

Instructor-Assigned and Student-Selected Groups: A View from Inside

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ABSTRACT: This paper addresses an issue that most accounting instructors face when assigning group work: does the method of forming groups affect the group experience and, if so, how? Our study provides a student characterization of group formation effects, by examining student experiences as expressed in their own words in written journals. This view from inside the groups reveals subtle group formation effects not apparent in prior studies, and enriches findings derived from quantitative questionnaire responses. The findings from this study are used to create guidance for researchers, instructors, and students.

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INTRODUCTION

When assigning group work, instructors must decide whether to allow students to form their own groups or whether to place students in groups through either a random or systematic allocation process. Prior research has examined how these approaches for forming groups affect the group experience by comparing grades on projects, tests, and exams (e.g., Lejk 1999; Miglietti 2002; van der Laan Smith and Spindle 2007; Swanson et al 1998), by analyzing student responses to questionnaires (e.g., Chapman et al 2006; Dyball et al 2007), and by synthesizing findings in prior psychology and organizational behavior research (e.g., Bryant and Albring 2006). Unlike these prior studies, which have focused on group formation from an instructor perspective, our study provides a student characterization of group formation effects. This characterization is derived from a qualitative analysis of student experiences as expressed in written journals prepared while completing a group project, and from quantitative analyses of surveys administered during the project.¹

By providing a view from inside the groups, we are able to reveal subtle group formation effects not apparent in many of the prior studies. Also, by including both qualitative and quantitative analyses, we are able to more fully capture the experiences that occur within groups. That is, our qualitative analyses enrich findings from quantitative questionnaire responses and quantitative analyses detect findings that do not emerge in the qualitative analyses. A third contribution of this study is it yields advice for

¹ Our choice of the term “group” is deliberate and intended to represent the idea that not all groups function as teams, which depends on individuals establishing trust, synergy, or mutual accountability (Katzenbach and Smith 1999).

students about group work, presented in a format that instructors can easily distribute (see the Appendix). This advice is derived from students themselves, providing an orientation that is likely to resonate with other students (Phillips and Phillips 2007).

PRIOR RESEARCH

Over the past three decades, accounting educators have been paying greater attention to group work, partly in response to prompts from several professional bodies including the American Institute of Certified Public Accountants, Financial Executives Institute, International Federation of Accountants, Institute of Internal Auditors, and Institute of Management Accountants (Bryant and Albring 2006). This increased attention has spurred research on various aspects of group work, including methods of assessment (e.g., Ballantine and Larres 2007; Clinton and Kohlmeyer 2005; Gammie and Matson 2007), group reward structure (e.g., Ferrante et al 2006; Ravenscroft et al 1995), group management processes (e.g., McConnell and Sasse 1999), and group responsibilities (Miglietti 2002). As we review below, another area receiving significant research attention is the method of group formation.

Researchers have examined several possible methods of group formation, which can be categorized as either student-selected or instructor-assigned (e.g., homogeneous composition, heterogeneous composition, simple random assignment, and stratified random assignment). Student-selected groups are formed by students themselves without intervention by an instructor. Typically, the students who seek this formation method are high achieving individuals who have had prior social or academic interactions with one another (Chapman et al 2006; Swanson et al 1998). Homogeneous composition groups are formed by instructors with the explicit goal of creating groups where each member is

similar in ability, skills, or other characteristics (Lejk 1999). Heterogeneous composition groups, in contrast, are formed with the goal of creating balanced teams comprising individuals who represent a range of abilities, skills, major, gender, or ethnic background (van der Laan Smith and Spindle 2007). Simple random assignment allocates students to groups with regard only to final group size. A final method of group formation, stratified random assignment, combines heterogeneous composition with simple random assignment. This method of group formation involves creating pools of students stratified along a specific dimension (e.g., GPA) and then randomly choosing group members from each of these pools (“strata”). By design, stratified random assignment yields groups that are balanced across the dimension used to form the strata.

Most studies of group formation have focused on performance outcomes as measured by project scores, tests, and exams (e.g., Lejk 1999; Miglietti 2002; van der Laan Smith and Spindle 2007; Swanson et al 1998). Generally, these studies have found that group project scores and individual performance on tests and exams are higher among student-selected groups than groups formed by other methods.

Two recent studies have begun to examine whether the method of group formation influences how group members perceive the group experience. Dyball et al (2007) used a questionnaire to obtain group member perceptions about the knowledge and skills they developed by working on a group project. These responses, which were solicited only from student-selected groups, were compared to three other studies that used the same questionnaire but different methods of assignment (e.g., random and stratified random).² Unfortunately, few systematic differences could be discerned among the responses from

² The other studies differed in many other regards, including geographic location, course discipline, and pedagogical approaches.

the four studies, leading the researchers to conclude that “further investigation of the impact of group formation is needed” (Dyball et al 2007, 156).

Chapman et al (2006) developed a survey to assess a variety of group experiences, including group dynamics, attitudes, and perceived outcomes. The survey was given to marketing students in different sections of a variety of courses, some of which had used student-selected groups and others that had used (simple) random assignment. Analyses of the survey responses suggested that members of student-selected groups generally got along better, communicated better, and were more enthusiastic about working together, but were less task oriented than members of randomly assigned groups. Because participants were drawn from several different courses, Chapman et al (2006) were unable to determine whether these different group experiences were associated with differences in performance. Perceptions of the quality of group work, as self-assessed by the students, did not differ between group formation conditions.

In addition to comparing student-selected groups with instructor-assigned groups, prior research has compared different types of instructor-assigned groups. For example, Muller (1989) and Donohue and Fox (1993) compared heterogeneous groups to randomly assigned groups. Muller (1989, 623) reported that heterogeneous groups have a “modest advantage” over randomly formed groups, with the heterogeneous groups being more likely to be satisfied with, feel challenged by, and evenly share work within the group. Donohue and Fox (1993, 504) similarly observed that heterogeneous groups shared work more evenly among group members. However, no differences in group satisfaction or performance emerged, leading the authors to conclude that “balanced (heterogeneous) group formation alone cannot enhance the formal learning experience.”

One of the limitations of the preceding studies is that they assess group formation effects from an instructor perspective, focusing on responses to projects, tests, and exams prepared by the instructor or responses to survey questions prepared by the instructor. These methods yield meaningful data, but they can explain only what instructors think *a priori* may be occurring in groups and they are limited in discovering new aspects of group behavior. Our goal is to allow students' own voices and personal experiences to be heard, and attempt to unmask important aspects of the group experience not previously documented. To generate a rich characterization of group experiences, we apply the method of grounded theory to group members' written journal reports, following the standards of rigor described in the following section.

GROUNDED THEORY

Phillips and Phillips (2007) explain the rationale underlying the method of grounded theory. In this section, we highlight only the key features of this qualitative research method, drawing directly from Phillips and Phillips (2007). Readers unfamiliar with grounded theory should read the detailed descriptions in Goulding (2005, 295-298) or Phillips and Phillips (2007, 22-24).

A grounded theory method aims to identify meaningful theory that is "grounded" within qualitative data. Because the grounded theory researcher seeks to identify implicit *meaning*, data are not analyzed in a quantitative or statistical sense, but instead are examined through a method of constant comparison. Constant comparison involves iteratively comparing pieces of qualitative data, with the goal of identifying key points (provisional themes) that are consistently supported throughout the data. As provisional

themes emerge, the researcher remains on the lookout for contradictory pieces of data that can be used to refine or possibly dismiss emergent themes.

After the researcher is satisfied that all significant provisional themes have been identified and are supported by the data, the data are reexamined for recurring regularities that can be organized into categories of behavior or experience (e.g., what attributes are important to group members? how is work allocated among members?). Next, the researcher attempts to discover relationships among major observations (e.g., are student-selected groups more likely to trust one another and does that relate to how they allocate work among members?). Throughout the process, the researcher aims to ensure that the data and emergent theory cohere, and that all data—not just those that support the emerging theory—are considered. The conclusion of this process should be a rich characterization of the experiences represented in the data.

To assure others of the validity of these processes and their conclusions, a grounded researcher provides extensive quotations from participants, which allow readers to assess the fit between the data and emergent theory. Further assurance can be provided by reporting quantitative data that augment the qualitative data (Strauss and Corbin 1998), and which also allow readers to assess whether the findings have explanatory or predictive ability. The method we employ in this study adheres to these standards of rigor, as elaborated below.

METHOD

Participants

In groups of four, students in an introductory financial accounting course completed a two-part, six-week group project outside of class time. The project was worth 25 percent

of the final course grade. The project required groups to analyze accounting policies and financial statements, and assess the financial performance and corporate governance structures for one real and one fictitious company. At four equally spaced dates during the group project, students prepared individual journal reports describing their group experiences. Students were advised that the journal reports would be used by the course instructor to identify any groups that he should contact to help resolve group difficulties. At this stage, the sole purpose of the journal report was pedagogical in nature; we did not mention the possibility of using journal reports for research purposes. Later, after course grades were assigned and approved, all students in the course were contacted by email and asked to participate in our research study. To participate in the study, students simply indicated whether they granted the researchers permission to analyze their work on required elements of the course; no further work was required of participants.

Of the students completing the course, 204 (44 percent) consented to participate. To assess whether participants may have differed from non-participants, we compared various aspects of their course performance. Participants did not differ from non-participants on any measured aspect of course performance, including team projects (88% versus 88%), individual assignments (94% versus 94% on assignment one and 88% versus 88% on assignment two), and exams (74% versus 71% on exam one and 68% versus 65% on exam two). None of these differences were statistically significant ($p > 0.05$) suggesting that participants were representative of all students who completed the course. The proportion of female and male participants was nearly equal (50.8% female and 49.2% male).

Data Collection

Students completed their journal reports using a private online site that submitted their comments directly to the course instructor, without other group members seeing what had been written. Anonymity was assured. Students were invited to comment on any aspect of their group experience. To provide context for the journal reports, each group member was given the following instructions:

Write a report describing significant aspects of your team experience. Your comments will not be judged on whether they are “valid” or “correct” because, after all, they are supposed to represent your perceptions of your experiences. Instead, you are asked to strive to provide clear and complete descriptions. You may comment on any aspects that you consider significant; however, if you want some guidance, consider discussing issues such as: the extent to which your team worked together and on what, what general “team rules” you followed (e.g., meeting structure and frequency, assignment of tasks and responsibilities, etc.), whether your expectations met or differed from your actual team experiences, what factors you believe contributed to effective and/or ineffective team behavior, and how have your views about team projects evolved since your last report.

At three points during the project, we also collected quantitative measures by asking each group member to provide Likert-scale ratings in response to 26 statements about their group experiences. This survey was based on a questionnaire developed by Aube and Rousseau (2005), which spanned various aspects of group experiences, including inputs (group homogeneity, goal commitment, group potency), processes (degree of participation, workload sharing, task interdependencies, and supportive group behaviors), and outcomes (perceived performance and group viability). At the time these surveys were given, their purpose was pedagogical in nature; students did not know they might be used subsequently for research purposes.

Using each group’s average rating for each of the 26 statements, we followed the data aggregation methods recommended by Aube and Rousseau to construct nine measures, as shown in Table 1. Specifically, *group homogeneity* was indicated by the average rating given in response to two statements about the similarity of group members and how well

they fit together (Chronbach $\alpha=0.842$); *goal commitment* was represented by the average rating for three statements about the importance, concern, and commitment to pursuing the team's goal ($\alpha=0.899$); and *group potency* was represented by the average rating for three statements about team spirit, confidence, and willingness to take on any task ($\alpha=0.874$). Measures of group processes were similarly constructed by combining responses to two statements about the *degree of participation* ($\alpha=0.793$), three statements about *workload sharing* ($\alpha=0.917$), three statements about *task interdependencies* ($\alpha=0.720$), and five statements about the *supportive behaviors* displayed by group members ($\alpha=0.891$). Finally, perceptions about group outcomes were represented by average ratings in response to two statements about *group performance* ($\alpha=0.793$) and three statements about *group viability* ($\alpha=0.867$).

Insert Table 1 about here

Design

Students were given the choice of forming their own group or being assigned to a group by the instructor. Each student-selected group notified the instructor of their group's composition after the fourth week of class. At that time, the instructor arbitrarily split the remaining students into either a random or heterogeneous group formation condition. Students in the random formation condition were dispersed into groups of four using a random number generation process. Students in the heterogeneous group condition were organized into groups of four that were equally balanced in terms of math, writing, and people skills. These skills had been self-assessed and reported by students during the first week of the course. Based on these ratings, a three-factor stratified allocation method was used to create skill-balanced groups.

Participants represented 84 total groups, including 50 student-selected groups and 34 instructor-assigned groups (17 representing each of the random and heterogeneous formation conditions). Individuals in the student-selected groups scored slightly higher on the first individual assignment held during the first two weeks of the course ($p=0.021$) than the students left for instructor-assigned groups. However, differences in individual performance did not exist in later assignments ($p>0.494$) or midterm exams ($p>0.219$) administered two, three, and seven weeks later. These results suggest that the individuals drawn to the student-selected groups may initially have been motivated more than those remaining for instructor-assigned groups, but these differences dissipated quickly and did not significantly affect the performance of the groups.³ Within the instructor-assigned groups, the individual assignment and exam performance of students in the randomly assigned groups did not differ from those in the heterogeneous groups ($p>0.259$).

Procedure

We applied the method of grounded theory to analyze participants' journal reports. Our analyses followed an iterative process between each report, participant, formation condition, and author. Specifically, the process began with one of the authors reading the first of the four individual journal reports submitted by all participants across all groups, with the objective of tentatively identifying provisional themes present within the reports. This was followed by reading the second journal reports of all participants, and then the third reports and so on. The primary goals when reading each batch of journal reports were to: identify additional themes, confirm or dispel themes tentatively identified in the earlier reports, and consider their possible progression over time. After updating and

³ Scores on the first individual assignment were not correlated with grades on the group project ($r<0.138$, $p>0.216$).

organizing the list of provisional themes, the author grouped the reports by group formation condition for re-analysis, beginning with the student-selected groups and concluding with the random and heterogeneous groups. The goal of this analysis was to assess possible differences between formation conditions for each provisional theme.

The other author independently analyzed the journal reports, with similar objectives. However, to complement the above analyses, the journal reports were read in a different order. Specifically, the other author analyzed all four individual reports of a group member before proceeding to the four individual reports of each remaining group member. This process was applied to all other groups. After all significant observations were noted and summarized, the two authors discussed each of the previously identified themes and re-examined the journal report data where necessary to confirm or dispel provisional themes. Through this discussion and analysis, the two authors agreed upon the themes that had emerged from and were supported by the data.

Several steps have been taken to ensure that the experiences presented in this paper represent the voices of the full group of student participants. All quotes are taken verbatim from students' reports with some spelling and punctuation corrections for ease of understanding. The quotes are typical and representative of students' responses. No student is directly quoted more than once. We were aware that the potential existed for students to bias their comments when completing journals, particularly if participants perceived that their instructor was likely to pass judgment on their behavior. To reduce this self-reporting bias, credit was not assigned to the report; unpopular opinions were not punished with low grades. Students appeared to be honest in recording their thoughts and feelings about their group experiences, at times expressing their frustrations about one

another, freely crediting other group members for their group successes, and even criticizing the instructor for problems related to the project. They honestly discussed a wide variety of issues including time management, other university classes, personal problems, and even their general malaise for the project. As one student wrote:

My team members, as friends and people, are great. However, there is a lack of initiative and almost a sense of apathy when it comes down to getting the project started.

Quantitative data were derived from participants' responses to the Likert-scale questionnaire administered at three points during the project. These data were analyzed after the journal reports had been analyzed for differences between formation conditions. As discussed in the following results section, the quantitative data analyses corroborated (and supplemented) differences that had emerged from the qualitative data analyses.

RESULTS

From our qualitative analyses, four categories of findings emerged. Consistent with the theoretical models of group behavior (e.g., McGrath 1964), the first three categories include group inputs, group processes, and group outcomes. The experiences captured by these three categories differed across group formation conditions, as described below. The fourth category, which we label work strategies, captures significant differences in how the groups completed the project. Unlike the first three categories, work strategies did not appear to differ systematically by group formation condition.

Group Inputs

Participants from student-selected and instructor-assigned groups commented on two key aspects of group inputs: member characteristics and comfort with group members. Members of student-selected groups recognized their teammates' similarities early in the project and viewed these similarities as a positive aspect of their groups.

Our team works well together. Since we picked our group we knew everyone in our group before hand and get along very well.

We all get along and have the same sense of work ethic.

This feeling of similarity and cohesiveness among student-selected group members translated into being at ease with one another right from the outset. They willingly distributed work among members, with little concern that it might not be completed to the group's satisfaction.

I really like this group - which was a given because we chose to work together! We didn't meet very often, but ... I really never believed that work assigned to my group members, or to me, wouldn't get done.

In contrast, members of instructor-assigned groups were uneasy at the outset, finding it difficult to talk with other group members and place trust in them.

We seem to have a bit of a hard time actually communicating when we meet to discuss the project.

I must admit, I am a little skeptical about group work. I find it hard to put all one's confidence in a new acquaintance.

As work on the projects progressed and group members became more familiar with one another, most instructor-assigned groups became comfortable working together and placing trust in one another. Interestingly, in the same way that student-selected groups valued *similarities* among their group members, students in instructor-assigned groups came to value the *differences* among their group members.

All of my group members and me were just commenting on how lucky we were in the formation of our group. We each have different strengths, but are able and willing to help each other as needed.

Our group definitely provided a good mix of strengths and abilities, as some of us are better writers, better at math, better at computer programs such as Excel and so on. It has been a great experience.

Our analyses of the journal reports did not reveal systematic qualitative differences among the instructor-assigned groups. Having had little or no prior experience working

with one another, the random and heterogeneous groups were initially uneasy but, for the most part, became cohesive groups by the end of the project.

To provide assurance that these findings from the qualitative analyses depict general group experiences, we statistically analyzed the three measures of group inputs derived from the Likert-scale questionnaire (see Table 1). Specifically, we compared the levels of group homogeneity, goal commitment, and group potency, as perceived by the student-selected and instructor-assigned groups at each stage of the project. These analyses indicated that, throughout the project, student-selected groups perceived that they were more homogeneous, committed, and potent than instructor-assigned groups ($p < 0.001$).

Within instructor-assigned groups, perceived differences were much less apparent. The heterogeneous groups did not perceive themselves as having more goal commitment or greater potency than randomly assigned groups at any point during the project ($p > 0.264$). The only difference emerged at the outset of the project, when heterogeneous groups perceived themselves as less homogeneous than the randomly assigned groups ($p = 0.032$). This difference dissipated quickly and, by the end of the project, the two types of instructor-assigned groups held nearly identical perceptions of group homogeneity ($p > 0.904$).

Group Processes

The analyses of group processes provide a good illustration of how qualitative and quantitative methods can combine to yield a more complete characterization than either method alone. Qualitative analyses reveal that student-selected and instructor-assigned groups differ in terms of their speed in starting the project and the ability to coordinate with group members. The quantitative measures extended these findings by capturing

several additional dimensions of group management that differed between groups but had not emerged in the qualitative analyses because participants had not discussed them in the journal reports. Taken together, the qualitative and quantitative analyses provide a more complete picture indicating how group formation affects group processes, as discussed below.

Participants in the student-selected groups commented that one advantage of being familiar and comfortable with one another was that it allowed their groups to get off to a quick start.

I particularly enjoy the fact that we were able to select our teams, as then we generally have a more cohesive group, and can bypass the schmoozing.

Further, participants in student-selected groups found it relatively easy to arrange group meetings, as a consequence of their similar backgrounds and compatible work schedules.

We quickly got together and delegated tasks to each other. Our team is very open to each other, willing to work in and outside of school hours.

We meet nearly every day for something, be it accounting, management, or business.

In contrast, instructor-assigned groups reported that they got off to a slow start and, throughout the project, had difficulties finding common times at which they could meet.

At first our team had difficulty finding a time to work together. We neglected to exchange contact information properly at our first seminar and therefore fumbled around a bit with the crappy email system you guys set up to let us contact each other.

We have trouble meeting because two of the students are in a 2nd year business cohort, one is a science student and one is in 3rd year business.

Another aspect of the group process on which participants frequently commented was the extent to which they were able to participate in and share work with one another.

My attitude towards team projects has gotten better doing this project, because you get to work with people and get their ideas as well. Delegating tasks makes the work load a lot less, while at the same time you get to understand the whole project.

At first it (the project) seemed a bit overwhelming; however once we met and everyone began bringing their ideas to the table, it was smooth sailing.

Although many similar comments were expressed by other participants, our qualitative analyses did not discern systematic differences between groups. Systematic differences were noted, however, in the Likert-scale responses. Throughout the project, student-selected groups reported a greater degree of participation, more workload sharing, and more supportive behaviors than instructor assigned groups ($p=0.029$, $p=0.005$, and $p<0.001$, respectively). Further, by the end of the project, student-selected groups were more likely to structure their work in ways that created interdependencies among team members ($p=0.016$). Within instructor-assigned groups, the only statistically significant difference was that heterogeneous groups were more likely than randomly assigned groups to create task interdependencies near the end of the project ($p=0.044$). This latter finding suggests that instructor-formed heterogeneous groups may have recognized each member's relative strengths and assign their work accordingly.

Group Outcomes

Our qualitative analyses revealed many positive outcomes from the project, expressed by both student-selected and both types of instructor-assigned groups. Like Chapman et al (2006), we were surprised by the extent to which favorable group experiences dominated unfavorable experiences. Favorable experiences related to several dimensions such as skill development, personal responsibility, social bonding, and overall project quality.

I learned a lot about how to work with other people.

It is evident to me that in every work group there will be some members that do more and are better equipped to do the work. I had not considered myself as one of those top group members, as I am usually more independent. However, this assignment has shown me how much of a gap can occur in certain groups and I have felt that I was required to step up a bit because of this.

I was able to meet group members that later became my friends and helped me while studying and with other questions and such. I was very happy with my group; we worked well together.

We're even going to meet at someone's house, and eat dinner and ice cream as we work on it.

Overall, I think that this was a positive group experience. We were all very effective in completing the tasks on time according to our guidelines. We were also very good at looking at each other's work and identifying any positive aspects or aspects that were missing or could be improved upon.

The thing I really noticed was the amount of debate and thought that went into our final decision. This team has shown me how effective and productive a team project can be.

The few unfavorable responses primarily related to challenges involved in finding time to meet, contacting group members who were difficult to reach, and dealing with free riders.

I got stuck putting everything together which we were supposed to do together. I was very frustrated because the other girl on my team barely did anything and I felt she did not deserve the grade the rest of us did.

Quantitative analyses of the group outcome measures indicated that members of student-selected groups felt they produced higher quality work than did members of instructor-assigned groups ($p < 0.030$). Student-selected groups also reported perceptions suggesting greater long-term viability than instructor-assigned groups ($p < 0.001$). Within instructor-assigned groups, no statistically significant differences in group outcome measures were noted.

Although student-selected groups perceived they produced higher quality work, the actual grades assigned to the group projects did not differ between group formation conditions ($p > 0.308$). This result suggests that group formation method *per se* was not a significant determinant of the group project grades. To explore what variables might account for project grades, we correlated participants' project grades with all other measures reported in this paper. Group project grades were significantly correlated only with group members' grades on the final exam ($r = 0.319, p = 0.003$) and second midterm exam ($r = 0.386, p < 0.001$), and with two variables related to group processes: degree of participation ($r = 0.332, p = 0.002$) and task interdependencies ($r = 0.230, p = 0.036$). To determine the independent contribution of each of these measures, we regressed group

project grades on the two exam scores and two group process variables. These analyses revealed that group project grades were significantly associated with final exam scores ($p=0.034$), the degree of participation in a group ($p=0.067$), and task interdependencies within a group ($p=0.073$).

The positive association between group project grades and final exam scores could be interpreted in two ways. One interpretation is that the inherent competence of individuals within the groups drove the performance of the groups. An alternative interpretation is that the experience in the group influenced the development of individual competencies, which later influenced performance outside the group. Our results are not consistent with the first interpretation; group project grades were correlated with individual performance only *after* the groups had spent time working together. Individual performance scores obtained early in the course (on individual assignments and the first midterm exam) were not significantly correlated with group project grades, suggesting that the members of high-scoring groups were not always high-scoring individuals. Thus, our results appear more consistent with the interpretation offered by the cooperative learning literature that a positive group experience contributes to building the competencies of individual group members.

The positive association between group project grades and the extent of participation and task interdependencies of group members, after controlling for final exam scores, is another important discovery. These results suggest that, regardless of individual group member competence, groups performed better when they worked together in a meaningful way.

Work Strategies

Our qualitative analyses revealed two common strategies for completing the project: all-for-one and divide-then-regroup. The all-for-one strategy involves all group members working on all aspects of the project as a full team, the perceived benefits of which were unification of goals, enhanced communication, and a better quality product.

We decided to do this project almost wholly as a group and not divide it up among ourselves for each person to do their own task. We had fun working together, had some laughs, worked through frustrations and produced a quality assignment.

Although most all-for-one groups believed this work strategy was beneficial, some were disappointed with the outcome.

I was not very happy that our group did everything together - it took three times as long as it should've and I felt that we could've done a better job on both projects had each person concentrated on one aspect and brought it all together at the end. It also made it harder to determine if everything was fair because if someone wasn't able to make a meeting, they couldn't do anything to make up for it.

The divide-then-regroup strategy involved allocating parts of the project to subsets of the group, then combining these parts into a single report. The methods used both to allocate and then regroup the work varied significantly along different dimensions. In terms of work allocation, groups used a variety of approaches, ranging from a deep approach to a surface approach. Deep approaches to work allocation were based on an initial group analysis of the project requirements and members' strengths.

We delegated the tasks evenly after some general discussion and brainstorming in our first meeting.

We give specific tasks to each member and then give general tasks to every member.

Surface approaches to work allocation were less thoughtful, being based either on group member preferences or perceived percentage of the overall report length. The weakness with this approach (and the need for instructors to forewarn students about it) was revealed after groups encountered difficulties.

Upon our initial meeting we divided up the assignment into portions dependant on the length the responses where to be. Looking back we likely should have taken a closer look at what each portion entailed.

Regrouping project components into a single report was completed by either the group as a whole, or designated individuals. As we anticipated, the latter approach yielded problems, both from individuals who were left to assemble the (sometimes careless) work of others and from those who took more individual responsibility than other group members preferred. The following comments illustrate a drawback of this approach, as expressed from different perspectives by three members of the same group (names have been changed to disguise identities). “Kelly” believed that getting the whole group to write the final report together would lead to an inferior report, whereas other group members disagreed.

“Kelly”: I am not sure if it is something I personally need to work on, but I definitely was frustrated. At many times I felt like I was nagging while trying to get certain members to contribute. The group worked in mini teams of two...on some occasions I would complete a part, then ask my teammate to complete another part. I'd come back to see very little progress made and I ended up going back to work on it. I realize everyone has different priorities in life and that I have higher standards than some of my fellow group members when it comes to academics. I devoted extra time to improving their work and at times added vital information that was missed. Having each group member complete a separate part then simply combining them would have led to an inferior project. Unfortunately, I feel this issue probably occurred in several other groups. As long as group members have different priorities there will be inequalities in the effort put forth.

“Pat”: My group was interesting. Since the project was in between everyone’s midterms we got a late start. We did not even meet, “Kelly” sent us what we were supposed to do. He/she nagged us constantly to get it done. I think everyone was just frustrated with how he/she thought he/she could just tell us what to do. He/she wouldn’t explain things that I didn’t understand, he/she only would say “I’ll just do it, it will take me longer to explain it to you!”; which was kind of condescending. Overall it wasn’t terrible, just parts were frustrating because I wanted to help, offered a lot to help, but the way I did it was not good enough.

“Jordan”: I would say that overall I was disappointed in my group. We had some (early) problems and hoped to work them out. This however; did not happen. The individual in the group still assumed the role of delegating tasks and judged whether the work was sufficient. He/she criticized individuals for not contributing as much as he/she was, however when trying to contribute he/she would rather do it him/herself. The other 3 members in the group were fine to work with but the one individual I would not work with again. Overall it was a frustrating experience, despite getting the project done sufficiently.

What is particularly interesting about the preceding exchange is that group members did not disagree about their behaviors, but rather about the motivation for and perception of those behaviors. Clearly, this group's breakdown could have been averted through open, proactive communication.

DISCUSSION AND CONCLUSIONS

This paper provides an in-depth characterization of the student experience while working as group members who had been assigned a financial accounting course project. By manipulating the conditions under which groups were formed, we discovered several key ways in which group behavior is influenced by an instructor's decisions about group composition. We organize these consequences according to group inputs, processes, and outcomes. Through qualitative and quantitative analyses, we found that student-selected groups perceived greater similarities among group members, along several dimensions including backgrounds, interests, project commitment, and ability to succeed as a group. These similarities contributed to feelings of ease, comfort, and trust on which student-selected groups capitalized with quicker and smoother project start-ups than instructor-assigned groups. Student-selected groups also reported an easier ability to schedule meetings and, once there, greater participation and work sharing by members, with more supportive behaviors exhibited by group members. These student-selected groups learned to structure their work to create greater task interdependencies than instructor-assigned groups, resulting in what they perceived to be a better quality product and a cohesive group with better long-term viability. Interestingly, however, these differences in perception did not translate into detectable differences in group project grades.

After discovering that group formation method did not influence actual group achievement (as measured by group project grades), we sought to determine the factors associated with achievement. This exploratory analysis revealed that group achievement was associated strongly with the subsequent performance of individual group members and moderately with the extent to which group members had participated and created task interdependencies among their work assignments. We derive two messages from these findings. First, group experiences influence the development of individual competencies and subsequent performance on individual tasks. Second, the method of group formation is relatively unimportant compared to creating conditions that allow group members to bring their competence to bear on a project, and to enable the group to work together in a meaningful way. Guidance for creating these conditions is provided in the final section of this paper. This guidance is consistent with discussions by Bryant and Albring (2006) that encourage accounting educators to focus their attention on the processes of transforming mere *groups* into functioning *teams*.

Our final key finding, which emerged from the qualitative analyses, is that despite differences in group formation methods, all groups shared many similar experiences and outcomes. Two particular aspects of these common experiences and outcomes stood out. First, having endured many group meltdowns in prior years as instructors, we were struck by how positive the group experience proved to be for many of our participants. For the most part, they found the opportunity to work together enjoyable, enabling the development of important social bonds and personal responsibilities. Several students expressed appreciation in their journal reports for the opportunity to work on group projects.

I really enjoyed the discussion I had with my group mates. I'm an international student from China. I have not been taught the importance of teamwork in high school much. The project truly made me realize how much fun study could be. I learned a lot from my teammates, and enjoyed the heated discussions we had. Thanks for the opportunities for the experience.

Second, we uncovered insights into the various work strategies used by groups, which ranged from working as a single unit on all aspects of the project to allocating all project tasks, including assembly of the final report, to individuals. To our knowledge, no prior studies have identified these processes underlying the completion of group work. As discussed in the following section, this finding provides direction for future research.

Implications for Researchers

Like earlier studies of group work reviewed by Bryant and Albring (2006), our research confirms that the input-process-outcome model first proposed by McGrath (1964) continues to provide a useful framework for categorizing group experiences. A fruitful area for future research is to closely examine the links from one stage of the model to the next. Our qualitative analyses clearly revealed relationships between group inputs and processes, yet relationships between group processes and outcomes remained somewhat elusive. Future research that explains why differences in group processes, including the work strategies mentioned earlier, may not map into detectable differences in actual performance would provide an important addition to the literature.

The limitations of this study also provide directions for future research. First, the possibility exists that students who agreed to participate in our study are not completely representative of all students in financial accounting. Although performance assessments showed that participants were statistically indistinguishable from non-participants, the possibility still exists that they differed in subtle ways not revealed in grades. Another limitation is that students were allowed to form their own groups, prior to assigning the

remaining students to groups. Although this group formation procedure mimics the methods often followed by instructors in practice, the possibility exists that individuals who sought student-selected groups differed in important ways from other students and these differences were responsible for creating different perceptions about group inputs, processes, and outcomes. We did, in fact, find that individuals in student-selected groups outperformed their peers on the first assignment. We were comforted by finding that these differences did not appear in subsequent assignments or, in particular, the exams with which final project grades were correlated. Nonetheless, tighter controls through random assignment to group formation conditions would improve the validity of conclusions drawn from comparing student-selected and instructor-formed groups.

A final direction for future research arising from this study is to more thoroughly investigate the effects of work strategies on group experience and performance. As instructors, we struggle to advise students on the best approach, having little solid research evidence that indicates the consequences of choosing the all-for-one or divide-then-regroup strategies. We would not be surprised to find that the relative effectiveness of different strategies depends on a variety of different factors, such as the group's composition or the nature of the group project itself. Having identified that various work strategies exist, this study provides the foundation on which future research can build.

Implications for Teachers

Although we found that student-selected groups generally had a more positive group experience than instructor-formed groups, we resist the temptation to conclude that student-selection is the superior method for forming groups. An important achievement by individuals in instructor-formed groups involved learning to develop trust in others

with whom they had no prior contact. Indeed, one might view the development of trust as a superior outcome to the comparatively less challenging experience of maintaining the trust that already existed within student-selected groups. This perspective is consistent with those who assert that effective cooperative learning requires heterogeneous groups (e.g., Cottell and Mills 1993; Ravenscroft et al 1995). Our recommendation with regard to group formation method is that instructors choose the method that best suits their objectives. Our results suggest that student-selection will yield more harmonious group experiences, which some instructors might seek, whereas instructor-assigned groups are more likely to present social, communication, and organizational challenges that groups will need to overcome by exercising or developing team skills.

Our results confirm the importance of instructors actively intervening within groups to develop trust, promote participation, and create task interdependencies. Bryant and Albring (2006) provide several good ideas and templates that instructors can encourage groups to implement. Similarly, the case exercises presented by McConnell and Sasse (1999) provide an excellent vehicle for group members to reflect on the steps needed to transform group inputs into effective processes and quality outcomes. Finally, as we discovered in this study, journal reports also can supply instructors with valuable insight into group behavior, and may allow instructors to diagnose group difficulties and intervene before they erupt into irreconcilable problems.

A final outcome of this study that should assist instructors who assign group projects is the advice that is presented in the Appendix. This document captures many of the key observations arising from this study, but is written in a format that is likely to resonate with students. We have distributed this advice to our own students and other instructors,

and the feedback has been uniformly positive. In combination with group monitoring and assessment devices such as the templates presented in Bryant and Albring (2006), we believe this guidance will contribute to more cohesive, enjoyable, and effective group experiences. Exploring these effects remains yet another direction for future study, using the method of action research recently demonstrated by Cunningham (2008).

APPENDIX

Advice for Students

- **Know What You Want.** Talk with your teammates about the quality of work your team aspires to produce and the amount of commitment to reach that goal. What type of team do you want to be? Define the general rules by which the team will work. How will the team determine who does what? How often will you meet, and for how long? How will you keep in touch between meetings? Spending a few minutes at the start to put these “rules” in writing can save you much frustration and disappointment later.
- **Plan How to Get There.** Team projects can feel overwhelming at first, and you may be tempted to quickly split-up the work so that everyone can get started on it. Don’t do this. Take time to identify (a) the specific steps needed to complete the project, (b) the skills required at each step, and (c) the strengths of each team member. Two benefits of being in a team are that you don’t have to be an expert in everything and you don’t have to do it all yourself. So assign work to team members based on their strengths and workload, ensuring that everyone gets to do their fair share. Our research shows that teams earn better grades when everyone participates in a meaningful way.
- **Work as a Team.** Teams are more than just groups of people. To be a team, you must be committed to the same goal and be willing to “step up” when you can. Teams can accomplish much when working as a single unit, but not without the *individual* effort made by team members. Our research shows that the highest project grades are earned when team members work together bringing their skills and abilities to bear on each task.
- **Build the Team.** Teams rarely are perfect when they first start. It takes time to build the trust that is needed when relying on others. Help each other along by scheduling times to review each other’s work and to give constructive feedback on how it can be improved. As a team, assess the whole team’s performance and the openness of its communications. Do this often, and small difficulties will be less likely to turn into big problems.

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TABLE 1
Statements Included in Survey of Group Experiences

Group Inputs

1. Group Homogeneity

My team members are more like me than other students in the class.
My team members have skills and abilities that complement each other.

2. Goal Commitment

My team members are committed to pursuing the team's goal.
My team members think it is important to reach the team's goal.
My team members really care about achieving the team's goal.

3. Group Potency

My team has a lot of team spirit.
My team can take on nearly any task and complete it.
My team members are confident that the team can perform effectively.

Group Processes

4. Degree of Participation

As a team member, I have a real say in how we carry out our work.
Most team members get a chance to participate in decision making.

5. Workload Sharing

Everyone on my team does their fair share of the work.
No one in my team relies on other members to do the work for them.
All the members on my team contribute nearly equally to the work.

6. Task Interdependencies

I cannot accomplish my tasks without information or materials from other members of my team.
Other members of my team depend on me for information or materials needed to perform their tasks.
Within my team, jobs performed by team members are related to one another.

7. Supportive Behaviors

My team members cooperate to get the work done.
My team members help each other out with the work when needed.
My team members encourage each other to do a good job.
My team members recognize and value each member's contributions.
My team members care about team members' feelings and well-being.

Group Outcomes

8. Group Performance

The members of my team produce quality work.
The team is more productive than I would be as an individual.

9. Group Viability

My team members adjust to changes that occur in our work situation.
When a problem occurs, our team manages to solve it.
The members of my team could work a long time together.