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Indiana University Instructional Systems Technology (IST) Graduate Student Attitudes Towards Group Work

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Introduction

“Groups . . . hold the key to solving such societal problems as racism, sexism, and international conflict. Because groups are the building blocks of society any attempt to change society will succeed only if the groups within that society change (Forsyth, 1999, p. xi).”

“Madness is the exception in individuals but the rule in groups (Nietzsche, quoted in Forsyth, 1999, p. 28).”

These two quotes illustrate a range of viewpoints regarding the potential that groups have for both benefit and harm. Each of us, perhaps without often consciously realizing it, belongs to many different groups. These groups might be formed within the context of family, work, school, church, or any of a number of other social settings (Nelson, 1999). In modern society, groups are an integral part of daily life.

In addition to the many formal and informal groups to which we belong (and often take for granted), business organizations are increasingly recognizing the benefits that can be accrued through group work, and are consciously organizing work teams for the express purpose of tackling specific projects. Studies have indicated that as many as half of all employees in the United States belong to at least one group at their work, and that as many as 80% of the largest organizations in the country use teams to complete work (Forsyth, 1999). This emphasis on teamwork in large organizations has created a need within these companies to seek out individuals who have the skills and attitudes conducive to effective group work (Gardner & Korth, 1998). It has been suggested that one way to prepare future employees for such a work environment is by having them work in groups in academic settings (Thomas, 2001).

Group work is believed to be beneficial not only in a work environment, but also to have many positive results in academic settings (Davis, 1993). Past research has emphasized that group work allows students to explore a diversity of opinions, better retain learned information, and efficiently tackle projects too large to effectively handle on an individual basis (Gatfield, 1999). Other research suggests that in certain situations, group work is linked to an increase in students’ confidence levels (DePree, 1998; Thomas, 2001).

In response to the growing demand for graduates who can effectively work in teams, and in light of research that suggests educational benefits resulting from group work, many educational institutions are shifting from traditional teaching methods which have often relied exclusively on individual work, to methods which integrate group academic work. For example, college programs as diverse as educational counseling (Anderson & Price, 2001) and business (Gardner & Korth, 1998) are exploring the potential benefits that their students might receive through participation in groups. It has come to the point, as noted by Houldsworth & Mathews (2000), that it is quite uncommon for a student receiving an undergraduate degree to not have worked in an academic group at some point in his or her education.
With this proliferation of group work in schools there has been a great deal of research regarding the beneficial impacts of groups on learning. As suggested above, many of these studies have suggested that there are significant beneficial results in group work (see Davis, 1993). However, comparatively speaking, there has been less research conducted to investigate the attitudes and perceptions of students with regards to group work.

**Literature Review**

Despite the benefits that research suggests can be accrued through academic group work, it is reasonable to expect that there would be some diversity of opinion among students regarding the requirement that they participate in groups to complete academic work. For example, in a recent article concerning academic group work, the author noted that it is common for students to not enjoy group work (Butts, 2000). This leads a potential instructor to a certain dilemma: If group work is demonstrated to have highly beneficial results, it would seem wise to incorporate group work into the curriculum. However, if students routinely dislike group work, and if these negative attitudes are linked to a diminished effectiveness of such groups, the instructor might be understandably reluctant to use group work. If we hope to improve student attitudes toward group work, it is important to first explore the issues that might influence such attitudes. This information might then be used to address student concerns and to explore possible techniques for improving students’ attitudes and groups’ effectiveness.

Recent research regarding student attitudes towards group work suggests that these attitudes might be influenced by a number of factors. Roughly speaking, these factors could be divided into two broad categories: first, those characteristics which are unique to the individuals which comprise the group (i.e., gender, or education level), and second, those characteristics which belong to the group as a unit (i.e., the interpersonal relationships that develop over time within the group, and the division of labor).

There have recently been a number of studies that have investigated the potential links between individual student characteristics and attitudes towards group work. For example, Gatfield (1999) sought to better understand the diversity of opinions regarding group work by investigating whether or not attitudes vary systematically with such characteristics as age, gender, and ethnicity. He found that ethnicity (Australian vs. international) seemed to be linked to significant differences in attitude, but that factors such as age and gender were not. In a similar spirit, Gardner & Korth (1998) sought to understand if attitudes toward group work varied according to individual learning style preference. They found that there were a large number of statistically significant differences; in other words, student attitudes about group work and preferred instructional methods seemed to vary systematically with their individual learning style.
Other studies, although they do not specifically emphasize student attitudes, contribute to this research because they explore a number of conditions that are thought to influence the effectiveness of group work. Some of this research has examined group composition in an effort to understand the group as a unit. For example, Houldsworth & Mathews (2000) found that heterogeneous groups (those having a diversity in gender, age, and experience) performed more consistently than homogenous groups (those in which the members were more similar to one another). On a similar topic, but perhaps suggesting a different conclusion, VanOffenbeek (2001) was not able to find a significant correlation between team performance and the degree of diversity of opinion (regarding the task to be completed) among group members. Based on the assumption that student attitude toward group work may be linked to the degree to which students feel that their efforts are effective and lead to desired results, the study below will investigate issues pertaining to the diversity of group composition.

Another significant issue pertaining to a group is the interpersonal interactions that develop among its members. These interactions are important in the way that the tasks are divided among individuals in the group. While individual projects are usually the sole responsibility of one person (and the consequences of the project are directly linked to that individual), group projects are the joint responsibility of several individuals (and the consequences of the quality of the project are thus suffered or enjoyed by all). The nature of team work can lead to increased effectiveness and more creative solutions, but the unique conditions imposed by such work can also be conducive to negative, undesirable consequences. Phenomena such as “social loafing” (where a student limits his or her efforts) and the “sucker effect” (where a student pulls back from contributing because he or she feels taken advantage of) can influence the effectiveness and quality of a group’s work (Houldsworth & Mathews, 2000). In a 1996 article, Kempa & Orion reported that a large minority of their sample responded that they felt they were contributors to, rather than beneficiaries of, the group process. Additionally, some of these students judged the extent of their learning from group work as low or very low.

Another related issue that arises in academic group work is that of evaluation. Traditional, individual projects are easy to ascribe to one student (assuming that the student has not violated academic honesty by turning in someone else’s work). However, when evaluating a group project, the instructor faces a more difficult problem (Strom & Strom, 2002). He or she must decide whether or not all the students should receive the same grade, and, if students are to receive different grades, the instructor must have some system in place for determining how to differentiate the contribution of one student from that of his or her group peers. This has opened the door to some creative forms of assessment, such as peer assessment (see Gatfield, 1999). Because evaluation (grades) play an important role in a students’ success, it is important to examine student attitudes regarding the grading of their group work.
Statement of Problem and Research Questions

Given the emphasis on group work in academic settings, it is important to understand student attitudes towards group work; perhaps the most compelling reason for such an investigation is the research that indicates that such attitudes are indicators of academic success for both the individuals within the group and the group as a whole (Freeman, 1996).

Specifically, the study sought to describe the attitudes of IST graduate students toward group work by answering four research questions:

1. Do graduate students in IST enjoy or not enjoy working in groups on graded projects?
2. What are the reasons that graduate students enjoy or do not enjoy group work?
3. Whether the students enjoy group work or not, do they perceive that group work is more valuable than working independently?
4. Is the students’ preference or non-preference of group work related to the student’s degree level (master’s or Ph.D.), gender, ethnicity, or prior experience with group work?

The target audience for the study was graduate students in Indiana University’s Instructional Systems Technology (IST) program. Thus, our endogenous variable is the attitudes of IST graduate students towards group work. The exogenous variables are the various factors influencing those attitudes.

Operationalization of Variables

The exact definition of attitude is debatable, but “there is substantial agreement that affect for or against is a critical component of the attitude concept. (Mueller, 1986)” In our study, attitude is operationalized as like or dislike of group work, as self-reported by students using a series of Likert scale questions. The students are operationalized as master's or Ph.D. level students who have not yet graduated with a degree. Group work is operationalized as academic work that is created and submitted for a grade by a group of two or more students. The individuals may receive the same grade or different grades based on participation, but the creation of the final product involves the group working together.

Hypothesis

Based on personal experiences, the review of the literature, and refinement of the problem statement and research questions, the researched team hypothesized that while the majority of IST graduate students would consider group work a valuable part of the curriculum, they feel there is an overemphasis on group projects.
Methods

Procedures

The research team created a survey instrument after a review and analysis of the literature. The team sought to incorporate variables that had been considered important factors in attitudes towards group work in other studies. The initial list of variables included like or dislike of group work, roles and division of labor (including the “sucker effect” and “social loafing”), grading, group selection, group composition, perception of academic value of group work, and positive versus negative experiences with group work.

Other variables that were examined but rejected for the final survey were learning style, interpersonal skills, and perception of contribution (e.g. contributor versus beneficiary). These variables either appeared in fewer studies or the team concluded that they would be difficult to validly measure using only one or three or four survey questions.

The team also included appropriate demographic questions to allow for group comparisons to answer the stated research questions.

The initial survey questions, grouped by subscale, are shown in enclosure (1).

Data was collected using Transform, a web-based survey instrument available at Indiana University. This allowed data to be collected efficiently, confidentially and anonymously. Paper surveys and emails were also considered as data collection means, but rejected using the same criteria. Anonymity was considered especially important to insure frank responses to the questions. One drawback to the web survey, however, was that the research team could not guarantee that individuals did not submit the form more than once.

First, a draft survey was created and pilot-tested. Based on feedback from the pilot, the survey was modified for the final administration to the target audience.

Pilot testing.

The original web-based survey was pilot tested with graduate students in the IPT (Instructional and Performance Technology) program at Brigham Young University over the period of October 31 to November 3, 2002. An introductory email with a link to the survey was posted to the IPT program listserv, asking students to complete the instrument. Prior permission and access to post to the list had been requested and granted. No incentives were offered to respondents beyond a copy of the study results and contributing to the knowledge base in this area.
There were 30 responses to the pilot survey. The comments provided by the students in the pilot survey, along with additional input from instructors in the BYU IPT program, enabled the research team to make modifications to the instrument to make it more effective. The demographics of the pilot sample were as follows:

- **Ethnicity:** 28 White, 1 Asian, 1 Non-response
- **Gender:** 15 Male, 15 Female
- **Degree Level:** 18 Ph. D., 12 Masters
- **Experience with group work:**
  - 0-1 Year: 3
  - 2-3 Years: 1
  - 4-5 Years: 5
  - 5+ Years: 21.

Key themes in the BYU feedback were as follows:

- Lack of specificity/context in the questions, leading to an “it depends” answer
- Redundant questions (some equal and opposite) in the subscales
- Ambiguity in individual questions, making it difficult for respondent to identify what exactly was being measured
- Lack of standardization in the way certain questions were asked within a given subscale
- Difficulty with the “Positive vs. Negative Experience With Group Work” subscale of questions…reported to be too vague & conflicting, didn’t seem to be asking an answerable question
- Difficulty with the meaning of the word “satisfying”
- Overlap in the answers of the “years of experience” demographic question
- Perceived irrelevance of some questions (in the opinion of the respondent)
- Issue with the actual format of the survey – too much space between “5” column and other columns.

The comments provided by the BYU students and staff are attached as enclosures (2) and (3).

Due to the compressed nature of the timeline for this survey effort, the team did not undertake a thorough statistical analysis of the pilot survey instrument. Likewise, the team’s lack of detailed knowledge of statistical procedures and the use of SPSS (at the time of the pilot survey) ruled out a significant overhaul of the survey instrument due to the inability to evaluate the validity of many of the suggestions made by the pilot sample. Instead, two modifications were made to the survey to take advantage of the BYU feedback:

- Fixed visual presentation issue
- Elimination of difficult “Positive vs. Negative Experience With Group Work” subscale questions and replacement with a single categorical response question using a Likert-scale
The team was confident that the objective of describing graduate student attitudes toward group work and identifying areas for further study would still be accomplished using the revised instrument.

Survey administration.

The final web-based survey was administered with graduate students in the Instructional Systems Technology (IST) program at Indiana University over the period of November 4 to November 6, 2002. An introductory email with a link to the survey (http://mentor.ucs.indiana.edu/~r547059/Group_Work_Survey_iu.html) was posted to the IST program listserv, asking students to complete the instrument. Prior permission and access to post to the list had been requested and granted. No incentives were offered to respondents beyond a copy of the study results and contributing to the knowledge base in this area.

Subjects

The target audience for the study was graduate students in Indiana University’s Instructional Systems Technology (IST) program. A convenience sample of 30 current IST students completed the survey instrument measuring their attitudes towards group work.

Instrument

The final survey, after pilot revisions, consisted of 35 Likert-scale questions, one multiple-choice question, four demographic questions, and an open-ended response. The 35 Likert scale questions used a 5-item rating scale (Strongly Disagree to Strongly Agree), and were divided into subscales based on the final variables the research team had decided upon after the literature review (and modified after piloting). Scales were reversed on some questions to avoid respondents marking the same rating for each question, however, negatively worded questions were avoided to minimize confusion.

All questions that measured the same subscales were grouped together (although a subscale label was not included). If this survey were to be administered again, it would be preferable to scramble the questions so that respondents were not answering several consecutive questions about the same subscale.

Each subscale was also analyzed for reliability by computing Cronbach’s alpha. Nine of the twelve final subscales had .70 reliability or better.

The final instrument used to collect the data is enclosure (4).
Data Analysis and Findings

Overview

The numerical data collected from the final survey was imported from a text file used by the Transform software into SPSS for analysis. After an initial analysis and cleaning of the data, the software was used to compute descriptive statistics (including frequencies, means, reliabilities of subscales, correlations between subscales) and inferential statistics (a comparison of means between demographic groups on the main preference for group work subscale). This data, along with the qualitative information provided in open-ended survey comment question, was used to shed some light on the attitudes of IST students at Indiana University toward group work and to point out areas for further study.

Descriptive Statistics

Data cleaning.

In SPSS, the questions with reversed scales were recoded to insure a consistent scale throughout the survey. Several subscale variables were also created to reflect the aggregation of the various survey questions into relevant categories for analysis.

Skewness and kurtosis statistics were also calculated, but the research team did not have the experience to make any valid judgments regarding the meaning of these statistics.

The data was also analyzed for aberrant or missing items. This analysis resulted in two findings. First, several of the subscales had been created incorrectly. This became apparent when studying the maximum values for the mean in several subscales. These variables were re-created correctly. Second, some data was found to be missing. The research team had not constructed the Web-based survey instrument to require an answer to every question. It was felt that respondents should not be forced to answer a question; furthermore forcing them to answer a question might result in them not replying at all to the survey. In the final data set, however, the number of missing responses from individual records was quite small; much less than five percent. Since this was well below the fifteen percent threshold mentioned in class, the team decided to simply ignore missing data for our analysis.
Frequencies.

There were 30 respondents to the survey, broken down as follows:

- Ethnicity: 23 White, 4 Asian, 1 African American, 1 Hispanic, 1 Non-response
- Gender: 20 Male, 10 Female
- Degree Level: 21 PhD, 9 Masters
- Experience with group work:
  - 0-1 Year: 1
  - 2-3 Years: 5
  - 4-5 Years: 5
  - +5 Years: 19

Reliability analysis.

In order to establish the internal reliability of our survey instrument, the following Cronbach’s Alpha calculations were made for each of the subscales:

- Preference: .921
- Enjoyment: .702
- Satisfaction: .435
- Grading Concerns: .761
- Perception of Academic Impact: .815
- Perception of Utility: .900
- Group Selection: .640
- Group Composition: .909
- Amount of Emphasis: .863
- Basis of Attitude: .964
- Social Loafing: .709
- Sucker Effect: .440

With the exception of the italicized subscales above, the team was confident that the internal reliability was sufficient for our purposes in this inquiry. If this instrument were to be for more rigorous educational research, these reliability scores would be good starting points for revision. For example, questions that contribute to lower overall reliability for a subscale would be eliminated. The low reliabilities of certain subscales were taken into account in the degree of confidence in the study findings.

The Cronbach’s Alpha calculations for the items above are enclosure (5).

Subscale means.

The mean for each subscale (on the 5-point Likert scale) are indicated in the table below:
Table 1  
*Subscale Means* The complete descriptive statistics data and graphs for the subscale items above are attached as enclosure (6).

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean</th>
</tr>
</thead>
</table>
| Preference  
(5 indicates high preference toward working in groups)   | 2.91 |
| Enjoyment of Group Work  
(5 indicates high level of enjoyment of group work) | 2.94 |
| Satisfaction From Group Work  
(5 indicates high level of satisfaction from group work) | 2.85 |
| Grading Concerns of Group Work  
(5 indicates high level of concern about individual grades being dependent on group performance) | 2.59 |
| Perception of Academic Impact of Group Work  
(5 indicates high value of group work from an academic standpoint) | 3.30 |
| Perception of Utility of Group Work  
(5 indicates high utility of group work in terms of relevance to and preparation for the real world) | 3.63 |
| Group Selection  
(5 indicates high preference of randomly assigned groups vs groups assigned based on characteristics) | 2.24 |
| Group Composition  
(5 indicates high preference for group diversity vs. similarity) | 3.53 |
| Amount of Emphasis on Group Work  
(5 indicates high overemphasis on group work in the IST department) | 3.27 |
| Basis of Attitude Toward Group Work  
(5 indicates that the majority of respondents’ experience w/ group work has been positive) | 2.95 |
| Social Loafing  
(5 indicates high tendency to expend less individual effort when working in a group) | 2.27 |
| Sucker Effect  
(5 indicates high tendency of respondents to reduce level of effort when they sense they are working the hardest in the group) | 2.28 |
Subscale correlations.

The research team calculated the correlations between each subscale. The correlations are listed below (Significance: * = 0.05 level, two-tailed; ** = 0.01 level, two-tailed):

Table 2
Correlations Between Subscales

<table>
<thead>
<tr>
<th>Subscales Correlation</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preference w/ Enjoyment</td>
<td>.844**</td>
</tr>
<tr>
<td>Preference w/ Satisfaction</td>
<td>.658**</td>
</tr>
<tr>
<td>Preference w/ Grading Concerns</td>
<td>.563**</td>
</tr>
<tr>
<td>Preference w/ Perception of Academic Impact</td>
<td>.640**</td>
</tr>
<tr>
<td>Preference w/ Perception of Utility</td>
<td>.392*</td>
</tr>
<tr>
<td>Preference w/ Amount of Emphasis</td>
<td>-.626**</td>
</tr>
<tr>
<td>Enjoyment w/ Satisfaction</td>
<td>.725**</td>
</tr>
<tr>
<td>Enjoyment w/ Grading Concerns</td>
<td>.482**</td>
</tr>
<tr>
<td>Enjoyment w/ Perception of Academic Impact</td>
<td>.574**</td>
</tr>
<tr>
<td>Enjoyment w/ Amount of Emphasis</td>
<td>-.612**</td>
</tr>
<tr>
<td>Satisfaction w/ Grading Concerns</td>
<td>.406*</td>
</tr>
<tr>
<td>Satisfaction w/ Perception of Academic Impact</td>
<td>.663**</td>
</tr>
<tr>
<td>Grading Concerns w/ Perception of Academic Impact</td>
<td>.525**</td>
</tr>
<tr>
<td>Grading Concerns w/ Group Selection</td>
<td>-.364*</td>
</tr>
<tr>
<td>Grading Concerns w/ Amount of Emphasis</td>
<td>-.516**</td>
</tr>
<tr>
<td>Perception of Academic Impact w/ Perception of Utility</td>
<td>.447*</td>
</tr>
<tr>
<td>Perception of Academic Impact w/ Amount of Emphasis</td>
<td>-.511**</td>
</tr>
<tr>
<td>Perception of Utility w/ Group Selection</td>
<td>-.394*</td>
</tr>
<tr>
<td>Perception of Utility w/ Group Composition</td>
<td>.376*</td>
</tr>
<tr>
<td>Group Selection w/ Group Composition</td>
<td>-.591**</td>
</tr>
<tr>
<td>Social Loafing w/ Sucker Effect</td>
<td>.661**</td>
</tr>
</tbody>
</table>

The coefficient chart for the above items is enclosure (7).
**Inferential Statistics**

*Comparison of means.*

The team also conducted means comparisons between the main Preference for Group Work subscale and the demographic survey questions related to student’s degree level (master’s or Ph.D.), gender, and ethnicity. A means comparison was also made to the prior experience with group work survey question. The results are shown below.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basis of Group Work Attitude</td>
<td>.051</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>.457</td>
</tr>
<tr>
<td>Gender</td>
<td>.556</td>
</tr>
<tr>
<td>Degree Pursued</td>
<td>.038</td>
</tr>
<tr>
<td>Previous Experience with Group Work</td>
<td>.564</td>
</tr>
</tbody>
</table>

The SPSS output for our means comparisons is enclosure (8).

**Qualitative Data**

Several themes emerged from the survey responses on the open-ended comment question. They can best be summarized as follows:

- A lot of the answers in the survey are reliant on context…the answer would be “it depends.”
- Difficulties arise due to cultural differences between international and domestic students.
- Difficulties arise due to language challenges faced by international students.
- Group work in IST is not representative of group work in the “real world.”
- The IST Department needs to better support group work, and implement it more carefully and purposefully.
- Group work can result in greater learning and creativity.

It is relevant to note that one IST student who declined to participate approached a member of the research team to say that they did not intend to complete the survey because they had been “so traumatized” by a group experience that they did not want to relive it. The text of the survey respondents is enclosure (9).
Findings

The statistical data for each of the 12 subscales did not indicate the feelings of the graduate students in the IST program as strongly as we would have hoped. Most of the mean scores for each subscale hovered right around the “3” score (particularly on the main subscales of Preference, Enjoyment, and Satisfaction) indicating ambivalence at best and lack of any opinion at worst. It should be noted, however, that there is a relatively strong indication (3.63) that IST graduate students perceive the utility of group work in preparing them for real-world situations (qualitative comments notwithstanding). Likewise, the statistical data indicate a relatively high preference (3.53) for diversity in groups as measured by the highly reliable “Group Composition” subscale. It was encouraging to see relatively low scores on the measures of Social Loafing and the Sucker Effect (2.27 and 2.28 respectively).

There are also some interesting correlations that are found in the data. The Preference subscale was correlated positively with Enjoyment, Satisfaction, Perception of Academic Impact, and Perception of Utility. While a cause and effect relationship cannot be determined between Preference and these other subscales, it seems logical that a student would prefer an academic endeavor that they perceive to result in enjoyment, satisfaction, positive academic results, and increased achievement in real-world activities. On the other side of the coin, someone who prefers a given academic activity might indicate that the activity is more enjoyable, satisfying, and useful to justify that preference to him/herself. In any event, the strength of the correlation of these subscales gives the team more confidence in the instrument from a logical perspective.

Preference was negatively correlated with Amount of Emphasis, which is also logical since someone who indicates a preference for group work could be expected to also believe that the IST Department does NOT overemphasize group work. Looking at it the other way, if respondents felt that group work was overemphasized, one could imagine that they would be “turned off” by it and indicate less of a preference.

The subscale Grading Concerns was correlated positively with Preference, Enjoyment, and Perception of Academic Impact, and negatively with Group Selection and Amount of Emphasis. The relative lack of strength of these correlations and the lack of any logical pattern indicates that there is no real conclusion to be drawn from it.

The last correlation of note is that between Social Loafing and the Sucker Effect (.661). The team expected this correlation to be stronger, since it would make sense that a respondent who was likely to decrease in productivity when not being individually evaluated would also tend to pull back their effort if they perceived that they were working harder than everyone else. This discrepancy could indicate that these two particular group dynamics are not as strongly related as assumed, or that the relatively low reliability of the Sucker Effect subscale negatively impacted the data.
Conclusions

Based on the data analysis and the findings, the research team reached the following conclusions regarding the initial research questions.

1. Do graduate students in IST enjoy or not enjoy working in groups on graded projects?

The statistical data from the Preference and Enjoyment subscales are not strong enough to indicate one way or the other. This could be an effect of the issue raised in the qualitative comment section that the questions were difficult to answer without a context. The averages close to 3 may really just mean “it depends”.

2. What are the reasons that graduate students do not enjoy group work?

As discussed above, the team could very well hypothesize (based on the correlation calculations) that the Enjoyment, Satisfaction, Academic Impact, and Utility subscales all measure factors that lead to a Preference toward group work. Likewise, the perception of emphasis/overemphasis on group work by the IST Department appears to be related to Preference, in the sense that a respondent indicating a higher preference would be less likely to indicate that there is an overemphasis. From the qualitative responses, issues impacting enjoyment of group work would also include resolution of cultural and language challenges, proper implementation and support of group work by the IST Department, and use of group work to encourage creativity.

3. Whether the students enjoy group work or not, do they perceive that group work is more valuable rather than working independently?

The statistical data indicate that there is a perception of group work as having a greater utility: that is it is valuable in preparing for real-world situations. The data also indicate that students perceive group work as having a positive academic impact; that is group work produces a better final product.

Both the subscales of Perception and Enjoyment are positively correlated with Perception of Academic Impact of Group Work. This leads the research team to hypothesize that there is a link between students’ preference/enjoyment of group work and the perception that it has learning value.

4. Is the students’ preference or non-preference of group work related to the student’s degree level (master’s or Ph.D.), gender, ethnicity, or prior experience with group work?

The comparison of means indicate that student preference or non-preference for group work does not significantly differ based on gender, ethnicity, or prior experience with group work. However, significant differences were found at the .05 level for both the Basis of Attitude Towards Group Work subscale and the Degree Pursued subscale. For the basis of attitude variable, it might be reasonable to suggest that students who base
their attitudes towards group work on negative experiences would indeed be significantly different from students who base their attitude on positive experiences, in terms of preference. Likewise, it seems intuitive to say that Ph. D. students, having slightly more experience with group work, might prefer it more. However, if this were the case, the research team would have also expected a significant difference to be found on the prior experience subscale, which was not the case. Overall, the research team does not feel confident in hypothesizing a relationship based on these comparisons due to inexperience with inferential statistics, and also based on the total sample size of 30 students. This sample was extremely small to begin, making the individual demographic sub-samples even smaller.

**Hypothesis Confirmation**

The data seems to support the research team’s initial hypothesis that while the majority of IST graduate students would consider group work a valuable part of the curriculum, they feel there is an overemphasis on group projects. The conclusions reached for Research Question 3 support the first part of this hypothesis, while the mean score of 3.27 on the Amount of Emphasis lend credibility to the second claim.

**Implications for Further Study**

Reliability and weak correlation issues in some subscales indicate that the survey instrument would need some refinement for future administration to this or other samples. Likewise, the relatively small number of respondents hampered the ability to make any strong conclusions or generalizations. The survey did, however, raise some interesting points for further study:

- Is preference toward or against group work directly a result of the level of enjoyment, satisfaction, academic impact, and utility it possesses? Which of these factors most strongly impacts a student’s preference for or against group work?
- To what degree are the concerns that a student has about being graded on group work related to the other subscales in the study? Does the manner in which students are graded on group work (individual grade components or strictly group grade) impact preference or other subscales? What about if grades were not an issue, would attitudes toward group work change?
- Are the differences on preference by basis of attitude towards group work and by degree level really significant, or was small sample size a factor in this finding?
- Are the phenomena of Social Loafing and the Sucker Effect indeed related? Can students demonstrate one effect but not the other in a group situation?
Enclosures

(1) Initial survey questions, grouped by subscale
(2) Pilot survey open-ended responses
(3) BYU faculty member comments regarding pilot test survey
(4) Final survey instrument
(5) Statistics data & graphs for 12 subscales
(6) Correlation coefficient calculations for 12 subscales
(7) Comparison of means SPSS output
(8) Cronbach’s Alpha calculations for 12 subscales
(9) Final survey open-ended responses
References


