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AD HOC TEAMS: DO STUDENTS ACTUALLY LEARN FROM THEM?

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Today's organizations expect new college graduates to be well equipped to excel in team settings. Although instructors have good intentions, more often than not, students are ill-prepared to learn from their team experience. Little attention has been given to the ad hoc method of populating team projects in business courses without properly training students to function in teams. The current study utilized team requirements in business classes to understand what students can gain from team projects when they undertake team projects without training.

Introduction

Globalization, rapid technological innovations, and intense competitive challenges in the knowledge-based business world have lead many to believe in the phenomenon of team work. Numerous researchers have devoted their time to identifying distinctive types of teams such as cross-functional project teams (Parker, 1994), executive teams (Nadler & Ancona, 1992), parallel learning teams (Bushe & Shani, 1991), and self-directed work teams (Wellsen, Bryham & Wilson, 1991; Orsburn, Moran, Musselwhite, & Zenger, 1990). Other researchers devoted their research to team-based organizations (Mohrman, Cohen, & Mohrman, 1995). Gordon (1992) offered some evidence to the significance of teams in the modern economy by surveying companies with 100 or more employees and found that 82% of these companies employ teams in their workplaces. Other evidence of the importance of teams in the workplace can be found in Fortune 1000 companies that reported 68% employing self-managing work teams (Lawler, Mohrman, & Ledford, 1995).

Team and New Workplace Expectations

Most organizations in the knowledge-based economy of the 21st century expect new graduates to have the ability to work in teams. According to Lisk (2004), organizations in the 21st century perceived the need for teamwork because of the complexity of the business world. Other researchers posit that the complexity of the knowledge-based economy render it difficult for individuals to solve multifaceted problems or develop new products on their own (Kanter, 1983; Reich, 1987); Also, Senge (1990) proposed that team members can learn from each other and organizations realizing this effort can improve the overall performance of workers to achieve organizational goals.

A substantial amount of money is invested by organizations to train and develop employees to perform better in a team setting. Organizations thus have a natural interest in students who have a team orientation or can show prior experience in team projects. Based on increased research in the area by academics, Cohen and Bailey (1997) stated that significant emphasis has been focused on the role played by teams to the success of organizations in the 21st century economy. Dowd and Liedtka (1994) found organizations do expect the new graduates they hire to have teamwork skills.

In an effort to better equip students for the workplace, most, if not all upper level business courses require some form of group projects in their classrooms. Incorporating group projects in the coursework is not a bad idea as it does serve a twofold purpose to develop teamwork skills that require students to share knowledge and ideally further their ability to develop group dynamics (Bacon, Stewart, & Silver, 1999; Freeman, 1996; Siciliano, 2001). Capelli and Rogovsky (1994) found the ability to work as a team is the most common skill required in today's workplace.

As the perceived importance of teams grew, a number of people in academe accentuated their research on incorporating teams in classrooms. Cohen and Bailey (1997) conducted an extensive review of literature on team effectiveness and confirmed the increasing emphasis on the relation between teams and organizational success from both management and academia. Unfortunately, few have looked into the contributions of teamwork to the learning process of traditional aged college students (Druskat & Kayes, 2000; Johnson, Johnson, & Smith, 1991; Wheelan, 1999a). Wheelan and Lisk (2000) found that teams in the classroom can increase the learning of adult students but their study was conducted over a more extensive period of 15 months. Wheelan (1994) questions the plausibility of learning from teamwork or attaining a high level of development within a short period of time.

Team Development

A wealth of literature documents the concept of team development (e.g., Bion, 1959; Bennis & Shepard,
Stahl (1996; Tuckman, 1965; Tuckman & Jensen, 1977; Wheelen, 1994, 1999b; Levi, 2000; Thompson, 2000). Stahl (1994) put forward a list of vital conditions necessary for teams to succeed in a learning environment which include: clear learning objectives, positive interdependence, positive social interaction, individual accountability, and sufficient time to learn and complete tasks. Although it is important to set an appropriate and conducive team condition, more often than not, faculty members devote more time to the task at hand than helping students gain insights in learning from each other within teams (Lisk, 2003). It appears that students are generally required to work in teams without a good understanding of what they can gain from the team setting. Lisk (2003) proposes that productive learning teams can gain positive educational consequences, but for less productive learning teams, there would be limited benefits from a team experience.

It is generally understood that not all teams can reach the higher stage of group development (Gabarro, 1987; Hare, 1982; Wheelen et al., 1998; Wheelan & Lisk, 2000); however, it is interesting to observe that most teams required in classrooms were expected to develop into high performing teams by the later part of a regular semester. In some cases, this could mean a 16-week period at most, while in others it could be as short as 10 weeks.

Team and Group Distinction

Allen and Hecht (2004) propose that high performance teams are not truly effective rather they are merely experiencing psychological benefits of group-based activity. They further argue that the perceived psychological benefits of teams misled people to think that all teams are effective and perform efficiently. One possible factor that contributes to the misconception of team effectiveness is the lack of universally recognized definitions and distinction of the “team” and “group” concepts. For the purposes of this paper, we have decided to use the terms “team” and “group” interchangeably, yielding to the fact that there appears to be very little agreement on the differences between the terms. Cohen and Baily (1997) noted that this lack of agreement and observed that the term “team” is more commonly used in the popular press and the term “group” is more commonly used in the academic press. We define group and team as a collection of people who share a common goal for a common purpose, and accept that this definition applies to the groups used in this study while openly considering that some college “groups” and “teams” may never actually meet the strict definition sometimes used in the academic field, and that they in fact may be collections of independent members who actually have very few interactions, and never actually conceive of themselves in the collective.

Current Study

Based on literature reviewed, it is clear that college students need to be exposed to some form of team work to enhance their skills in meeting the challenges they will face in the business world. Organizations expect their new hires to be predisposed to working in teams and have the necessary skills to contribute to team based projects; however, few articles have been published to support the ad hoc method of populating team projects in business courses without properly training students to function in teams. The current study is an attempt to determine what students gain from an ad hoc team project where they were not previously provided team development training.

Hypothesis Development

Although we are presenting hypotheses in this paper, we view it primarily as an exploratory endeavor. Our purpose here is to attempt to understand if a typical classroom team is an effective tool to learn about teamwork itself. To explore the concept we are also looking at what might be considered important contextual variables.

While preparing for the study, the authors considered numerous contextual variables, and our first hypothesis, which is highly speculative, is primarily a result of anecdotal evidence and personal observation. Through casual observation we observed that female students are more likely than male students to add a “left out” class member, or readily invite others to join their group. We concede that this is very likely a cultural bias or perception consistent with Hofstede’s (1984) classical distinction between masculine and feminine cultural elements and may very well be unsupported by empirical evidence with regard to the study at hand. With this limited evidence we are prepared to propose hypothesis 1.

Hypothesis 1: Women, when given the option, will choose to be in larger groups than men.

There are two broad classes of reasons why faculty members might use groups in class. First, faculty members might be up on the latest research. They may have knowledge about the needs of today’s workers and know that those workers will be required to work in groups more than ever before. The other reason that faculty members might select the use of teams in the
class is somewhat less altruistic. One of the great advantages of using teams for faculty members is that doing so requires the faculty member to read fewer papers, hear fewer presentations, and be less involved in "actively" teaching the class. If the primary function of assigning group projects is to learn the process and experience working in a group, one might expect the optimal group size to be constant for graduate and undergraduate classes. If, on the other hand, faculty members are using groups to reduce the workload, one might expect group size to be smaller for undergraduate classes for two reasons: first, graduate classes tend to be smaller, and therefore obtaining a "workable number" of groups would mean that the groups are smaller; second, faculty members might consider graduate classes to be "more important" and therefore more likely to take on the greater workload. Based on this reasoning, we propose hypothesis 2.

Hypothesis 2: When compared to undergraduate classes, faculty members will create smaller group sizes for graduate classes.

Historically, the expected relation between group size and performance has been described as an inverted "U" where optimal performance results when a group is not too big or too small. The reasoning is apparently that if the group is too small there are not enough members to complete the tasks, and if the group is too big, the organizing and controlling of the number of members takes up too much of the group's energy and time. In addition, the research in social loafing seems to indicate that as a group becomes larger it is much easier for group members to avoid doing any of the work, expecting other members to pick up the load, especially for tasks that the group members do not find inherently attractive or if they think that they might be expected to loaf (Shepperd, 1993; Zaccaro, 1984; Jackson & Harkins, 1984).

Researchers found that team size has a significant effect on the performance of the team, and found that the optimum team size is between four and five members depending on the skill of team members, and amount of time available for the team project (Cooper, 1990; Johnson, Johnson, and Smith, 1991; Smith, 1986).

Two studies conducted in an organizational setting found the relation to be linear without the expected decrease in performance as the group gets "too big." One study (Campion, Medsker, & Higgs, 1993) involving organizational members doing clerical work considered groups with from six to thirty members, and the other study (Magjuka & Baldwin, 1991) involved manufacturing small tools and electronic equipment had groups that had as many as forty-six members. The environmental variables associated with these two studies make us believe that the results of the studies are not generalizable to the study at hand. Specifically, student groups tend to work in a very limited amount of time, and have very specific expectations that may not be applicable in the general workforce. Because of this, we expect medium-size groups to be the most effective with respect to task performance and group member affect regarding the group members' relationships. As groups get bigger we expect performance to fail as is proposed in hypothesis 3.

Hypothesis 3: Group size is negatively related to both task scores and relation scores.

Our fourth hypothesis is also a result of observation more so than reliance on theoretical underpinnings. Essentially, we contend that although college age students want to view themselves as sophisticated and in-tune with regard to the opposite sex, we believe that the college years are as much a learning time for social and sexual relationships as for any academic learning. Because of this we believe that same-sex groups will be more productive than mixed sex groups. Simply put, having members of the opposite sex provides another distraction. We cannot find specific empirical support for this assertion with regard to groups in other environments because, we believe, its importance quickly dissipates after the college years. Based on observations we propose hypothesis 4.

Hypothesis 4: Both task scores and relationships scores are higher in homogeneous groups.

Our final hypothesis attempts to address the question: Are classroom groups effective at teaching students group skills? This is the primary focus of the study and, in fact, the reason we originally undertook the study. We hypothesize that students who have been active in groups in the past have learned from such experiences and therefore are more likely to rate current experiences higher. We also believe that students who are currently involved in other groups can use information and skills acquired in those activities in the present group. We therefore propose hypothesis 5.

Hypothesis 5: Previous group experience will have a positive effect on both task scores and relation scores.

METHODOLOGY

Subjects

Surveys were distributed to various junior and senior level undergraduate and graduate business classes.
in a mid-sized rural public university. Students involved in self-selected groups were requested to complete the surveys, but were under no obligation to do so and were not offered any incentives to participate. Since all instruments were completed in class, we realized a 100% return rate for the 388 surveys distributed with only 2 (0.51%) unusable yielding 386 subjects for this study. The vast majority of the subjects were between 18 and 25 (388; 98.2%), with 6 between 26 and 30 (1.6%), and one over 30 (0.3%). Undergraduate students made up 88.9% (n = 333) of the subjects, with 43 graduate students. All but 11 (2.8%) of the students attended school full time, 78 (20.2%) worked full time, and 272 (70.5%) worked at least part time (mean = 14.4 hours per week). As is common with business students, 320 (82.9%) were working with more than one group, and 355 (92.0%) had previous experience working on college related group projects. The groups ranged in size from 2 to 7 (mean = 4.5; SD = 0.76).

Instrument

The instrument used in this study was one page long consisting of 24 questions. Five of the questions were demographic in nature (graduate/undergraduate, age, full/part-time student, hours worked outside school, and full/part-time employment). Two questions measured the size and makeup of the team (how many members, and what is the gender breakdown of your team), and two questions measured the subject’s experience in other teams (currently part of another team, and have you been part of another team in the past). The remaining fifteen questions, used to measure team effectiveness, were derived from The Centre for Public Innovation’s “Team Effectiveness Questionnaire” (The Centre for Public Innovation, nd). For each question, participants were allowed three options: weakness of our team, strength of our team, and a middle response. The questions used to measure team effectiveness are included in appendix A.

Factor Analysis

To explore the validity of the instrument as derived to measure important group related variables, we conducted a factor analysis on the fifteen questions that composed the dependent measure. Based on eigenvalues greater than one and a scree plot analysis, the rotated results indicated two factors which explained approximately 51.1% of the variation. Factor 1, which was composed of questions 2, 3, 8, 9, 11, 12, 13, and 15 related to the task itself. Factor 2, composed of questions 1, 4, 6, 7, 10, and 14 related to the interactions and relationships among the group members. Question 5 loaded weakly on both factors, and was therefore excluded from further analysis in this study.

In 1948, Benne and Sheats first explored the important roles in group interactions. In their studies, they proposed that group behaviors can be divided into three significant categories: task behavior, relationship behavior, and self-interest behavior. Task behaviors have to do with the behaviors that the group members perform to "get the job done." Relationship behaviors are related to the maintenance of the interactions of group members. Both task roles and relationship roles are considered functional group roles, and necessary to group performance. The third role considered by Benne and Sheats had to do with behaviors that were at odds with the success of the group and were considered dysfunctional behaviors. We believe that this theoretical underpinning provides support for the validity of our measures of important group behaviors. Based on this, the scores for the relevant questions were combined to create two factor scores, one for task and one for relationships.

RESULTS

Hypothesis 1: Women, when given the option, will choose to be in larger groups than men.

To test the hypothesis, we used linear regression to determine whether the ratio of females in a group is related to group size, and our hypothesis was supported (F = 14.6; p < .001), but the amount of variance explained was very low (R2 = .037) indicating that while the outcome is statistically significant, it may not be important. To further explore this outcome, we compared the size of the groups, gender homogenous groups (that is, male-only and female-only groups) using a t-test. This test confirmed our conclusion regarding hypothesis 1. All-male groups averaged 4.2 members (n = 57) and the all-female groups averaged 4.7 (n = 79) members (t = 3.799; df = 134; p < .001).

Hypothesis 2: When compared to undergraduate classes, faculty members will create smaller group sizes for graduate classes.

A simple t-test supported this hypothesis as well. The average undergraduate group size was 4.6 members (n = 342) and the average graduate group size was 4.1 (n = 43) group members (t = 3.768; df = 383; p < .001). This result supports the assumption that faculty members might consider workload as a factor when assigning group assignments.

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Hypothesis 3a: Group size is negatively related to task scores.

Hypothesis 3b: Group size is negatively related to relation scores.

Both Hypothesis 3a and 3b were tested using linear regression, and both hypotheses were supported (F = 5.240; p < .05 and F = 3.897; p < .05, respectively). This seems to imply that as the group gets bigger it becomes less effective in getting the job done, and relationships in the group suffer. In exploring the data set, we uncovered another interesting, but unhyphosthesized relation between group size, performance (as measured by task and relationship scores) and the "maleness" of the group. To explore this relation, we developed a score that we dubbed a T-score (the "T" is for testosterone) which is simply the percent of males in a group. When we add the T-score to the linear equation with group size, the model for the relationship score is insignificant (F = 2.711; ns), but the model using the task score as the dependent variable is significant (F = 5.099; p < .01) but the term for group size becomes insignificant and only the T-score is significant (t = 2.215; p < .05). This finding should only be considered exploratory.

Hypothesis 4: Gender homogenous groups will result in higher task scores and higher relationship scores than gender heterogeneous groups.

Hypothesis 4 was tested using t-tests, and both hypotheses were supported. For the task variable, the same-sex (homogenous) group had a mean score of 1.36 and the mixed-sex (heterogenous) group had a mean score of 1.25 (t = 2.279; p < .05). For the relationship variable, the results are analogous: the homogenous group had a mean score of 1.51 and the heterogeneous group had a mean score of 1.41 (t = 1.969; p < .05). This result seems to imply that there is a group dynamic in mixed-sex groups that (at least for college groups) in some way hinders group success. If one considers how to apply this finding to the creating of classroom groups, the obvious result would be to create unisex groups; however, such a practice might actually inhibit the learning process since the typical organizational group will not be unisex.

Hypothesis 5: Previous group experience will have a positive effect on both task scores and relation scores.

If classroom group exercises are an effective learning tool, one would expect that subjects with prior experience with group activities would report more positive experiences in later group activities. This hypothesis, tested using multiple regression, was unsupported for both the task (F = .008, ns) and relationship (F = .395; ns) dependent measure. If our students are learning from group projects, task scores and relationship scores should increase as students do more and more projects (scores should be lower for people with less group experience, and higher for people with more group experience). These data do not support that. Based on our data, group effectiveness as measured by task scores and relationship scores are unrelated to previous or concurrent group experience.

Discussion and Conclusion

We undertook this study to better understand college groups and how those groups might be effective tools in teaching college students about the group and team work they will be more and more expected to do in the future workplace. Our results from this single study seem to indicate that groups as they are currently used in the college environment may not be an effective tool to teach group dynamics, group interactions, and other important group behaviors. Our results do seem to support the notion that one reason that groups are used in the college classroom is for the convenience of the faculty member rather than any meaningful learning experience. We find this result a bit disconcerting, but recognize that this study only covers a very small portion of the research that is badly needed in this area. We believe, in fact, that the study actually elicits more questions than it could possibly answer.

We also found that women prefer larger groups, when given the opportunity to work in a larger group, but in conjunction with our finding that larger groups actually hinder performance, this implies that a self-selected group of female students (which would be larger) might perform inferior to a group of a self-selected group of all male students, but this result is apparently unrelated to the sex or gender of the group, but is most likely a function of group size.

The next step in this area of research is a further investigation of the utility of using group work in college classes, what variables are important to the learning process, and what training is necessary and appropriate to ensure that the group activities are useful. Future studies should also consider other than behavioral outcomes in group success. Irrespective of the position of faculty, it is very likely that they will continue to deal with students' negative affect regarding group and team assignments. These negative feelings are to be expected well into the future because of the individualism embedded in American culture (see Hofstede 1984 for a discussion). This cultural bias against group work makes

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it even more important for our students to learn to work in groups. As business becomes more complicated and more competitive, working together to accomplish complex and time-bound tasks becomes even more essential, and our industries will be best served if we, as faculty, do a better job at preparing our students for these essential functions.

REFERENCES


Chi Lim is an assistant professor of management at Northwest Missouri State University. She received her DBA in Strategic Management from United States International University. Her current research interests include distance education and international management. She has published in Southwestern Business Administration Journal, and Journal of Learning in Higher Education.

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APPENDIX 1

1. All members feel they are able, as individuals, to influence the team's decisions.
2. All members feel a personal responsibility for making the team effective.
3. All members have a clear idea about who is supposed to be doing what.
4. All members are open, not defensive, avoiding competitiveness and point scoring.
5. All members feel that they each have a distinct individual contribution to make.
6. All members regard each other with genuine respect.
7. All members feel they are able to communicate their problems and concerns about their parts.
8. All members felt the workload is fairly distributed among team members.
9. All members are all clear about exactly what has been decided and who is responsible for taking action.
10. All members are able to give one another honest, constructive feedback on their contributions.
11. All members are clear with the team's objectives.
12. All members are effective at getting and sharing information they need with each other.
13. All members make a point of sticking to the task and not get bogged down in minor matters.
14. All members make full use of everyone's creative contribution, giving a welcome to unconventional ideas.
15. All members make good use of time and minor issues are dealt with to allow time for more important task