverse scaled).	.898
	Groups take more time than they're worth.	
	I think I could learn more effectively if I didn't have to work in a group so much of the time.	
	Eliminating group work would diminish the learning experience (reverse scaled).	
	I get more out of my courses than I would if I didn't have group projects.	
	Projects that are worked on as a group are more easily accomplished than if we each worked alone.	
	We should be required to do more group projects.	
Perception of Team-building Exercises	I took the team-building exercises very seriously.	.923
	The other people in my group took the team-building exercises very seriously.	
	The exercises helped me better understand the other members of my group.	
	The exercises helped me feel more comfortable with the other members of my group.	
	The exercises helped my group to get-along better.	
	The exercises helped my group be more cohesive.	
	The exercises helped my group to perform better on the assignments.	
	Overall, the exercises were beneficial.	

As a whole, the results shown in Table 2 support the idea that the curricular changes made in the course improved students' attitudes toward group work and helped ensure that students behaved appropriately in their groups. However, a major limitation of the present study relates to use of a one-group pretest-posttest, quasi-experimental design (Campbell & Stanley, 1963). While this design is widely used in educational research it does suffer from the lack of a control group which prevents several types of extraneous effects (e.g., the history effect, maturation effect, and testing effect) from being ruled out as plausible rival hypotheses.

TABLE 3
CHANGE IN DEPENDENT MEASURES FROM TIME 1 TO TIME 2

	Scale Means		Significance of Differences Between Means
Scale	**Time 1**	**Time 2**	
Attitude Toward Group Work	*3.5*	*3.9*	*p = .004*
Attitude Toward Intra-Group Interactions	*3.4*	*3.7*	*p = .009*

TABLE 4
CORRELATION BETWEEN DEPENDENT AND INDEPENDENT MEASURES

Dependent Variables	**Correlation with Attitudes Toward Group Exercises**
Attitude Toward Group Work	*R =.579* *p = .001*
Attitude Toward Intra-Group Interactions	*R =..479* *p = .008*

In an effort to mediate the questions raised by the use of the one group pretest-posttest design, further analyses that used observed variations within the respondent sample were conducted. Respondents were divided in a way which would provide a surrogate control group. More specifically, based upon their responses to the pretest items, the respondents were divided into three groupings designated as High,

Medium, and Low. The "Low" group included those respondents who were in the bottom third with respect to their attitudes toward group work *or* their attitudes toward group interactions in Time 1. The "High" group included respondents who were in the top third with respect to their attitudes toward group work *or* their attitudes toward group interactions in Time 1. The "Medium" group included respondents whose responses were in the middle third on *both* the attitudes toward group work and attitudes toward group interactions scales. The "High" group was treated as a surrogate or internal control group. Individuals within the sample who were designed as High were observed to have very positive opinions about the benefits of group work and group interactions. It was expected, therefore, that team building assignments would have the least measurable effect on this group. The analysis (described above) was then repeated using the High and Low groups from the split data set to see if differences between the groups would be observed.

For the "High" group, neither attitudes toward group work nor attitudes toward group interactions statistically changed from Time 1 to Time 2 (see Table 4) while both attitudes became significantly more positive for the "Low" group. Further, for the "Low" group, the team-building exercises were significantly correlated with the Time 2 measurement of attitude toward group work (R = .724) and attitude toward group interactions (R = .518). These analyses of the split data set suggest that the improvement in the respondents' attitudes from Time 1 to Time 2 is due to the team-building exercises rather than being caused by some extraneous variable such as a history effect.

TABLE 5
CHANGE IN DEPENDENT MEASURES FROM TIME 1 TO TIME 2 FOR SPLIT DATA SET

"High" Group

Scale	Scale Means		Significance of Differences Between Means
	Time 1	Time 2	
Attitude Toward Group Work	4.2	4.2	p = 1.00
Attitude Toward Intra-Group Interactions	4.0	3.9	p = .512

"Low" Group

Scale	Scale Means		Significance of Differences Between Means
	Time 1	Time 2	
Attitude Toward Group Work	3.0	3.9	p = .016
Attitude Toward Intra-Group Interactions	2.9	3.8	p = .010

DISCUSSION AND LIMITATIONS

This paper reports a method for designing group projects that allows students to build their group skills while learning course content in a group setting. The data collected and analyzed demonstrate that this method can enhance students' perceptions of the value of group work and of the value of group interactions. The method presented and tested in the present study was designed to be consistent with the characteristics of group projects presented in the literature (Johnson and Johnson, 1994; Slavin, 1983 & 1989). Thus, the present study complements the existing literature by both corroborating previous published work and by providing readers with a method of implementing previously published findings within a course context.

As discussed in the body of this paper, the use of the one group pretest-posttest, quasi-experimental design limited the interpretation of the data. The design, as was pointed out, is widely used in educational research. Its major failing is the lack of a control group and as a result an inability to rule out several

plausible rival hypotheses associated with the analysis of the research outcomes. The introduction of a surrogate or internal control group, however, added a measure of validity to the findings reported in this paper and indicated that further research, using true experimental designs, should yield additional insights into methods that might be applied in finding solutions for the pervasive problems associated with group projects assigned to students.

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